Australian Heritage Database

Places for Decision

Class : Historic

Identification

List:	**National Heritage List**
Name of Place:	Great North Road
Other Names:	
Place ID:	105961
File No:	1/14/051/0021
Primary Nominator:	
Nomination Date:	30/01/2007
Principal Group:	Road Transport

Status

Legal Status:	30/01/2007 - Nominated place
Admin Status:	26/07/2006 - Under assessment by AHC--Australian place

Assessment

Recommendation:	
Assessor's Comments:	
Other Assessments:	:

Location

Nearest Town:	Wisemans Ferry
Distance from town (km):	1
Direction from town:	E
Area (ha):	120
Address:	The Old Great Northern Rd, Wisemans Ferry, NSW 2775
LGA:	Hawkesbury City NSW

Location/Boundaries:

About 120ha, 1km north-east of Wisemans Ferry, comprising an area bounded by a line commencing at the intersection of The Old Great Northern Road and an unnamed road (approximate MGA point E 313175 N 6306540), then southerly via a 70m offset to the east of the unnamed track to its intersection with the Wiseman Geodetic Station (approximate MGA point E 313211 N 6305417), then south easterly via a ridgeline to its intersection with MGA northing 6304668mN (approximate MGA point E 313806 N 6304668), then directly to an unnamed creek at approximate MGA point E 313905 N 6304566, then south easterly via the middle thread of the unnamed creek to its

intersection with the western side of an unnamed track (approximate MGA point E 314207 N 6304034), then southerly via the western side of the unnamed track to its intersection with the Dharug National Park boundary (approximate MGA point E 314456 N 6303225), then westerly and northerly via the park boundary to the intersection of The Old Great Northern Road and Settlers Road, then northerly via The Great Old Northern Road to the point of commencement.

Assessor's Summary of Significance:
Finch's Line and the Devine's Hill ascent are important as a particularly challenging segment of the 250km long Great North Road. The road, built with convict labour, was commenced in 1826 and completed in 1836. This segment of the Great North Road contains a rich array of features associated with convict road building, including traces of the first road, known as Finch's Line constructed in 1827-8, the later road re-alignment ascending Devine's Hill built between 1829-32, the archaeological remains of a convict stockade which housed convicts during the building of the road, the landscape setting of the roads including the massive retaining walls and buttresses on Devine's Hill, culverts and the landscape along the roads and between the routes.

Governor Darling promoted the building of roads to assist in the development of the colony. Built as one of the Governor's three 'Great Roads', it linked Castle Hill just west of Sydney to the fertile Hunter Valley. It is important in the story of major public works developed during the colonial administration using convict labour directed by the government surveyors and road engineers, one of whom Darling had brought to Australia.

The Great North Road is also important for its role in the story of convict punishment. The system of using convicts in work gangs was a form of additional punishment, often for offences committed in the colony and known as secondary punishment. Convicts were worked in irons and it was a particularly harsh form of punishment deliberately designed to deter criminal activity in Britain and in the colonies.

The road's monumental buttressed retaining walls and the associated drainage system on Devine's Hill are an impressive example of the ambitious and exacting nature of work that involved surveying, engineering, quarrying and masonry carried out by the convict gangs under the direction of the engineers, also responsible for convict management. The road works demonstrate a high level of technical achievement.

The Great North Road set in the natural landscape is a rare surviving example of a convict road. The massive structural works remain in their unaltered bushland setting intact and with high integrity. The survival of these features in their isolated natural bushland setting and harsh environment provides a sense of the conditions in which the convict labourers in the road gangs toiled. The Great North Road is rare for the intactness of the surviving features, the roadways, buttresses, retaining walls and culverts and the unchanged environment where they are to be found.

The Great North Road landscape is rare surviving example of a convict road with massive structural works. The extant massive structural features have high integrity.

There is also a rare collection of features such as the 25 Road Party Inscription, the

powder magazine, a cave at Devine's Hill used during the works, convict graffiti including a carving of a man with a hat and pipe and the remains of a stockade where the convicts were housed. This collection enhances the rarity of the Great North Road as they are unique to the place.

The Great North Road demonstrates the surveying and engineering skills of the colonial government through the innovative colonial road building technology used in meeting the challenges posed by the rugged, steep hills particularly the massive retaining walls, their side drains and culverts. The presence of powder magazines and road cuttings through rock provide evidence of blasting techniques employed during the road building works.

The landscape with the road works and stockade site in their natural landscape setting provide information about the work practices and living conditions of the convict labourers and their supervisors. The engraved '25 R. Party' and the convict graffiti rock carving are evocative links to the people involved in the works.

The Great North Road landscape along with the artefacts from the area, is a comparatively rich array of varied features without discordant elements that tells the story of convict punishment and achievement.

The surviving road works around Devine's Hill show a high level of technical achievement in the engineering and stone building works of the massive retaining walls and associated drainage system. The works required substantial cut and fill operations with massive stone abutments to support the road on the steep hill slopes, all carried out with enforced manual labour. The high level of skilled masonry work is evident in the structures.

The segment of the Great North Road illustrates the introduction and use of the most up-to-date European principles of road engineering in the colonies.

The Great North Road is strongly associated with the local communities. The strength of community support is shown in the Convict Trail Project, set up by two local communities in 1995 and which built on existing community involvement in initiatives to conserve the local area.

The Convict Trail Project has become an over-arching body that draws together all parties with an interest in the Great North Road, including community, government, research and heritage professionals. It has been nationally recognised as one of the most successful community-based heritage organisations.

Draft Values:

Criterion	***Values***	***Rating***
A Events, Processes	The place is a particularly challenging 7.5 km segment of the 250 km long Great North Road which took over ten years to complete (1826-36). This 7.5 km section of the road which includes both Finch's Line built between 1827-28 and the realigned road ascending Devine's Hill built between 1829-32, provides evidence of the transition of New South Wales	AT

	from a penal colony to a permanent settlement. The place provides an excellent representation of the extensive road building undertaken by Governor Ralph Darling to expand the colony, provide transportation and communication links with dispersed settlements, and provide harsh punishment for convicts. The road gangs were a form of secondary punishment with the worst convicts working in irons in isolated and harsh conditions for months at a time. The road gangs served to maintain order within the settlements and were intended to dissuade criminal activity in Britain and rebut the views that transportation was desirable. The road works particularly the realignment component with its massive structural works illustrate the ambitious and exacting nature of the work that involved surveying, engineering, quarrying and masonry as well as convict management. The presence of powder magazines and road cuttings through rock are evidence of blasting techniques employed in the works. The setting landscape with the road works and stockade indicates the work practices and living conditions of convict labourers and their supervisors. The engraved '25 R. Party' and the convict graffiti rock carving convey an evocative link to the people involved in the works.	
B Rarity	The Great North Road landscape is a rare surviving example of an intact early convict road with massive structural works which remains undisturbed by later development on or around the road. The unchanged natural bushland setting conveys the sense of place as it existed at the time of construction. The rarity of the place is due to the place retaining a comparatively rich array of structural features and construction elements, including the original alignment of both the road and Finch's Line, the retaining walls with their abutments, cuttings, embankments, quarry sites and drains. The rarity is also enhanced by a range of unique features such as the '25 R. Party' inscription, the powder magazine, a cave at Devine's Hill used during the works, convict graffiti including a carving of a man with a hat and pipe, and the remains of a hut and of a stockade.	AT
F Creative or technical achievement	The extant road works and associated construction sites around Devine's Hill demonstrate a high level of technical achievement in surveying, road engineering and masonry	AT

	works for the time in the rugged topography. The road construction represents a significant technical challenge solved by substantial cut and fill operations, the use of massive dry stone retaining walls up to 9.5 m in height and the construction of an extensive drainage system. Stone abutments support the road on the steep hill slopes and the complex drainage system was an essential part of the design solution to overcome terrain conditions in the bushland environment.	
G Social value	The place has strong associations with the local community as evidenced by the Convict Trail Project which two local communities instigated twelve years ago by building on existing community involvement in initiatives to preserve the local area. The Convict Trail Project has become an over-arching body that draws together all parties with an interest in the Great North Road, including community, government, research and heritage professionals. It has been nationally recognised as one of the most successful community-based heritage organisations.	AT

Historic Themes:
Group: 02 Peopling Australia
Themes: 02.03 Coming to Australia as a punishment
Sub-Themes:

Group: 03 Developing local, regional and national economies
Themes: 03.08 Moving goods and people
Sub-Themes: 03.08.07 Building and maintaining roads

Nominator's Summary of Significance:

Description:
The convict built Great North Road runs in a generally northward direction from Sydney for some 250 kilometres to Jerry's Plains in the Hunter Valley. Northward from Dural the road runs through farmland to the Hawkesbury River at Wiseman's Ferry. On the northern side of the Hawkesbury River the terrain rises steeply to a heavily dissected sandstone plateau cut by rivers, creeks and ravines. The road rises from the Hawkesbury via the Devine's Hill ascent to the plateau and then follows the narrow ridge-top of the Judge Dowling Range before descending at its northern end to the rich lands of the Hunter River Valley. Devine's Hill precinct is located within a 43 kilometre portion of the Great North Road that the National Parks and Wildlife Service (NPWS) terms the Old Great North Road (OGNR) to distinguish it from other portions of the route which have been modernised.

The nominated place is the 7.5 kilometre portion of the Great North Road (the section known as the OGNR by the NPWS) incorporating the 1.8 kilometre Devine's Hill

section of road (built 1829-32) and the abandoned 5.2 kilometre Finch's Line (built 1828) which provide ascents from Wiseman's Ferry on the Hawkesbury River to the sandstone plateau in an open forest setting plus the link road (0.5 km) joining them. The precinct lies within the Dharug National Park and the natural setting retains the qualities of the physical environment in which the convict road builders would have laboured. The scale and extensive nature of the road structures along this portion of the Great North Road represent the most advanced aspects of road engineering in the colony in the 1820s.

The Devine's Hill precinct of the Old Great North Road is part of a large complex of bushland that surrounds Sydney to the north and west, and is contiguous with the north-eastern extremity of the Greater Blue Mountains World Heritage Area. The environment of the Old Great North Road landscape reflects the ecology and ecosystems of this greater whole. While the plant biodiversity of the study area is a small part of an extensive whole, a number of threatened species grow in close proximity to the road.

The sandstone landforms make an important contribution to the character of the Old Great North Road due to the effect of differential weathering and contribute significantly to the aesthetic appeal of the landscape. The geology of the area is predominantly Hawkesbury Sandstone containing shale lenses but the ascents from the Hawkesbury River and the descent to the MacDonald River also pass through a narrow band of Narrabeen Series rocks (Bryan 1996). Both sandstone and shale have been extensively used in the construction of the Old Great North Road (CMP 1999;15). The combination of monumental stone construction, rugged landscape, distinctive vegetation, spectacular views or aspects and intriguing sandstone formations has inspired a range of aesthetic responses to the Old Great North Road and its landscape, both historically and in the present community.

Where the Old Great North Road traverses the plateau it is through natural bushland and for much of the route, no signs of development can be seen in any direction. The setting of the Old Great North Road is important as it provides a sense of what nineteenth century travel was like. The scenic quality of the Old Great North Road landscape derives from the contrast between monumental stone remains and the seemingly undisturbed nature of the bush around them. Important views across undisturbed bushland are gained from the ridge top locations of the road, while the Finch's Line provides spectacular views over the Hawkesbury River and Wiseman's Ferry.

Analysis:

Criterion (a) The place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history.

The Great North Road is one of the public works commenced in 1826 under Governor Ralph Darling. Governor Darling believed that the colony would benefit from a major program of road building. Road building was considered a civilising improvement, one that represented both prosperity and the conquering of distance (Karskens 1991:6). It played an important role in the transition of the colony from penal outpost

to colonial settlement.

Governor Darling's road building would provide transport and communication with distant settlements, work for the large number of convicts in the colony and be a cheaper alternative to the management of re-offending convicts than permanent secondary punishment establishments. Governor Darling could then reduce the colony's call on funds from the British Treasury, always a matter of high priority with the British administration. Governor Darling, and later his Surveyor-General Thomas Mitchell, envisaged a road system modelled on the 'Great Roads' of England. He developed and systematised convict work-gangs in 1826 and work began on the Great North Road, the first of three 'Great Roads' planned for the colony. It connected Sydney to the fertile rural lands of the Hunter Valley. The other roads, the Great South Road from the Cross Roads south of Liverpool to the Goulburn Plains and the Great Western Road from the Nepean River to Bathurst were commenced in 1829 and 1830 respectively.

The use of convict labour in the form of work gangs was part of a systematic attempt in 1826 to revive the threat of transportation as a punishment in Britain and to maintain order in the colony (Pearson and Marshall 1995:30-31). The harshest form of work gang was the road gang which was reserved for convicts who were secondary offenders. The very worst offenders were placed in iron collars and leg irons. The road gangs worked in isolated and harsh conditions for months on end with limited shelter from the elements and reduced rations.

The Great North Road was an important part of Governor Darling's road building program. It would open up the Hunter Valley to further settlement and support trade. Chain-gangs and road parties utilising up to 700 convicts at a time toiled in extreme conditions for a decade (1826-36) to finish the 250km road (Karskens 1985:30). In 1827 there were 558 convicts working on the Great North Road of a total of 1755 who laboured on the colony's roads (Karskens 1982:199). The total number of convicts employed on building the road over the decade of its construction is unknown. The massive dry stone, buttressed walls and associated culverts of the Devine's Hill precinct stand as a testament to the commitment to building a permanent colony in an unfamiliar continent. The latest engineering technology was employed and coupled with the available convict manpower to effect the needs of nation building while meeting the demands of the British Government to run a penal system that would both minimise costs and act as a deterrent to crime.

The Great North Road retains an array of diverse features associated with road construction and the use of convict road gangs within an unchanged landscape. It provides a visual record of the skilled structural achievements, and the living and working conditions of the time. The road works, particularly the realignment component with its massive structural works, illustrate the ambitious and exacting nature of the work that involved surveying, quarrying, engineering and masonry as well as convict management. The particular road landscape offers a comparison between the comparatively well constructed Devine's Hill ascent and the poorer quality work of Finch's Line.

The presence of powder magazines and road cuttings through rock are evidence of blasting employed in the works. The extant remains of the Devine's Hill Stockade are

an example of the type of temporary accommodation used for convict road gangs. It consisted of convict huts surrounded by a timber stockade fence, with guard accommodation facing the stockade gateway. In this case the stockade site retains the foundations of crude fireplaces or chimneys which have been associated with simple timber buildings or slab huts. By way of comparison the No 2 Stockade Cox's River site on the Great Western Road is representative of the pinnacle of all sites of secondary punishment of convicts outside the penal settlements of New South Wales. No 2 Stockade Cox's River was occupied for over six years and at its peak capacity housed up to an estimated 800 convicts, military and civilian functionaries with another 200 to 300 at associated sites administered from the facility (Rosen 2006:90). The Wiseman's Ferry stockade also on the Great North Road and on the southern side of the Hawkesbury River is an archaeological site with some structures partly surviving. The Devine's Hill stockade would have housed a smaller number of convicts and military personnel than that at Cox's River, but the precise numbers are unknown.

The nature of the construction and unaltered natural setting of the ascent of Devine's Hill illustrates the colonial efforts to conquer the Australian bush. The viewsheds from the road reveal vistas that give the modern day observer an understanding of the remoteness of the road and the ruggedness of the terrain in which the convict builders laboured. The place embodies the isolation and loneliness of early colonial travel. Its intactness and natural bush setting evoke a strong sense of the past.

The extant engraved '25 R. Party' and the convict graffiti rock carvings convey an evocative link to the people involved in the works. The Great North Road tells the story of an important part of the convict experience in New South Wales. It demonstrates the conditions in which secondary offenders were sent to work on Governor Darling's road building program. It denotes not only the isolation of the place but also the arduous nature of the manual labour they performed.

The Great North Road compares favourably with the other great roads built around this time. The Great South Road from Picton to the Goulburn Plains has been rerouted and improved. Development occurs along its length and it retains little of its character as a convict built road. The road gang convict built Towrang Bridge and its associated culverts however do provide evidence of the convict period. Located on the Great Western Road is Horseshoe Bridge on Mitchell's Pass near Lapstone which was designed by David Lennox Built by convict road gangs and completed in 1834 it was the first scientifically designed stone arch bridge on the Australian mainland. Other important sites associated with the Great Western Road include the relics and archaeological remains of No 2 Stockade at Cox's River, No. 1 Stockade at Mt Victoria and road party sites at Honeysuckle Hill, Meadow Flat, Stoney Range and Diamond Swamp. Like the Great South Road, development and changed land use patterns impact on these elements and their overall coherence as elements of a convict road system are not as clearly articulated and are largely forgotten.

The Great North Road has national heritage values under Criterion (a).

Criterion (b) The place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural

or cultural history;

The 7.5km section of the Great North Road around Devine's Hill is a rare surviving example of a convict road with high integrity in its structural features in a landscape setting that has remained unchanged since its construction. This place retains a high degree of authenticity as a convict road and evokes a sense of the time in which it was constructed. Other convict roads and other portions of the Great North Road have been greatly altered and lost both integrity and authenticity as a convict road. This particular road landscape with the Devine's Hill ascent and Finch's Line illustrate the difference between the two road works. The road works on Devine's Hill is considered to be the most outstanding example of the convict road gang's work along the length of the Great North Road both in its design and construction.

This section of the Great North Road is also rare because the grouping of features demonstrates the range of activities undertaken by convicts building roads. Among these features associated with the construction are the quarry site, the extensive drainage system, the archaeological remains of the Devine's Hill stockade, and the powder magazine. The place also contains rare evidence of convict's personalising their work in the road gangs. These include the inscription by 25 Road Party, the carving of a man with a hat and pipe thought to be an overseer and various instances of graffiti on retaining walls of the road. The Devine's Hill stockade site is not an exceptional example of a stockade site, other stockade sites have been recorded at Wiseman's Ferry and on the Western Road at Cox's River, Hassan's Walls, Mt Victoria and Bowen's Hollow where there was also another work gang site, a lumber yard. Other lumber yards have been identified at Newcastle and at Parramatta (Pearson, M. and Marshal, D. 1995:30-31; Rosen, S. 2006: 87-101). Another convict stockade site (developed during the construction of the Great South Road) exists at Towrang, near Goulburn. Un-stockaded road party sites were also a feature of the road construction process on all three great roads and Devine's Hill Stockade is likely to have commenced its existence as such a site.

The rarity of the place relates to its intactness as a colonial road landscape in its original natural setting that strongly conveys the sense of the place as it existed at the time of construction.

The Great North Road has national heritage values under Criterion (b).

Criterion (c) The place has outstanding heritage value to the nation because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history;

The 7.5km section of Great North Road around Devine's Hill has potential for research on convict technology with a probability of artefacts at the convict stockade site and the hut site. The Devine's Hill stockade site has been little disturbed since its abandonment as a convict work camp and is therefore likely to contain archaeological remains. However, the site does not have the multiple purposes and functions that places such as Port Arthur, Darlington Probation Station or Cascades Female Factory had, nor was it occupied by convicts over an extensive time period.

Based on the available evidence the Great North Road <u>does not</u> have outstanding value to the nation against Criterion (c).

Criterion (d) The place has outstanding heritage value to the nation because of the place's importance in demonstrating the principal characteristics of: a class of Australia's natural or cultural places; or a class of Australia's natural or cultural environments.

The Great North Road site is an evolved relict cultural landscape of a segment of a colonial transport route set in a natural landscape. It demonstrates the surveying and engineering skills of the period and has an array of extant features typical of an early 19th century colonial built road. It contains convict habitation sites, and convict graffiti expressions. The colonial road features have a high integrity with no discordant elements introduced between the colonial road works features and the landscape within which the road was originally constructed and travelled in the colonial period.

The place demonstrates the contrast between the earlier zigzag and poorer standard of construction of Finch's Line and the subsequent realignment ascending Devine's Hill with it significantly higher standard works.

It is representative of the standards and practice of road engineering in the colony during the 'Great Roads' period of the late 1820s and through the 1830s and of the adaptation of English road building practice (NSW State Heritage Register).

A similar road works and convict accommodation related to the construction of the Great Roads during the period of convict work gangs is at Towrang. This place consists of a convict stockade and magazine site, graves and a portion of the historic road that contains a sandstone bridge with a segmental arch and seven culverts (DEH Register of the National Estate, 1978, ID Nos:1121, 1120, 103545). The realignment of the Hume Highway has bisected the landscape which is now a cultural rather than a natural landscape, and the stockade site, graves and magazine are on private property.

There are other examples of roads built by the colonial administration using convict labour such as the Great South Road and the Great Western Road. Being 'Great Roads', they demonstrate technical accomplishment similar to the construction of the Great North Road though not in undisturbed, natural bushland settings. Victoria Pass and Mitchell's Bridge on the Great Western Road are extant examples of similar massive dry stone wall structures comparable to those on the Devine's Hill ascent on the Great North Road. The latter being a rare example of a type of early colonial road construction because of its extant structural features in their unaltered bushland setting. The Great North Road tells the story of colonial road travel before the impact of mechanised transport in the early 20th century.

The importance of the place is its capacity to demonstrate both the nature of an early colonial transport route in its original setting and a type of early colonial road construction, however, the lack a detailed comparative study of convict built roads has resulted in there being insufficient information to determine if the Great North Road is an exemplar of a convict built road.

Based on the available evidence the Great North Road <u>does not</u> have outstanding value to the nation against Criterion (d).

Criterion (f) The place has outstanding heritage value to the nation because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period;

Convict labour was essential in the public works of the colonies of Australia. Some of the public works such as Hyde Park Barracks are outstanding for design and workmanship. Convicts with construction skills were highly sought by government as well as settlers. The construction of the Great North Road was a major achievement for its time as it combined the limited technical resources available, gangs of secondary convict offenders as the labour force, a small gang of skilled workers and the application of road engineering technology to very rugged topography. The technical challenges presented by the steep hill side that the Great North Road ascended as it rose nearly 200 metres from the northern bank of the Hawkesbury River to the limestone plateau above resulted in the construction of the winding Finch's Line of road with its hair-pin bends. Finch's Line was abandoned before its completion in favour of the more technically challenging but straighter ascent of Devine's Hill set by Surveyor General Thomas Mitchell. The Devine's Hill road works consist of substantial cut and fill operations, and massive retaining walls with their drains and stone abutments to support the road on the steep hill slopes. The worked sandstone is all high quality dry stone dressed masonry.

The road's extensive drainage system especially on the Devine's Hill ascent embodies the best road building technology available at the time. The leading British engineers Thomas Telford and John Macadam had identified the importance of effective drainage in road making and this was adopted in the construction of the Great North Road. The contrast between the less well-engineered Finch's Line and the monumental stone walls and drainage system on the Devine's Hill ascent demonstrates the commitment to build a 'Great Road' which would stand the test of time. Surveyor General Thomas Mitchell's direct approach to setting a line of road is evident in the re-aligned road via the Devine's Hill ascent. Constructed under the direction of Lt Percy Simpson, the Devine's Hill line employed the use of extensive drainage systems and the latest technology available for laying road surfaces. In 1828 Edmund Lockyer, the Surveyor of Roads and Bridges in the colony issued his Assistant Surveyors detailed instructions on the construction of pavements. His instructions were for a pavement that was a hybrid of both Telford's and Macadam's directives (Karskens 1985:41). The application of these newly founded scientific principles of road making which formed part of the body of knowledge of the emerging field of civil engineering demonstrate a commitment to providing permanent infrastructure based on the best available technology. The extant structures on the Devine's Hill ascent embody technology as a tool of nation building.

The road's importance as an engineering feat was recognised when it was designated a National Engineering Landmark by the Institution of Engineers Australia on 12 January 2001 (Ms Aylwen Gardiner-Garden, Committee Administrator, Institution of Engineers, pers. comm. Nov 2006).

The technical and engineering accomplishments of convicts are also evident at Fitzroy Dock, Cockatoo Island (commenced with the quarrying in 1847 and completed in 1857). This was the earliest dry dock commenced in Australia and one of the largest engineering projects completed at that time. This was completed using convict labour to excavate 580 000 cubic feet of rock which created 45ft (13.7m) sandstone cliffs extending around the dock area – a huge technical achievement in itself. Convict work gangs also participated on the hand-excavated underground grain silos used for food storage on the island. However the work was undertaken at a later date with access to greater technological and engineering skills (DEH, 2006, AHDB Place Report, Place Id No 105928 - Cockatoo Island).

A further example of a technical and engineering accomplishment during this period is the construction of the Richmond Bridge in Tasmania. Commenced in 1823, the convict built sandstone arched road bridge was completed in 1825. It is set in the Coal River Valley and links escarpments on the east and west of the town of Richmond and crosses the Coal River at a point where this incision is about 55m wide. It is a working, two lane road bridge with a load limit of 10 tonnes. The original roadbed is 25 feet wide (7.2m between parapets) and the bridge is 135 feet (41m) in length. The bridge is constructed of local (reportedly derived from the nearby Butcher's Hill), brown, (Triassic) sandstone in random coursed, rough ashlar work (with some tool marks evident), on smooth-dressed, inclined piers over the river. It consists of four main semi-circular arches with a smaller arch on each side (six in all), and a stone parapet (terminating in round stone bollards/columns) above a string course. The arches spring from piers which have sloping fins with angular leading edges aligned with the flow of the river. These three large, sloping 'cutwaters' encase the original vertical cutwaters.

It is the oldest surviving large, stone arch bridge in Australia with a high degree of integrity (DEH, 2006, AHDB, Place Report, Place Id No 105724 - Richmond Bridge). The Lapstone Bridge on the Great Western Road designed by David Lennox and built between 1832 and 1834 in is the oldest surviving stone arch bridge on the mainland.

The extant massive dry stone retaining walls on the Great Western Road at Mt Victoria are the only comparable road work structures of the period. Built between 1830 and 1833 these massive structures suffered a number of slippages that required remedial works including improved drainage during the construction phase. When the challenging parts of the work on the Great North Road, including Devine's Hill ascent, were completed in 1832, the iron gangs were marched from Wiseman's Ferry to Mt Victoria to work on the Great Western Road (Rosen 2006:16-17).

While the monumental retaining walls and associated drainage structures on the Devine's Hill ascent reflect the application of the latest in British road building technology in the colonial environment, the rugged topography of the precinct remains unaltered informing the modern day observer of the both the harshness of the terrain through which the road was constructed and the remoteness of the place in which the convict gangs laboured. Commenced in 1829, the Devine's Hill ascent structures are the earliest, large road-building structures created in the colony and their legibility in an unaltered landscape provides a unique opportunity to interpret the environment in which the road gangs laboured and feel a sense of the remoteness of

the place. The combined impression of the massive engineering works in an unaltered natural environment yields an evocative glimpse into the nation's colonial past in which the colonial administrators, coupling convict manpower and the latest technology, sought to overcome the physical landscape and impose order and permanency to the burgeoning European settlement of Australia.

The Great North Road has national heritage values under Criterion (f).

Criterion (g) The place has outstanding heritage value to the nation because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.

The place has strong associations with the local communities who value the place and its landscape for its historical importance, the links it supplies with colonial and convict history and for the access it has given in the past to familiar places. It is valued because of its inclusion in family stories and because of its importance in opening up the local districts of Mangrove, MacDonald Valley and the Central Coast. It is valued for its educational potential for future generations. It is also valued as a public resource, a public thoroughfare, belonging to the community (CMP 2005:3-5). This is perhaps one of the reasons for the strong feelings that have been expressed regarding locked gates that prevent access to parts of the Old Great North Road. The concept of a road as public place and thoroughfare is deeply embedded in Australian Anglo-Celtic and also British culture as demonstrated by the importance of public footpaths in rural England. There is a performative aspect to the public's understanding of a road, perceiving it in terms of its function (ie. to travel along) as a public right of passage and as being in the public rather than the private domain (CMP 2005:3-5).

Convict descendents and convict history researchers value the Old Great North Road as a tangible link with an important narrative of Australian history and of Australian cultural identity. This group see the convict narrative as central to national heritage and focuses their values on the convict construction of the road, rather then on its other historical associations (CMP 2005:3-5). The road is viewed as commemorating the lives and works of convict forebears and has become a symbolic feature that seems to be related to a desire to pay respect to those who may not have been respected in life (CMP 2005:3-3).

International visitors, particularly those from Britain, value the place for its historical significance, natural beauty, and also as a link with a broader, trans-national history of the British Empire and migration, to which many individuals feel a connection (CMP 2005:3-6). It reminds us that Australian colonial history is not simply an aspect of national history and heritage, but part of a global history and heritage of imperialism, migration, and forced migration in the case of convicts (CMP 2005:3-2).

More broadly, the Old Great North Road and its landscape is valued by communities for its evocative character and for its ability to produce an experience of touching or feeling the past (CMP 2005:3-6). The Devine's Hill-Finch's Line precinct contains that evocative character evidenced in the massive stone structures that conquered the steep terrain and in the spectacular views within a natural bushland setting. The

place's remoteness from the sights and sounds of modern development appears to intensify the experience of the Great North Road as 'living history' (CMP 2005:3-3).

The Convict Trail Project is an initiative begun by people living close to the road, who value it as a crucial part of the history of their district. The initiative has been nationally recognised as one of the most successful community-based heritage organisations (CMP 2005:3-6).

Formed in the early 1990s, the Convict Trail Project is a community initiative of the Bucketty Tidy Bush Community and the Wollombi/Laguna Tidy Valley Committee, the community populations being 150 and 300 respectively. The Convict Trail Project was conceived in response to community concern about the degradation that was occurring to the relics of the Great North Road in their local areas. Degradation they recognised as resulting from a combination of neglect, vandalism, lack of awareness of the significance of the relics and the lack of an overall management or conservation plan. Unable to find an organisation or agency which was responsible for managing the road, the local communities took the initiative in their own areas and began restoring damaged sites under the guidance of an historical archaeologist aided by their local council. Realising that similar situations were probably happening elsewhere along the 250 km road, the groups began in 1994 to involve other organisations with an interest in, or responsibility for conservation, management and promotion of the Great North Road. Initially operating as an unincorporated organisation for a number of years, the Convict Trail Project incorporated as a non-profit organisation in 2002. Membership of the Convict Trail Project is open to all organisations and individuals with an interest in, or responsibility for the conservation and management of the Great North Road. In late November 2006, the Convict Trail Project had around 50 individual paid up members, 29 community organisation members and 13 government agency members. Each organisation nominates 10 of its members as members of the Convict Trail Project, however, support in various forms given to the Convict Trail Project can be from anyone in the member organisations so in effect the contributor base to the Project is greater than the actual membership of the Convict Trail Project. The membership organisations are as diverse as local historical societies, family history research groups, regional tourism bodies, community groups, government agencies including local governments, the Road Transit Authority, the National Parks and Wildlife Service, the Heritage Office of New South Wales, and the Department of Correctional Services (E. Roberts, Convict Trail Project, Executive Officer, 2006, pers. comm. 27 November; and Convict Trail Project website, 2006: Background). The Convict Trail project provides a unique forum for the long term management of an important relic of the convict era.

The Convict Trail Project receives on-going funding from the Heritage Office of New South Wales for its day to day operations and applies for grants from various sources to undertake specific works. It has received a number of grants, many exceeding $20 000 in value, from a range of bodies including the Heritage Office of New South Wales, Baulkham Hills, Cessnock, Gosford, Hawkesbury, Hornsby and Wyong Councils, and the Australian Government. The Convict Trail Project has also received assistance from the private sector as well as support from the NSW Department of Corrective Services in the form of labour to support on going conservation and maintenance work (Convict Trail Project website, 2006: Background).

Similar organisations supporting the recognition and preservation of convict era public works such as the Friends of Old Government House (Parramatta), the Friends of Cockatoo Island and the Female Factory Historic Site Ltd (Cascades Female Factory, Tasmania) do not operate on such a broad scale as the Convict Trail Project. The Friends of Old Government House (Parramatta) with a membership around 40, was formed as a fund-raising body to help maintain the House and its collection (R. Moore, Property Manager, Old Government House Parramatta and Experimental Farm Cottage, 2006, pers. comm., 29 November). It conducts ghost tours, social occasions, informative lectures and exhibitions, the proceeds from which assist in the maintenance of the property (Friends of Old Government House website, 2006). The Friends of Cockatoo Island which has a membership of about 200 was formed on 30 April 1995 in order to oppose the Federal Government's proposal to sell the island to private interests. The members, mostly former apprentices of the dockyard have a strong and special association with Cockatoo Island. Their efforts to save the island from private sale brought Cockatoo Island to the attention of the public and elicited considerable media attention. In response to the work of the group, and other harbour groups, the Sydney Harbour Federation Trust came into being. Friends of Cockatoo Island does have a strong and special association with the island, their action has saved the Cockatoo Island Dockyards for the nation. Similar campaigns and 'friends' groups, including those for Luna Park (NSW), Point Nepean (Vic) and The Rocks (NSW), have saved a variety of places for the nation. The 'Friends of Cockatoo Island' demonstrate 10 years of interest and attachment to the Island (DEH 2006, AHDB Place Report, Place Id No 105928 - Cockatoo Island).

Female Factory Historic Site Ltd is the closest in nature and scale to the operation of the Convict Trail Project. It is a non-profit company which currently owns Yard 3 and the Matron's Cottage in Yard 4 at the Cascades Female Factory Historic Site. Yard 1 is owned by the State Government and is administered by Department of Primary Industry, Water and the Environment. The company was formed when Yard 3 was bought in October 1999 using monies from a Commonwealth Government Centenary of Federation Grant. The grant of $975,000 enabled purchase of the site, comprising the walls and buildings, and progressed much needed conservation, archaeological and interpretive work at the site. Female Factory Historic Site Ltd later purchased the Matron's Cottage in Yard 4 with assistance from the Tasmanian Government, Tattersalls and the estate of a Launceston philanthropist. By the end of 2009, Yard 3 and the Matron's Cottage will be gifted to the people of Tasmania. The Female Factory Historic Site Ltd Board currently consists of nine Directors including its Chairman and the Company Secretary who also fulfils the role of Director. All volunteer their time and are not remunerated. The site also has a Project Manager who manages the 30 staff members all of whom work at the site on a voluntary basis, including those working in the site shop and as tour guides. The site has received the National Australia Bank State Award for a Cultural Heritage Volunteers Program in three of the last four years (S. McCarron, Project Manager, Cascades Female Factory Historic Site, 2006, pers. comm., 29 November). On occasion National Joblink participants (Work for the Dole), Drysdale Tourism Students and VET Tourism students from Elizabeth College undertake placements at the site. The Female Factory Research Group provides a forum for the discussion of issues related to female convicts, maintains the Female Family Founders Database (includes 12 500 names of convicts, male and female who were sent to Tasmania), runs a research and transcription service for female convict records and hosts events celebrating the lives

of female convicts (Cascades Female Factory Historic Site website, 2006).

Unlike these 'friends organisations', the Convict Trail Project is the over-arching community organisation that incorporates the activities of its many member organisations. It is the breadth of the Convict Trail Project that makes it unique among community organisations supporting the recognition and preservation of convict era public works places. Established in the early 1990s from a nucleus formed by two small community groups (the Bucketty Tidy Bush Community and the Wollombi/Laguna Tidy Valley Committee), the Convict Trail Project demonstrates a longevity of connection to the site and a commitment to its conservation and preservation. The Heritage Office of New South Wales often cites the Convict Trail Project as an example of a community based heritage organisation.

The Convict Trail Project has developed an extensive website providing detailed information about the road and its history. It is also developing an extensive data base of information relating to the Great North Road. While many of the documents at such places as the NSW State Archives have been accessed and recorded, there may be many other references in diaries and family histories which may be valuable to the project and these are to be included on the database. As the database is still being developed, inquiries to access the information already in the database are submitted electronically via the website and responded to by the Convict Trail Project's Executive Officer (E. Roberts, Convict Trail Project, Executive Officer, 2006, pers. comm. 27 November). Among the Convict Trail Project's other achievements are a number of publications including the commissioning of a series of monographs on topics relating to the Great North Road, written by a variety of people with an interest in topics associated with the Road. It has also instituted an *Adopt a Convict* project, the ultimate aim of which is to produce a biography of every known convict who worked on the construction of the Great North Road and its branches. At this stage the information is presented in a data base format. The History group initially developed a list of 750 men and this has expanded to over 1 400 men. The Convict Trail Project's achievements to date are extensive and include research, conservation work, educational programs and the development of business, tourism and interpretation plans (Convict Trail Project website, 2006).

The Convict Trail Project demonstrates the local community's strong cultural associations with the place. The association has been on-going for over twelve years and the Convict Trail Project has evolved into a major heritage initiative which draws together a diverse number of organisations under the one over-arching structure. It demonstrates how the strength of a community's association with a place and their commitment to preserving and promoting a facet of our national heritage can result in a major heritage initiative.

Usage of the precinct can be gauged by the entries in a visitors book which was placed on Devine's Hill in June 2000. From that date until February 2003 there were just over 4 000 entries. Although it is not the most comprehensive or reliable means to collect visitor statistics, in the absence of any official visitor figures, and recognising the limitation that filling in the book is voluntary and therefore will give only minimum visitor numbers, it does provide some data on usage of the place. The figures indicate 90 percent of visitors are from NSW, 53 percent being from Sydney and its suburbs. Of the identifiable organised groups visiting the precinct, bush-

walking groups were the most frequent users, 28 groups compared to the next most common users, schools, seven groups and Scouts, six groups. One of the interesting features of the comments in the visitor books was the frequent emphasis on colonial and convict connections between the Great North Road and other early settlements. Of the international visitors to the place, visitors from the United Kingdom were by far the largest group with many commenting on the connections between British history and colonial Australian history with others noting the 'great British engineering' and the skills of the British convicts, seeing it as a 'great bit of British history'. A further feature of the international visitations is that many appear to have been brought to the place by Australian residents with some commenting on how much they enjoyed showing their guests the road (CMP 2005:7-1 – 7-5).

The Great North Road has national heritage values under Criterion (g).

Criterion (h) The place has outstanding heritage value to the nation because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history.

Sir Ralph Darling (1772-1858)
Sir Ralph Darling was Governor of New South Wales from 19 December 1825 to 22 October 1831. He had previously served for a brief period as the Governor of Mauritius during which time he utilised road gangs to improve the island's road system to enhance the flow of commerce. On his arrival in the colony of New South Wales he instigated a major road building program which included the building of several great roads, one of which was the Great North Road. These roads were intended to equal the 'Great Roads' of Britain.

Governor Darling brought to the colony several surveyors who were highly qualified in road-making, he formed the Roads and Bridges Department to administer the project and he developed the massive convict road-gang system, with its organisational complexities of supplies and accommodation, to accomplish it (Karskens 1985:29). Governor Darling appears to have closely supervised the planning and construction of the roads and when defending the administrative system or requesting further staff, he frequently invoked the importance of roads in NSW. Governor Darling agitated constantly for more surveyors for the colony and the staff of the Surveyor General's Department increased from five surveyors in 1826 to 30 surveyors and two draughtsmen in 1830. The roads were intended to be Governor Darling's lasting contribution to the colony and an epitaph to his governorship.

Among Governor Darling's other achievements in the colony of New South Wales were the introduction of a uniform land administration system, the initiation of many journeys of exploration within the colony and general improvements in the administration of the colony. Governor Darling implemented the Ripon Regulations which made Crown land only alienable by auction and thereby stopping free land grants (except for those already promised). His road construction programs were his major contributions to the colony during his period of governorship.

Surveyor-General Major Thomas Mitchell
Thomas Mitchell and his family arrived in Sydney in 1827. He was appointed

Surveyor-General the following year. Mitchell had previous experience as a surveyor in the Napoleonic Peninsular War and strongly supported Governor Darling's vision of an efficient transport route. By the end of 1830 he had made considerable changes in the roads from Sydney to both Parramatta and Liverpool; he had plotted a new road southwards through Berrima as far as Goulburn and had discovered and constructed a new western descent from the Blue Mountains towards Bathurst. These roads were substantially the same as those used today. He continued to work in the colony as Surveyor-General until 1851 and died in Sydney in 1855.

Mitchell was appointed Surveyor General of New South Wales in 1828 following the sudden death of his predecessor, John Oxley. "To demonstrate that his own style of road building was better than the Oxley version, he tried to make sure that all roads were as straight as possible, within the limits imposed by the shape of the countryside, and that they branched in symmetrical and regular fashion, providing the most economical distances from place to place. Roundabout or curly roads were definitely not acceptable unless they could not possibly be avoided, even if the straight ones did not go exactly where people were living at the time. Sir Thomas Mitchell was criticised for trying to make this road into a monument to his own glory." (Convict Trail Project website, 2006, History)

Mitchell was a painstaking and competent surveyor. He achieved substantial accuracy with the inadequate and often primitive means at his disposal and the magnitude of the tasks he was required to perform.

He is attributed to marking the original line for the Great North Road (as noted in the comments on Lieutenant Percy Simpson).

Mitchell's other contributions to the colony of New South Wales were the three journeys of exploration he undertook into the interior of the colony. The first was in the vicinity of the Castlereagh and Gwydir Rivers to test reports of the existence of a large river flowing to the north-west, a journey which was unsuccessful. The second exploration, the purpose of which was to trace the River Darling from the point where Sturt had left it 1828, down to its junction with the Murray River to confirm they were the same river. Although he did not reach that point due to hostilities from the local Aboriginal people, Mitchell did chart 300 miles of the Darling from the Bogan River to the vicinity of Menindee. His third expedition was to travel to Menindee then down the Darling River to the ocean, if it flowed there, or if it flowed into the Murray River, to go up the Murray to the inhabited parts of the colony. Mitchell again encountered hostility from Aboriginal parties along his way and did not complete the full exploration of the Darling.

Known to many as an explorer, Mitchell's major contribution to the colony was as Surveyor-General, an office he held for 27 years, and in which he had a substantial impact on the development of New South Wales. He was one of the most longstanding and important bureaucrats in the colony across the middle of the 19th century. In 1844 he was elected to the Legislative Council at a by-election at Port Phillip. A man noted for being involved in conflict, it became a mark of his office. In July 1855, Governor Dennison appointed a Royal Commission to inquire into the Survey Department, however, Mitchell died before it handed down its findings which were highly critical of his surveying and his administration of the Survey Department.

His policy to give places their Aboriginal name is today evident in towns like Corowa and his legacy as an explorer had been honoured in the naming of the 1 700 kilometre long cultural heritage trail, the ‘Major Mitchell Trail’.

Heneage Finch (d 1850)
Heneage Finch was an assistant surveyor under the Surveyor-General John Oxley. In September 1825 he completed a survey of the Great North Road from the 19 mile post on the Windsor Road, through Castle Hill north to Wiseman’s farm and from north of the Hawkesbury River to the head of Wollombi Brook.

Lieutenant Percy Simpson (1789 – 1877)
The Simpson family migrated as free settlers to New South Wales in the Mangles in November 1822 with sufficient capital for a grant, cattle, convict servants and six months rations. Percy Simpson, then aged 33, was soon appointed commandant of an experimental agricultural settlement for 'educated convicts' in the Wellington Valley, north-west of Bathurst and went on to be appointed an assistant surveyor of roads and bridges and a magistrate in 1828.

The most tangible evidence of Lt Percy Simpson’s engineering expertise lies in the technically challenging construction of the Great North Road. Based on Macadam's road-building principles, the buttresses, culverts and drains were built by convict road gangs under Simpson’s direction. Simpson's ability to manage convict labour and his administrative and engineering skills were recognised by successive governors who valued his 'zeal, assiduity and ability, as well as respectability of demeanour in private life'. Mitchell knew of 'no other officer in the Colony to whom I could with better expectation as to the results, entrust any work connected with the formation of roads, bridges and streets'.

In his book, Three Journeys Into the Interior of Eastern Australia (p 9), Mitchell gives Simpson complimentary recognition of his work on that part of the road Mitchell used:
'..Amid these rocky heights and depths, across which I had recently toiled on foot, marking out with no ordinary labour the intended line, I now had the satisfaction to trot along a new level road, winding like a thread through the dreary labyrinth before me and in which various parts had already acquired a local appellation not wholly unsuited to their character, such as ‘Hungry Flat’, ‘Devil’s Backbone’, ‘No-Grass Valley’ and ‘Dennis’s Dog-Kennel’. In fact, the whole face of the country is composed of sandstone rock and but partially covered with vegetation. The horizon is only broken by one or two summits which are different both in outline and in quality from the surrounding country.
...I bade Mr Simpson farewell, after expressing my satisfaction with his clever arrangements for opening this mountain road, a work which he had accomplished with small means in nine months' (Convict Trail Project website, 2006: History).

Other examples of Simpson’s skills include the line from Lapstone Hill to Mitchell's Pass, bridges at Wollombi, Lansdowne and Duck Creek, and the Queen's Wharf. His works on the Great North Road and Parramatta Dam have been listed by the Australian Heritage Commission (1978) and by the Heritage Council of New South Wales (1989).

Based on the available evidence the Great North Road <u>does not</u> have outstanding value to the nation against Criterion (h).

History:
The Great North Road lies in the country of the Daruk (Dharug) people who were the first inhabitants of the place and have occupied the area for at least 11 000 years. Evidence of this occupation includes deposits, middens, rock engravings, stone arrangements, paintings and axe grinding grooves. The rock engravings are the most visible sign of the prehistory of the area, with the Hawkesbury sandstone area engravings containing a distinctive style. Aboriginal groups criss-crossed the area to harvest and manage seasonal crops. The Great North Road follows approximately a travelling route of Aboriginal people.

Daruk country is located west of the Sydney region to the Blue Mountains, on the mouth of the Hawkesbury River, and inland to Mount Victoria. The Sydney Eora people referred to the Daruk as 'climbers of trees', and men who 'lived by hunting'. This is reflected in early descriptions of the Daruk people, as they climbed trees to hunt mainly for possums.

Following the establishment of the European penal colony at Botany Bay in 1788, the development and expansion of New South Wales through its first two decades was slow. The early Governor's concentrated on establishing the colony rather than expansion. As the colony's primary role was that of penal establishment, the early Governor's first imperative was to ensure the colony's survival by securing an adequate food supply. Finding good farming lands and establishing productive farms were the key to survival. Early attempts at cropping brought little success and when better lands were located to the west at Parramatta and on the Cumberland Plain generally, agricultural success followed. The infant colony had at last secured a foothold on a vast continent. The successful establishment in 1788 of a settlement on Norfolk Island, 930 miles to the north-east of Botany Bay helped secure a food supply for the mainland colony in its early years aiding the success of the Sydney Cove settlement.

As the early Governor's found, the settlement at Botany Bay was hemmed in by mountains and early exploration of the region was undertaken by boat along the coastline and along the navigable rivers. Land exploration followed. The Great Dividing Range to the west, a rugged limestone plateau to the north and more rugged limestone country bisected by deep gorges to the south, all well forested acted as a limit on expansion. In 1798 Governor Hunter sent an exploratory party south-west. It examined the country as far as the present day site of Goulburn. The Mountains to the west continued to hamper westward exploration and the high plateau north of the Hawkesbury River halted exploration to the north. Following the discovery of fertile lands at the mouth of the Hunter River, a new penal settlement was established there in 1804. Known originally as King's Town and later as Newcastle, it was accessible only by sea which added to its value as a place of secondary punishment for convicts who had re-offended in the colony. It was sufficiently distant from the colony at Port Jackson that escapees could not return to Sydney Cove, there being no known over land route. The harsh conditions associated with a place of secondary punishment were readily achieved by putting the convicts to work mining the local coal, timber

getting and making quicklime in addition to building the gaol, a wharf and other necessary infrastructure. Free settlers were not permitted to settle in Newcastle or the Hunter Valley for fear they might aid escaping convicts and ships were prohibited from calling at Newcastle unless they were licensed to do so. This isolation was considered desirable to prevent convicts from escaping, a practice which in reality continued undeterred (Convict Trail Project – History).

The early governors of New South Wales were continually faced with problems of the supply of convict labour. Uncertain as to the rate of inflow of convict numbers from Britain, they had to balance the demands of free settlers for assigned convict labour to work on farms with the need to use convict labour on public works.

Governor Hunter who held office from September 1795 until September 1800 found his capacity to develop the colony limited by the reduction in the numbers of convicts transported to New South Wales. The Napoleonic Wars which commenced in 1793 had increased the demand for convict labour in British shipyards and there was a consequent reduction in the numbers of prisoners transported. While nearly 5 000 convicts had been transported between 1788 and 1792, less than 2 000 were transported between 1793 and 1799 (Crowley 1986:24). This constant shortage of labour forced a reduction in the level of public works carried out and Hunter even called on local landowners to repair roads as was the practise in Britain.

Governor Macquarie, who held office from January 1810 until December 1821 and is regarded as the great builder in early Australian history, transformed the colony from a military/penal settlement to a civil colony. Shortly after his arrival in the New South Wales in 1810, Macquarie using mostly convict manpower instigated an ambitious program of public works intended to ameliorate conditions of life in the colony and to elevate the status of Sydney Town in particular. Macquarie is noted for the many public buildings including hospitals, churches and courts he erected during his period as governor. In 1810 Macquarie announced plans to erect new townships at Liverpool, Windsor, Richmond, Castlereagh, Pitt Town and Wilberforce. He instigated the building of a turnpike road from Sydney to Parramatta and extended it to the Hawkesbury. During the period 1810-15, 4 284 felons, 29 percent of whom were female, were transported to New South Wales. While many convicts were assigned to settlers, poor seasons and a depressed economy resulted in the supply of convict labour exceeding the needs of the settlers and Macquarie directed the excess pool of convict labour to public works. In response to an economic depression in 1812 and to address a serious unemployment problem Macquarie instituted a policy to meet the ensuing economic crisis through an extensive policy of road making and public building (Crowley, 1986:64-65).

The original settlement had almost filled the Cumberland Plain and it was clear that new arable land was needed. Governor Macquarie warned Lord Bathurst, the Secretary of State, that ‘Disposable Lands are now getting Very Scarce in this part of the Colony’ (Crowley, 1986:46). From 1812 onwards, small numbers of well-behaved convicts were placed on farms at Paterson’s Plains, situated on the Paterson River, a tributary of the Hunter and by 1818 a number of the best-behaved convicts were permitted to occupy farms of 30 acres at Wallis Plains also in the Hunter Valley (Webb 1999:1).

In 1813 Gregory Blaxland, William Lawson and William Wentworth found a way across the mountains to the west with the potential of finding new arable lands. As early as 1814 Macquarie planned to mark out a road to the west to be 'completed to admit of a provision cart passing over it' (Ellis, 1973:269). Macquarie realised building the road would be a hazardous and laborious undertaking and duly appointed William Cox of Clarendon, formerly of the New South Wales Corp and then Magistrate at the Hawkesbury to undertake the work. The hazards were both bush rangers and the Indigenous peoples of the area who not infrequently attacked and plundered outlying farms. The road which was to commence at Emu Ford on the Nepean River and run 154 miles to Bathurst would follow the track set down by Evans who in late 1813 had been despatched by Macquarie to confirm the route reported by Blaxland, Wentworth and Lawson and to explore the country further west in the hope of finding good grazing lands. The road would climb more than four thousand feet and wind for more than seventy miles among sandstone cliffs. Macquarie ordered they should cleave through the forest a tunnel twenty feet wide, through which carriages could pass each other with ease. They were to grub the stumps in forest country and fill in the holes, so that a four-wheeled vehicle could negotiate the surface without difficulty or danger. In bush country the grubbed way was to be only twelve feet broad, since the Governor conceived this to be sufficient, though he preferred sixteen feet (Ellis, 1973:271). For this work a gang of thirty convicts with a guard of eight soldiers was committed to the task which took six months to complete. The road took the name Cox's Road and on 25 April 1815 Governor Macquarie accompanied by his wife Elizabeth set off by carriage to travel the new road to the Bathurst Plains arriving on May 4th. On May 7th after choosing the site for a new town he officially named it Bathurst. By 1815 settlement had expanded in the north along the valley of the Hunter River, in the north-west on the upper reaches of the Hawkesbury, to the west as far as the footholds of the Blue Mountains and in the south-west towards Bringelly and the Cow Pastures, most settlement being within forty miles of Sydney with the exception of the settlement along the Hunter River. Also by 1815, with increasing numbers of free settlers and an available convict labour force, Macquarie was keen to expand to the west, south and north where good grazing lands lay. The colony's European population more than doubled in the six year period from 1815 to 1821. By 1815 the European population of New South Wales totalled 12 911 and by 1821 it reached 29 783, of whom there were 1 489 free settlers, 1 884 native-born, 6 891 ex-convicts, 12 235 prisoners and 7 284 children (Ritchie, 1988:144). Almost half the population lived in Sydney. By 1821 the colony's cattle numbers had trebled to 72 998 from the 1815 numbers and its sheep numbers doubled to 121 875. Over the same period the land under crop had grown by 40 percent to 32 273 acres, and the area held by farmers and graziers had been augmented from 95 637 acres in 1810, to 208 547 acres in 1815, and to 381 467 acres in 1821 (Ritchie, 1988:158). The colony was expanding and its permanency seemed assured.

Settlers with capital were arriving to populate small groupings in the areas north of Sydney and the fertile flats along the Hunter River. The colony was expanding slowly as routes to new grazing lands to the south and west were established. In 1817 John Oxley explored the country to the west of Bathurst and later that year the area around Port Macquarie. The following year Hamilton Hume investigated the Lake Bathurst area and the Goulburn Plains with the line of exploration extending further south. In 1820 the ex-convict Joseph Wild reached the Molonglo River.

In 1819-20 John Howe, the Chief Constable at Windsor found a route northward through to Wallis Plains in the Hunter Valley and in April 1823 Major Morisset, former commandant at Newcastle, found a way south from Newcastle to Windsor.

The cost of transporting goods along Cox's road over the Blue Mountains was expensive and slowed the development of the Bathurst Plains, however, by 1818 settlers were firmly established in the area. Most of the real development outside of the Cumberland Plain during the governorships of Macquarie, Brisbane and Darling was in the Hunter Valley which was found to be considerably more promising for successful farming than was any other area so far discovered. It had rich alluvial soil suitable for all types of agriculture whilst the Bathurst Plains were suitable only for sheep; transport by sea was of course much cheaper than by land wagon and the survey of the Hunter Valley proceeded much more rapidly than that of the Bathurst Plains. If a rural population were to develop, then somewhere else had to be found for the convicts. By 1822 Newcastle, a town of 1 000 people, with a handsome church which could hold 500, ceased to be a penal settlement and the convicts were moved further north to Port Macquarie and in 1824 to Brisbane. By the 1820s the Hunter Valley was the most populous and extensively used area with a population of the order of 4 000 or perhaps 14 percent of the total white population of the mainland colony (Crowley, 1986:47).

As Governor of New South Wales between December 1821 and December 1825, Thomas Brisbane did not have the same expansionist views as Macquarie and saw the need for consolidation of the colony. He was no doubt influenced by the views of Commissioner Bigge who reported in 1822-23 on the affairs of the colony. Brisbane sought to promote settlement of the colony by settlers who really wanted to improve the land and to deter speculators with fictitious capital. He saw the need for more accurate surveys of the settled areas and gave less encouragement to land exploration than either his predecessors or successors. Brisbane reduced the number of road gangs, whose members often indulged in dissipation and crime, and the numbers employed on public works in Sydney, and organised in their place gangs to clear land for settlers in return for payment to the government; this greatly speeded up the rate of clearing.

Commissioner John Bigge had been sent to the colony of New South Wales in 1819 by the Secretary of State for the Colonies, Lord Bathurst to conduct a commission of inquiry into the colony. Bigge's assignment to New South Wales sprang from Bathurst's decision in 1817 to examine the effectiveness of transportation as a deterrent to felons. The leading object of the inquiry was to 'ascertain whether any, and what alteration in the existing system in the colony can render transportation once again a deterrent force (Kerr 1984:57). Bigge's Commission issued on 5 January 1819, authorised an investigation of 'all the laws regulations and usages of the settlements', notably those affecting civil administration, management of convicts, development of the courts, the Church, trade, revenue and natural resources. Bathurst wanted transportation made 'an object of real terror' and any weakening of this by 'ill considered compassion for convicts' in the humanitarian policies of Governor Macquarie should be reported. Where the existing administration was too lenient the commissioner could recommend the establishment of hasher penal settlements. He was also to disclose confidences of the private or public lives of servants of the

Crown and leading citizens and officials ‘however exalted in rank or sacred in character’. Bigge completed his tour of the colony in 1821 (Australian Dictionary of Bibliography online).

Governor Ralph Darling who held office from December 1825 to October 1831 shifted the emphases of surveying from marking out settler’s sections to the trigonometrical survey which under pinned the introduction of a uniform land system. Governor Darling had for brief period been acting Governor of Mauritius during which he initiated a program to improve the roads so as to increase the use of wheeled vehicles and lessen the demand for slaves who were used to manually carry goods and palanquins, as well as to promote economic development. Government labour was used and teams of men were sent to work on the roads. The provision of better roads had the benefit of re-directing the available slave labour from such work to the sugar industry in which it was widely used. Hence Governor Darling came to the colony of New South Wales with experience as a colonial administrator who had seen the linkage between economic development and the provision of a good road system.

Governor Darling not only improved the civil administration of the colony but also encouraged exploration and expansion. To encourage the latter he instigated a road building and improvement program for the roads that lead to the north, west and south of Sydney and up the Hunter River valley from Newcastle. Governor Darling had instructions to assign all convicts capable of reform to settlers and to send all incorrigible convicts to the penal settlements. The latter proved impossible and he increased the severity of the conditions in the penal establishments and employed hundreds of convicts in chain-gangs on road works and other public works.

By 1830 the settled areas of New South Wales, the nineteen counties as defined in Governor Darling’s order of 14 October 1829, extended from the River Manning in the north to the Shoalhaven in the south and inland to the modern Australian Capital Territory, Yass, Cowra and Wellington. The most remote stations were some 200 miles from Sydney, and some 3 500 000 acres had been appropriated in one way or another, of which less than 15 percent was in the original area of the County of Cumberland (Crowley, 1986:47-8). Thus between 1815 and 1830 the radius of the settlement ringing Sydney had expanded from 40 miles to 200 miles.

It is within this context of colonial expansion that Great North Road was conceived. Extending 250 km through rugged terrain, it symbolises the drive to extend the colony beyond the Sydney basin and provide permanent road access to the recently settled farms in the Hunter River valley. Road access via a permanent land route to the Hunter Valley would provide the means for moving people, goods and large numbers of stock into the expanding district.

Built between 1826 and 1834, the Great North Road was the first road conceived by Governor Darling as one of a number of ‘Great Roads’ that would form a network radiating from Sydney. Modelled on the Great Roads of England that radiated from London, the network would serve to expand the colony by providing an easy means of access to the newly settled areas. The Great North Road was the first of the network and the increasing number of convicts being transported to New South Wales provided the labour force.

It was the first of three ‘Great Roads’ to be constructed, the others being the Great South Road which ran from the Cross Roads south of Liverpool to Goulburn, and the Great Western Road that ran from Emu Plains on the Nepean River to Bathurst. They were commenced in 1829 and 1830 respectively.

The words of the philosopher Adam Smith in his essay of 1776, *An Inquiry into The Nature and Causes of the Wealth of Nations*, ‘Good roads, canals, and navigable rivers, by diminishing the expense of carriage, put the remote parts of the country nearly on a level with those in the neighbourhood of a town; they are, upon that account, the greatest of all improvements” (Royle 1987:8 and Jackman 1966:213), may well have influenced Governor Darling’s quest to build a substantial road system radiating from Sydney so as to bring the newly settled areas within easy access of Sydney.

Unlike Britain’s road system developed from the early Roman roads that had been built to move armies and later toll roads and turnpikes built to move commercial traffic, the newly conceived colonial roads would by necessity have to be constructed through undeveloped bushland. The labour to build the roads could readily be provided by the growing pool of convict labour available in the colony while serving the penal requirements of punishment, reform and deterrence in a cost effective manner.

Road building advanced significantly in the latter half of the 18th century and the early part of the 19th century when the Scottish engineer John Metcalfe designed and built three-layered roads which comprised a base of large rocks, a middle layer of smaller rocks and stones and an upper layer of gravel all of which settled to form a smooth, hard road surface. Metcalfe was the first of a number of engineers to apply scientific principles to the design and building of roads. The notable Scottish engineer, Thomas Telford further advanced road-making technology by designing roads with a raised foundation under the road centre which in turn raised the centre of the road surface allowing water to drain easily from the surface. He also pioneered modern road making techniques by analysing road gradients and alignments, and by calculating the thickness of the stone required in a road base to withstand the weight of the horses and carriages a road would carry. While Telford engineered modern road construction methods, it was a third Scottish engineer John Macadam who advanced the methodologies by raising the road surface above the surrounding landform, using a camber on the surface to improve drainage and enhanced road surfaces by using binding agents such as fine gravels, slag and slurry. Later tar was used to bind the road surface providing a smooth sealed surface. Such roads were known as macadamised roads. Macadam published two treatises on road building, *Remarks on the Present System of Road Making* in 1816, and 1819, *Practical Essay on the Scientific Repair and Preservation of Roads*.

In the period 1765 – 1815 Britain witnessed. a shift in civil engineering techniques from tailoring the size of carts and stage coaches and in particular the width of their wheels to suit the existing roads, to designing roads capable of carrying any type of wheeled conveyance. These developments in road building paralleled other major civil engineering advances in the building of docks, canals, bridges and the earliest railways (wagonways) using horse power. The steam locomotive was yet to be fully developed, though early experiments with steam propulsion were conducted at the

beginning of the C19th. In 1820 the Institution of Civil Engineers was formed and Thomas Telford was invited to be its first President. It was against this background that the early colonial engineers employing the new principals of road building, designed and constructed the first 'Great Road' in the fledgling colony of New South Wales.

The confluence of colonial expansion, the arrival in the colony in 1825 of Governor Darling with instructions to implement the Bigge Report and the growing number of convicts in the colony made the building of the Great North Road possible. The colonial authorities in Britain wished to reassert the penal nature of the colony and the Bigge reports (1822 and 1823) recommended a greater emphasis on punishment. Governor Darling saw in a road building campaign in New South Wales an opportunity to reintroduce harsh punishment, revive the threat and fear of transportation as a punishment for crime in Britain, and maintain order among the convicts in the colony itself. He believed the road gangs would be an appropriate and economic way to deal with those convicts who had committed additional crimes in the colony (secondary offenders). Sending secondary offenders to remote penal settlements such as Norfolk Island was difficult and expensive. The road gangs served as a step in a graded system of punishment with transportation to Norfolk Island reserved for the most serious offenders. The increasing numbers of convicts arriving in New South Wales following the Napoleonic War provided the Government with a large, cheap labour force. The convict construction of roads was a most visible 'civilising improvement' to the landscape, it facilitated the spread of settlement, enhanced transport and communication and was a means of overcoming the wilderness and extracting wealth from it (Karskens 1985:17). The Great Roads to the north, south and west of Sydney formed part of Governor Darling's extensive public works program and consolidated his vision of "fine and all encompassing roads" (Karskens 1982:197) which would transform a "wretched country" into one of unparalleled civilisation (Karskens:1982:194). Governor Darling formed the Roads and Bridges Department to administer the project and he developed the massive convict road-gang system, with its organisational complexities of supplies and accommodation, to accomplish it (Karskens 1985:29). Governor Darling agitated constantly for more surveyors for the colony and the staff of the Surveyor General's Department increased from five surveyors in 1826 to 30 surveyors and two draughtsmen in 1830.

The use of road parties and road gangs was the means to implementing the 'Great Roads' building program and gangs were moved between the various roads to meet the changing labour needs as the building of each road progressed.

The difficulties of road building through rugged unsettled terrain first involved surveying a line of road and then constructing the road. Exploration of the land was still being undertaken and not infrequently a better route would be discovered as further exploration of the country occurred. Road building in the early days of colony could best be described as a 'work in progress' rather than a single endeavour as occurs with modern road making. This was particularly evident with the Great South Road. Surveyed in 1829, it construction was slow and intermittent with various portions being re-surveyed and at times alternate routes were taken as better alignments were identified. It was not until the early 1850s that the Great South Road reached the town of Yass.

The Great Western Road was closer to the Great North Road in both character and construction. Visible to the west and some fifty kilometres from Sydney Cove, the Blue Mountains with their impenetrable terrain posed a major barrier. Not actual mountains, but rather a deeply incised sandstone plateau rising from less than a hundred metres above sea level to 1 300 metres at its highest point the terrain presented a maze of sandstone mesa that end at sheer cliffs separated by deep inaccessible valleys. The plateau in places extending as far as 180 kilometres inland was subject to the extremes of weather including winter frosts and at times snow.

Following the building of the roughly hewn Cox's Road across the Blue Mountains, other routes through the mountains were found including Bells' Line from Richmond via Mt Tomah to Cox's River in 1823, Lawson's Long Gully line that ran down Mt York (1823-24) and the line established by Lockyer in 1828-29. Governor Darling instructed Surveyor-General Mitchell to re-examine the route and decide on another gentler decline from Mt York. Mitchell set another line of road with a descent from Mt Victoria and this led to a bitter dispute between the two men that long effected the road building program and the management of the convict road gangs. Ultimately it was the line via Mt Victoria surveyed by Surveyor-General Thomas Mitchell in May 1830 that was constructed as part of the Great Western Road. The steepness of the terrain and Mitchell's preference for straight lines of road made construction of the road a major engineering feat, particularly the Victoria Pass section which required extensive cutting and the building of enormous stone walls.

Conflicts arose between the Governor, the Surveyor-General, the assistant surveyors, the military and the convicts. The road construction was undertaken amid completing priorities and demands from each of these groupings. The Governor was under instructions from Britain to minimise costs and ensure the penal system acted as a deterrent to further crime. He was in conflict with his Surveyor-General who exercised control over the assistant surveyors supervising the actual construction work. This estrangement affected the management of both the road making process and penal management on all the great roads (Rosen 2006:15). It was compounded by the military's dissatisfaction with guarding convicts, a duty they considered as non-military and below their station.

A number of stockades to house the convicts was built along the route as work on the Great Western Road continued through the 1830s. When much of the major construction work on the Great North Road was completed in 1832 preparations were made to march irons gangs from the Great North Road to the Great Western Road. The descent via Victoria Pass was completed in 1832 and a stone arch bridge built by David Lennox across Lapstone Creek completed in 1834. The latter is now the oldest stone arch bridge on the Australian mainland (Rosen 2006:18).

The road gang system

Road gangs were of three types, iron gangs, unironed road parties and bridge parties. They reflected the desire in penal management philosophy to target punishment and provide opportunities for the grading of punishment and ameliorating the chances of corruption. Organisation of the gangs between 1826 and 1830 was through the Office of Roads and Bridges, and from 1830 the Surveyor-General's Department. But an incremental series of administrative changes in response to penal management issues

split responsibilities, such as welfare, security and road works, and culminated at the end of 1836 with control being placed in the hands of the Royal Engineers. An Assistant Surveyor was appointed to supervise works along particular lines of road and the construction work was carried out by convict labourers under the immediate supervision of soldiers from the veteran companies. The road gangs and their administration had a turbulent history with conflict between the military guards who considered overseeing convicts a non-military role and the civil administration. Governor Darling removed the military from such duties in March 1828 due to their misconduct and introduced the use of convict overseers who received a small gratuity according to their merit and responsibilities. The military did, however, retain security roles in guarding road parties and stores, and pursuing absconding prisoners. The use of convict overseers led to abuses of power and corruption and only served to compound the problems of convict gang management. Control of the road gangs ultimately reverted to the military in 1837 when all convicts were ironed.

Iron gangs consisted of up to 60 men under the supervision of a principal overseer with three assistants. Road parties worked un-ironed and were made up of 50 better behaved men under the supervision of a principal overseer and two assistants. Well behaved and skilled men worked un-ironed in a 'Bridge Party' of up to 25 men under the supervision of a single overseer (Karskens 1985:58 and Karskens 1986:19). The gradation allowed for the classification of prisoners and institutionalised a means by which good behaviour and work could be rewarded (Rosen 2006:20).

In 1828 Governor Darling claimed that the 1 260 men then employed on the roads averted the necessity of establishing yet another costly penal settlement, where they would be 'eating the Bread of Idleness'. He considered them '… the very refuse of the whole Convict Population and Double distilled Villains' (Rosen 2006:19-20 after HRA Series 1, Vol XIV, pp 69-72).

An examination of convicts in the Great Western Road gangs, many of whom worked on the Great North Road, has revealed that they were mainly young, urban and single and on arrival in New South Wales were relatively less experienced as criminals and that their average age was 23. Many had arrived in the colony with the minimal sentence of seven years and they had largely been convicted of property crimes, however, military crime was a particular area of distinction. An examination of court records has revealed that many had spent about five years in the colony before being sent to a road gang with one as young as 11 years of age and many under 20 years of age. Their youthfulness brought the muscle and stamina needed for labouring on roads. The ratio of Protestants to Catholics was about 2:1 and English offenders were in the majority with the Irish a very sizable minority. The data suggests that overall the convicts were workers, opportunists and some were the victims of a harsh penal code. Research has also revealed that 40 percent were skilled, 35 percent were semi-skilled and 23 percent unskilled, and that about 50 percent had work experience that had some application for the tasks required. It has been estimated by Shaw that some 5 000 or 18percent of all transported men had been confined at some time to an iron gang in the period 1826 to 1836 (Rosen 2006:31-32).

By 1832 there were 1200 men out of irons and 400 in irons working on the roads of New South Wales (Rosen 2006:24). The conditions for a convict working in a gang were severe and gradually worsened as the administration of the road gang system

tightened. Numerous factors including living conditions that deteriorated as the housing changed from huts to stockades, the isolation of the places in which the gangs worked, the vagaries of the penal justice system with floggings the common means of punishment for those who misbehaved on the road gangs, the corruption of the convict overseers, lack of adequate tools and equipment such as carts, the tensions between the military and the assistant surveyors oversighting the work that played down to the day to day management of the gangs, all acted to make the road gang convict's life a brutal, degrading and dehumanising experience. The convicts not infrequently rebelled and routinely did the minimum amount of work possible but sufficient to avoid the attention of the overseers. The severity of the conditions and a near starvation diet led many to abscond, some of whom took to bush ranging.

Both the assistant surveyors and the military officer in charge of the guard were jointly responsible for the prisoners wearing appropriate irons. Irons were to be flat, two inches in breadth and with the chain about nine pounds in weight. There were heavier versions for ironed men under additional sentence (Rosen 2006:21).

The use of stockades to house prisoners was commenced in the early 1830s when Governor Bourke who held office from December 1831 to December 1837 introduced their use as part of the process of regularising the road gang system and enhancing security. They were used to accommodate iron gangs and resembled small villages in which the penal accommodation was surrounded by a high fence. Supplied with one blanket each, the convicts slept in huts with tiered sleeping spaces. Ironed gangs were only allowed to work within three miles of their accommodation which imposed a limitation on the use of their labour. The unironed road parties generally lived in un-stockaded huts at more distant sites (Rosen 2006: 21 & 26).

Conclusion

The road gang system was the 'foundation of public wealth' because by building the roads, they placed the potential of the rich lands of NSW within easy grasp of 'respectable' classes of free settlers (Karskens 1985:34).

Maintaining the penal settlements was an expensive business. Governor Darling was under instruction to reduce costs and increase the labour supply to new settlers. He decided to keep the numbers at the penal settlements down, by putting some of the hardened offenders to work on the roads in irons, and so free the existing road workers for assignment to the settlers (Hirst 1983:94). The road gangs also had the benefit of removing large numbers of convicts from Sydney Town thereby removing the convict influence from the growing civil society of free settlers.

The growing size of the convict population in the 1820s, together with the growing free community, increased the problems of maintaining security within the convict system and protecting the free population from the depredations of escaped convicts. Increased severity of the system was a response to these pressures. It was also a means to introduce another gradation in the hierarchy of the penal system which allowed for further classification of prisoners and thus address some concerns of vocal penal reformers in the United Kingdom. The use of the fully developed system of chain gangs on the roads of NSW was introduced by Governor Darling in 1826, with a view to both putting the convicts to effective and secure public work, and reducing the need to create new penal settlements to deal with the increased number of

secondary offenders.

Even with their legs chained many convicts still escaped. They formed a:
'large proportion of the bushrangers for which Governor Darling's rule is notable. While bringing order and rule to bear in many places, in this matter the Governor fostered disorder on a large scale.This was the price the colony paid for keeping some of the worst convicts within its borders instead of sending them to a penal settlement' (Hirst 1983:94).

Colonial commentators of the time, including editor of the Monitor E.S Hall, alleged that the men in the chain gangs were driven to bushranging by a starvation diet. Their meagre rations yielded about 2 100 calories per day which was almost half that supplied to American slaves and two-thirds of that supplied to soldiery in the British Army between 1813-1857 (Rosen 2006:40 after Nicholas 1989:184-187). Hall gave horrifying accounts of the orgies of floggings at the penal settlements where commandants could award punishment without the formality of a trial and men were driven to despair of life itself (Hirst 1983:179).

Governor Bourke, who followed Governor Darling, continued the practise of using road gangs and to improve the management of the gangs he made the surveyors magistrates and thus the power to give up to 50 lashes. In 1832 Governor Bourke issued instructions for the erection of stockades for road gangs (to help minimise escapes), consisting of convict accommodation huts surrounded by a timber stockade fence, with guard accommodation facing the stockade gateway. From 1834 military guards were placed at each of the stockades at which the road gangs were based. By 1836 Bourke reported that he had 1 000 convicts in irons working in 16 gangs. At the end of that year, supervision of the gangs was transferred from the surveyors to the military officers, who were also made magistrates.

From 1838 to 1851 the gang system stagnated, convict numbers in New South Wales fell from their peak of 38 305 in 1840 to 6 664 in 1847 (Shaw 1966:405-6). This was as a result of the cessation of transportation to New South Wales in 1840. In this context, the role of work gangs both as punishment and as a tool of separation, and as an effective public works force, disappeared, and the last stockade was closed in 1851 (Thorp:1998:116).

Grace Karskens, the key historian of the road, has put the road into the context of convict labour thus:
'The extensive and varied stone and earthen structures of the Great North Road are, at one level, a museum of convict work. They convey to us the mammoth efforts, the tedious and the laborious work: we can see and touch the side drains and cuttings cut and smoothed by hand, the girth and bulk of the stones, the evidence of blasting, and quarrying 'by force of maul and wedge''. (DEH Draft World Heritage Nomination 1999:89).

Karskens goes on to explain that at a deeper level:
'The different styles of stonework and approaches to road building seen in the physical remains can be related through the documentary sources to individual engineers, supervisors and road gang parties, and indicate that at least some of the overseers and road builders were skilled, diligent and sufficiently interested in their

work to stay on the job in a situation where escape was easy'.

Nineteenth century travellers were deterred from using the road, not only because of the remoteness of the areas through it passed north of the Hawkesbury but also because of the lack of watering places for animals as the road followed the high terrain. Further, the remoteness added to the danger presented by bush rangers. The latter had become a serious problem during the 1820s and 1830s and while both Governors Darling and Bourke were keen to stamp it out, neither was successful.

The Great North Road

The Great North Road runs for a total distance of 250km between Castle Hill just west of Sydney and the Hunter Valley which lies some 140 kilometres directly north of Sydney. It was commenced in 1826 and completed in 1836, with Finch's Line and the Devine's Hill section in the vicinity of Wiseman's Ferry constructed between 1827 and 1832. It was a tremendous achievement given the challenges presented by the isolation of the route traversed, the technical difficulties presented by the steep typography, in particular, the ascent (Devine's Hill) on the northern side of the Hawkesbury River; the conflicting demands of the penal administrators, the surveyors building the roads and the military guards; and the ever present demands of the Colonial Office to minimise costs. Its construction served two purposes. It not only met the needs of the expanding colony by linking the Hunter Valley to Sydney but it also provided the means for employing convict labour in a manner consistent with the penal philosophies of the day.

The work was carried out by convict gangs, some working in irons, who were housed in temporary huts at the stockade camps which were spaced at regular intervals along the road, wherever work was under way. When the road gangs moved on to new sections of the road, the stockade camps were dismantled and the materials re-used or sold. None of these sites survives with standing buildings, few have been shown to have substantial ruins and few have been investigated for archaeological evidence. The Devine's Hill stockade site, however, having been little disturbed since its abandonment as a convict work camp, is likely to contain archaeological remains.

The Great North Road was the first made road north of the Hawkesbury River and the second land access route to the Hunter Valley. It symbolised the drive to extend the colony beyond the Sydney basin and provide permanent road access to the recently settled farms in the fertile Hunter River Valley. The descent into the valley from the south was reasonably straight forward, along the main ridge leading to Wiseman's Ferry. On the northern side of the Hawkesbury, however, there were several possible routes for the new road. The original line of the Great North Road between Baulkham Hills and Maitland was officially surveyed by Heneage Finch in September 1825 (Karskens 1985:45). The line marked by Finch over the ridges from Wiseman's Ferry to Maitland (including the section now known as Finch's Line), was a route discovered by Richard Wiseman and shown to Finch. Wiseman was rewarded for this discovery with a grant of 640 acres in the Wollombi Valley (Karskens 1985:45).

Finch's Line

Construction of Finch's Line began in 1827 and continued into 1828 by No. 25 Road Party, and perhaps No. 3 Iron Gang, under supervision of Lt Jonathon Warner, with gangs working from both ends of the line. It was steep and winding, with difficult

hairpin bends, and reflected the standard approach to road building in the colony before the 'Great Road' system was envisaged. It formed part of the cart track which was completed along the route of the northern road by 1829 (O'Conner:1985:10).

In January 1829, Surveyor-General Major Thomas Mitchell resurveyed the perilously steep and narrow road and deemed Finch's Line to be inadequate for a 'Great Road'. Under instruction from Governor Darling, he instead traced a more suitable ascent to the west of Finch's Line, up Devine's Hill. Construction of Finch's Line came to an abrupt end as gangs were transferred to commence the new line over Devine's Hill in 1829. This abrupt cessation of work on Finch's Line can be observed today. Finch's Line terminated along the top of the ridge and recommences further north, with the unfinished section crossing the grassy ridge.

Finch's Line contains rare, extant 1820s remains relating to road building and to the convict gangs themselves. It features a very steep zigzag ascent with retaining walls of roughly squared masonry up to 5 metres in height. Above the ascent the road follows a relatively flat ridgeline featuring retaining walls and 7 stone slab culverts. Finch's Line also contains an array of early colonial features including a quarry site, 3 examples of historic graffiti, an engraved mile marker and the remains of a stone hut. It also contains one Indigenous archaeological site, a shelter with art (CMP 2005:5-25 – 5-26).

The re-alignment: Devine's Hill

The Great North Road was built on this new alignment between 1829 and 1832 under the supervision of Lt Percy Simpson who had taken over from Lt Jonathon Warner in August 1828. Mitchell's Devine's Hill section of the road was the most challenging section (in an engineering sense) of the entire Great North Road, and indeed, one of the most challenging on any NSW colonial road. It required substantial cut and fill operations, the building of massive stone abutments to support the road as it wound up the steep sides of the sandstone ridges and a good drainage system.

The Devine's Hill ascent and the link road to the top of Finch's Line contains 46 stone culverts, retaining walls ranging from 0.5 to 8.5 metres in height, incorporating buttresses, culverts and spillways, and stone cut side drains. Adjacent to Devine's Hill are a number of historical archaeological sites including a convict stockade site, a quarry, a powder cave, 3 buried culverts and 21 engravings (CMP 2005:5-29 – 5-34).

Quarrying

To reduce the slope at Finch's Line it was hand cut with chisels or rock picks, when the area to be reduced was only small. On larger areas the stone was hewn by driving iron wedges into the rock face with a maul until the rock split along the line of the wedges. Wedge pits and chisel marks can be observed along Finch's Line.

Blasting was also utilised to reduce the slope. A jumper bar was driven into the rock face, blasting powder poured into the hold left by the jumper bar, a wick of touchpaper inserted and the top tamped down with clay. Once lit, the rock would be blasted off (Karskens 1985:195-96). Evidence of this type of quarrying, in the form of jumper bar marks, remains on the rock face.

The convicts

From 1826 the gangs who worked on the roads were under colonial sentence having re-offended since their arrival in the colony. The gangs also fulfilled Governor Darling's instructions to increase severity, they effectively used distance to remove these 'undesirables' from society, and they were a relatively cheap way of building the necessary roads for the colony. By 1830, 1 755 convicts worked on the colony's roads, in ironed and unironed gangs, 558 of whom were constructing the Great North Road (Karskens 1985:32). The construction of such grand roads would not have been possible without this labour force.

Post convict history

The virtual abandonment of the route was due to steam ships becoming the preferred mode of transport to the Hunter Valley (and hence parts of the road fell quickly into disrepair through neglect) and the nature of the terrain covered by the route (a long and difficult road to traverse with a lack of suitable accommodation and scarcity of water).

Later alternative routes north sealed the fate of much of the Great North Road. In 1844 an alternative route north via Peat's Ferry came to be regarded as far superior, while in 1884, the road from Wiseman's Ferry through St Albans to Wollombi was formally opened to traffic.

Until the opening of the Pacific Highway in 1930, with a ferry service for cars to cross the Hawkesbury River, The Old Great North Road was part of the major road route between Sydney and Gosford. Simpson's track (located off the Old Great North Road in Dharug National Park) was a part of this route. From 1859 to 1860, the Northern Telegraph Line was installed between Wiseman's Ferry and Wollombi along the roadside between Finch's Line (including 1.8 km of Finch's Line) and Ten Mile Hollow.

Maintenance work was carried out on parts of the Old Great North Road by the Post Master General (PMG) until 1965 in order to retain access to the telegraph line. This involved the use of a backhoe, grader and small bulldozer on the Old Great North Road. Several wooden culverts were pulled out and replaced with concrete pipes and headwalls during this time.

During the 1970s the Australian Army used the Great North Road on occasions to test armoured personnel carriers and six-wheel drive vehicles.

It is likely that the convict worked stone which forms the foundations of a number of houses in the Wiseman's Ferry area also originated on the Great North Road, much of it possibly as edging along the Devine's Hill section.

In spite of this history of use, the Great North Road remained traversable by two wheel drive traffic until about the 1970s. From that time there was an increase in the numbers of privately owned recreational four-wheel drive vehicles and trail bikes, a corresponding increase in usage of the Great North Road by these vehicles and a dramatic increase in the rate of deterioration of the surface of the Great North Road and damage to other features such as culverts, retaining walls and cuttings.

Since the gazettal of Dharug National Park in 1967 the National Parks and Wildlife

Service has monitored the condition of the Great North Road and done minor emergency conservation and maintenance works.

Conservation works on Devine's Hill
The road remained traversable by two wheel drive traffic until about 1970 when there was an increase in the numbers of privately owned recreational four-wheel drive vehicles and trial bikes. A corresponding increase in usage of the Great North Road by these vehicles led to a dramatic increase in the rate of deterioration of the surface of the road and damage to other features such as culverts, retaining walls and cuttings.

In 1978 the National Parks and Wildlife Service was able to close the most visually spectacular section of the Great North Road, Devine's Hill, to public use by vehicles and horses. Emergency conservation works were then carried out and a broader conservation program commenced in 1997. Since the early 2000s aluminium photo interpretive displays have been installed.

During 1993 and 1994 the National Parks and Wildlife Service carried out repairs on culverts on Devine's Hill Between 1994 and 1997 road surface stabilisation works were undertaken. During 1997-98 extensive conservation works were undertaken to improve the efficiency of water drainage and to prevent further damage to the road surface and its structures, including:

- Removal of tree growth which might affect structures;
- Cleaning of all culverts and table drains of silt and debris;
- Construction of mounds across the road pavement to limit scouring flows on the pavement;
- Carrying out some repairs to culvert structures;
- Recovering buttress stones, reconstruction of buttress and culvert;
- Laying of geotechnical matting over the road surface and covering with a layer of local sand and road fill; and
- The setting up of survey points to monitor bulges in various sections of the historic retaining walls.

Metal interpretation signs were remounted on rough-hewn sandstone blocks in 2000. Between 1998 and 2002 work continued on vegetation clearing, the progressive repair of culverts on both Devine's Hill and Finch's Line, as well as the preparation of technical reports on historic graffiti and timber items and the reconstruction of a retaining wall at Chainage 1617 on Devine's Hill.

Condition:
The following information has been sourced from The Old Great North Road, Conservation Management Plan, Dharug National Park, November 1999, National Parks and Wildlife Service, and The Old Great North Road, Dharug National Park Conservation Management Plan, March 2005, Volume 1, Griffin NRM Pty Ltd which is based upon the National Parks and Wildlife Service Conservation Management Plan 1999.

The archaeological evidence or fabric of the Great North Road is defined as all the

remaining physical material of the Great North Road and its associated precincts. This includes:

- the formation of the Devine's Hill section of the Great North Road (1.8 km), Finch's Line (5.2 km) and the link road joining the two (0.5 km), meaning its shaping as well as the shaping of the immediate setting uphill and downhill, and including the sub-surfacing and surfacing;
- the alignment of the above portions of the Great North Road;
- the individually identified elements and classes of element.

A wealth of material from the period of the road construction and use remains, demonstrating both road making activities and the life of convict workers and the people who used the Great North Road. The road making activities included cutting and filling to form the shape of the road (involving chiselling, blasting and quarrying), building walls and bridges, sub-surfacing and paving of the road, the construction of drainage systems and fencing. Evidence of convict life includes graffiti, water supply features and the remains of both a stockade adjacent to the link road joining the Devine's Hill section of road and Finch's Line, and the remains of a hut on Finch's line of road.

In 1988 funding became available to record the historical features of the Great North Road in order to provide an adequate basis for developing a Conservation Management Plan which was published in 1999. Additionally, in 1992 the New South Wales Minister for the Environment closed those portions of the Great North Road within Dharug National Park to public vehicular access to prevent further damage to the fabric and for public safety reasons thus protecting Finch's Line and the link section of road joining it with Devine's Hill.

Road Formation
The road carriageway was formed as follows:
'Wherever the natural terrain sloped from one side of the road to the other, the lower side was embanked and/or the higher side cut down. A gentle slope was often slightly embanked with a side wall of one or two courses. On very steep slopes both cutting and filling were required and the operations were usually simultaneous, the material from the cutting forming the embankment. Where land was naturally level, it appears that no formation was made at all. The line was simply cleared and a broken stone pavement laid.

Three main methods of reducing the slope were used according to the size of the area. Generally, where a stone cutting was required up to approximately 1.5m/4ft in height, it was hand cut with chisels or rock picks and the face was vertical. Larger stone cuttings were usually blasted out and where retaining walls were required, the exposed rock faces were quarried both to provide stone and to widen the road' (Karskens 1985a:277-9).

Blasting involved the preparation of holes to the depth of rock to be blasted off. This is likely to have required two men, one holding a jumper bar and the other wielding a hammer or sledge. Some time after preparation of the hole, gunpowder was poured in, the top tamped with clay and the rock face blasted off. This process would be begun on the uphill side of the road with successive layers dislodged until the road attained

the correct depth (after Karskens 1985a).

Evidence of blasting can be seen in the numerous jumper scars with their distinctive triangular profile and in occasional unused jumper drill holes. Associated artefacts include possible powder magazines at Devine's Hill and Finch's Line and portable artefacts such as jumper bars and sledges.

The cuttings range from road edging a few centimetres high, to walls approximately 1.5m in height.

'Quarrying was carried out with basic tools using primitive methods. While quarrying may have been done using wedge pits, guttering and/or plug and feather methods, there is evidence only for the first of these. This involved the cutting of wedge pits up to 9 cm deep into the rock with a chisel or pick. Iron wedges were then driven into the pits with a maul in order to split the rock. If quarried or blasted rock was unsuitable for wall construction it was discarded over the edge' (Karskens 1985a:279).

Large scale quarrying left a rock face with a distinctive benched profile. Both used and unused wedge pits can be seen along the Great North Road, and in places such as Devine's Hill, piles of unused rock can be seen in the gully below.

In general, cuttings are subject only to the effects of natural weathering, however, there are several exceptions where hand-picked rock faces have been scraped, some on a regular basis, by vehicles driving too close.

Alignment

In general, the alignment of the Great North Road is dictated by the landscape with the road largely following the ridge line, however, specific areas such as Devine's Hill ascent illustrate Mitchell's 'straight line' policy of road construction.

Damage to the alignment includes widening and diversion tracks around potholes, ruts and eroded areas.

The Road Surface

The road carriageway was levelled to make it suitable for horse and cart traffic by forming a pavement.

'This was usually done in one of two ways depending upon the composition of the road surface. Broken stone pavements involved putting down layers of stones of various sizes grading from large at the base to small on the top, while sheet stone pavements were formed from the incorporation of natural rock platforms or shelves. For these, they were simply smoothed with picks or chisels and any gaps filled in with broken stones' (Burke 1988:16 after Karskens 1985a).

The amount of broken stone pavement along the Great North Road predominates over that of sheet stone pavements.

The road surface is extensively damaged. In some areas the original base course of sandstone chunks can be seen on the surface while in others it can be seen in section. None of the original shale paving remains. Shale paving that can be seen in patches on

Devine's Hill was put there by the NPWS in the 1970s and 1990s to prevent water scouring. Damage includes extensive scouring and rutting to the point where the present road surface is more than a metre lower than the original in places. Numerous large potholes occur, at least one large enough to submerge a vehicle (1999). The main cause of damage to the road pavement is:
'The uncontrolled flow of water over the road surface in periods of high intensity rainfall….exacerbated in recent times by the passage of modern vehicles able to exert much greater traction effort at the wheels' (McBean and Crisp 1990a:36).

The general condition of the road surface of the Devine's Hill section of the road is comparatively good due to closure and maintenance including construction of rollover drains and road pavement works.

Retaining walls
'The construction of the road over a ten-year period by numerous gangs under different supervisors resulted in an extremely diverse range of retaining walls, varying broadly in every possible detail. The dimensions vary according to the functions, from between less than 30 cm to over 9.5m in height and between 30 cm and 1m in thickness. In some cases a single course of stone was required to enclose a slight embankment elevating and levelling uneven ground, while in other cases over twenty heavy courses were necessary to support massive formations on precipitous slopes…..The common factor is that all the walls are dry laid. Even walls comprising the smallest and most ill-shaped blocks were not mortared. It appears that either broken stone or a mixture of earth and stones was employed as backing fill for these walls' (Karskens 1985a:340-2).

There are several kilometres of retaining walls altogether. They range in length from a few metres to several hundred metres.

Some retaining walls are intact and some have completely collapsed while others show evidence of stress in the form of local bulging, distortion of the shape of the wall, movement of the buttresses and partial collapse. The two main causes for wall damage on Devine's Hill section are:
'(i) in most instances of wall bulging it was found that water leaking from culverts had resulted in excess fill pressures behind the lower parts of the walls – as the toes of the wall in these locations was constrained and the wall was not reinforced, bulging has occurred;
(ii) some sagging of the walls has occurred where they are not founded on rock and the toes have become undermined' (Jordan and Associates 1997:10).

Other identified causes of local bulging and/or collapse are growth of trees in or adjacent to walls and pressure from vehicles driving too close to the edge of the road. According to Jordan and Associates (1997:10) the walls appear to have been in a distorted condition for a considerable time and there is no danger of collapse.

Drainage
Drainage along the Great North Road takes two forms: side drains and culverts. Their size:
'seems to vary indiscriminately and often without apparent logic. The cross sectional area of many culverts is often smaller at the entry and larger at the discharge end.

One is left with the impression that the design of the hydraulics of the road drainage was ad hoc…This indeed is very likely the case as the fundamental design information for proper control of the water would have been unavailable to the constructors of the day' (McBean and Crisp 1990a:35).

(i) Side Drains
The side drains constructed served to collect and channel water and were of three types:
'stone-cut, stone-block edged or merely as a ditch dug in the soil along the side of the road. Stone-cut examples were constructed through areas of sheet sandstone outcrop, where these formed the surface of the road, while ditch-drains were installed in other sections. Stone-block edged drains provided a low wall of sandstone blocks along the inner edge of the drain to prevent road fill material from washing into the drain' (Burke 1988:15 after Karskens 1985a).

For most of the Great North Road there is a drain on the inboard side.

'The drains are the least damaged feature of the structures that comprise the road system. Weed growth, build up of debris and choking by silt and debris are the main features. There is some damage by water scour to the edges against the road pavement where the stone edging of single course retaining wall has not been able to cope' (McBean and Crisp 1190a:33-6).

In many places the drains, while sometimes still intact, are no longer functional as the adjacent road surface has deflated to a level below the drain. Along the Devine's Hill section the side drains are generally in reasonable working condition and of adequate capacity except for significant lengths of siltation, blockage by debris and vegetation growth (Jordan and Associates 1997:8).

(ii) Culverts
'Culverts were either constructed from stone or timber and served to divert water from the side drains, underneath and away from the road. Both types of culvert were constructed in a similar fashion, only the basic compositional material varying. A typical stone block culvert had both walls constructed from sandstone blocks and capping stones of thinner sandstone slabs. The inlet and outlet were both composed of stone blocks, sometimes the lintel stone being curved, for purely decorative reasons.

Timber culverts had two parallel support beams running the width of the road, with split slabs used as capping and squared logs used as lintels for inlets and outlets. The lintels were often secured by iron stakes driven into the support beams beneath' (Burke 1988:15 after Karskens 1985a).

One hundred and eight culverts have been recorded, 28 constructed out of wood, 63 out of stone and 17 consisting of concrete pipes which for the most part are known to have replaced wooden culverts and were installed within the past 40 years. The locations of a further six wooden culverts which have completely disintegrated over the past few years and three stone culverts buried by road works near the bottom of Devine's Hill have also been recorded (Webb 1990, 1991c). According to a hydrology report undertaken by Jordan and Associates (1997:8), culverts on the Devine's Hill section are:

'generally adequate with most able to cater for flows similar to or greater than the estimated 100 year ARI rainfall events. An area of concern is between culverts C34 and C36,…where significantly large catchments contribute flows about 2 to 4 times culvert capacity for the 10 year ARI rainfall event.'

Of the wooden culverts only two (one of which can be seen near Ten Mile Hollow campsite) are still functional. The state of the remainder ranges from a few pieces of wood by the side of the road to a pair of bearers embedded in the roadway with remnants of crossbars. Of the stone culverts, around 51 are still sufficiently intact to be functional if maintained. Forty one of these are on Devine's Hill section, which has received regular maintenance since recreational traffic was removed. Split and missing capping stones were replaced with sandstone blocks on several culverts in 1992/3 by the NPWS. The state of the remainder of the stone culverts ranges from only the inlet or outlet remaining to mostly intact with smashed capping stones.

'Damage to the culvert arises from two sources. The first is the loss of the protective cover over the capping stones due to scouring by uncontrolled surface water and subsequent damage by modern vehicles. The second is the hydrostatic head build up in a surcharged culvert running full because it is essentially undersize' (McBean and Crisp 1990a:35).

Bridges
There are no bridges in the Devine's Hill, Finch's Line and link road portions of the Great North Road.

Wooden Structures
Remnants of guard-rail fencing exist in three locations. They comprise a total of 8 wooden posts in situ and fragments of worked timber nearby. There are remnants of a log structure in one location.

The fencing timber has been badly damaged by wildfire and is vulnerable to further fire and weathering.

Ancillary and outstanding features
Most of the ancillary and outstanding sites are not on the Great North Road itself, therefore, their greatest present threat is natural weathering. Their greatest potential threat is vandalism if they are publicly identified without adequate protection and/or interpretation.

(i) Stockade Site
There were apparently up to six semi-permanent encampments along the Great North Road, but evidence of only one, at Devine's Hill, has been found in the study area (Burke 1988 after Webb, pers. comm.). Similar camps are located south of the river within Wiseman's Ferry Historic Site, also owned by the NPWS. Early encampments (1826-7), comprised temporary slab and bark huts in random groups at convenient intervals along the Great North Road. Later encampments, known as stockades, were more complex, comprising buildings with stone foundations, hearths and ovens (from Karskens 1985a:59ff).

Only isolated stonework at ground level remains. This includes a well.

(ii) Hut sites
The stone foundations of two huts are located at Frog Hollow. They may have been used for storage of supplies. They comprise remains only.

(iii) Powder Magazines
The small natural rock shelter on Devine's Hill known as Hangman's Rock has been modified with hand cut steps, shelf and post holes. It is thought that this site may have been used as a powder magazine due to its location close to a major quarry. It's open aspect, the presence of postholes, suggesting a barrier, and the fact that the dimensions of the shelf correlate with the dimensions of gunpowder containers of the period (I Webb, pers. comm.).

The sandstone surfaces of the site are suffering from exfoliation caused by modern graffiti and subsequent salt erosion.

(iv) Graffiti
Numerous examples of convict graffiti occur along the Great North Road. Graffiti from later periods up to the present also occur. The convict graffiti is pecked into the rock-face with a chisel or gad. Initials are the most common form but pictures and words also occur.

Condition ranges from very clear to almost illegible and appears to be related mainly to how deeply the graffiti was originally made.

(v) Water Supply Features
This comprises several hand cut structures including races, basins and wells.

Their condition is generally good as they are subject only to natural weathering and gentle water flow.

(vi) Mile Markers
Three mile markers have been identified: the '1 mile' on Devine's Hill, the '7 mile' and the '1 mile' on Finch's Line. All are engraved except the '7 mile' marker, which is a wooden post, no longer in situ. It has been removed by the NPWS for its protection.

The engraved markers are in relatively good condition but the wooden marker has been badly damaged by fire and termites and only about half the inscription still exists.

(vii) Portable Artefacts
This category includes a number of metal artefacts such as leg-irons and picks as well as larger items such as the '7 mile' wooden mile post (Burke 1988:50), all of which have been removed by the NPWS for their protection. Some other portable artefacts are thought to have been removed by members of the public from places such as the stockade site on Devine's Hill (I Webb, pers. comm.).

The metal artefacts are in varying states of corrosion.

Finch's Line

The ascent of Finch's Line is relatively short (about 1km of the 5.2km line) and very steep and narrow with several zigzags where the road widens to form turning circles of 8-10 metres width. The retaining walls are dry laid, roughly squared and coursed and rise up to 5 metres. Much of the line below the ascent comprises an embankment with only one course of stone to delineate the outer boundary, while the line above the ascent, following a relatively flat ridgeline, has walls ranging from one to several courses high. The drainage system comprises sloping roadway to facilitate runoff and seven stone slab culverts (Comber, 1991b). Finch's Line features a major quarry, three examples of convict graffiti, an engraved mile marker (at one mile) and the remains of a stone hut a short distance from the Old Great North Road.

Quarry Sites
Quarry sites are found on Devine's Hill, Finch's Line and Shepherd's Gully. They demonstrate an array of stone mining techniques including wedge pits and jumper marks where gunpowder has been used. The Shepherd's Gully Quarry appears to have been used in the 20th century, utilising modern earth moving equipment.

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