

Appendix I Updated Historic Heritage Assessment (HHA)



NGH



Oxley Solar Farm

Historic and Archaeological Assessment Oxley Solar Farm

July 2022

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W. www.nghconsulting.com.au

BEGA - ACT & SOUTH EAST NSW
Suite 11, 89-91 Auckland Street
(PO Box 470) Bega NSW 2550
T. (02) 6492 8333

BRISBANE
T3, Level 7, 348 Edward Street
Brisbane QLD 4000
T. (07) 3129 7633

CANBERRA - NSW SE & ACT
Unit 8, 27 Yallourn Street
(PO Box 62) Fyshwick ACT 2609
T. (02) 6280 5053

GOLD COAST
19a Philippine Parade
Palm Beach QLD 4221
(PO Box 466 Tugun QLD 4224)
T. (07) 3129 7633

E. ngh@nghconsulting.com.au

NEWCASTLE - HUNTER & NORTH COAST
Unit 2, 54 Hudson Street
Hamilton NSW 2303
T. (02) 4929 2301

SYDNEY REGION
Unit 17, 21 Mary Street
Surry Hills NSW 2010
T. (02) 8202 8333

WAGGA WAGGA - RIVERINA & WESTERN NSW
35 Kincaid Street (PO Box 5464)
Wagga Wagga NSW 2650
T. (02) 6971 9696

WODONGA
Unit 2, 83 Hume Street
(PO Box 506) Wodonga VIC 3690
T. (02) 6067 2533

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Acronyms and abbreviations

AHD	Australian Heritage Database
CHL	Commonwealth Heritage List
DC	Direct Current
DCP	Development Control Plan
DECCW	(Former) Department of Environment, Climate Change and Water (NSW) (now DPIE)
DPIE	Department of Planning, Industry and Environment (NSW)
EIS	Environmental Impact Statement
EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
ha	hectares
HAA	Historical and Archaeological Assessment
Heritage Act	NSW <i>Heritage Act 1977</i>
HNSW	Heritage NSW
ICOMOS	International Council on Monuments and Sites
ISEPP	NSW State Environmental Planning Policy (Infrastructure) 2007
km	kilometres
kV	kilovolts
LEP	Local Environment Plan
LGA	Local Government Area
m	metres
mm	millimetres
MW	megawatts
MWh	Megawatt hours
NGH	NGH Pty Ltd
NHL	National Heritage List
NPW Act	<i>National Parks and Wildlife Act 1974</i> (NSW)
NSW	New South Wales
OEH	(Former) Office of Environment and Heritage (NSW) (now EES)
OSD	Oxley Solar Development
OSF	Oxley Solar Farm
PCU	Power Conversion Units

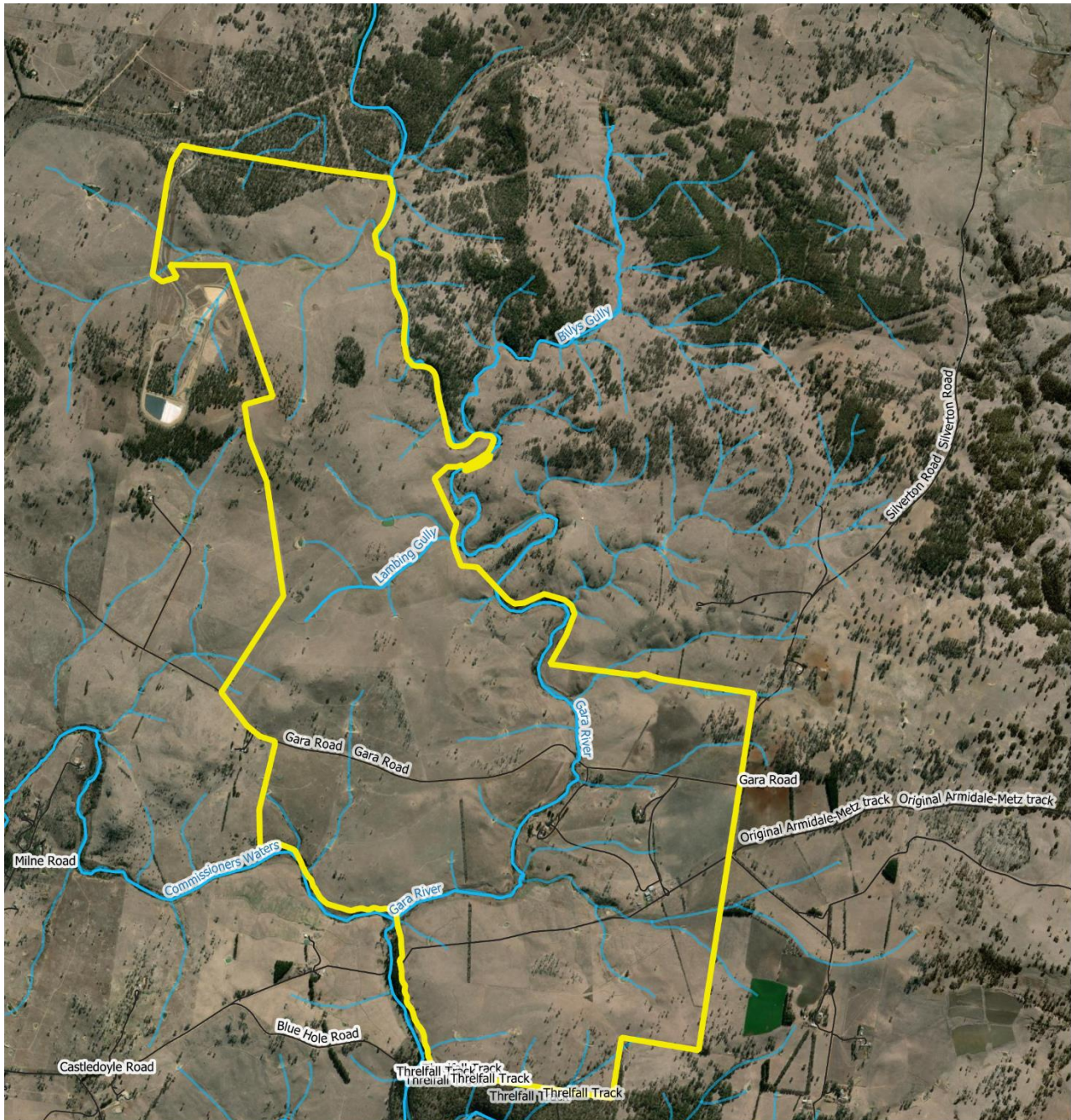
RNE	Register of National Estate
SEARS	Secretary's Environmental Assessment Requirements
SHI	State Heritage Inventory
SHR	State Heritage Register
SSD	State Significant Development
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHL	World Heritage List

Executive summary

Background

NGH Pty Ltd (NGH) was commissioned by Oxley Solar Development (OSD) to prepare a Historical and Archaeological Assessment (HAA) for the State Significant Development (SSD) Oxley Solar Farm (OSF) (development consent #SSD 10346).

The OSF Proposal Site is located on the southern side of Waterfall Way, approximately 14 kilometres (km) southeast of Armidale (

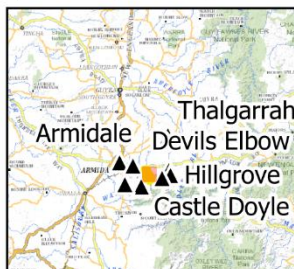


**Oxley Solar Farm
Location of Project**

Legend

- Proposal Site
- Waterways
- Roads

0 0.5 1 km



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Ref: 20-743_OxleyHAAWorkspace_20211125
Location of Project
Author: C. Davey
Date created: 04.05.2022
Datum: GDA94 / MGA zone 56



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Figure 1-1) in the Armidale Regional Local Government Area (LGA) in New South Wales (NSW). The OSF Proposal Site encompasses 1,048 hectares (ha) site with the relevant lots for the proposed solar farm and this assessment including Lot 1 DP1206469; Lot 2 DP1206469; Lot 5 DP253346, Lot 6, DP625427 and Lots 7003 and 7004 DP106020. Within this Proposal Site, the Development Footprint covers between 263.03ha (Option 1) and 267ha (Option 2) and is also

shown in

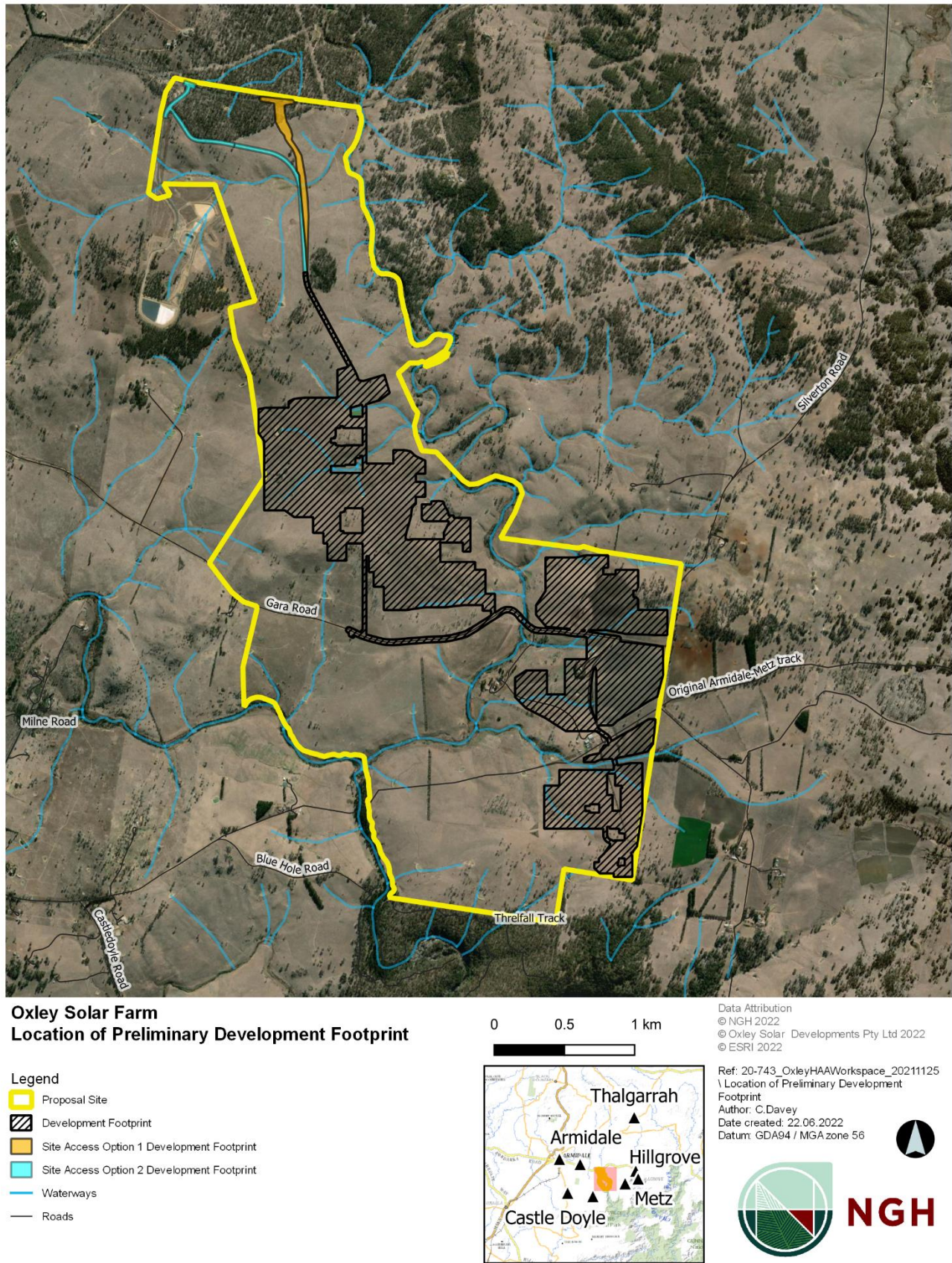


Figure 1-2.

The Proposal Site is partially within the Parish of Metz and partially within the Parish of Gara, both in the County of Sandon. The boundary of these parishes is demarcated by the Gara River.

Two listed heritage items, and three potential heritage items were identified within or near to the Proposal Site that will be assessed within this report:

- Listed heritage items:
 - Gondwana Rainforests (United Nations Educational, Scientific and Cultural Organization (UNESCO) World heritage (ID: 368), NHL (ID: 386), SHR (ID: 1002))
 - Gara River Hydro-Electric Scheme (State Heritage Register (SHR) ID: 0986)
- Potential (not-listed) heritage items:
 - Surveyors tree (SvT1) – tree located to the north of Grafton Road and not within the development footprint
 - Cottage site (CS) 1 – archaeological site of former rural house
 - Gara Homestead (GH) - house and workers accommodations, working sheds.

Significance assessment

The following statements of heritage significance for the Gondwana Rainforests of Australia and the Gara River Hydro-Electric Scheme are taken from the NSW heritage listing for each item. The NGH assessment of the heritage items against the NSW heritage significance criteria in the preceding section supports the existing heritage significance statement and so no new assessments of significance for these items are required for this report. However, an assessment for those potential heritage items that were identified during the survey that are not currently listed on any heritage register is discussed below.

Gondwana Rainforests of Australia

‘This site, comprising several protected areas, is situated predominantly along the Great Escarpment on Australia’s east coast. The outstanding geological features displayed around shield volcanic craters and the high number of rare and threatened rainforest species are of international significance for science and conservation. (UNESCO)

An outstanding example representing major stages of the earth’s evolutionary history; an outstanding example representing significant ongoing geological processes and biological evolution; and containing important and significant habitats for the in-situ conservation of biodiversity.’ (NSW Government 2021a)

Date significance updated: 2/06/2009

Gara River Hydro-Electric Scheme

‘The Gara River hydro-electric scheme is of state and national significance because it was the first to light a township in Australia and the first to offer its power for commercial sale. As designed by Richard Threlfall, Professor of Physics at the University of Sydney, it incorporated technological innovations which made it one of the most advanced schemes in the world.

It provides direct physical evidence of the changing economic fortunes of Hillgrove in the face of the 1890s depression, the drop in antimony prices and the drought. For modern Australian society, it provides a time depth for the environmental debates of hydro versus environment (Gojak et.al. 1988: 32 as cited in (NSW Government 2021b)).”

Date significance updated: 20/06/2006

SvT1

The surveyors mark as identified adjacent to Waterfall Way is considered to be a rare extant example of markers from the early twentieth century. While such marks have been recorded and listed within other parts of NSW, no survey trees are current recorded within the Armidale and it is therefore assessed that, with its connection to the establishment of the road from Armidale to Dorrigo and Bellingen, and to the development of Armidale, the item is locally significant.

The tree is located to the north of Grafton Road and not within the development footprint.

CS1

It is possible that this site contains some research potential as an archaeological site. As it is outside the impact area of the proposal, no extensive research has been undertaken about its possible origins or type.

GH1

The house has been assessed to meet criteria (c), (f) and (g) for its aesthetic, rarity and representativeness at a local level. The value of its setting is in the outlook from the homestead across pastoral lands and the Gara River.

Further assessment of the architectural values of the house would be required to provide a full statement of significance, however this has not been undertaken as the house is not within the impact zone of the proposal, and the outlook westwards from the house will not be impacted by the works.

The additional buildings at the top of the hill, including workers quarters and sheds which date to the early- to mid-20th century, do not hold any heritage significance.

Impact assessment

The table below provides a summary of the impact assessment for the identified historic heritage items.

Item	Physical impact	Visual impact
Gondwana Rainforest (Oxley Wild Rivers National Park portion)	<p>None.</p> <p>The natural heritage site is located outside, though immediately adjacent to the Proposal Site property boundary, but is at least 450m south west of the actual development footprint at its nearest point.</p> <p>A biodiversity assessment has determined that there will be low impacts to threatened species and that connectivity between the Gondwana Rainforest and other reserves will be maintained (NGH 2021).</p>	<p>None.</p> <p>The curtilage of the Gondwana Rainforests as listed is screened by an additional layer of trees on private property. As such, the solar farm will not be visible from within the curtilage of the item, and the item is not visible from the development.</p> <p>The aesthetic values of the Gondwana Rainforest relate to the natural beauty which is generally enjoyed from within the item.</p>
Gara River Hydro Electric Scheme	<p>None.</p> <p>The archaeological site is located outside, though adjacent to the Proposal Site property boundary, but is at least 450m south west of the development footprint at its nearest point. No evidence to suggest any archaeological remains of this site are present within the development footprint was identified.</p>	<p>None.</p> <p>There are no aesthetic values identified for this item. Additionally, as the archaeological site is bounded by the same curtilage as the Gondwana Rainforests at this location, it is also screened by a layer of trees on private property.</p> <p>There will be no visual impact to the Gara River Hydro Electric Scheme as there is no line of sight between the registered site and the Oxley Solar Farm development.</p>
SvT1	<p>None.</p> <p>The tree is outside of the development footprint and will avoid this tree by 20m if Option 1 for the site access is chosen. A temporary protective barrier may be required.</p>	<p>None.</p> <p>There are no aesthetic values associated with this item, and it will remain in situ, in association with the road with whose origins it is associated.</p>

Item	Physical impact	Visual impact
CS1	<p>None.</p> <p>The closest works are approximately 400m east of this site, on the other side of Gara River.</p>	<p>None.</p> <p>There are no aesthetic values associated with this item.</p>
GH1	<p>None.</p> <p>None of the structures will be impacted.</p>	<p>Minor.</p> <p>The setting of the old Gara Homestead will be altered by the placement of solar arrays to the east and southeast, however, from the homestead this will not be prominently visible due to the slope of the natural hill, and the significant views from the house to the west will not be developed.</p>

Recommendations

The following recommendations are made for the proposal with regard to historic heritage:

- The proposed development, as shown within this document, may proceed with caution. In the event that amendments to the proposed activity or the proposed footprint are made, further assessment may be required.
- Neither of the proposed access tracks will impact on historic heritage. As a result either option could be considered for the site.
- The Gara River Hydro-electric scheme (1895-1907) is adjacent to the southern boundary of the Proposal Site. The current proposal will not impact this site, however if alterations to the development footprint are required, these must be further assessed to determine whether impacts to physical remains of the site may be impacted.
- The Gondwana Rainforests of Australia immediately adjacent to the Proposal Site, and at least 522m south west of the development footprint at its nearest point. While the curtilage of the Gondwana Rainforests as listed is screened by an additional layer of trees on private property. As such, the solar farm will not be visible from with the curtilage of the item, and the item is not visible from the development.
- While the development footprint will not impact the surveyors tree identified as SvT1, construction works may come within 20m of this site only if Option 1 for the access track is chosen. A temporary barrier fence must be erected at a 10m buffer around the tree during construction in order to prevent inadvertent impact to the tree, or its crown or root system. Site access option 2 is not within the vicinity of the tree and there will therefore be no impact to the site.
- Proposed works will not impact on the identified archaeological site CS1 as currently proposed. In the event that the footprint changes and impacts to this location are required, an archaeological investigation would be required. This would require detailed

research into the potential origins of the cottage and preparation of a research design and methodology for excavation.

- The Gara Homestead has been identified to be of potential local heritage significance. No physical impacts are proposed to the extant structures or surrounds within 60 m of the homestead and within 60m of the workers accommodation and sheds. Visual impacts must be limited to the eastern side of the house. Where the development footprint is amended and includes impacts to the physical structures or to the vista westwards from the homestead, further assessment is required.

1. Introduction

NGH was commissioned by OSD to prepare a HAA for the SSD OSF (development consent #SSD 10346).

The OSF proposal will be assessed under Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) as an SSD. The Secretary's Environmental Assessment Requirements (SEARs) for SSD stipulates that an Environmental Impact Statement (EIS) for the development must be developed and address the following with regard to heritage:

'Heritage – including an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development, including consultation with the local Aboriginal community in accordance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents'.

A chapter summary of the historic heritage related to OSF was included in the EIS. However, review of the EIS submission from Heritage NSW (HNSW) identified the following requirements:

- 'The assessment of historic heritage items and the potential impact on these from the Oxley Solar Farm project as outlined in the above report does not meet the requirements of the SEARs and does not follow the guidelines in the NSW Heritage Manual 2001. HNSW is not satisfied with the assessment of potential impacts on heritage items outlined in 8.5.3. Potential Impacts of the Environmental Impact Statement, Oxley Solar Farm, as it does not mention the State Register Items Gondwana Rainforests of Australia SHR no. 01002 and the Gara River Hydro-Electric Scheme SHR no. 00986 in the assessment, despite these items being immediately adjacent to the project.
- It is noted that the EIS does not contain an Historical archaeological assessment despite the requirement for it to be addressed in the SEARs. Accordingly, the above NGH report does not meet the requirements of the SEARs.
- It is recommended the archaeological assessment is completed as soon as possible to ensure this potential archaeological resource is appropriately managed and be in accordance with HNSW guidelines.
- DPIE: Consideration of indirect impacts to State listed and World heritage areas (including relevant considerations under the EPBC Act)' (HNSW 2021).'

Therefore, preparation of a HAA (this document) was recommended to be undertaken.

Post submission of the original draft document, the proposed alignment of the solar panels was amended to take into account other environmental considerations for the project. This report has been updated to include the new proposed alignment.

1.1 Project proposal

The proposed OSF would comprise the construction, operation and decommission of a ground-mounted solar photovoltaics energy generation facility with an estimated capacity of 215 megawatts (MW). The power generated would be exported to the national electricity grid via two existing TransGrid 132 kilovolt (kV) transmission lines that run in parallel through the northern section of the Proposal Site.

At this stage, two options for accessing the site have been proposed, with only one option ultimately proposing to be developed:

- Option 1, as presented in the EIS; A new access point and intersection established, running directly south from Waterfall Way (Grafton Road).
- Option 2, turning off Waterfall Way (Grafton Road) about 950 m west of Option 1, via the existing Council landfill access road, and running east to join the project site via a new access track. This would involve slight widening of the existing landfill access road and relocation of the landfill entrance gates however, no upgrades to the Waterfall Way (Grafton Road) intersection would be required.

1.2 Proposal site

The OSF Proposal Site is located on the southern side of Waterfall Way, approximately 14km southeast of Armidale (

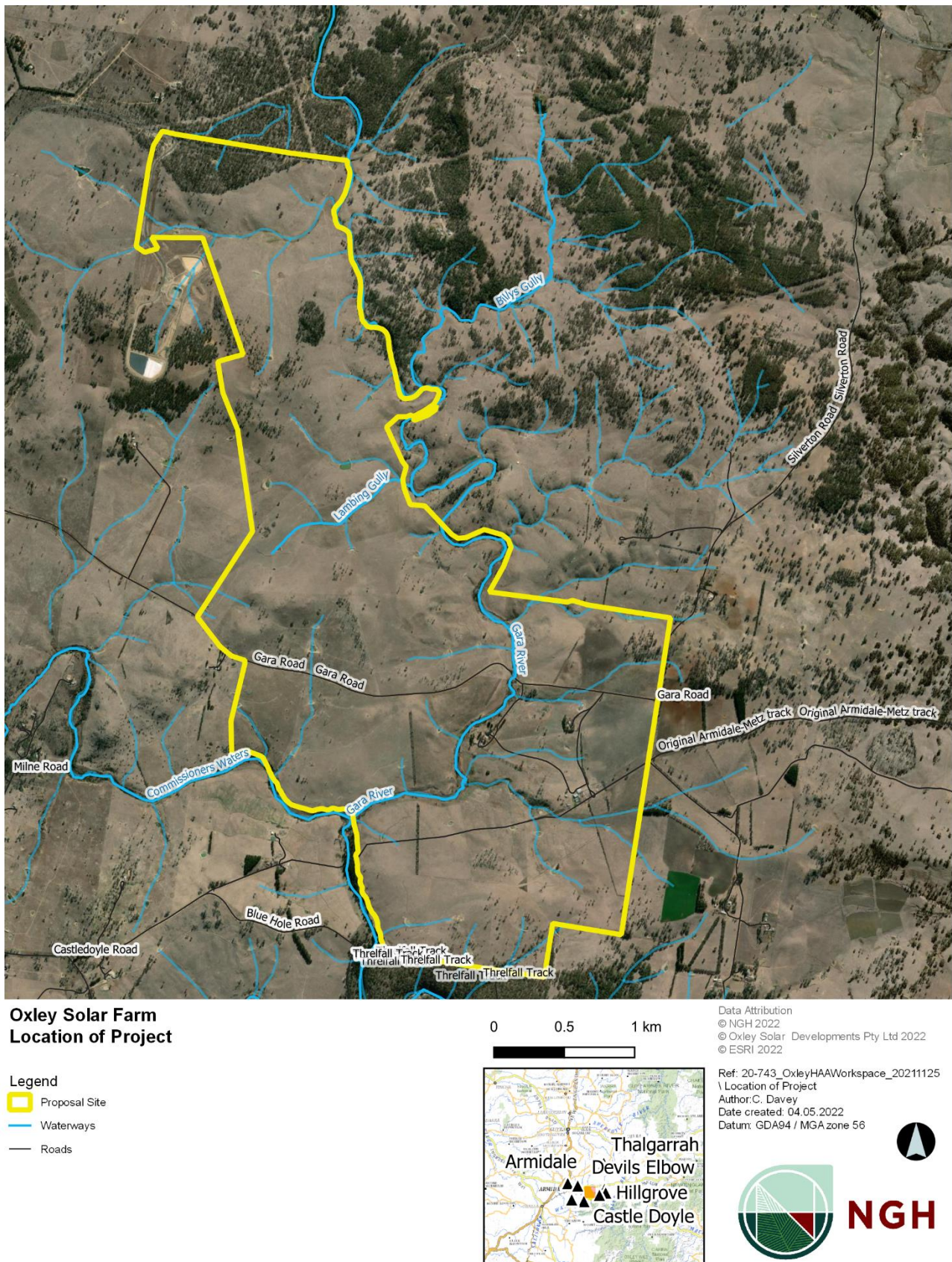
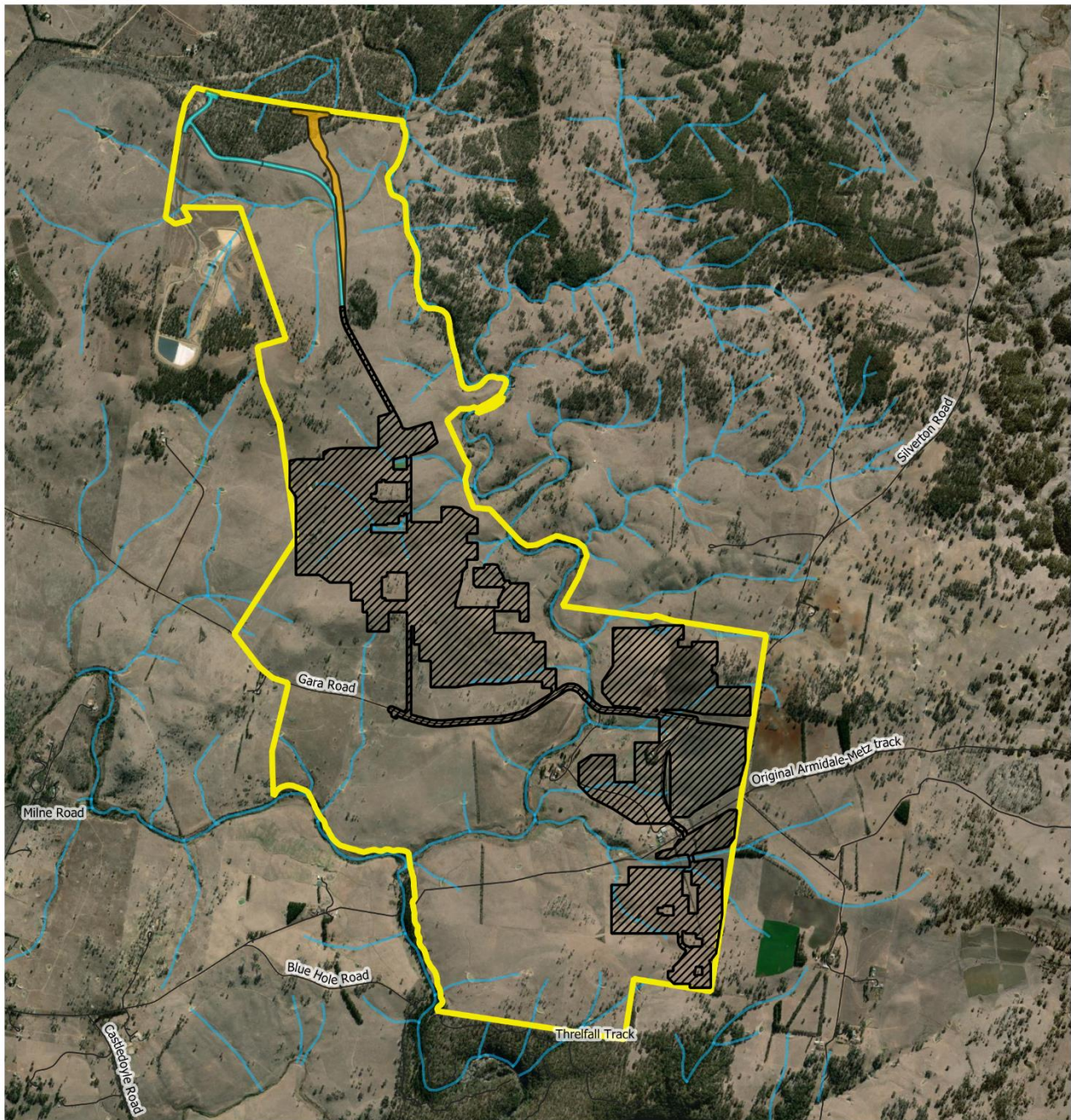


Figure 1-1), within the Armidale Regional LGA. The OSF Proposal Site encompasses 1,048 ha site with the relevant lots for the proposed solar farm and this assessment including Lot 2 DP1206469; Lot 5 DP253346, Lot 6, DP625427 and Lots 7003 and 7004 DP106020. Within this Proposal Site,

the Development Footprint covers between 263.03ha (Option 1) and 267ha (Option 2) and is also shown in

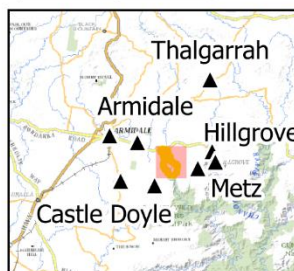


Oxley Solar Farm
Location of Preliminary Development Footprint

Legend

- Proposal Site
- Development Footprint
- Site Access Option 1 Development Footprint
- Site Access Option 2 Development Footprint
- Waterways
- Roads

0 0.5 1 km



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Ref: 20-743_OxleyHAAWorkspace_20211125
 \ Location of Preliminary Development Footprint
 Author: C.Davey
 Date created: 22.06.2022
 Datum: GDA94 / MGA zone 56



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Figure 1-2.

The Proposal Site is partially within the Parish of Metz and partially within the Parish of Gara, both in the County of Sandon. The boundary of these parishes is demarcated by the Gara River.

1.3 Report format

The purpose of this HAA is to provide an assessment of the historic heritage values associated with the Proposal Site and to assess the potential impacts of the proposed OSF on these values.

The objectives of this assessment were to:

- Identify known historic, non-Aboriginal heritage within or immediately adjacent to the Proposal Site
- Assess the potential for remnants (archaeological evidence) of historical, non-Aboriginal land use and occupation to exist within the Proposal Site
- Assess the significance of the known and potential heritage and
- Assess what the potential impact of the proposed works might have upon those identified heritage items and potential historical archaeology.

For the purposes of this assessment, this report has been prepared with reference to the NSW Heritage Manual (2001) as stipulated in the SEARs and includes the following:

- Statements of Heritage Impact(Heritage Office & Department of Urban Affairs & Planning 2002)
- Assessing Heritage Significance for Historical Archaeological Sites and Relics (Heritage Council of NSW & NSW Government Department of Planning 2009)
- Historical Archaeology Code of Practice (2006) (Heritage Council of NSW & NSW Government Department of Planning 2006)
- Revealing the Past: An Introduction to Historical Archaeology(NSW Heritage Office 2004)and
- Australia's International Council on Monuments and Sites (ICOMOS) Burra Charter (Australian ICOMOS 2013). The charter sets the standard of practice for providing advice or making decisions about of undertaking works at places of heritage or cultural significance, including owners, managers and custodians.

1.4 Project personnel

This assessment was undertaken by NGH archaeologists Chelsea Jones and Ali Byrne including research, field survey and report preparation. NGH senior archaeologists Shoshanna Grounds and Ali Byrne also attended the field survey and Andy Roberts assisted with the report preparation. NGH Senior Heritage Consultant Ingrid Cook reviewed this report.

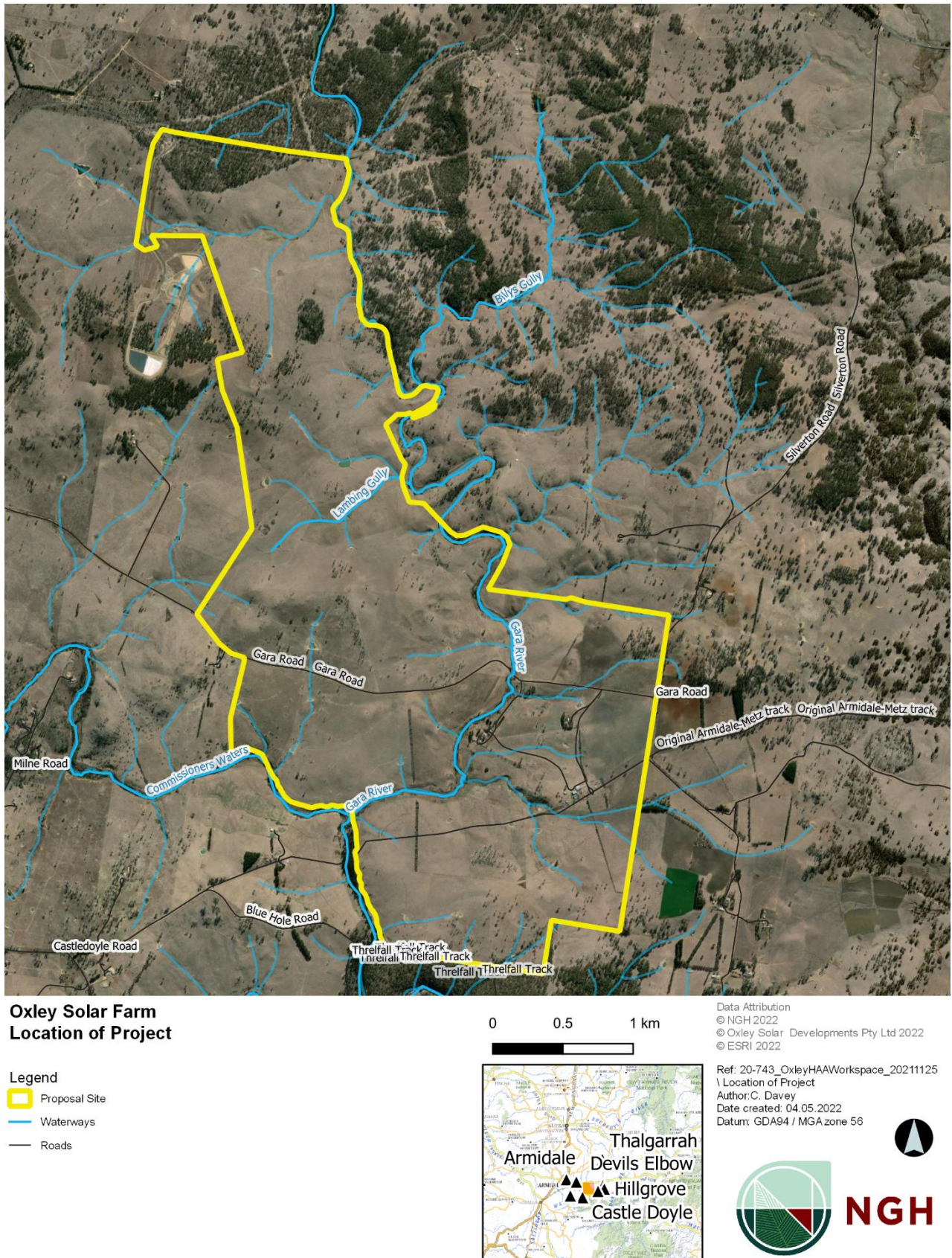


Figure 1-1 Location of Proposal Site

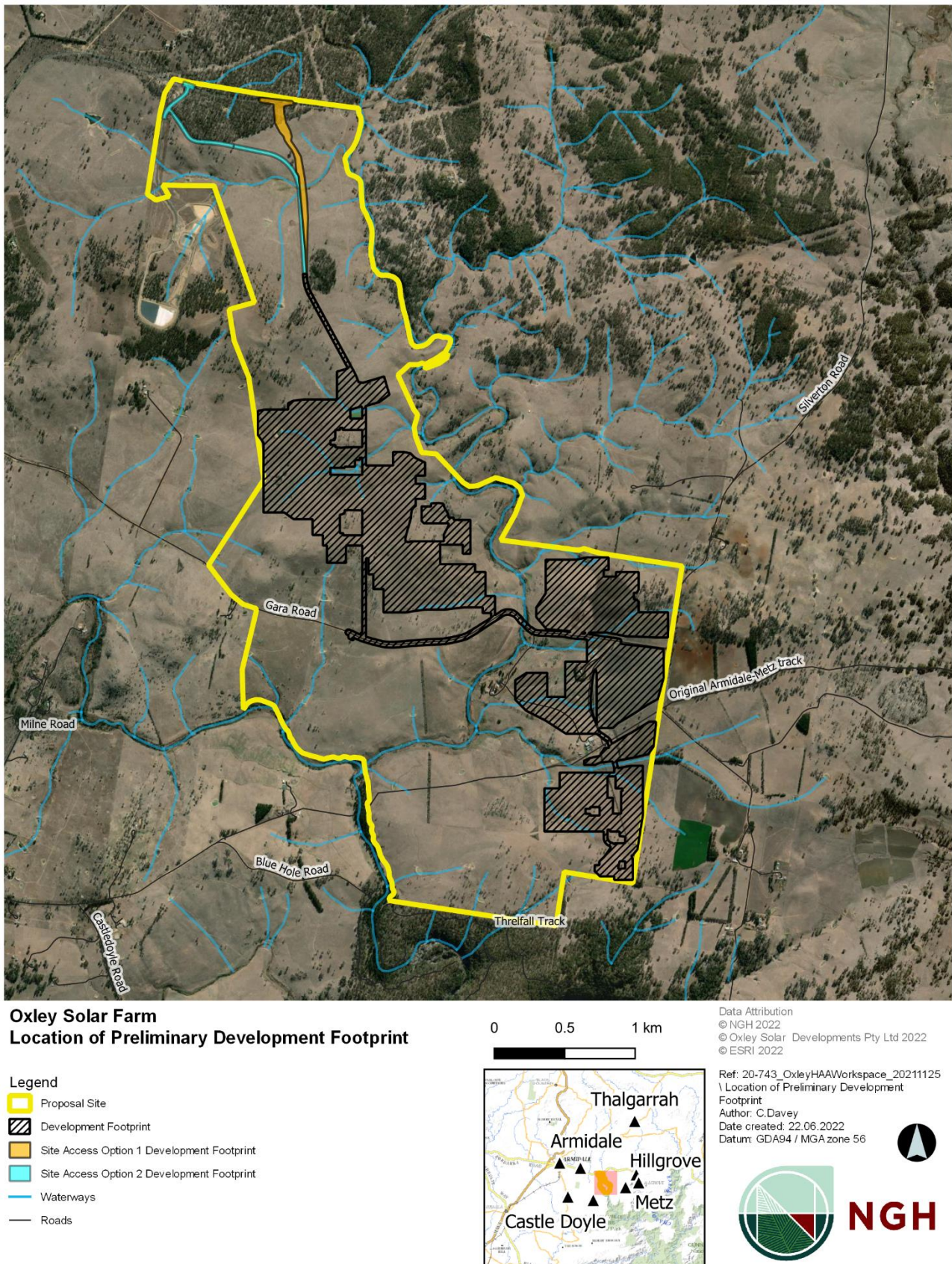


Figure 1-2 Location of preliminary Development Footprint

2. Legislative and non-statutory considerations

Places of heritage value can be subject to different levels of recognition and protection. This protection (at local, state and national levels) includes specific measures for the protection of heritage items. The text below provides a summary of the legislative framework at each level of government.

As outlined in Section 1.1, the OSF proposal site is being assessed as an SSD. Under the EP&A Act, permits for works which will impact heritage items are not required, however an assessment with reference to the regulations must be undertaken and approval must still be provided by HNSW as part of the SSD assessment process. The below information regarding statutory listings and controls is provided in order to outline the context of the heritage values in the Proposal Site.

2.1 Commonwealth *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*

The EPBC Act provides a legal framework for the protection and management of places of national environmental significance. The heritage lists addressed by the EPBC Act include the UNESCO World Heritage List (WHL), National Heritage List (NHL) and the Commonwealth Heritage List (CHL).

All WHL properties in Australia are protected and managed under the EPBC Act. The NHL protects places that have outstanding value to the nation. The CHL protects items and places owned or managed by Commonwealth government agencies. The Commonwealth Department of Agricultural, Water and the Environment is responsible for the implementation of national policy, programs and legislation to protect and conserve Australia's environment and heritage and to promote Australian arts and culture. The Minister's approval is required for controlled actions which would have a significant impact on items and places included on the WHL, NHL or CHL.

The Australian Heritage Database (AHD) includes the NHL, which includes the natural, historic and Indigenous places that are of outstanding national heritage value to the Australian nation. The AHD also contains the CHL, which comprises those places on Commonwealth lands and waters, or under Australian Government control which could possess heritage value. Items on both lists are protected under the EPBC Act. The AHD also includes places listed as World Heritage value by UNESCO.

References to the Register of the National Estate (RNE) were removed from the EPBC Act in 2012. The RNE is no longer a statutory list but remains an archive of information about more than 13,000 places throughout Australia. These entries, while providing a contribution to understanding the character and heritage values of the Proposal Site, do not carry statutory weight (unless they are also listed on a statutory list) and are only considered in this assessment to provide context to the historical values of the area.

A search of the AHD on 25 November 2021 identified 95 heritage items within the Armidale area. Of these, no items were identified within the Proposal Site, however, the curtilage of the Gondwana Rainforests of Australia (#105135) is directly adjacent to the southern border of the Proposal Site (Table 2-1 and Figure 2-1).

Table 2-1 Items on the WHL and NHL within proximity to the Proposal Site

Item name	Address	Distance from Proposal Site
Gondwana Rainforests of Australia (Hastings-Macleay Group) (UNESCO World heritage (ID: 368), NHL (ID: 386), SHR (ID: 1002))	Oxley Wild Rivers National Park	0m to property boundary of proposal site 450m to development footprint

2.2 NSW Heritage Act 1977

2.2.1 SHR

Natural, cultural and built heritage is protected in NSW under the *NSW Heritage Act 1977*. (Heritage Act) Administration of the Act is currently managed by HNSW, Community Engagement Group of the Department of Premier and Cabinet.

The Act creates the SHR which provides permanent protection for State Significant heritage items and places. Items of State heritage significance are defined as a place, building, work, relic, moveable object or precinct which is of historical, scientific, cultural, social, archaeological or natural significance to the State (Section 4A(1) of the Act). The effect of SHR listing is that a person cannot damage, destroy, alter or move an item, building or land without approval from the Heritage Council. Information about items included on the SHR can be found in the NSW State Heritage Inventory (SHI), an electronic database of statutory listed heritage items in NSW.

The Heritage Council of NSW, constituted under the Heritage Act, is appointed by the Minister for Heritage and is responsible for heritage in NSW. The Council reflects a cross-section of community, government, and conservation expertise with HNSW being the operational arm of the Council.

The 2001 NSW Heritage Manual Update, published by the NSW Heritage Office (now 'HNSW') provides guidelines for 'Assessing Heritage Significance'. The manual includes specific criteria for assessing heritage significance and the significance assessment within this report has been completed in accordance with these guidelines.

When items are listed on the SHR applications to carry out works on those items need to be made to the Heritage Council under Section 60 of the Act.

The SHI includes a database of heritage items in NSW which includes:

- Declared Aboriginal Places
- Items listed on the State Heritage Register
- Listed Interim Heritage Orders
- Items on State Agency Heritage Registers (s170 registers) and
- Items listed of local heritage significance on a local council's Local Environmental Plan (LEP).

A search of the SHI covering the Armidale LGA returned a list of 23 SHR items. No items from the SHI, including SHR, s170 and LEP items, were identified within the Proposal Site. However, the Gara River Hydro-Electric Scheme curtilage is directly adjacent to the southern border of the Proposal Site and is listed on the SHR.

Table 2-2 Heritage items on the SHR in proximity to the Proposal Site

Item name (ID)	Address	Distance from Proposal Site
Gara River Hydro Electric Scheme (SHR ID: 0986)	10km south east of Armidale, Castle Doyle NSW 2350	Curtilage of the listing is 0m to property boundary of proposal site 450m from the heritage curtilage listing to development footprint
Gondwana Rainforests of Australia (SHR ID: 1002)	Oxley Wild Rivers National Park	0m to property boundary of proposal site 450m to development footprint

2.2.2 Historical archaeology

The Heritage Act gives statutory protection to relics that form part of historical archaeological deposits.

Amendments to the Heritage Act made in 2009 defined an archaeological 'relic' under the Act. A relic is an archaeological deposit, resource or feature that has heritage significance at a local or State level. The definition is not based on age.

The practical application of this is that is not necessary to apply for exemptions if an item has been assessed as having no heritage significance. Sections 139-145 of the Heritage Act prevents the excavation or disturbance of land for the purpose of discovering, exposing or moving a relic, except in accordance with an excavation permit issued by the Heritage Council of NSW. The level of heritage significance of an item determines the excavation permit necessary for the works.

When a place is listed on the State Heritage Register or affected by an interim heritage order, the approval of the Heritage Council of NSW is required for any major work. The Heritage Council works to ensure that any changes, additions or new buildings on the site do not detract from the heritage significance of the place. A section 60 application, outlining the proposed works and supporting documents is required to be submitted to the Heritage Council for assessment prior to works on the site/building commencing. Standard Exemptions for works to State Heritage Listed items may apply and should be reviewed prior to applying to the Council.

If any works require excavation to be undertaken on an item of local heritage significance, a Section 140 excavation permit under the Heritage Act, or a Section 139 Exception will be required from the Heritage Council. Any works that require a Section 140 excavation permit will require an Archaeological Assessment, Research Design and Methodology that details the proposed archaeological work and an archaeologist present during any excavation works.

Section 139 prohibits the excavating or disturbing of land leading to a relic being discovered, exposed, moved, damaged or destroyed. To excavate and disturb land in the context of the Heritage Act is associated with the activity of digging or unearthing. The new definition also indicates that the 'relic' being exposed or disturbed is considered significant (or has the potential to be significant) at the time of its excavation, removal or destruction.

A S139 (1B) exception is for excavation or disturbance of land that will have a minor impact on archaeological relics including the testing of land to verify the existence of relics without destroying or removing them.

Permit applications under the Heritage Act are not required for SSD projects, however sufficient assessment must be undertaken in accordance with the guidelines. It has been assessed within the development footprint that archaeological remains that would be classified as relics are unlikely to occur. Areas where archaeological relics have been identified are not included within the development footprint.

2.3 NSW Environmental Planning and Assessment Act 1979 (EP&A Act)

The EP&A Act controls land use planning in NSW. The planning system established by the EP&A Act requires that local authorities prepare a LEP and associated Development Control Plan (DCP) under Part 3. These planning instruments include provisions relating to the management and protection of heritage and in particular, the LEP contains a schedule of all known heritage items within a LGA which are subject to these protections.

Heritage items are added to the heritage schedule of a LEP often following identification and assessment from a local shire heritage study. The SHI also holds local heritage items listed by local councils in NSW. These items are given protection by the heritage provisions within the relevant plan, which will then require consent of Council for certain developments.

2.3.1 Armidale Dumaresq LEP 2012

The Armidale Dumaresq LEP (2012) identifies and protects heritage conservation areas and listed buildings/items, identifies environmentally sensitive land, and prescribes land use practices. Heritage items (if any) are listed and described in Schedule 5.

The proposed solar farm site and transmission line routes are zoned RU1 Primary Production within this Plan. Electricity generation is prohibited within this land zoning, however the State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) allows the development for the purpose of a solar energy system on any land with consent, which overrides the local provisions.

Heritage conservation areas are shown on the Heritage Map as well as being described in Schedule 5.

There are twelve LEP listed items within 8km of the Proposal Site. However, all of these sites, with the exception of Gara River Hydro Electric Scheme, are more than 4km from the Proposal Site (Table 2-3).

Table 2-3 LEP items within 4km of the Proposal Site

Item name (ID)	Address	Distance from Proposal Site
Gara River Hydro Electric Scheme (I002)	10km south east of Armidale, Castle Doyle NSW 2350	Adjacent
Eucalyptus Tree (I149)	Middle Farm Road, Armidale NSW 2350	4.1km
Culvert (I222)	Gara Road (southeast of intersection with Grafton Road) Armidale NSW 2350	4.2km
Site of Brookstead fellmongery and woolwashing works "Eathorpe" (A039)	650 Grafton Road Armidale NSW 2350	4.9km
Tattersalls Hotel and brick outbuildings (I001)	372 Metz Road Metz NSW 2350	5km
Cottage (I207)	372 Metz Road Metz NSW 2350 - It is noted that a visual assessment (MLA 2022) has been undertaken which has concluded that the cottage is shielded topographically and therefore has no view of the solar farm.	5km
Site of Commissioners Waters Inn (A037)	Grafton Road (West of Commissioners Waters) Armidale NSW 2350	5.4km
Site of abattoir "Wongalea" (A038)	475 Grafton Road Armidale NSW 2350	5.7km
Bakers Creek Mine – chimney and surface buildings (I202)	132B Brackin Street Hillgrove NSW 2350	6.6km
Bakers Creek Mine – winding engine house (I201)	132B and 132F Brackin Street Hillgrove 2350	7.2km
Eleanora Mine – chimney	130 Brackin Street Hillgrove	7.3km

Item name (ID)	Address	Distance from Proposal Site
(I199)	NSW 2350	
Garibaldi Mine – chimney (I203)	132B Brackin Street Hillgrove NSW 2350	7.5km

Heritage conservation - LEP clause 5.10

Objectives associated with heritage in the LEP include:

- a) 'to conserve the environmental heritage of Armidale Dumaresq,
- b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,
- c) to conserve archaeological sites,
- d) to conserve Aboriginal objects and Aboriginal places of heritage significance.

The consent authority may, before granting consent to any development:

- a) on land on which a heritage item is located or
- b) on land that is within a heritage conservation area or
- c) on land that is within the vicinity of land referred to in paragraph (a) or (b)

require a heritage management document to be prepared that assesses the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item or heritage conservation area concerned. '

The Armidale Dumaresq LEP is supported by the Armidale Dumaresq DCP, which provides more detailed standards and controls for specific types of development.

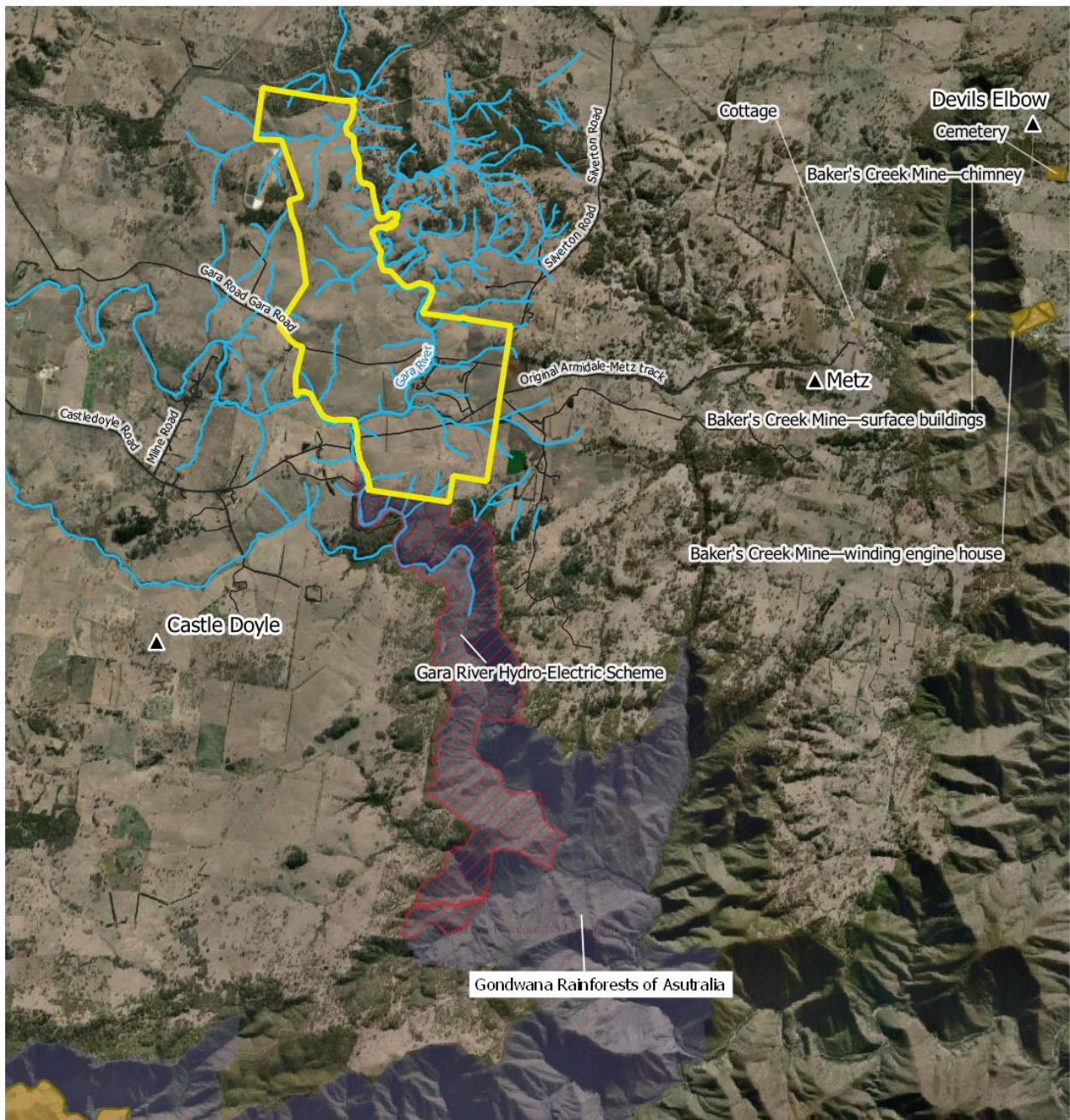
2.4 The Burra Charter

The Australia ICOMOS (International Council on Monuments and Site) Charter for the conservation of places of cultural significance (the Burra Charter) (current edition 2013) sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance including owners, managers and custodians (Australian ICOMOS 2013). The Charter is not a statutory document but does provide specific guidance for physical and procedural actions that should occur in relation to significant places.

An appreciation of landscape is highlighted in the 1999 revision of the Burra Charter of Australia ICOMOS, placing greater emphasis on 'setting'. Article 8 of the Burra Charter now reads:

'Conservation requires the retention of an appropriate visual setting and other relationships that contribute to the cultural significance of the place. New construction, demolition, intrusions or other changes which would adversely affect the setting or relationships are not appropriate.' (Australian ICOMOS 2013)

The visual setting, with regard to identified heritage items Gondwana Rainforest and Gara River Hydro-Electric Scheme, which are located adjacent to the boundary of the Proposal Site, is assessed in Section 4.4 of this document.



Oxley Solar Farm
Historic Heritage In Proximity to Proposal Site

0 1 2 km

Legend

- Proposal Site
- National and World Heritage
- Historic Heritage
- Local
- SHR and s.170
- Waterways
- Roads

Data Attribution
© NGH 2021
© Oxley Solar Developments Pty Ltd 2021
© ESRI 2021

Ref: 20-743_OxleyHAAWorkspace_20211125
Historic Heritage In Proximity to Proposal Site
Author: C. Jones
Date created: 09.12.2021
Datum: GDA94 / MGA zone 56



Figure 2-1 Historic heritage in proximity to Proposal Site

3. Historical Background

3.1 Historical overview

The following historical information has been extracted from secondary sources such as the State Heritage Inventory (SHI 04/11/2021) and from primary sources including historical maps, newspapers and images.

3.1.1 Local area

The Armidale area was originally inhabited by the Anaiwan, Gumbaynggirr and Dhunghatti people. Early mapping of Aboriginal tribal boundaries by Tindale (1974) identifies the Proposal Site as being within the Nganyaywana language group (Tindale 1974).

European exploration of the area began with John Oxley's expedition which reached the southern part of the plateau in 1818. However, European movement into the New England region didn't commence in earnest until the 1830s and 1840s when squatters were expanding westwards into NSW. As such, the main activities during the early development of the area related to farming and pastoralism. The number of sheep and cattle stations within New England had reached 178 by 1852. Wheat, maize, oats and potatoes were grown in the area (RPS 2019:9-11). Armidale was initially founded in 1839 and later gazetted in 1849, to establish a market and administration for the farms. Soon after, gold was discovered at Rocky River and Gara Gorges, and a gold rush ensued in the 1850s rapidly expanding the surrounding settlements including Hillgrove and Metz, both a few kilometres to the east of the Proposal Site.

Goldmining in the Hillgrove area began in 1877 following discovery of an antimony lode by the Havershed Brothers and Thomas Co in 1877 (Neal et al 1981; Mainwaring 1986a, 1986b; Baker 1971 as cited in Gojak 1988). Figure 3-1 shows the Hillgrove mining settlement, as seen from the Eleanora Mine at Hillgrove. Metz developed as Hillgrove's twin mining town on the western side of Bakers Creek Gorge and experienced similar substantial development during the 1890s (Gojak 1988). Resource deficiencies associated with the powering of the mines and steam engines led to the eventual development of the Gara River Hydro-Electric Scheme (Gojak 1988). The Hillgrove mines were the first in NSW to be offered the benefits of hydroelectricity with Baker's Creek Mine first lit in 1895 by the Gara Hydro scheme (Gojak 1988:4).

The road from Armidale to Hillgrove was notified in 1828 according to LTO Charting Maps (Historical Land Records Viewer) (Figure 3-2) and remained a local road through the nineteenth and much of the twentieth century. Through the early twentieth century, calls for the construction of a tourist road or highway from Armidale to Dorrigo, Bellingen and Coffs Harbour were made by various local councillors and ratepayers, as the north coast and New England grew in population (Trove 1926, 1932). The road was not declared as a highway until it became State Route 78 in 1974 (Ozroads 2012), now known as Waterfall Way. Figure 3-2 and Figure 3-3 show the alignment of the Armidale to Hillgrove Road/Waterfall Way in relation to the Proposal Site.



Figure 3-1 An undated view of Hillgrove from the Eleanora mine showing extent of settlement (NSW State Archives and Records n.d.)

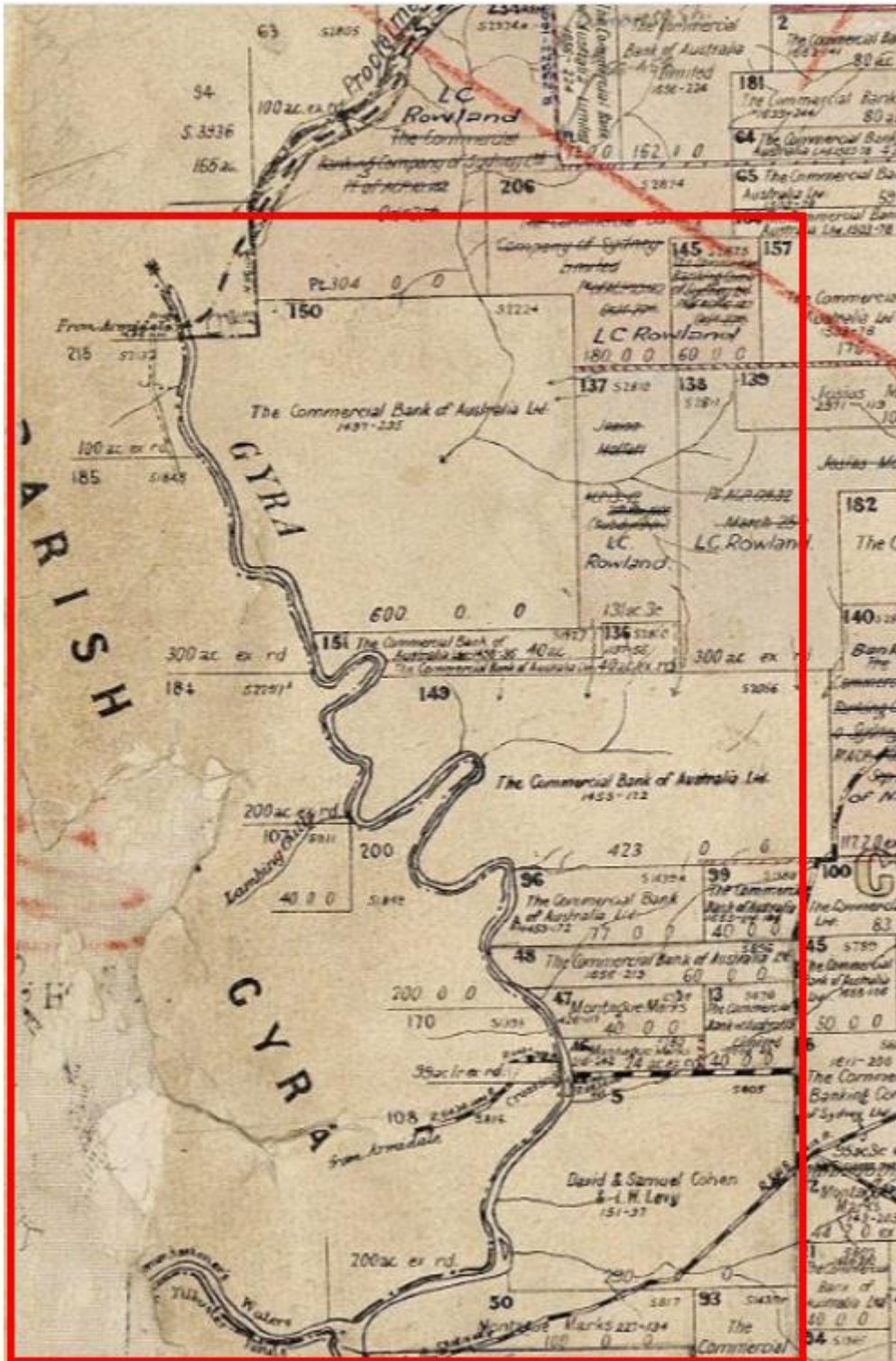


Figure 3-2 Excerpt from 1928 Parish Map of Metz, cropped to show the land grants in the Proposal Site and the road to Hillgrove, the early makings of the Waterfall Way(Department of Lands Sydney 1928)

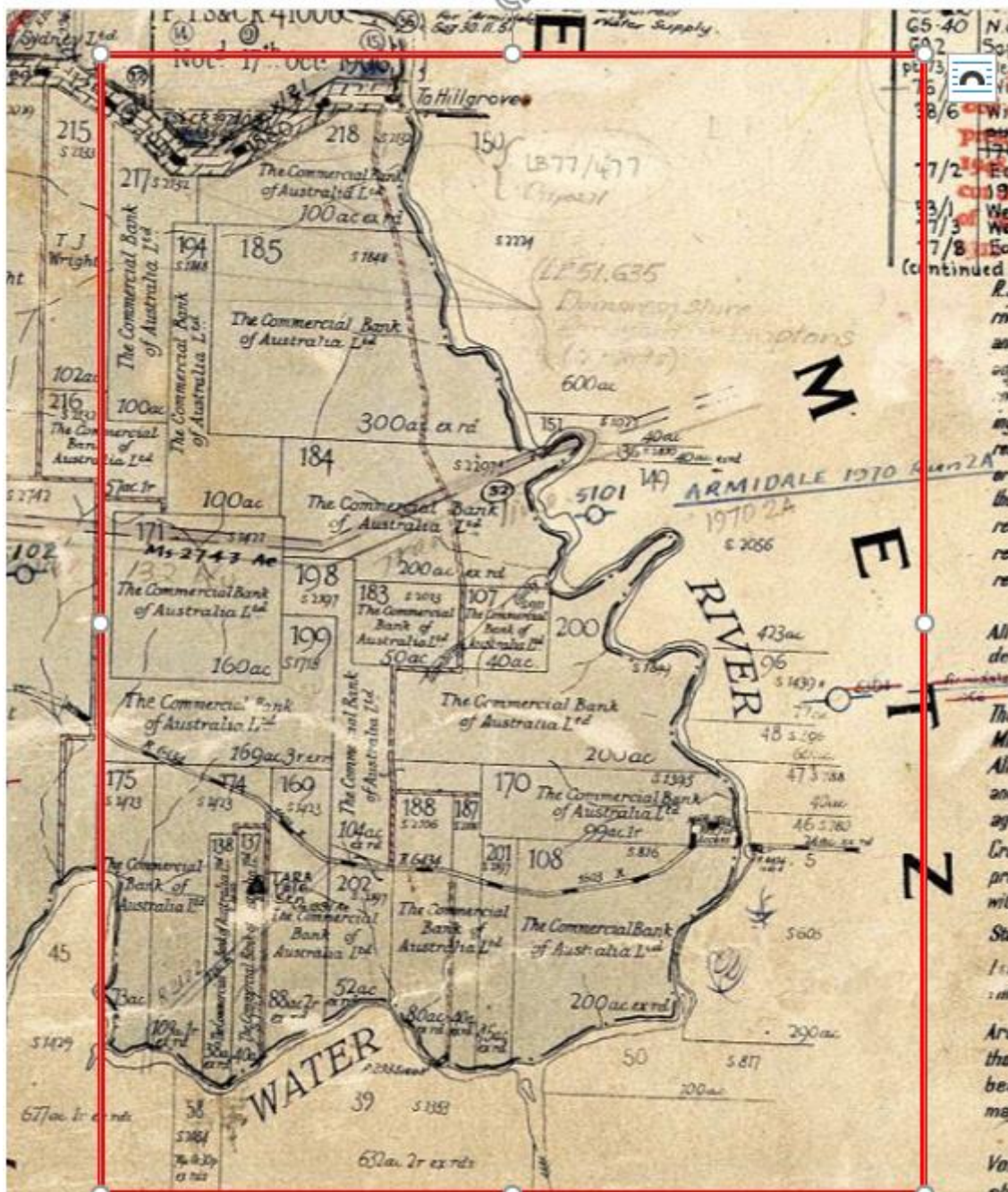


Figure 3-3 Excerpt from 1936 map of the Parish of Gara cropped to show the land grants in the Proposal Site. The road to Hillgrove is shown in the top left and is the early makings of what is now Waterfall Way (Department of Lands Sydney 1936)

3.1.2 Gara River Hydro-Electric Scheme 1851 – 1900

The Gara River Hydro-Electric Scheme (Figure 3-4) is of state and national significance because it was the first to light a township in Australia and the first to offer its power for commercial sale in March 1895. As designed by Richard Threlfall, Professor of Physics at the University of Sydney, it incorporated technological innovations which made it one of the most advanced schemes in the world. It provides direct physical evidence of the changing economic fortunes of Hillgrove in the face of the 1890s depression, the drop in antimony prices and the drought (Gojak et. al. 1988).

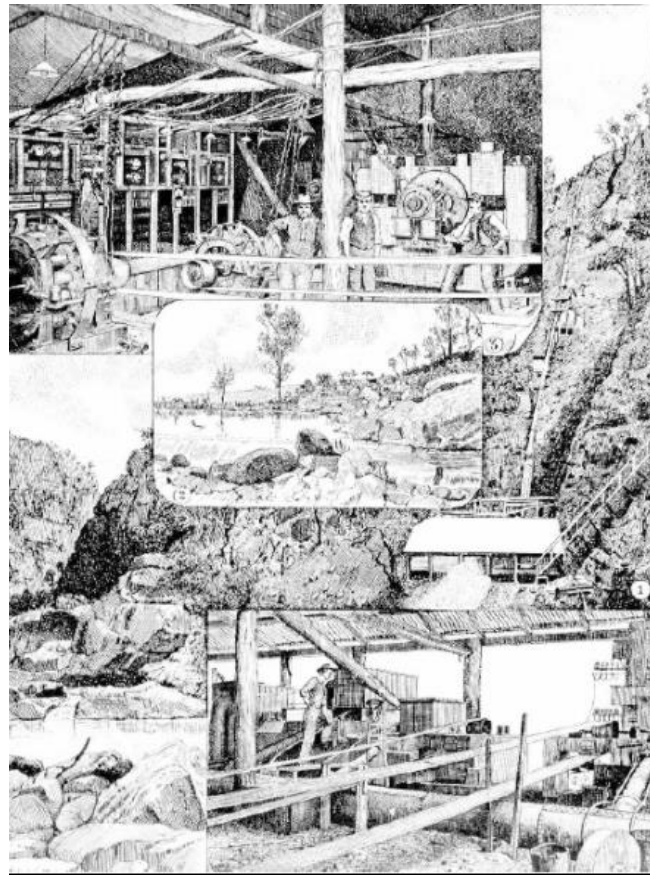


Figure 3-4 Engravings of the Gara River hydroelectric plant (Source Australian Town and Country Journal, 26 February 1896).

The scheme was instigated by the Australasian Rights Purchase Association, when they placed a petition for a bill before the NSW Parliament, requesting the water rights to exploit the Gara River for the purposes of power generation. The bill was passed and on March 10 1893, the *Hillgrove and Armidale Water-Power Electrical Company (Ltd)* Act, was passed (Gojak 1988).

Threlfall was brought in as the consultant on electrical engineering. He was regarded at the time as Australia's leading expert on electricity and is now thought to have been one of the first modern pure physicists in the world. He was involved in all phases of the design and construction and became mortgagee of the company (Gojak et.al 1988: 15).

The dam for the scheme was constructed at Blue Hole, a large natural pool of water off the Gara River at the head of the gorge (located immediately adjacent to the southwestern boundary of the current Proposal Site). The generator site was situated at the foot of the Gara Falls. The site was only disadvantaged by its distance from the power consumers in the next gorge and the township. The system used DC (Direct Current) generators and briefly became one of the most important DC generation schemes in the world.



Figure 3-5 Dam under construction across the Gara River at Blue Hole under construction c. 1899-1900 (Gojak 1988:5).

Although the scheme was hailed as a technical triumph, it was plagued by financial trouble throughout the 1890s. This may have coincided with the economic decline that hailed the end of the goldrushes in the area. In 1896 the site was taken over by the Sandon County Electrical Light and Power Company and in 1899, the scheme was substantially rebuilt and reactivated. The population of the area, however, was dwindling due to reduced mineral production and the Sandon Company sold the plant to the International Railway Corporation of England (Gojak 1988). By 1905 it was being leased or operated by a Mr Pinto who sold the electricity to local users.

The last mention of the Gara River Hydro-Electric Scheme as a functioning enterprise was in 1907. The history of the site between 1907 and the later part of the twentieth century is unclear. The site now rests within the borders of the Oxley Wild Rivers National Park, under the management of the NSW National Parks and Wildlife Service.

Gara River Hydro Electric Scheme (SHR 0986)

The following information about the item's condition and heritage values based on the information provided in the SHI sheet and the article Gara River: An Early Hydro-Electric Scheme in Northern New South Wales (Gojak 1988) in *Australian Historical Archaeology* 6. The Gara River is a tributary of the Macleay River, and the Blue Hole, located immediately adjacent to the boundary of the Proposal Site, it commences descent into the Macleay-Apsley gorge system. The land on which the remains of the Gara Hydro-Electric Scheme are located is part of the Oxley Wild Rivers National Park.

A description of the physical remains of the listed item is provided verbatim from Gojak (1988:6-7):

'The remains of the hydro-electric scheme can be divided into three functional units: the dam and weir, the fluming and the power station. The archaeological evidence relates to the two phases of construction identified previously. Initial construction began in 1894 and the scheme was opened in 1895, and the second phase consisted of construction in 1899 and 1900. Both phases are discussed under each heading below. The location of the archaeological remains is shown in Figure 4 [refer to Figure 3-6].

- i. The dam site. The dam was erected at the southern end of the Blue Hole. The remains consist of the two ends of the dam wall and a granite boulder scree. The dam is of crib construction, with a framework of large timbers packed with small boulders and earth. Remains of the cribwork can be seen at the end of the western section of the dam wall. The remains of the road are evident on the top of the eastern section. The central part of the dam wall has not survived and the boulder scree immediately downstream represents the remains of its packing material.the surviving archaeological evidence does not reveal whether the original dam wall was incorporated into the later wall construction.

Approximately 100m downstream from the dam is the weir. This is a low concrete wall in two sections, set in one of the narrowest parts of the river. It is still intact and in good condition and it bears no evidence of repair, alteration or redesign.

The weir was built as part of the original scheme. Its purpose was to divert water from the river into the fluming, which would carry it to the power station. The level of the weir acted as a simple regulator of the water flow in the system. If the weir was too high, an excessive amount of water would be taken to the power station, possibly beyond the capacity of the generators. If the weir was too low insufficient water would be provided for the generators, leaving then unable to operate. The incorporation of the weir into the second scheme, without apparent alteration, indicates that the capacity of the power station was not substantially changed at that time.
- ii. The fluming. Connected to the weir and running for approximately 400m is a V-sectioned concrete channel or flume. This leads south from the weir and takes the water around the first main spur of the gorge. The concrete flume is largely filled in with slopewash and overgrown with blackberry, but the line appears to be substantially intact.

The fluming carried the water from the river to the top of the power station site. Its purpose was to ensure that the water travelled at a constant velocity. For this reason, the flume needed to be precisely levelled to specific gradients suitable both to the topography and to the capacity of the station.

The concrete fluming was constructed as part of the original scheme and was incorporated into the rebuilt second scheme. From the visible remains, there is no evidence of repair or alteration of the design or its layout. The line passes through a stone cutting, indicating the importance of maintaining an exact level.

The southern end of the concrete flume goes around a rocky spur, where the ground level drops quickly. The concrete flume terminates and there is a gap of over 80 m before its line can be picked up again. The only evidence of its route is two stone footings. The route is next evident at a stone cutting, which is followed by a stone footing and then a further cutting through stone and earth. Once through the latter cutting two separate lines are found. The first consists of a series of small

stone footings, with occasional scatters of long timbers. The second is a clearly visible line which follows the contours of the top of the valley.

The first line can be defined by joining the stone footings. These are piles of roughly shaped stones constructed into platform or pads... Their size varies greatly but the majority are less than a metre square. Some of the footings consist of long beds of stone, rather than separate piles. The footings have suffered various degrees of collapse, but as they are in situ it is possible to reconstruct the route that they formed. The line runs across the gullies from spur to spur in a series of generally straight lines. The route has been located so as to use the smallest number of straight line segments.

Spread out along the line of the first flume are scatters of timber. These consist of long, slender, debarked logs frequently with bolts, nails or pieces of wood attached to them. Also possible related to this flume line are isolated finds such as sections of milled timber, pieces of flat galvanised iron with nail holes around the perimeter and other pieces of metal. the purpose of these is difficult to determine as none of them are in situ, and they cannot be definitely associated with either flume.

The length of the first flume line, from the end of the concrete flume to the pipe head at the power station site, is approximately 2100 m...

The second flume line is of a completely different form. The line can be traced as a path about 1 m across, which maintains an almost exact horizontal level as it follows the contour of the side of the valley. As with the other flume, there are no in situ remains of any trestles or fluming. The line is nearly continuous from where the two flume lines diverge to the pipe head. The only gaps are where it crosses gullies (although no evidence survives as to what form of crossing was constructed), and near the end of the line, where it had to circle around a rocky spur. In this latter area there is evidence of stone footings, which may relate to either or both flume lines.

The second flume line goes through several cuttings, including one series which is nearly 100 m long. These cuttings are in locations which enable the route to avoid rocky and uneven areas. The line of the flume is extremely sinuous and takes many sharp turns in its path...The total length of the second flume is about 2350 m, 250 m longer than the first flume, largely because of its sinuous route.

...The archaeological phasing of these two lines depends upon the assumption that the flumes would use any available shortcut to reduce the length of the route.

- iii. The power station. The remains of the power station consist of the route of the piping and fragments of machinery and structures. The power station was located at the base of a steep cliff at the Gara Falls. The flume terminated at the top of the cliff and discharged water into the pipes or penstocks, which took it down about 120 m to the dynamos at the power station.

The remains of the power station are covered in weeds, and soil and rocks from the cliff but fragments of machinery and concrete footings can be seen. The area appears to have been considerably disturbed at some time in the past, possibly during salvage of the equipment. It is not possible to reconstruct adequately the layout of the power station site from the visible remains. Some of the machinery is recognisable as commutators and axles from the dynamos. Two manufacturers' plates have been recovered, one from the Westinghouse Electric and Engineering Company and the other, with part missing, from a '...X VICTORIA TRANSFORMER PATENT 2721.

The power station was described in 1899 as ‘...one of the finest electrical plants in Australia with four pelton wheels and motors capable of supplying up to 1000 h.p...’.

...Above the power station the channel where the upper part of the pipes were laid is clearly visible. It is about 5 m wide and up to 1.5 m deep. The pipes have been removed, the only features in situ being ring bolts let into the rock. ...the power station site does have evidence of the substantial timber framing that was erected to protect the building from landslides.

- iv. Other features. The only other features which are likely to date from the period of the hydro-electric scheme are a house site near the pipe head and several scatters of artefacts, including one almost solely composed of shims used when joining large-diameter pipes.

No part of the area occupied by archaeological traces of the hydro-electric scheme was developed for any other purpose after the abandonment of the scheme.’(Gojak 1988)

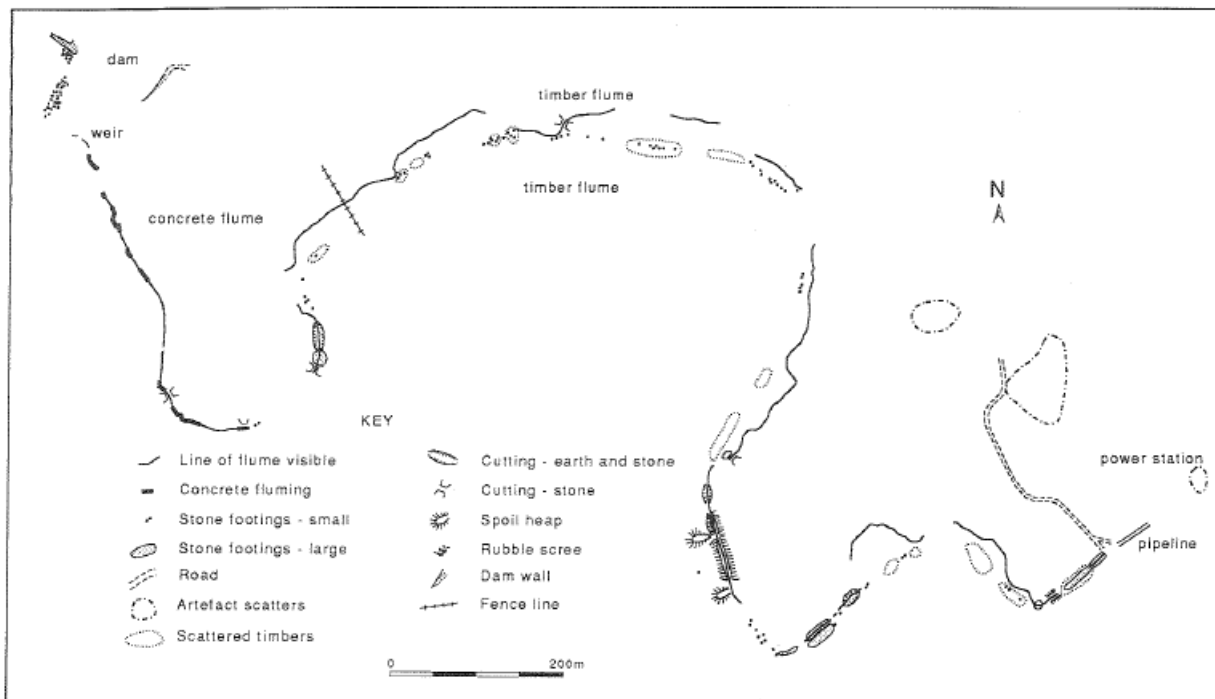


Figure 3-6 Archaeological remains identified at the Gara River by Gojak (1988:6, Fig 4).

As outlined in Section 1.1, the curtilage of the Gara Hydro Electrical scheme is located immediately adjacent to the south western boundary of the Proposal Site. It is approximately 450m south west of the proposed development footprint at the nearest point of the curtilage boundary. The nearest recorded archaeological remains are approximately 850m away from the development footprint.

During the completion of the NGH site visit, views from the closest part of the development footprint to the listed site was inspected. The tree line which represents the curtilage of the listed item, could be seen from the edge of the proposed development footprint, however no views to the remains of the item itself can be seen (Plate 3-1). No physical remains of the archaeological site

were present or could be seen from this location (refer to Plate 3-2).

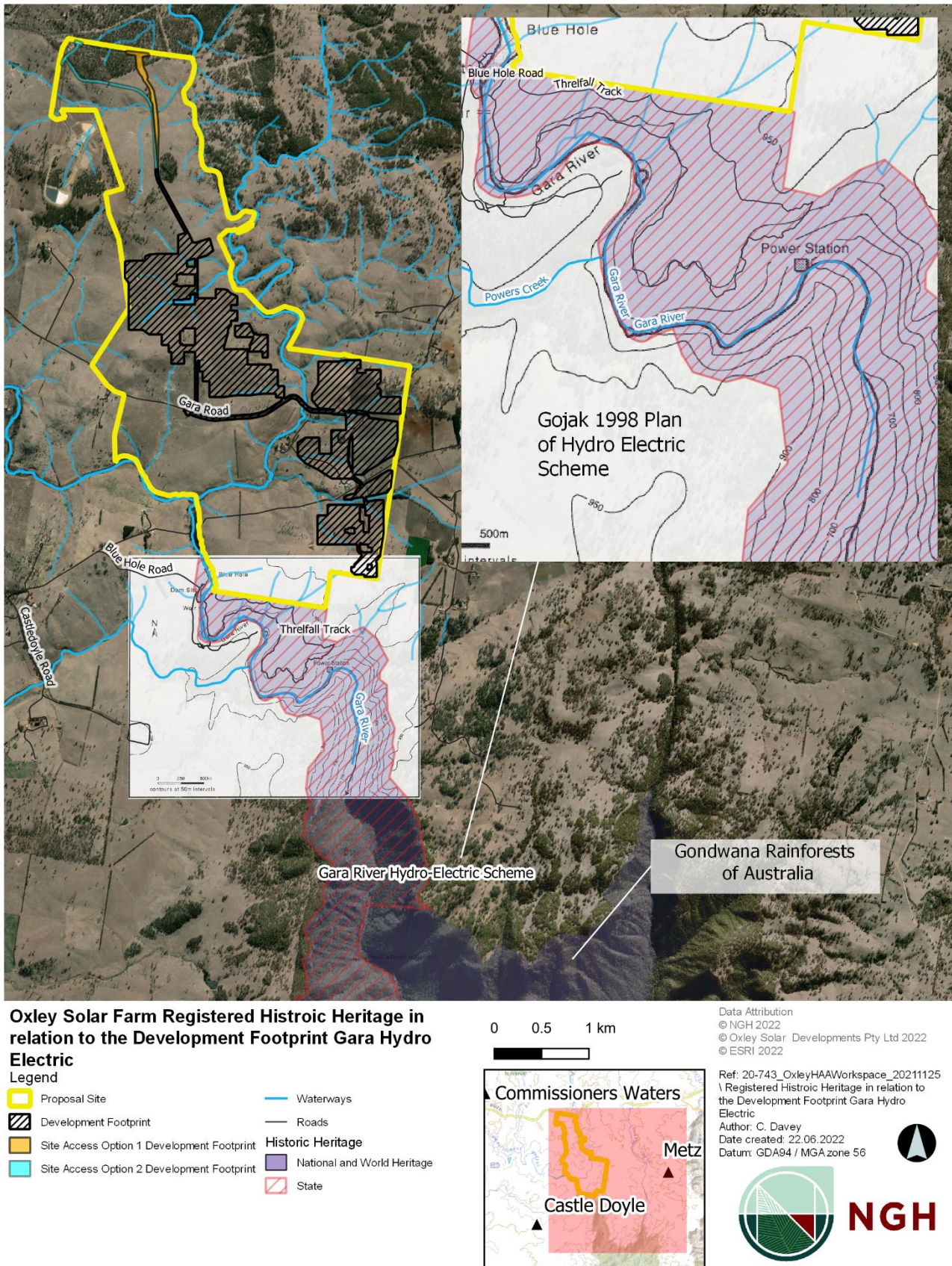


Figure 3-7 shows the location of the site as mapped by Gojak (1988) in context of the proposal.

Table 3-1 Photographs looking towards Gara River Hydro-Electric Scheme site



Plate 3-1 View south west from edge of development footprint towards location of Gara River Hydro-Electric Scheme (beyond the hill and trees at mid ground right), not visible from the Proposal Area



Plate 3-2 View south west across development footprint, showing pastures and cleared land.

3.1.3 Gondwana Rainforest of Australia

The physical description of the Gondwana Rainforest of Australia as provided by the NHL inventory sheet is as follows:

‘Rainforest once covered most of the ancient southern supercontinent Gondwana and remains the most ancient type of vegetation in Australia. The Gondwana Rainforests provide an interesting living link with the evolution of Australia. Few places on earth contain so many plants and animals which remain relatively unchanged from their ancestors in the fossil record. Some of the oldest elements of the world's ferns and conifers are found here and there is a concentration of primitive plant families that are direct links with the birth and spread of flowering plants over 100 million years ago. A range of geological and environmental influences in the Gondwana Rainforests determine where forest communities grow. This process has occurred over millions of years and will continue to change the forest mosaic into the future.

High waterfalls crashing into steep gorges are spectacular examples of an important ongoing natural process - erosion. Erosion by coastal rivers created the Great Escarpment and the steep-sided caldera of the Tweed Valley surrounding Mount Warning. This towering mountain was once the buried plug of an ancient vast volcano. Today, rainforest grows on the fertile, well watered soils that remain.

The evolution of new species is encouraged by the natural separation and isolation of rainforest stands. Many plants and animals found in the World Heritage property are locally restricted to a few sites or occur in widely separated populations.

Although rainforests cover only about 0.3 per cent of Australia, they contain about half of all Australian plant families and about a third of Australia's mammal and bird species. The Gondwana Rainforests have an extremely high conservation value and provide habitat for more than 200 rare or threatened plant and animal species. The distributional limits of several species and many centres of species diversity occur in the property. The Border Group is a particularly rich area with the highest concentration of frog, snake, bird and marsupial species in Australia.

Exploring the World Heritage rainforests in the Gondwana Rainforests World Heritage property is easy. Many of the reserves are readily accessible from major towns by sealed or graded gravel roads.

On-ground management of the Gondwana Rainforests of Australia is principally undertaken by the New South Wales National Parks and Wildlife Service and the Queensland Parks and Wildlife Service.

The NSW SHI sheet provides the following information with regard to the Oxley Wild Rivers National Park portion of the Gondwana Rainforests:

In 1986, a number of rainforest reserves located on the Great Escarpment of eastern New South Wales, known as the Australian East Coast Sub-tropical and Temperate Rainforest Parks were inscribed on the World Heritage list for their outstanding natural universal values:

as an outstanding example representing major stages of the earth's evolutionary history;

as an outstanding example representing significant ongoing geological processes and biological evolution; and

containing important and significant habitats for the in situ conservation of biological diversity.

Large extensions, including reserves in south-east Queensland, were listed in 1994 under the new title of the Central Eastern Rainforest Reserves (Australia).

Rainforest occurs in NSW and south east Queensland as discontinuous patches like a chain of islands in a sea of fire-prone eucalypt forest and agricultural lands. These patches range in size from tiny gully stands to lush forests covering large valleys and ranges. The Central Eastern Rainforest Reserves include the most extensive areas of subtropical rainforest in the world, large areas of warm temperate rainforest and nearly all of the Antarctic beech cool temperate rainforest.

Rainforest once covered most of the ancient southern supercontinent Gondwana and remains the most ancient type of vegetation in Australia. The Central Eastern Rainforest Reserves provide an interesting living link with the evolution of Australia and hence a record of the past. Few places on earth contain so many plants and animals whose ancestors can be traced through the fossil record and today remain relatively unchanged. There is a concentration of primitive plant families that are direct links with the birth and spread of flowering plants over 100 million years ago, as well as some of the oldest elements of the world's ferns and conifers.

A range of geological and environmental influences in the Central Eastern Rainforest Reserves determine where forest communities grow. As these change in the future, so will the forest mosaic-it is an ongoing process that has been occurring for millions of years.

High waterfalls crashing into steep gorges are spectacular examples of an important ongoing natural process-erosion. Erosion by coastal rivers created the Great Escarpment and the steep-sided caldera of the Tweed Valley surrounding Mount Warning. Once, this towering mountain was the buried plug of an ancient vast volcano. Today, rainforest grows on the fertile, well watered soils that remain.

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Although rainforests cover only about 0.3 % of Australia, they contain about half of all Australian plant families and about a third of Australia's mammal and bird species. The Central Eastern Rainforest Reserves have an extremely high conservation value and provide habitat for more than 200 rare or threatened plant and animal species. The distributional limits of several species and many centres of species diversity occur in the property. The Border Group is a particularly rich area with the highest concentration of frog, snake, bird and marsupial species in Australia.

The current listing of the Central Eastern Rainforest Reserves includes approximately 50 separate reserves located between Newcastle and Brisbane. It is a serial listing, with only areas of reserved Crown land being listed. These reserves are managed principally by four different agencies: NSW National Parks and Wildlife Service, Qld Parks and Wildlife Service, State Forests of NSW and Department of Natural Resources (Qld).

A strategic overview for management of the Central Eastern Rainforest Reserves has been prepared to assist the agencies manage the area in a coordinated, consistent and cooperative manner and ensure the integrity of its values is protected.

Exploring the World Heritage Rainforests in the Central Eastern Rainforest Reserves is easy, with many of the reserves readily accessible from major towns by sealed or graded gravel roads. A range of visitor facilities are provided at most reserves. Parts of some reserves in NSW have been declared as wilderness and access roads, facilities, lookouts and marked walking tracks are provided only on their boundaries.

Statistics

Total area of the Central Eastern Rainforest Reserves: 366 507 ha (59 223 ha in Qld, 307 284 ha in NSW).

Types of rainforest found in the property: cool temperate rainforest; warm temperate rainforest; subtropical rainforest; and dry rainforest (Commonwealth of Australia , Department of Environment and Heritage website).

National Parks and Nature Reserves affected within NSW include:

Mount Royal National Park; Barrington Tops National Park; Mount Seaview Nature Reserve; Werrikimbe National Park; Willi Willi National Park; **Oxley Wild Rivers National Park**; The Castles Nature Reserve; Cunnawarra National Park; New England National Park; Dorrigo National Park; Mount Hyland National Park; Gibraltar Range National Park; Washpool National Park; Iluka Nature Reserve; Mallanganee National Park; Richmond Range National Park; Toonumbar National Park; Captains Creek Nature Reserve; Nightcap National Park; Tooloom National Park; Border Ranges National Park; Mount Warning National Park; Mount Nothofagus National Park; Amaroo Nature Reserve; Mount Clunie National Park; Limpinwood Nature Reserve; Koreelah National Park; Gambubal State Forest; Mount Chinghee National Park; Mount Barney National Park; Lamington National Park.'(NSW Government 2021a)

The curtilage of the Gondwana Rainforest heritage item (Oxley Wild Rivers National Park portion) is also adjacent to the southwestern boundary of the Proposal Site. The proposed development footprint is approximately 450m northeast of the curtilage of the Gondwana Rainforest heritage item, at its nearest point. There is a tree line outside of the curtilage between the development footprint and the item, however there is a paddock of cleared pasture which clearly demarcates the

separation of the Proposal Site development footprint and the item (refer to

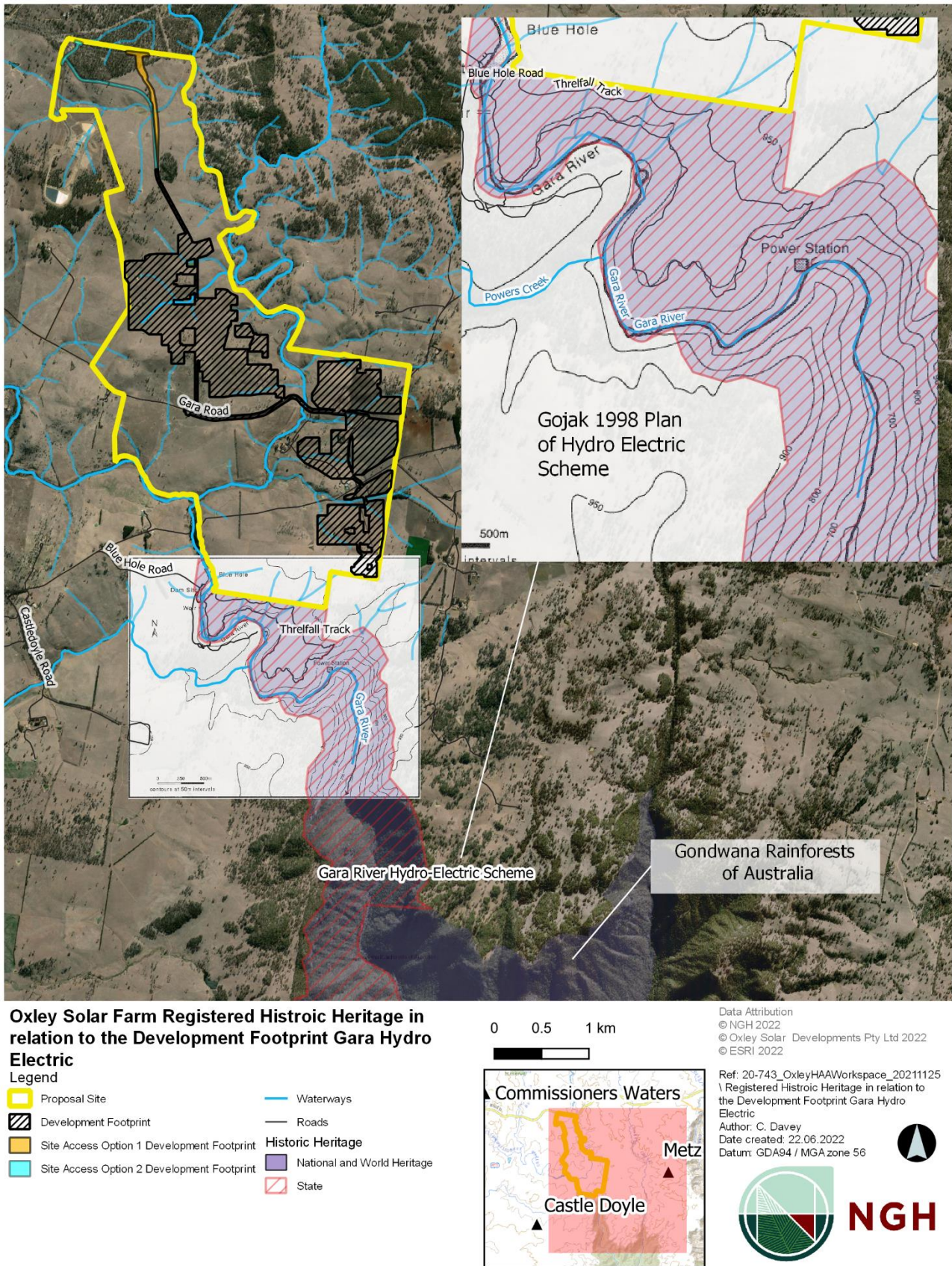


Figure 3-7, Plate 3-3 and Plate 3-4 below).

Table 3-2 Photographs looking towards Gondwana Rainforest area



Plate 3-3 View south of the southernmost portion of the proposed development footprint, showing tree line between Proposal Site and Gondwana curtilage.



Plate 3-4 View south west from edge of development footprint towards nearest point of Gondwana Rainforests curtilage (beyond the hill and trees at mid ground right).

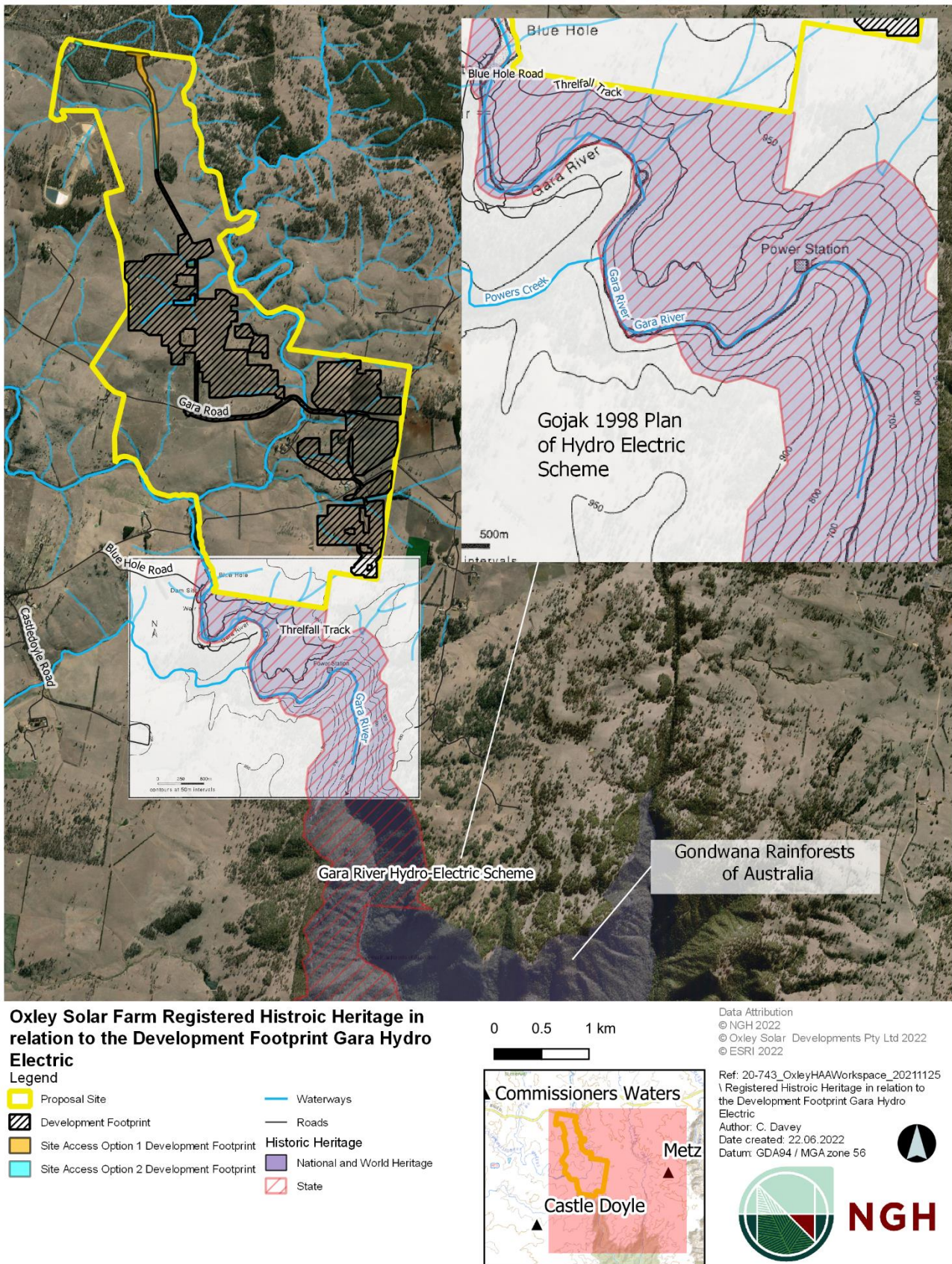


Figure 3-7 Location of the Gara River Hydro-Electric archaeological remains and Gondwana Rainforest environmental heritage item, in relation to the proposed Development Footprint.

3.1.4 Additional items

During the Aboriginal heritage site inspections conducted 12-21 May 2020 and 25 June 2021, three sites of potential historical heritage significance were identified. These included:

- Surveyors tree (SvT1)
- Cottage site with botanical indicators (CS1),
- Gara station homestead, sheds and buildings (GH1).

Surveyors tree (SvT1)

This site consists of a single historical scarred tree on the northern side of Grafton Road (Figure 3-8). The tree is a living, standing, undetermined species of *Eucalyptus* in moderate condition with a single oval-to-triangular shaped scar. The scar is in good condition and located on the west-facing trunk of the tree. The scar measures 75cm in length by 35cm in width and has a depth of 2cm. The base of the scar is approximately 80cm above the ground. Steel hatchet marks are visible towards the base of the scar with an arrow evident at the top of the scar and the letters 'P M' chiselled into the centre of the dry face.

The letters 'P.M.' stand for 'permanent mark'. Until 1933, no bearing and distance to the corners was required to be included in the mark, and all plans lodged with the Registrar General's Department between 1920 to 1933 show only 'P.M.' (Marshall n.d.). It is likely therefore that this marker dates to pre-1933 and relates to one of the earlier iterations of what is now Waterfall Way. Given that, despite 1899 recommendations made by the Institution of Surveyors to the Registrar General that surveyors be directed to leave permanent marks in connection with all Real Property Act surveys, no action to regulate this was taken until the issue of the 1915 instructions (Marshall 2002: 35), it is considered probable that this tree dates to somewhere between 1899 (earliest), with more likely early date of 1915, and 1933.

The tree is located to the north of the bitumen of Grafton Rd and is 20m from the development footprint at its nearest point.

Table 3-3 Photographs of Oxley Solar Farm SvT1

 <p>Plate 3-5 Context of Oxley Solar Farm SvT1, located on the northern side of Waterfall Way between fenceline and road</p>	 <p>Plate 3-6 Close up of Oxley Solar Farm SvT1 scar</p>
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Possible cottage site (CS1)

The site including non-native cherry trees, rose bushes, old fence posts, small wall foundations and pipe along a small river terrace. Situated along a slightly raised landform directly adjacent to the Gara River towards the south west section of the Proposal Site (Figure 3-8), the site is presumed to represent an old cottage.

The site is located within the Parish of Metz is also shown on the 1984 map of Gyra Run, however this site is around the boundary of two allotments, one owned by M. Marks and the other by David Cohen, Samuel Cohen and L. W. Levy. The owners of these properties remain the same from the earliest available mapping for the Parish of Metz (1893). Of historical note are the potential owners Lewis Wolfe Levy and his cousins, brothers David and Samuel Cohen. Lewis Wolfe Levy (1815-1855) was born in London and emigrated to Australia in 1840. He purchased land and moved to Tamworth in 1846 to open a general store. It was around this time that he became a partner with his cousins in David Cohen & Co., a mercantile firm based in Maitland, NSW. While no specific details of this landholding are outlined, the details provided in the *Australian Dictionary of Biography* (vol. 5 (MUP), 1974) describes Lewis Wolfe Levy as a businessman with a good reputation who would represent the Liverpool Plains in the Legislative Assembly in 1871. Levy was noted as having multiple investments including several pastoral interests and being a partner in over seven pastoral runs (including Yarraman on the Liverpool Plains).

Levy also held the position of director of the Commercial Banking Co. of Sydney during the 1870s, notable as the landowner of the property at site two. While written records suggest that this prominent historical figure did not occupy his land holding in the Parish of Metz, the association with Levy highlights a potential historic significance of the identified potential heritage items at Gara Station.

This cottage is located within the boundary of the Proposal Site, but outside of the development footprint, being approximately 400m to the southwest and on the opposite side of the Gara River from the nearest point of the footprint.

Table 3-4 Photographs of Oxley Solar Farm CS1



Plate 3-7 Brick formation, possible wall evident amongst thick tuft grass



Plate 3-8 Degraded timber scattered adjacent to linear raised landform



Plate 3-9 Dead rose bushes interspersed with rubbish metal and thick tuft grass



Plate 3-10 Degraded timber scattered in general area

Gara station

Much of the Proposal Site encompasses the lands referred to as 'Gyra', 'Gara/Gyra Run' or 'Cara Holding'. Gara Station and its associated lands have been utilised for agricultural pastoral and grazing for generations. The establishment of the Hillgrove and Gara Stations is attributed to Sir Maurice O'Connell (1768-1848) and his son Sir Maurice O'Connell (1812 – 1879)(Gibbney 1974; National Centre of Biography 2006). However, an article from 1888 indicated that a Major Parke occupied Gara from 1840, before retiring to a property of his own in ~1846(Armidale Express 1888). Gara later being sold to Edward Allingham, who ran a store and mill in Armidale (Walker 1966). A reference to the property with regard to reasonably unsuccessful gold diggings along the Gara River from the Maitland Mercury and Hunter River General Advertiser in 1861 indicates that the property was by then owned by Mr Allingham(Armidale Express 1861). As such it seems that both O'Connells' connection to the property was brief and of no particular significance.

In 1901 the property encompassed 527 acres of freehold and 3.542 acres of pastoral and agricultural land (The Sydney Wool and Stock Journal 1901). Some accounts reference the running of sheep during the 1860s (The Maitland Mercury and Hunter River General Advertiser 1864). Several of the paddocks run sheep and cows while select few are maintained for cropping of foods such as radishes.

The extant Gara Homestead house is located on the banks of the Gara River, approximately 110m to the west of the development footprint at its nearest point. No documentary evidence for the date of construction for this house has been identified, however it is likely dated to the mid- to late 1800s. It is sited on a low terrace on the eastern side of the Gara River, facing west. The associated farm buildings including the managers house, shearers quarters, shearing shed, storage sheds and yards are located approximately 700m to the south east of the house.

These structures were visited during the completion of the site inspection in May 2020 and are described below. Gara Homestead could not be directly accessed due to its current occupation by the owner and its location outside of the development footprint. NGH was informed that the homestead would not be physically impacted by the proposed works and the owner requested privacy, so no images of the structure are included within this report.

Gara station buildings and sheds: including the older shearing sheds dated from the 1920s and 1950s with the older components composed of timber and younger composed of steel. The collection of buildings is located approximately 1.1km southeast of the river crossing along Gara Road and directly north of the Original Armidale Metz track (also known as Castle Doyle Road) (Figure 3-8). Some of the buildings are within 30m of the development footprint, however none will be physically impacted.

As noted above, the homestead was constructed sometime in the mid- to late nineteenth century. Access to the house to undertake a detailed photographic recording of the architectural features was not possible. The homestead is located to the northeast of this collection of farm buildings on a creek terrace on the eastern bank of the Gara River. It can only partially be seen from the farm buildings and is approximately 110m west of the nearest portion of the development footprint, from which the house is screened by trees and the slope of the hill. The outlook of the house is focussed westwards across Gara River (refer to Plate 3-16).

Table 3-5 Photographs of Gara Station



Plate 3-11 Main shed



Plate 3-12 Cattle yard and storage shed



Plate 3-13 Shearing shed



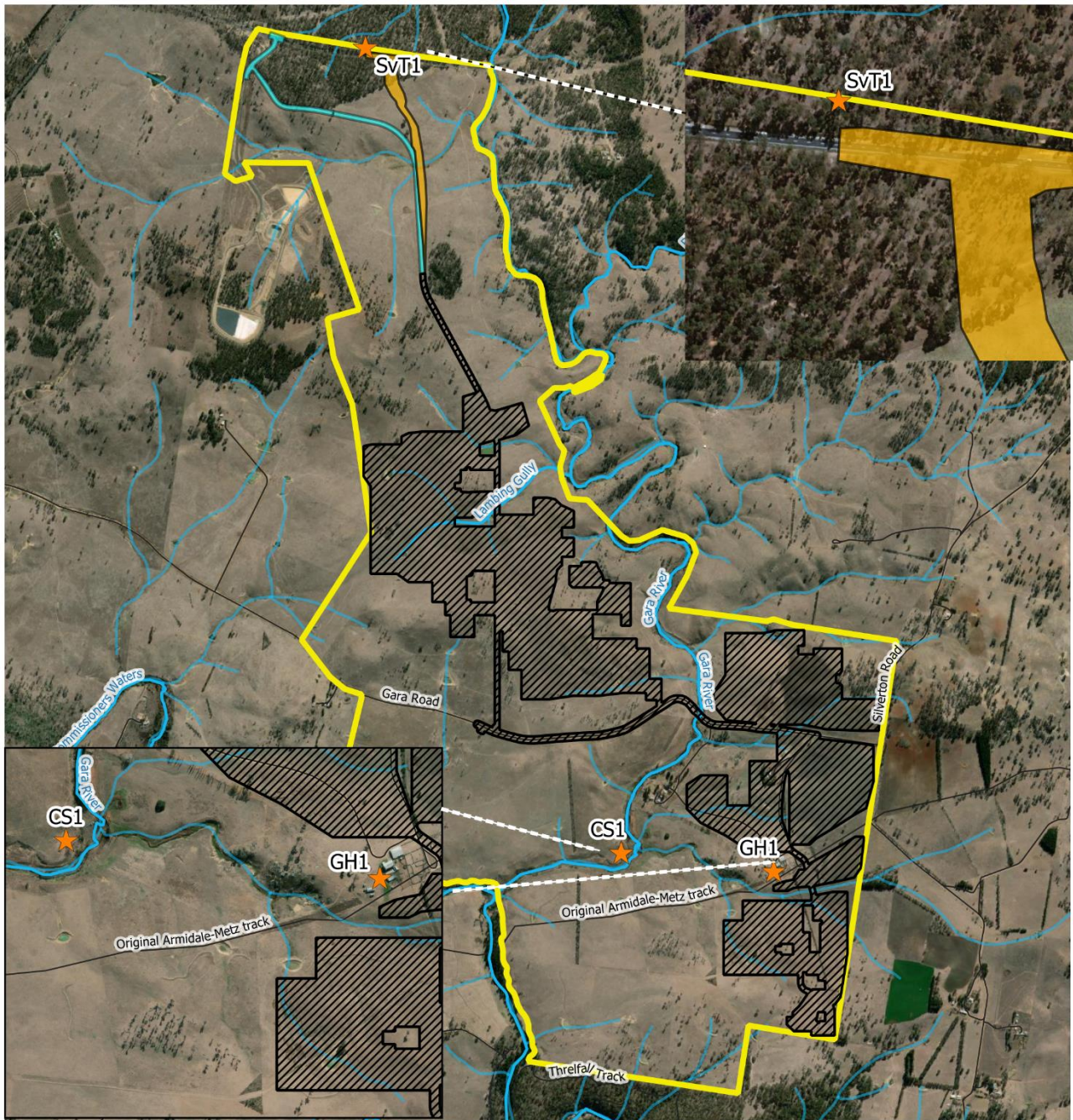
Plate 3-14 Shearers quarters and outhouse



Plate 3-15 View west from edge of development footprint towards Gara Homestead (house)



Plate 3-16 View east to site of Gara Homestead house, showing the outlook from the house across the river.



Oxley Solar Farm

Historic Heritage In Relation To Development Footprint

0 500 1,000 m



Legend

- Proposal Site
- Infrastructure Footprint
- Development Footprint
- Potential Historic Sites
- Waterways
- Roads

Data Attribution

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Ref: 20-743_OxleyHAAWorkspace_20211125

Historic Heritage In Relation To

Development Footprint

Author: C. Jones

Date created: 24.06.2022

Datum: GDA94 / MGA zone 56



NGH

Figure 3-8 Potential historic heritage items in relation to Development Footprint

4. Heritage significance

4.1 Introduction

‘Heritage significance’ is a term used to describe the inherent cultural and historical value of an item. Significance may be contained within the fabric of a building or other place, in its setting and its relationship with other nearby items.

The main aim in assessing significance is to produce a succinct statement of significance, which summarises an item’s heritage values. The statement is the basis for policies and management structures that will affect the item’s future (NSW Heritage Office 2001).

HNSW recommends assessment of heritage items in a number of situations, which include:

- Making decisions about whether to retain an item
- Considering changes to an item
- Preparing a heritage study
- Preparing a conservation management plan
- Considering an item for listing on the SHR or on the schedule of heritage items in a local environmental plan, or
- Preparing a statement of environmental effects or a heritage impact statement as part of the development and building approval process

The following assessment of significance is based on the NSW heritage assessment criteria. The criteria encompass the four values in the Australia ICOMOS Burra Charter (1999), which are commonly accepted as generic values by Australian heritage agencies and professional consultants:

- Historical significance
- Aesthetic significance
- Scientific significance
- Social significance (Australian ICOMOS 2013).

The above are expressed as criteria in a more detailed form than this to:

- Maintain consistency with the criteria of other Australian heritage agencies
- Minimise ambiguity during the assessment process
- Avoid the legal misinterpretation of the completed assessments of listed items.

4.2 Heritage assessment criteria

As those registered heritage items in proximity to the Proposal Site are registered under different levels of legislation, the assessment criteria applicable to each of these levels must be considered with regard to the significance assessment.

4.2.1 Assessments of significance

World heritage

UNESCO sets out the following criteria for items of Outstanding Universal Value (items listed on the World Heritage List, i.e. the Gondwana Rainforests):

- (i) 'to represent a masterpiece of human creative genius;
- (ii) to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design;
- (iii) to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared;
- (iv) to be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history;
- (v) to be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change;
- (vi) to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance. (The Committee considers that this criterion should preferably be used in conjunction with other criteria);
- (vii) to contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance;
- (viii) to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features;
- (ix) to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;
- (x) to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.' (UNESCO World Heritage Centre 2021)

Australian and NSW Heritage

The following assessment follows the guidelines set out by HNSW and the principles of the Australia's ICOMOS Burra Charter (Australian ICOMOS 2013).

The guidelines for Assessing Heritage Significance (Heritage Office (former), 2001) states that an item will be considered to be of state and/or local heritage significance if it meets one or more of the NSW Heritage Assessment Criteria, as per Table 4-1.

Table 4-1 NSW heritage assessment criteria.

Criteria	Description
Criterion (a)	An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area);
Criterion (b)	An item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area);
Criterion (c)	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area);
Criterion (d)	An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons;
Criterion (e)	An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area);
Criterion (f)	An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area);
Criterion (g)	An item is important in demonstrating the principal characteristics of a class of NSW's <ul style="list-style-type: none"> • cultural or natural places or • cultural or natural environments. (or a class of the local area's <ul style="list-style-type: none"> • cultural or natural places or • cultural or natural environments.)

To undertake an assessment of an item against the NSW heritage assessment criteria, the guidelines recommend that the following steps be undertaken:

- Investigate the historical context of the item or study area
- Investigate the community's understanding of the item
- Establish local historical themes and relate them to the State themes
- Investigate the history of the item and
- Investigate the fabric of the item.

4.3 NSW historical themes

An historical theme is a way of describing a major force or process which has contributed to history. Historical themes provide a context within which the heritage significance of an item can be understood, assessed and compared. In using themes to assess heritage items and places it is useful to identify both local or regional themes applying to the item and the broader state theme to which the local or regional theme relates.

The following table, Table 4-2, shows the correlation between national and state heritage themes with those relating to the Proposal Site. This table has been adapted from the NSW Historical Themes (Heritage Council of NSW 2001) .

Table 4-2. NSW historic themes.

Australian theme	NSW theme	Description	Examples	Gondwana Rainforests of Australia	Gara River Hydro-Electric scheme	SvT1 (potential heritage item)	Cottage CH1 (potential heritage item)	Gara Homestead buildings GH1 (potential heritage item)
1 Tracing the natural evolution of Australia,	Environment - naturally evolved	There are two aspects to this theme: (1) Features occurring naturally in the physical environment which have significance independent of human intervention (2) Features occurring naturally in the physical environment which have shaped or influenced human life and cultures.	A geological formation, fossil site, ecological community, island, soil site, river flats, estuary, mountain range, reef, lake, woodland, seagrass bed, wetland, desert, alps, plain, valley, headland, evidence of flooding, earthquake, bushfire and other natural occurrences.	Gondwana Rainforests of Australia contain important flora and fauna in addition to significant geological formations and fossil remains. These relate to the local theme of tracing the evolution of a continent's special environments, environments important for plant life; "" birdlife; "" animal life; rare and significant flora; "" fauna; parks.	The Gara River Hydro-Electric Scheme relied on the power of water flow through the river and nearby falls the generate energy to power the nearby settlement and mines at Hillgrove.	Use of large Eucalyptus trees as surveyors markers was important in early settlement for navigation and surveying.	N/A	N/A
2 Peopling Australia	Aboriginal cultures and interactions with other cultures	Activities associated with maintaining, developing, experiencing and remembering Aboriginal cultural identities and practises, past	Place name, camp site, midden, fish trap, trade route, massacre site, shipwreck contact site, missions and institutions, whaling station, pastoral workers camp,	The intactness of the Gondwana Rainforests is important for Aboriginal culture and maintaining Aboriginal communities.	N/A	N/A	N/A	N/A

Australian theme	NSW theme	Description	Examples	Gondwana Rainforests of Australia	Gara River Hydro-Electric scheme	SvT1 (potential heritage item)	Cottage CH1 (potential heritage item)	Gara Homestead buildings GH1 (potential heritage item)
		and present; with demonstrating distinctive ways of life; and with interactions demonstrating race relations.	timber mill settlement, removed children's home, town reserve, protest site, places relating to self-determination, keeping place, resistance & protest sites, places of segregation, places of indentured labour, places of reconciliation					
3 Developing local, regional and national economies	Agriculture	Activities relating to the cultivation and rearing of plant and animal species, usually for commercial purposes, can include aquaculture	Hay barn, wheat harvester, silo, dairy, rural landscape, plantation, vineyard, farmstead, shelterbelt, silage pit, fencing, plough markings, shed, fish farm, orchard, market garden, piggery, common, irrigation ditch, Aboriginal seasonal picking camp.	N/A	N/A	N/A	Small residence associated with early pastoral use of the area.	Outbuildings and residence associated with the early and continued pastoral use of the area.

Australian theme	NSW theme	Description	Examples	Gondwana Rainforests of Australia	Gara River Hydro-Electric scheme	SvT1 (potential heritage item)	Cottage CH1 (potential heritage item)	Gara Homestead buildings GH1 (potential heritage item)
3 Developing local, regional and national economies	Communication	Activities relating to the creation and conveyance of information	Post office, telephone exchange, printery, radio studio, newspaper office, telegraph equipment, network of telegraph poles, mail boat shipwreck, track, airstrip, lighthouse, stamp collection.	N/A	N/A	Placement of surveyors marks communicated important information regarding placement of infrastructure.	N/A	N/A
3 Developing local, regional and national economies	Environment - cultural landscape	Activities associated with the interactions between humans, human societies and the shaping of their physical surroundings	A landscape type, bushfire fighting equipment, soil conservation structures, national park, nature reserve, market garden, land clearing tools, evidence of Aboriginal land management, avenue of trees, surf beach, fishing spot, plantation, place important in arguments for nature or cultural heritage conservation.	Gondwana Rainforests is important in the development of conservation policies for places of environmental heritage.	The Gara River Hydro-Electric Scheme relied on the power of water flow through the river and nearby falls the generate energy to power the nearby settlement and mines at Hillgrove.	Use of large eucalyptus trees as surveyors markers was important in early settlement for navigation and surveying.	N/A	N/A

Australian theme	NSW theme	Description	Examples	Gondwana Rainforests of Australia	Gara River Hydro-Electric scheme	SvT1 (potential heritage item)	Cottage CH1 (potential heritage item)	Gara Homestead buildings GH1 (potential heritage item)
3 Developing local, regional and national economies	Events	Activities and processes that mark the consequences of natural and cultural occurrences	Monument, photographs, flood marks, memorial, ceremonial costume, honour board, blazed tree, obelisk, camp site, boundary, legislation, place of pilgrimage, places of protest, demonstration, congregation, celebration.	Gondwana Rainforests is important in the development of conservation policies for places of environmental heritage.	N/A	N/A	N/A	N/A
3 Developing local, regional and national economies	Exploration	Activities associated with making places previously unknown to a cultural group known to them.	Explorers route, marked tree, camp site, explorer's journal, artefacts collected on an expedition, captain's log, surveyor's notebook, mountain pass, water source, Aboriginal trade route, landing site, map.	The Gondwana Rainforests are an important natural site for native fauna and flora as food sources, natural landscapes valued by humans, and is important to Aboriginal traditional and spiritual life.	N/A	Surveyors mark indicating demarcation of new road.	N/A	N/A
3 Developing local, regional and	Mining	Activities associated with the identification, extraction,	Mine, quarry, race, mining field or landscape, processing plant,	N/A	Production of electricity for use by Hillgrove	N/A	N/A	N/A

Australian theme	NSW theme	Description	Examples	Gondwana Rainforests of Australia	Gara River Hydro-Electric scheme	SvT1 (potential heritage item)	Cottage CH1 (potential heritage item)	Gara Homestead buildings GH1 (potential heritage item)
national economies		processing and distribution of mineral ores, precious stones and other such inorganic substances.	manager's office, mineral specimen, mining equipment, mining license, ore laden shipwreck, collier, mine shaft, sluice gate, mineral deposit, slag heap, assay office, water race.		mines.			
3 Developing local, regional and national economies	Pastoralism	Activities associated with the breeding, raising, processing and distribution of livestock for human use	Pastoral station, shearing shed, slaughter yard, stud book, photos of prizewinning stock, homestead, pastoral landscape, common, fencing, grassland, well, water trough, freezer boat shipwreck, wool store.	N/A	N/A	N/A	Small residence associated with early pastoral use of the area.	Outbuildings and residence associated with the early and continued pastoral use of the area.
3 Developing local, regional and national economies	Science	Activities associated with systematic observations, experiments and processes for the explanation of observable phenomena	Laboratory, experimental equipment, text book, observatory, botanical garden, arboretum, research station, university research reserve, weather station, soil	The site is subject to significant scientific research in various fields including botany, zoology, geology, palaeontology and palaeobotany.	The Gara River Hydro-Electric Scheme was the first of its kind.	N/A	N/A	N/A

Australian theme	NSW theme	Description	Examples	Gondwana Rainforests of Australia	Gara River Hydro-Electric scheme	SvT1 (potential heritage item)	Cottage CH1 (potential heritage item)	Gara Homestead buildings GH1 (potential heritage item)
			conservation area, fossil site, archaeological research site.					
3 Developing local, regional and national economies	Technology	Activities and processes associated with the knowledge or use of mechanical arts and applied sciences	Computer, telegraph equipment, electric domestic appliances, underwater concrete footings, museum collection, office equipment, Aboriginal places evidencing changes in tool types.	N/A	The scheme used very precise engineering to harness water and gravity to generate electricity.	N/A	N/A	N/A
3 Developing local, regional and national economies	Transport	Activities associated with the moving of people and goods from one place to another, and systems for the provision of such movements	Railway station, highway, lane, train, ferry, wharf, tickets, carriage, dray, stock route, canal, bridge, footpath, aerodrome, barge, harbour, lighthouse, shipwreck, canal, radar station, toll gate, horse yard, coach stop.	N/A	n/a	The surveyors mark likely demarcates the alignment of the original route of waterfall way, connecting Armidale to the coast.	N/A	N/A

Australian theme	NSW theme	Description	Examples	Gondwana Rainforests of Australia	Gara River Hydro-Electric scheme	SvT1 (potential heritage item)	Cottage CH1 (potential heritage item)	Gara Homestead buildings GH1 (potential heritage item)
4 Building settlements, towns and cities	Land tenure	Activities and processes for identifying forms of ownership and occupancy of land and water, both Aboriginal and non-Aboriginal	Fence, survey mark, subdivision pattern, land title document, boundary hedge, stone wall, shelterbelt, cliff, river, seawall, rock engravings, shelters & habitation sites, cairn, trig station, colonial/state border markers.	Gondwana Rainforests are managed by the State government but contain values significant under Federal laws, in which both have a role in conserving the natural heritage.	N/A	The surveyors mark likely demarcates the alignment of the original route of waterfall way, connecting Armidale to the coast.	N/A	N/A
4 Building settlements, towns and cities	Utilities	Activities associated with the provision of services, especially on a communal basis	Water pipeline, sewage tunnel, gas retort, powerhouse, County Council office, garbage dump, windmill, radio tower, bridge, culvert, weir, well, cess pit, reservoir, dam, places demonstrating absence of utilities at Aboriginal fringe camps	N/A	Production of electricity for use by Hillgrove mines.	N/A	N/A	N/A
4 Building settlements, towns and cities	Accommodation	Activities associated with the provision of accommodation,	Terrace, apartment, semi-detached house, holiday house,	N/A	N/A	N/A	Cottage would have provided accommodation to	Homestead and shearers barracks has and continues to provide

Australian theme	NSW theme	Description	Examples	Gondwana Rainforests of Australia	Gara River Hydro-Electric scheme	SvT1 (potential heritage item)	Cottage CH1 (potential heritage item)	Gara Homestead buildings GH1 (potential heritage item)
cities		and particular types of accommodation – does not include architectural styles – use the theme of Creative Endeavour for such activities.	hostel, bungalow, mansion, shack, house boat, caravan, cave, humpy, migrant hostel, homestead, cottage, house site (archaeological).				owners/workers on the farm.	accommodation for farm managers and workers.
5 Working	Labour	Activities associated with work practises and organised and unorganised labour	Trade union office, bundy clock, time-and motion study (document), union banner, union membership card, strike site, staff change rooms, servants quarters, shearing shed, green ban site, brothel, kitchen, nurses station, hotel with an occupational patronage.	N/A	N/A	N/A	N/A	Shearers shed and barracks associated with the workers on the property.
6 Educating	Education	Activities associated with teaching and learning by children and adults, formally and informally.	School, kindergarten, university campus, mechanics institute, playground, hall of residence, text book, teachers	The site is subject to significant scientific research in various fields including botany, zoology, geology, palaeontology and	N/A	N/A	N/A	N/A

Australian theme	NSW theme	Description	Examples	Gondwana Rainforests of Australia	Gara River Hydro-Electric scheme	SvT1 (potential heritage item)	Cottage CH1 (potential heritage item)	Gara Homestead buildings GH1 (potential heritage item)
			college, sail training boat wreck, sports field, seminary, field studies centre, library, physical evidence of academic achievement (e.g. a medal or certificate).	palaeobotany.				
8 Culture – Developing cultural institutions and ways of life	Domestic life	Activities associated with creating, maintaining, living in and working around houses and institutions.	Domestic artefact scatter, kitchen furnishings, bed, clothing, garden tools, shed, arrangement of interior rooms, kitchen garden, pet grave, chicken coop, home office, road camp, barrack, asylum.	N/A	N/A	N/A	May contain archaeological evidence relating to early domestic life on pastoral property.	Evidence of domestic life of shearers and farm managers/workers.
9 Phases of life – Marking the phases of life	Persons	Activities of, and associations with, identifiable individuals, families and communal groups.	A monument to an individual, a family home, a dynastic estate, private chapel, a birthplace, a place of residence, a gendered site, statue, Coat of Arms,	Associated with Jillian Oppenheimer OAM, conservationist, historian, philanthropist.	Designed by Richard Threlfall, Professor of Physics at Sydney University, thought to be one of the first modern	N/A	Unsubstantiated association with Lewis Wolfe Levy.	N/A

Australian theme	NSW theme	Description	Examples	Gondwana Rainforests of Australia	Gara River Hydro-Electric scheme	SvT1 (potential heritage item)	Cottage CH1 (potential heritage item)	Gara Homestead buildings GH1 (potential heritage item)
			commemorative place name, place dedicated to memory of a person (e.g. hospital wing).		pure physicists.			

4.4 Heritage assessment

The identified listed and potential heritage items in or near the Proposal Site have been assessed against the seven NSW Heritage Significance Criteria as outlined in Table 4-1, with reference to the relevant historical themes in Table 4-2.

4.4.1 Gondwana Rainforests of Australia

The below information is taken from the inventory information for this item as included on the UNESCO World Heritage listing, NHL listing and SHR listing.

Table 4-3 Heritage Significance of the Gondwana Rainforests (Outstanding Universal Value) (UNESCO World Heritage Centre 2021)

Criteria	Meets/does not meet (local or State)
Criterion (viii): to be outstanding examples representing major stages of earth's history, including the record of life, significant on-going geological processes in the development of landforms, or significant geomorphic or physiographic features.	<p>From UNESCO:</p> <p>'The Gondwana Rainforests provides outstanding examples of significant ongoing geological processes. When Australia separated from Antarctica following the breakup of Gondwana, new continental margins developed. The margin which formed along Australia's eastern edge is characterised by an asymmetrical marginal swell that runs parallel to the coastline, the erosion of which has resulted in the Great Divide and the Great Escarpment. This eastern continental margin experienced volcanicity during the Cenozoic Era as the Australian continental plate moved over one of the planet's hot spots. Volcanoes erupted in sequence along the east coast resulting in the Tweed, Focal Peak, Ebor and Barrington volcanic shields. This sequence of volcanos is significant as it enables the dating of the geomorphic evolution of eastern Australia through the study of the interaction of these volcanic remnants with the eastern highlands.</p> <p>The Tweed Shield erosion caldera is possibly the best preserved erosion caldera in the world, notable for its size and age, for the presence of a prominent central mountain mass (Wollumbin/Mt Warning), and for the erosion of the caldera floor to basement rock. All three stages relating to the erosion of shield volcanoes (the planeze, residual and skeletal stages) are readily distinguishable. Further south, the remnants of the Ebor Volcano also provides an outstanding example of the ongoing erosion of a shield volcano.'</p>
Criterion (ix): to be outstanding examples representing significant on-going ecological and biological processes in the evolution and development of terrestrial, fresh water,	<p>From UNESCO:</p> <p>'The Gondwana Rainforests contains outstanding examples of major stages in the Earth's evolutionary history as well as ongoing evolutionary processes. Major stages represented include the 'Age of the Pteridophytes' from the Carboniferous Period with some of the oldest elements of the world's ferns represented, and the 'Age of Conifers' in the Jurassic Period with one of the most significant centres</p>

Criteria	Meets/does not meet (local or State)
coastal and marine ecosystems and communities of plants and animals.	<p>of survival for <i>Araucarians</i> (the most ancient and phylogenetically primitive of the world's conifers). Likewise the property provides an outstanding record of the 'Age of the Angiosperms'. This includes a secondary centre of endemism for primitive flowering plants originating in the Early Cretaceous, the most diverse assemblage of relict angiosperm taxa representing the primary radiation of dicotyledons in the mid-Late Cretaceous, a unique record of the evolutionary history of Australian rainforests representing the 'golden age' of the Early Tertiary, and a unique record of Miocene vegetation that was the antecedent of modern temperate rainforests in Australia. The property also contains an outstanding number of songbird species, including lyrebirds (<i>Menuridae</i>), scrub-birds (<i>Atrichornithidae</i>), treecreepers (<i>Climacteridae</i>) and bowerbirds and catbirds (<i>Ptilonorhynchidae</i>), belonging to some of the oldest lineages of passerines that evolved in the Late Cretaceous. Outstanding examples of other relict vertebrate and invertebrate fauna from ancient lineages linked to the break-up of Gondwana also occur in the property.</p> <p>The flora and fauna of the Gondwana Rainforests provides outstanding examples of ongoing evolution including plant and animal taxa which show evidence of relatively recent evolution. The rainforests have been described as 'an archipelago of refugia, a series of distinctive habitats that characterise a temporary endpoint in climatic and geomorphological evolution'. The distances between these 'islands' of rainforest represent barriers to the flow of genetic material for those taxa which have low dispersal ability, and this pressure has created the potential for continued speciation.'</p>
Criterion (x): to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.	<p>From UNESCO:</p> <p>'The ecosystems of the Gondwana Rainforests contain significant and important natural habitats for species of conservation significance, particularly those associated with the rainforests which once covered much of the continent of Australia and are now restricted to archipelagos of small areas of rainforest isolated by sclerophyll vegetation and cleared land. The Gondwana Rainforests provides the principal habitat for many species of plants and animals of outstanding universal value, including more than 270 threatened species as well as relict and primitive taxa.</p> <p>Rainforests covered most of Australia for much of the 40 million years after its separation from Gondwana. However, these rainforests contracted as climatic conditions changed and the continent drifted northwards. By the time of European settlement rainforests covered only 1% of the landmass and were restricted to refugia with suitable climatic conditions and protection from fire. Following European settlement, clearing for agriculture saw further loss of rainforests and only a quarter of the rainforest present in Australia at the time of</p>

Criteria	Meets/does not meet (local or State)
	<p>European settlement remains.</p> <p>The Gondwana Rainforests protects the largest and best stands of rainforest habitat remaining in this region. Many of the rare and threatened flora and fauna species are rainforest specialists, and their vulnerability to extinction is due to a variety of factors including the rarity of their rainforest habitat. The Gondwana Rainforests also protects large areas of other vegetation including a diverse range of heaths, rocky outcrop communities, forests and woodlands. These communities have a high diversity of plants and animals that add greatly to the value of the Gondwana Rainforests as habitat for rare, threatened and endemic species. The complex dynamics between rainforests and tall open forest particularly demonstrates the close evolutionary and ecological links between these communities.</p> <p>Species continue to be discovered in the property including the re-discovery of two mammal species previously thought to have been extinct: the Hastings River Mouse (<i>Pseudomys oralis</i>) and Parma Wallaby (<i>Macropus parma</i>).'</p>

Table 4-4 Australian and NSW Heritage significance for Gondwana Rainforests

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (national, state, local)
(a) Historical - An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area)	INCLUSION <ul style="list-style-type: none"> Shows evidence of a significant human activity Is associated with a significant activity or historical phase Maintains or shows the continuity of a historical process or activity 	<p>The Gondwana Rainforests are a rare example of ancient forests which contain evidence of flora and fauna species which are extant, and also shown as fossilised species.</p> <p>The geological formations are an outstanding example of the earth's evolutionary history representing significant ongoing geological processes and biological evolution.</p> <p>The item meets this criteria at a National level</p>
	EXCLUSION <ul style="list-style-type: none"> Has incidental or unsubstantiated connections with historically important activities or processes Provides evidence of activities or processes that are 	

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (national, state, local)
	<p>of dubious historical importance</p> <ul style="list-style-type: none"> • Has been so altered that it can no longer provide evidence of a particular association 	
(b) Associative – An item has a strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area)	<p>INCLUSION</p> <ul style="list-style-type: none"> • Shows evidence of a significant human occupation • Is associated with a significant event, person, or group of persons 	<p>This item has an association with Jillian Oppenheimer OAM who was a founding member of the Walcha Branch of the National Parks Association of NSW and in 1975, was instrumental in creating the Oxley Wild Rivers and Werrikimbie National Parks.</p> <p>The item meets this criterion at a National level.</p>
	<p>EXCLUSION</p> <ul style="list-style-type: none"> • Has incidental or unsubstantiated connections with historically important people or events • Provides evidence of people or events that are of dubious historical importance • Has been so altered that it can no longer provide evidence of a particular association 	
(c) Aesthetic/Technical - An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)	<p>INCLUSION</p> <ul style="list-style-type: none"> • Shows or is associated with, creative or technical innovation or achievement • Is the inspiration for a creative or technical innovation or achievement • Is aesthetically distinctive • has landmark qualities • Exemplifies a particular taste, style or technology 	<p>The item contains aesthetic value in its landforms and vegetation. The portion of the item which is located nearest the Proposal Site has been designated within the Oxley Wild Rivers National Park and is enjoyed by tourists for its aesthetic values.</p> <p>The item meets this criterion at a National level.</p>
	<p>EXCLUSION</p> <ul style="list-style-type: none"> • Is not a major work by an 	

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (national, state, local)
	<p>important designer or artist</p> <ul style="list-style-type: none"> • Has lost its design or technical integrity • Its positive visual or sensory appeal or landmark and scenic qualities have been more than temporarily degraded • Has only a loose association with a creative or technical achievement 	
(d) Social - An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons	<p>INCLUSION</p> <ul style="list-style-type: none"> • Is important for its associations with an identifiable group • Is important to a community's sense of place 	<p>No known social or cultural associations are identified for the item.</p> <p>Does not meet this criterion.</p>
	<p>EXCLUSION</p> <ul style="list-style-type: none"> • Is only important to the community for amenity reasons • Is retained only in preference to a proposed alternative 	
(e) Research - An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)	<p>INCLUSION</p> <ul style="list-style-type: none"> • Has the potential to yield new or further substantial scientific and/or archaeological information • Is an important benchmark or reference site or type • Provides evidence of past human cultures that is unavailable elsewhere 	<p>The item has very high research potential for the natural heritage of Australia and globally, with reference to geological formations, fossils and extant flora and fauna present within.</p> <p>The item meets this criterion at a National level.</p>
	<p>EXCLUSION</p> <ul style="list-style-type: none"> • The knowledge gained would be irrelevant to research on science, human history or 	

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (national, state, local)
	<p>culture</p> <ul style="list-style-type: none"> • Has little archaeological or research potential • Only contains information that is readily available from other resources or archaeological sites 	
(f) Rarity - An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area)	<p>INCLUSION</p> <ul style="list-style-type: none"> • Provides evidence of a defunct custom, way of life or process • Demonstrates a process, custom or other human activity that is in danger of being lost • Shows unusually accurate evidence of a significant human activity • Is the only example of its type • Demonstrates designs or techniques of exceptional interest • Shows rare evidence of a significant human activity important to a community <p>EXCLUSION</p> <ul style="list-style-type: none"> • Is not rare • Is numerous but under threat 	<p>The item contains some of the last remnants of this ancient forest which once grew across the supercontinent of Gondwana.</p> <p>The item meets this criterion at a National level.</p>
(g) Representative - An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments. (or a class of the local area's)	<p>INCLUSION</p> <ul style="list-style-type: none"> • Is a fine example of its type • Has the principal characteristics of an important class or group of items • Has attributes typical of a particular way of life, 	<p>The item contains some of the last remnants of this ancient forest which once grew across the supercontinent of Gondwana.</p> <p>The item meets this criterion at a National level.</p>

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (national, state, local)
	<p>philosophy, custom, significant process, design, technique or activity</p> <ul style="list-style-type: none"> • Is a significant variation to a class of items • Is part of a group which collectively illustrates a representative type • Is outstanding because of its setting, condition or size • is outstanding because of its integrity or the esteem in which it is held 	
	<p>EXCLUSION</p> <ul style="list-style-type: none"> • Is a poor example of its type • does not include or has lost the range of characteristics of a type • Does not represent well the characteristics that make up a significant variation of a type 	

4.4.2 Gara River Hydro-Electric Scheme

Table 4-5 NSW Heritage Significance for Gara Hydro-Electric Scheme

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (state, local)
(a) Historical - An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area)	<p>INCLUSION</p> <ul style="list-style-type: none"> • Shows evidence of a significant human activity • Is associated with a significant activity or historical phase • Maintains or shows the continuity of a historical process or activity 	From SHI: "The Gara River Hydro-electric scheme provides direct evidence for the early use of electricity in Australia. It was the first scheme in Australia to provide light to a town and the first to make its output commercially available for industry. It represents the only successful venture of the

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (state, local)
	<p>EXCLUSION</p> <ul style="list-style-type: none"> • Has incidental or unsubstantiated connections with historically important activities or processes • Provides evidence of activities or processes that are of dubious historical importance • Has been so altered that it can no longer provide evidence of a particular association 	<p>Australasian Purchase Rights Association. It has an association with the NSW parliamentarian, Frank Cotton, who acted as manager for the revived Gara River scheme. It also has an association with Richard Threlfall, Professor of physics at the University of Sydney. (Gojak et.al. 1988: 27-8&32-3)."</p> <p>The item meets this criterion at a State level.</p>
(b) Associative – An item has a strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area)	<p>INCLUSION</p> <ul style="list-style-type: none"> • Shows evidence of a significant human occupation • Is associated with a significant event, person, or group of persons 	<p>No known associative values are identified for the item.</p> <p>Does not meet this criterion.</p>
	<p>EXCLUSION</p> <ul style="list-style-type: none"> • Has incidental or unsubstantiated connections with historically important people or events • Provides evidence of people or events that are of dubious historical importance • Has been so altered that it can no longer provide evidence of a particular association 	
(c) Aesthetic/Technical - An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)	<p>INCLUSION</p> <ul style="list-style-type: none"> • Shows or is associated with, creative or technical innovation or achievement • Is the inspiration for a creative or technical innovation or achievement 	<p>The SHI does not identify this item as meeting this criterion; however, the Gara River Hydro-electric scheme provides direct evidence for the early use of electricity in Australia. It was the first scheme in Australia to provide light to a</p>

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (state, local)
	<ul style="list-style-type: none"> • Is aesthetically distinctive • Has landmark qualities • Exemplifies a particular taste, style or technology 	town and the first to make its output commercially available for industry. It represents the only successful venture of the Australasian Purchase Rights Association.
	<p>EXCLUSION</p> <ul style="list-style-type: none"> • Is not a major work by an important designer or artist • Has lost its design or technical integrity • Its positive visual or sensory appeal or landmark and scenic qualities have been more than temporarily degraded • Has only a loose association with a creative or technical achievement 	Therefore, the item meets this criterion at a State level for technical achievement.
(d) Social - An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons	<p>INCLUSION</p> <ul style="list-style-type: none"> • Is important for its associations with an identifiable group • Is important to a community's sense of place 	From SHI: "The Gara River Hydro-electric scheme, represents a part of the historical heritage of the New England district and still has relevance to the local community. It has long been used as a recreational area by the residents of Armidale. It also provides a time depth for the wider community, for the development of hydro-electricity and its conflict with the environment. This has become increasingly relevant since the Franklin River dam protests in 1983-4 (Gojak et.al. 1988: 26&32)."
	<p>EXCLUSION</p> <ul style="list-style-type: none"> • Is only important to the community for amenity reasons • Is retained only in preference to a proposed alternative 	This item meets this criterion at the State level.
(e) Research - An item has potential to yield information	<p>INCLUSION</p> <ul style="list-style-type: none"> • Has the potential to yield new 	From SHI: The Gara River Hydro-electric scheme

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (state, local)
that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)	<p>or further substantial scientific and/or archaeological information</p> <ul style="list-style-type: none"> • Is an important benchmark or reference site or type • Provides evidence of past human cultures that is unavailable elsewhere 	<p>represents several technological firsts, such as the first use of tandem hydro-electric power generating machines in Australia. Technologically it was also a world leader in the use of high voltage power transmission. The overall design, the use of direct current generators and the changes in fluming to improve water flow also have high technological significance. The scheme represents the only known large scale design work carried out by Professor Threlfall, a significant early physicist."</p> <p>Item meets this criterion at a State level.</p>
	<p>EXCLUSION</p> <ul style="list-style-type: none"> • The knowledge gained would be irrelevant to research on science, human history or culture • Has little archaeological or research potential • Only contains information that is readily available from other resources or archaeological sites 	
(f) Rarity - An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area)	<p>INCLUSION</p> <ul style="list-style-type: none"> • Provides evidence of a defunct custom, way of life or process • Demonstrates a process, custom or other human activity that is in danger of being lost • Shows unusually accurate evidence of a significant human activity • Is the only example of its type • Demonstrates designs or techniques of exceptional interest • Shows rare evidence of a significant human activity important to a community 	<p>The SHI does not identify this item as meeting this criterion, however as the first scheme in Australia to provide light to a town and make its output commercially available for industry, the archaeological remains are assessed to be rare.</p> <p>The item meets this criterion at a State level.</p>

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (state, local)
	EXCLUSION <ul style="list-style-type: none"> • Is not rare • Is numerous but under threat 	
(g) Representative - An item is important in demonstrating the principal characteristics of a class of NSW' s cultural or natural places; or cultural or natural environments. (or a class of the local area' s)	INCLUSION <ul style="list-style-type: none"> • Is a fine example of its type • has the principal characteristics of an important class or group of items • Has attributes typical of a particular way of life, philosophy, custom, significant process, design, technique or activity • Is a significant variation to a class of items • is part of a group which collectively illustrates a representative type • Is outstanding because of its setting, condition or size • Is outstanding because of its integrity or the esteem in which it is held 	<p>The SHI does not identify this item as meeting this criterion, however as the first scheme in Australia to provide light to a town and make its output commercially available for industry, the archaeological remains are assessed to be an important representative example of such early use of electricity in Australia.</p> <p>The item meets this criterion at a State level.</p>
	EXCLUSION <ul style="list-style-type: none"> • Is a poor example of its type • Does not include or has lost the range of characteristics of a type • Does not represent well the characteristics that make up a significant variation of a type 	

4.4.3 SvT1

Criteria	Guidelines for inclusion / exclusion	Meets / does not meet criterion (state, local)
(a) Historical - An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area)	INCLUSION <ul style="list-style-type: none"> • Shows evidence of a significant human activity • Is associated with a significant activity or historical phase • Maintains or shows the continuity of a historical process or activity 	<p>There is no evidence to suggest that the surveyors' mark/tree has played an important role in the course of NSW's or Armidale's history.</p> <p>Does not meet this criterion.</p>
	EXCLUSION <ul style="list-style-type: none"> • Has incidental or unsubstantiated connections with historically important activities or processes • Provides evidence of activities or processes that are of dubious historical importance • Has been so altered that it can no longer provide evidence of a particular association 	
(b) Associative – An item has a strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area)	INCLUSION <ul style="list-style-type: none"> • Shows evidence of a significant human occupation • Is associated with a significant event, person, or group of persons 	<p>No known associations with this surveyors mark have been identified.</p> <p>Does not meet this criterion.</p>
	EXCLUSION <ul style="list-style-type: none"> • Has incidental or unsubstantiated connections with historically important people or events • Provides evidence of people or events that are of dubious historical importance • Has been so altered that it 	

Criteria	Guidelines for inclusion / exclusion	Meets / does not meet criterion (state, local)
	can no longer provide evidence of a particular association	
(c) Aesthetic/Technical - An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)	INCLUSION <ul style="list-style-type: none"> Shows or is associated with, creative or technical innovation or achievement Is the inspiration for a creative or technical innovation or achievement Is aesthetically distinctive Has landmark qualities Exemplifies a particular taste, style or technology 	<p>This surveyors mark does not demonstrate and specific technical achievements or possess aesthetic value.</p> <p>Does not meet this criterion.</p>
	EXCLUSION <ul style="list-style-type: none"> Is not a major work by an important designer or artist • has lost its design or technical integrity Its positive visual or sensory appeal or landmark and scenic qualities have been more than temporarily degraded Has only a loose association with a creative or technical achievement 	
(d) Social - An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons	INCLUSION <ul style="list-style-type: none"> Is important for its associations with an identifiable group Is important to a community's sense of place 	<p>No known connections with particular groups in NSW or the local area.</p> <p>Does not meet this criterion.</p>
	EXCLUSION <ul style="list-style-type: none"> Is only important to the community for amenity reasons Is retained only in preference 	

Criteria	Guidelines for inclusion / exclusion	Meets / does not meet criterion (state, local)
	to a proposed alternative	
(e) Research - An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)	INCLUSION <ul style="list-style-type: none"> • Has the potential to yield new or further substantial scientific and/or archaeological information • Is an important benchmark or reference site or type • provides evidence of past human cultures that is unavailable elsewhere 	<p>Surveyors' marks are well documented and this item is unlikely to contribute additional knowledge to their use, or to the development of the local area or NSW.</p> <p>Does not meet this criterion.</p>
	EXCLUSION <ul style="list-style-type: none"> • The knowledge gained would be irrelevant to research on science, human history or culture • Has little archaeological or research potential • Only contains information that is readily available from other resources or archaeological sites 	
(f) Rarity - An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area)	INCLUSION <ul style="list-style-type: none"> • Provides evidence of a defunct custom, way of life or process • Demonstrates a process, custom or other human activity that is in danger of being lost • shows unusually accurate evidence of a significant human activity • Is the only example of its type • Demonstrates designs or techniques of exceptional interest 	<p>No other surveyor's marks on trees are currently known within the local area.</p> <p>The nature of the area indicates that it may therefore be rare at a local level.</p> <p>Meets this criterion at a local level.</p>

Criteria	Guidelines for inclusion / exclusion	Meets / does not meet criterion (state, local)
	<ul style="list-style-type: none"> Shows rare evidence of a significant human activity important to a community 	
	<p>EXCLUSION</p> <ul style="list-style-type: none"> Is not rare Is numerous but under threat 	
(g) Representative - An item is important in demonstrating the principal characteristics of a class of NSW' s cultural or natural places; or cultural or natural environments. (or a class of the local area' s)	<p>INCLUSION</p> <ul style="list-style-type: none"> Is a fine example of its type Has the principal characteristics of an important class or group of items Has attributes typical of a particular way of life, philosophy, custom, significant process, design, technique or activity Is a significant variation to a class of items • is part of a group which collectively illustrates a representative type Is outstanding because of its setting, condition or size Is outstanding because of its integrity or the esteem in which it is held <p>EXCLUSION</p> <ul style="list-style-type: none"> Is a poor example of its type Does not include or has lost the range of characteristics of a type Does not represent well the characteristics that make up a significant variation of a type 	<p>No other surveyor's marks on trees are currently known within the local area.</p> <p>The nature of the area indicates that it may therefore be representative as a survey mark of this type at a local level.</p> <p>Meets this criterion at a local level.</p>

4.4.4 CS1

Criteria	Guidelines for inclusion / exclusion	Meets / does not meet criterion (state, local)
(a) Historical - An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area)	INCLUSION <ul style="list-style-type: none"> Shows evidence of a significant human activity Is associated with a significant activity or historical phase Maintains or shows the continuity of a historical process or activity 	<p>This site does not have any known historical importance in NSW's or the local area's development.</p> <p>Does not meet this criterion.</p>
	EXCLUSION <ul style="list-style-type: none"> Has incidental or unsubstantiated connections with historically important activities or processes Provides evidence of activities or processes that are of dubious historical importance Has been so altered that it can no longer provide evidence of a particular association 	
(b) Associative – An item has a strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area)	INCLUSION <ul style="list-style-type: none"> Shows evidence of a significant human occupation Is associated with a significant event, person, or group of persons 	<p>This item has no known associative values.</p> <p>Does not meet this criterion.</p>
	EXCLUSION <ul style="list-style-type: none"> Has incidental or unsubstantiated connections with historically important people or events Provides evidence of people or events that are of dubious historical importance Has been so altered that it 	

Criteria	Guidelines for inclusion / exclusion	Meets / does not meet criterion (state, local)
	can no longer provide evidence of a particular association	
(c) Aesthetic/Technical - An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)	INCLUSION <ul style="list-style-type: none"> Shows or is associated with, creative or technical innovation or achievement Is the inspiration for a creative or technical innovation or achievement Is aesthetically distinctive Has landmark qualities Exemplifies a particular taste, style or technology 	<p>There are no identified aesthetic or technical values for this item.</p> <p>Does not meet this criterion.</p>
	EXCLUSION <ul style="list-style-type: none"> Is not a major work by an important designer or artist • has lost its design or technical integrity Its positive visual or sensory appeal or landmark and scenic qualities have been more than temporarily degraded Has only a loose association with a creative or technical achievement 	
(d) Social - An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons	INCLUSION <ul style="list-style-type: none"> Is important for its associations with an identifiable group Is important to a community's sense of place 	<p>No known connections with particular groups in NSW or the local area.</p> <p>Does not meet this criterion.</p>
	EXCLUSION <ul style="list-style-type: none"> Is only important to the community for amenity reasons Is retained only in preference 	

Criteria	Guidelines for inclusion / exclusion	Meets / does not meet criterion (state, local)
	to a proposed alternative	
(e) Research - An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)	INCLUSION <ul style="list-style-type: none"> • Has the potential to yield new or further substantial scientific and/or archaeological information • Is an important benchmark or reference site or type • Provides evidence of past human cultures that is unavailable elsewhere 	<p>As the date range and structure type are not known, this item may have research potential with regard to pastoral practices and domestic life in rural areas in the late nineteenth and early twentieth century.</p> <p>Meets this criterion at a local level.</p>
	EXCLUSION <ul style="list-style-type: none"> • The knowledge gained would be irrelevant to research on science, human history or culture • Has little archaeological or research potential • Only contains information that is readily available from other resources or archaeological sites 	
(f) Rarity – An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area)	INCLUSION <ul style="list-style-type: none"> • Provides evidence of a defunct custom, way of life or process • Demonstrates a process, custom or other human activity that is in danger of being lost • Shows unusually accurate evidence of a significant human activity • Is the only example of its type • Demonstrates designs or techniques of exceptional 	<p>Small pastoral cottages of varying dates and styles are common throughout New England and NSW, with many examples still extant.</p> <p>Does not meet this criterion.</p>

Criteria	Guidelines for inclusion / exclusion	Meets / does not meet criterion (state, local)
	<p>interest</p> <ul style="list-style-type: none"> Shows rare evidence of a significant human activity important to a community 	
	<p>EXCLUSION</p> <ul style="list-style-type: none"> Is not rare Is numerous but under threat 	
(g) Representative - An item is important in demonstrating the principal characteristics of a class of NSW' s cultural or natural places; or cultural or natural environments. (or a class of the local area' s)	<p>INCLUSION</p> <ul style="list-style-type: none"> Is a fine example of its type Has the principal characteristics of an important class or group of items • has attributes typical of a particular way of life, philosophy, custom, significant process, design, technique or activity Is a significant variation to a class of items • is part of a group which collectively illustrates a representative type Is outstanding because of its setting, condition or size Is outstanding because of its integrity or the esteem in which it is held <p>EXCLUSION</p> <ul style="list-style-type: none"> Is a poor example of its type Does not include or has lost the range of characteristics of a type Does not represent well the characteristics that make up a significant variation of a type 	<p>Small pastoral cottages of varying dates and styles are common throughout New England and NSW, with many examples still extant. There are therefore better representative examples of this item.</p> <p>Does not meet this criterion.</p>

4.4.5 GH1

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (state, local)
(a) Historical - An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area)	INCLUSION <ul style="list-style-type: none"> Shows evidence of a significant human activity Is associated with a significant activity or historical phase Maintains or shows the continuity of a historical process or activity 	<p>This site does not have any known historical importance in NSW's or the local area's development.</p> <p>Does not meet this criterion.</p>
	EXCLUSION <ul style="list-style-type: none"> Has incidental or unsubstantiated connections with historically important activities or processes Provides evidence of activities or processes that are of dubious historical importance Has been so altered that it can no longer provide evidence of a particular association 	
(b) Associative – An item has a strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the cultural or natural history of the local area)	INCLUSION <ul style="list-style-type: none"> Shows evidence of a significant human occupation Is associated with a significant event, person, or group of persons 	<p>While the land on which the Gara Homestead currently stands was originally owned by Major General Sir Maurice O'Connell, the current homestead and structures all date from later periods do not hold association with O'Connell. The extant structures have no known associative values.</p> <p>Does not meet this criterion.</p>
	EXCLUSION <ul style="list-style-type: none"> Has incidental or unsubstantiated connections with historically important people or events Provides evidence of people or events that are of dubious historical importance Has been so altered that it 	

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (state, local)
	can no longer provide evidence of a particular association	
(c) Aesthetic/Technical - An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)	INCLUSION <ul style="list-style-type: none"> Shows or is associated with, creative or technical innovation or achievement Is the inspiration for a creative or technical innovation or achievement Is aesthetically distinctive Has landmark qualities Exemplifies a particular taste, style or technology 	<p>A full record and analysis of this item's architectural features was not completed due to the distance to the development footprint.</p> <p>It is likely to be aesthetically significant as an architectural example of homesteads from the mid- to late 1800s. It possesses aesthetic value for its views and vistas, with sightlines across the Gara (westwards from the front of the house) being the focus. The pastoral properties of the views from the house are significant for their contribution to its setting.</p> <p>Meets this criterion at a local level.</p>
	EXCLUSION <ul style="list-style-type: none"> Is not a major work by an important designer or artist • has lost its design or technical integrity Its positive visual or sensory appeal or landmark and scenic qualities have been more than temporarily degraded Has only a loose association with a creative or technical achievement 	
(d) Social - An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons	INCLUSION <ul style="list-style-type: none"> Is important for its associations with an identifiable group Is important to a community's sense of place 	<p>No known connections with particular groups in NSW or the local area.</p> <p>Does not meet this criterion.</p>
	EXCLUSION <ul style="list-style-type: none"> Is only important to the community for amenity reasons Is retained only in preference 	

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (state, local)
	to a proposed alternative	
(e) Research - An item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area)	<p>INCLUSION</p> <ul style="list-style-type: none"> • Has the potential to yield new or further substantial scientific and/or archaeological information • Is an important benchmark or reference site or type • Provides evidence of past human cultures that is unavailable elsewhere <p>EXCLUSION</p> <ul style="list-style-type: none"> • The knowledge gained would be irrelevant to research on science, human history or culture • has little archaeological or research potential • Only contains information that is readily available from other resources or archaeological sites 	<p>These structures are unlikely to yield information not already known regarding pastoral practices and the lives of workers on rural properties.</p> <p>Does not meet this criterion.</p>
(f) Rarity - An item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the cultural or natural history of the local area)	<p>INCLUSION</p> <ul style="list-style-type: none"> • Provides evidence of a defunct custom, way of life or process • Demonstrates a process, custom or other human activity that is in danger of being lost • shows unusually accurate evidence of a significant human activity • Is the only example of its type • Demonstrates designs or techniques of exceptional interest 	<p>Twentieth century homesteads and outbuildings, as well as shearers sheds and quarters are common throughout New England and NSW, with many examples still extant. However, the house may be a rare example within the Armidale region of original mid- to late 1800 age pastoral mansions.</p> <p>Meets this criterion at a local level.</p>

Criteria	Guidelines for inclusion/exclusion	Meets/does not meet criterion (state, local)
	<ul style="list-style-type: none"> Shows rare evidence of a significant human activity important to a community 	
	<p>EXCLUSION</p> <ul style="list-style-type: none"> Is not rare Is numerous but under threat 	
(g) Representative - An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places; or cultural or natural environments. (or a class of the local area's)	<p>INCLUSION</p> <ul style="list-style-type: none"> Is a fine example of its type Has the principal characteristics of an important class or group of items Has attributes typical of a particular way of life, philosophy, custom, significant process, design, technique or activity Is a significant variation to a class of items • is part of a group which collectively illustrates a representative type Is outstanding because of its setting, condition or size Is outstanding because of its integrity or the esteem in which it is held <p>EXCLUSION</p> <ul style="list-style-type: none"> Is a poor example of its type Does not include or has lost the range of characteristics of a type Does not represent well the characteristics that make up a significant variation of a type 	<p>Twentieth century homesteads and outbuildings, as well as shearers sheds and quarters are common throughout New England and NSW, with many examples still extant. However, the house may be a good example within the Armidale region of original mid- to late 1800 age pastoral mansions.</p> <p>Meets this criterion at a local level.</p>

4.5 Statements of significance

The following statements of heritage significance for the Gondwana Rainforests of Australia and the Gara River Hydro-Electric Scheme are taken from the NSW Heritage listing for each item. The NGH assessment of the heritage item against the NSW heritage significance criteria in the preceding section supports the existing heritage significance statement and so no new assessments of significance for these items are required for this report. However, an assessment for those potential heritage items identified during the survey is discussed below.

4.5.1 Gondwana Rainforests of Australia

‘This site, comprising several protected areas, is situated predominantly along the Great Escarpment on Australia’s east coast. The outstanding geological features displayed around shield volcanic craters and the high number of rare and threatened rainforest species are of international significance for science and conservation. (UNESCO)

An outstanding example representing major stages of the earth’s evolutionary history; an outstanding example representing significant ongoing geological processes and biological evolution; and containing important and significant habitats for the in-situ conservation of biodiversity.’

4.5.2 Gara River Hydro-Electric Scheme

‘The Gara River hydro-electric scheme is of state and national significance because it was the first to light a township in Australia and the first to offer its power for commercial sale. As designed by Richard Threlfall, Professor of Physics at the University of Sydney, it incorporated technological innovations which made it one of the most advanced schemes in the world.

It provides direct physical evidence of the changing economic fortunes of Hillgrove in the face of the 1890s depression, the drop in antimony prices and the drought. For modern Australian society, it provides a time depth for the environmental debates of hydro versus environment (Gojak et.al. 1988: 32).’

4.5.3 SvT1

The surveyors mark as identified adjacent to Waterfall Way is considered to be a rare extant example of markers from this approximate time period. While such marks have been recorded and listed within other parts of NSW, no survey trees are current recorded within the Armidale and it is therefore assessed that, with its connection to the establishment of the road from Armidale to Dorrig and Bellingen, and to the development of Armidale, the item is locally significant.

4.5.4 CS1

It is possible that this site contains some research potential as an archaeological site. As it is outside the impact area of the proposal, no extensive research has been undertaken about its possible origins or type.

4.5.5 GH1

The house has been assessed to meet criteria (c), (f) and (g) for its aesthetic, rarity and representativeness at a local level. The value of its setting is in the outlook from the homestead across pastoral lands and the Gara River.

Further assessment of the architectural values of the house would be required to provide a full statement of significance, however this has not been undertaken as the house is not within the impact zone of the proposal, and the outlook westwards from the house will not be impacted by the works.

The additional buildings at the top of the hill, including workers quarters and sheds which date to the early- to mid-twentieth century, do not hold any heritage significance.

4.5.6 Archaeological potential

The archaeological potential of the Proposal site relates to the historical practices described in the previous sections, namely settlement, pastoral and agricultural, and goldmining. Pastoral and agricultural activities date from the 1830s, when squatters began expanding west through NSW after initial exploration expeditions were conducted by John Oxley in 1818. These pastoral and agricultural industries continue to the present-day. By 1852, the Proposal site and region was mostly cleared of vegetation to provide grazing country to cattle and sheep as the pastoral industry became more and more widespread across the region. In addition to the expanding pastoral industries, the surrounding Hillgrove and Metz regions developed into goldmining precincts from 1877.

Archaeological materials within the area could relate to any one of these industries including, early accommodation and personal belongings, as well as infrastructure, machinery, and equipment. As much of the area remains used for pastoral and agriculture purposes, existing properties may contain residences and associated agricultural structures that may have survived from these initial days of industrial expansion.

Based on this regional history, the archaeological potential of the development footprint could include remains of:

- fences and gates, nails, and structural fittings
- animal stock runs
- sheds, and pens/stock yards
- dams
- shearing sheds and accommodation
- work and storage sheds
- stockyards
- communications infrastructure
- local sealed and unsealed roads and tracks
- farming equipment, such as ploughs and tractors
- saddlery; and
- personal belongings of stockmen, such as clay pipes, smoking accessories, leather and potentially other fabric remains, such as buttons; and glass bottles.

5. Impact assessment

5.1 Proposed development

Of the 1,048-hectare (ha) proposal site, the development footprint would represent approximately 263 – 265 ha which would be developed for the solar farm and associated infrastructure. Two existing TransGrid 132kV transmission lines run parallel to each other within the northern section of the proposal site and would be used to connect the solar farm to the national electricity grid.

Access

The site access for all phases of development would be off Waterfall Way (Grafton Road), north of the site. While only one option would be developed, approval is now sought for two options to address timing uncertainties presented by Option 1:

- Option 1, as presented in the EIS; A new access point and intersection established, running directly south from Waterfall Way (Grafton Road).
- Option 2, turning off Waterfall Way (Grafton Road) about 950 m west of Option 1, via the existing Council landfill access road, and running east to join the project site via a new access track. This would involve slight widening of the existing landfill access road and relocation of the landfill entrance gates however, no upgrades to the Waterfall Way (Grafton Road) intersection would be required.

A causeway upgrade of the Gara River crossing will include now include– install approx. 3 x 1200Ø culverts (subject to hydraulic and detail design), raising the causeway level by approximately 1.3m, and widening Gara Road suitable for two-way heavy vehicle traffic. Castellated kerbing is shown in lieu of safety barriers since the causeway would be regularly submerged in major flow events, though this would be subject to Council design requirements. Maximum approach gradient ~10%.

The indicative site layout presented in this EIS assumes the maximum development impact¹ and includes the following key infrastructure:

- Approximately 385,280 PV solar panels mounted on either fixed or tracking systems, both of which are considered feasible:
 - Fixed-tilted structures in a north orientation; or
 - East-west horizontal tracking systems.
- Approximately 43 Power Conversion Units (PCU) composed of two inverters, a transformer and associated control equipment to convert DC energy generated by the solar panels to 33kV AC energy.
- An onsite 132kV substation containing up to two transformers and associated switchgear to facilitate connection to the national electricity grid via the existing 132kV transmission lines onsite.
- Steel mounting frames with driven or screwed pile foundations.
- Underground power cabling to connect solar panels, combiner boxes and PCUs.
- Underground auxiliary cabling for power supplies, data services and communications.
- Buildings to accommodate a site office, indoor 33kV switchgear, protection and control facilities, maintenance facilities and staff amenities.

- Internal access tracks for construction and maintenance activities.
- An energy storage facility with a capacity of up to 50MWh (i.e., 50 MW power output for one hour) and comprising of lithium-ion batteries with inverters.
- Perimeter security fencing about 2.3m high.
- Native vegetation planting to provide visual screening onsite and for specific receivers.

The construction phase of the proposal would take about 12 – 18 months. The peak construction period would be a shorter period of about 6 to 9 months. Approximately 300 workers would be required during construction.

Around five fulltime equivalent operations and maintenance staff and service contractors would operate the facility.

The solar farm is anticipated to be operational for about 30 years. Refurbishment may occur if it is extended beyond this initial duration. At the very end of the project's life, when the solar farm is no longer considered viable, the site will be returned to existing or better land capability. All above ground infrastructure, with the possible exception of the onsite substation, would be removed. Any cabling more than 500mm underground may also be left in place (as this would not impact future agricultural activities following rehabilitation of the site). Similarly access tracks may be left in place, depending on the future use of the site.

Material quantities

Resource	Estimated Quantity
Gravel (access tracks)	21,320m ³
Sand (bedding for cables)	10,020m ³
Concrete (PCU and buildings)	890m ³
Estimated number of solar panels	456,192
Structural Steel	2,214,109m ²

5.2 Heritage impact considerations

According to the description of the Proposal, the development footprint of the OSF, including all roads, ancillary facilities, utilities and arrays, will not include physical impacts to any of the identified historical heritage items. Visual impacts, including impacts to character and setting, have been assessed for all items discussed in Section 4 above that have been identified to possess heritage value at any level. While visual impacts would usually be assessed using the HNSW guideline Design in Context: guidelines for infill development in the historic environment, as none of the heritage items structures will be impacted, this has not been considered.

Table 5-1 below outlines the impacts to each of the identified items within or near the Proposal Site for the OSF.

Table 5-1 Heritage impact considerations

Item	Physical impact	Visual impact
Gondwana Rainforest (Oxley Wild Rivers National Park portion)	<p>None.</p> <p>The natural heritage site is located outside, though immediately adjacent to the Proposal Site, and at least 450m south west of the development footprint at its nearest point.</p> <p>A biodiversity assessment has determined that there will be low impacts to threatened species and that connectivity between the Gondwana Rainforest and other reserves will be maintained (NGH 2021).</p>	<p>None.</p> <p>The curtilage of the Gondwana Rainforests as listed is screened by an additional layer of trees on private property. As such, the solar farm will not be visible from within the curtilage of the item, and the item is not visible from the development.</p> <p>The aesthetic values of the Gondwana Rainforest relate to the natural beauty which is generally enjoyed from within the item.</p>
Gara River Hydro Electric Scheme	<p>None.</p> <p>The archaeological site is located outside, though immediately adjacent to the Proposal Site, and at least 450m south west of the development footprint at its nearest point. No evidence to suggest any archaeological remains of this site are present within the development footprint was identified.</p>	<p>None.</p> <p>There are no aesthetic values identified for this item. Additionally, as the archaeological site is bounded by the same curtilage as the Gondwana Rainforests at this location, it is also screened by a layer of trees on private property.</p> <p>There will be no visual impact to the Gara River Hydro Electric Scheme as there is no line of sight between the registered site and the Oxley Solar Farm development.</p>
SvT1	<p>None.</p> <p>The development footprint will avoid this tree by 20 m. A temporary protective barrier may be required.</p>	<p>None.</p> <p>There are no aesthetic values associated with this item, and it will remain in situ, in association with the road with whose origins it is associated.</p>

Item	Physical impact	Visual impact
CS1	None. The closest works are approximately 400m east of this site, on the other side of Gara River.	None. There are no aesthetic values associated with this item.
GH1	None. None of the structures will be impacted.	Minor. The setting of the old Gara Homestead will be altered by the placement of solar arrays to the east and southeast, however, from the homestead this will not be prominently visible due to the slope of the natural hill, and the views from the house to the west will not be developed.

5.3 Heritage impact questions

The following questions are presented in the NSW Heritage Manual document Statements of Heritage Impact to address development proposals which will have an impact on heritage items (NSW Heritage Office 2002).

What aspects of the proposal respect or enhance the heritage significance of the subject item?

The proposed works do not interact with the heritage significance of any of these items, and therefore do not respect or enhance these values.

What aspects of the proposal could have a detrimental effect on the heritage significance of the subject items?

As above, the proposed works will not have a negative impact on any heritage values identified in association with the heritage items including Gondwana Rainforests, Gara River Hydro-Electric Scheme, SvT1 or CS1. The site of GH1 has been identified to have aesthetic values with regard to the setting and views from the Gara Homestead house sited on Gara River. This item will not be physically impacted by the development, but minor impacts to the visual setting will be incurred by the placement of solar arrays to the east of the house. No impacts to the main vista from the house will occur.

Have more sympathetic solutions been considered and discounted? Why?

Not applicable.

New landscape works and features

- How has the impact of the new work on the heritage significance of the existing landscape been minimised?

The existing landscape within the Proposal Site will be altered physically and visually by the placement of solar arrays and associated infrastructure. It does not possess significance as a heritage landscape. Aesthetic significance was identified only for the Gondwana Rainforests heritage item, and the development will not be visible from this item.

5.4 Archaeological impacts

There are two archaeological sites identified within or immediately adjacent to the Proposal Site:

- Gara River Hyrdo Electric Scheme (522m from development footprint at nearest point)
- CS1 (465m from development footprint at nearest point)

The archaeological remains visible on the surface within the Gara River Hydro Electric Scheme were recorded in detail by Gojak (1988). Site visits as part of the assessment for the OSF did not identify any physical remains associated with this item within the development footprint.

The archaeological remains of CS1 include structural elements and botanical indicators. These are concentrated to the house site and will not be impacted by the proposal. As such, no further research into this item was deemed warranted for this assessment.

5.5 Scope of works assessment

The individual components of the OSF development are listed in Section 5.1. As no impacts to any of the heritage items have been identified, a breakdown of the individual activities to be assessed for their impacts to heritage values is considered unnecessary.

5.6 Summary of impacts

There are no identified physical or visual impacts to the historic heritage items, with the exception of minor visual impacts to the setting of the Gara Homestead, where solar arrays will be placed to the east, or 'behind' the house site. The main vista from the house faces west and will not be impacted by the proposal.

6. Recommendations

The proposal for the OSF development, as provided in this document, will not impact on any heritage items, either previously listed or newly identified, in accordance with the Heritage Act, EP&A Act, and the EPBC Act.

The following recommendations are made for the proposal with regard to historic heritage:

- The proposed development, as shown within this document, may proceed with caution. In the event that amendments to the proposed activity or the proposed footprint are made, further assessment may be required.
- Neither of the proposed access tracks will impact on historic heritage. As a result either option could be considered for the site.
- The Gara River Hydro-electric scheme (1895-1907) is adjacent to the southern boundary of the Proposal Site. The current proposal will not impact this site, however if alterations to the development footprint are required, these must be further assessed to determine whether impacts to physical remains of the site may be impacted.
- The Gondwana Rainforests of Australia immediately adjacent to the Proposal Site, and at least 522m south west of the development footprint at its nearest point. While the curtilage of the Gondwana Rainforests as listed is screened by an additional layer of trees on private property. As such, the solar farm will not be visible from within the curtilage of the item, and the item is not visible from the development.
- While the development footprint will not impact the surveyors tree identified as SvT1, construction works may come within 20m of this site only if Option 1 for the access track is chosen. A temporary barrier fence must be erected at a 10m buffer around the tree during construction in order to prevent inadvertent impact to the tree, or its crown or root system. Site access option 2 is not within the vicinity of the tree and there will therefore be no impact to the site.
- Proposed works will not impact on the identified archaeological site CS1 as currently proposed. In the event that the footprint changes and impacts to this location are required, an archaeological investigation would be required. This would require detailed research into the potential origins of the cottage and preparation of a research design and methodology for excavation.
- The Gara Homestead has been identified to be of potential local heritage significance. No physical impacts are proposed to the extant structures or surrounds within 60 m of the homestead and within 60m of the workers accommodation and sheds. Visual impacts must be limited to the eastern side of the house. Where the development footprint is amended and includes impacts to the physical structures or to the vista westwards from the homestead, further assessment is required.

7. References

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Appendix A Heritage register searches

Search Results

95 results found.

AMP Building 135-137 Beardy St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Anglican Cathedral Church of St Peter Apostle and Martyr Rusden St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Armidale (C of E) School for Boys Grafton Rd	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Armidale (C of E) School for Boys Chapel Grafton Rd	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Armidale Churches Precinct Faulkner St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Armidale College of Advanced Education Park (former) Kentucky St	Armidale, NSW, Australia	(Rejected Place) Register of the National Estate (Non-statutory archive)
Armidale Conservation Area Faulkner St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Armidale Courthouse 143-145 Beardy St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Armidale Literary Institute (former) 124 Faulkner St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Armidale Post Office 158 Beardy St	Armidale, NSW, Australia	(Listed place) Commonwealth Heritage List

Armidale Post Office 158-160 Beardy St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Armidale Railway Station 220 Brown St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Armidale Town Hall Rusden St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Arran Cottage 133 Dangar St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Arthurs Seat - Bald Nobs Geological Site Dangarsleigh Rd	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Belmore Cottage 168 Marsh St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Birida 108 Brown St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Bishop Court Chapel Uralla Rd	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Booloominbah Booloominbah Dr	University of New England, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Booloominbah Lodge Booloominbah Dr	University of New England, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Booloominbah Sub Lodge Booloominbah Dr	University of New England, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)

Caledonian Hotel (former) Beardy St	Armidale, NSW, Australia	(Destroyed) Register of the National Estate (Non-statutory archive)
Cathedral Rock National Park (1981 boundary) Guyra-Ebor Rd	Ebor, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Catholic Cathedral Church of St Mary and St Joseph 132 Dangar St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Central Park including Rotunda Dangar St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Chevy Chase Dangarsleigh Rd	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Classroom, Library, Dormitory And Headmasters Residence Grafton Rd	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Commercial Bank of Australia (former) 164-166 Beardy St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Denham Cottage Lodge 132 Faulkner St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Dooners Store 136-140 Beardy St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Georges Creek Nature Reserve Kempsey-Armidale Rd	Lower Creek, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Gondwana Rainforests of Australia	Lismore, NSW, Australia	(Declared property) World Heritage List
Gondwana Rainforests of Australia	Lismore, NSW, Australia	(Listed place) National Heritage List

Highbury 177 Faulkner St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Hillgrove Antimony Mine Stockton Rd	Hillgrove, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Hillgrove Goldmining Area Stockton Rd	Hillgrove, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Hilton School (former) 160 Dangar St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Hotel (former) 93 Dumaresq St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
House 134 Brown St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
House 176 Dangar St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
House 27 Kennedy St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
House 271 Dumaresq St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Hunter River Lancers Training Depot Allingham St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Hunter River Lancers Training Depot Allingham St	Armidale, NSW, Australia	(Listed place) Commonwealth Heritage List

Imperial Hotel 144-156 Beardy St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Indigenous Place	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Indigenous Place	Ebor, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Indigenous Place	Lower Creek, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Indigenous Place	Lower Creek, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
J Richardson and Co Emporium 195-199 Beardy St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Kunderang Proposed Nature Reserve (former) Dourallie Fire Trl	Kunderang via Comara, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Lands Board Office 118 Faulkner St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Linden Hall 146 Mann St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Macleay Gorges Wilderness Area Kunderang Trl	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Megacrust Bearing Lava Site	University of New England, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Metz Goldmining Area Chinamans Gully Rd	Metz, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Moore Park Moore Park Rd	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
New England Girls School Northern and Southern Building (former) Uralla Rd	Armidale, NSW, Australia	(Removed from Register or IL) Register of the National Estate (Non-statutory archive)
New England Hotel 194-196 Beardy St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
New England National Park (1978 boundary) Armidale - Dorrigo Rd	Ebor, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
New England National Park (1989 boundary) Armidale - Dorrigo Rd	Ebor, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Orchardfield New England Hwy	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Oxley Wild Rivers National Park Oxley Hwy	Wollomombi, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Palmerston, including Stables and Grounds Dangarsleigh Rd	Dangarsleigh via Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Roseneath, including Outbuildings and Grounds Roseneath La	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Rural Bank (former), Banking Chambers and Managers Residence 208 Beardy St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

S H Smith House 88 Barney St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Saumarez Homestead and Outbuildings Tanglewood Rd	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Sheriffs Cottage (former) 100 Moore St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Solomons Cottage 139 Faulkner St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Southern Clarence River Tributaries Catchments	Glen Innes, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
St Johns Hostel (former) Uralla Rd	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
St Pauls Presbyterian Church 137 Faulkner St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
St Pauls Presbyterian Church Hall 137 Faulkner St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
St Peters Anglican Cathedral Deanery Rusden St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
St Peters Church Hall 116 Rusden St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
St Ursulas College Chapel Barney St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)

Stables of CBC Bank (former) 32 Moore St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Station Master's Residence (former) 216 Brown St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Teachers College (former) Faulkner St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Teringa 108 Mann St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Thalgarrah Rockvale Rd	via Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
The Cottage and Stables 208 Markham St South	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
The Mallam House 94 Rusden Street	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
The Turrets 145 Mossman St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Trevenna Trevenna Rd	University of New England, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Uloola 160 Faulkner St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Uloola Garden 160 Faulkner St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)

Uniting and Presbyterian Churches Group Faulkner St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Wesley Chapel (former) 112 Rusden St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Wesley Church (former) 114 Rusden St	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Westpac Bank 139-141 Beardy St	Armidale, NSW, Australia	(Registered) Register of the National Estate (Non-statutory archive)
Wongwibinda Geological Site Lynoch Rd	Wongwibinda, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Wood Park Cottage Wood Park La	Armidale, NSW, Australia	(Indicative Place) Register of the National Estate (Non-statutory archive)
Yooroonah Tank Barrier Waterfall Way	Ebor, NSW, Australia	(Place not included in NHL) National Heritage List

Report Produced: Thu Nov 25 10:57:39 2021

Item Details

Name

Gara River Hydro-Electric Scheme

Other/Formal Names

Address

10km southeast of Armidale CASTLE DOYLE NSW 2350

Local Govt Area

Armidale Regional

Item Classification

Item Type

Archaeological-Terrestrial

Group Name

Item Group

Utilities - Electricity



Item Category

Electricity Generator/Power Station - hydro-electric

Statement Of Significance

The Gara River hydro-electric scheme is of state and national significance because it was the first to light a township in Australia and the first to offer its power for commercial sale. As designed by Richard Threlfall, Professor of Physics at the University of Sydney, it incorporated technological innovations which made it one of the most advanced schemes in the world.

It provides direct physical evidence of the changing economic fortunes of Hillgrove in the face of the 1890s depression, the drop in antimony prices and the drought. For modern Australian society, it provides a time depth for the environmental debates of hydro versus environment (Gojak et.al. 1988: 32).

Assessed Significance Type

State

Endorsed Significance

State

Date Significance Updated

6/2/2009

Listings

Listing Name	Listing Date	Instrument Name	Instrument No.	Plan No.	Gazette Page	Gazette Number
Heritage Act - s.170 NSW State agency heritage register						
Heritage Act - State Heritage Register	2/0/1999		00986	3010	1546	27

Heritage Item ID

5051463

Source

Heritage NSW

Location

Addresses

Records Retrieved: 2

Street No	Street Name	Suburb/Town/Postcode	Local Govt. Area	LALC	Parish	County	Electorate	Address Type
	within Oxley Wild Rivers National Park	ARMIDALE/NSW/2350	Armidale Regional	Unknown			NORTHERN TABLELANDS	Alternate Address
10km	southeast of Armidale	CASTLE DOYLE/NSW/2350	Armidale Regional	Armidale			NORTHERN TABLELANDS	Primary Address

Description

Designer

Richard Threlfall

Construction Year Start & End

1893 - 1895

Physical Description

Builder/Maker

Crompton Power Company

Circa

N0

Period

1851 to 1900

Updated

The two ends of the rubble and earth dam at Blue Hole survive although it is not possible to determine which particular parts of the dam were built during the first or second pahses of construction. Approximately 100m below the dam is a low concrete weir which spans the Gara River at one of its narrowest points. This was to divert water from the river into the flume at a certain rate to ensure constant supply. The weir remains intact and does not show any evidence of repair or alteration since its construction (Gojack et.al 1988: 22).

From the eastern end of the weir, a line of V sectioned concrete fluming extends southwards for 500m. After passing through a cutting the flume splits, with one half running on wooden trestles and the other following the fall of the land. The former is the original route of the flume. None of the timber fluming or framing of the trestles survives intact although many lie around the surface of the site. Stone footing supply the best evidence of the route. The second flume is represented by a narrow level surface about one metre across.

At the end of the flume runs, a steep, poorly stabilized slope leads down to the powerstation below. The remains of the powerstation and sections of the power genrating machinery are in various stages of decay (Gojak et.al. 1988: 24).

Physical Condition

Updated 08/11/1997

Archaeological potential is high.

Modifications And Dates

1899 - the whole complex is restored and modifications are made to the flumes and machinery.

Further Comments

History

Historical Notes or Provenance

Updated

The Gara River scheme was the first substantial hydro-electric scheme to reach fruition in Australia. It began to generate power in March 1895 to light the town of Hillgrove, near Armidale in the New South Wales Central Tablelands. The scheme was instigated by the Australasian Rights Purchase Association, when they placed a petition for a bill before the NSW Parliament, requesting the water rights to exploit the Gara River for the purposes of power generation. The bill was passed and on March 10, 1893, the Hillgrove and Armidale Water-Power Electrical Company (Ltd) Act, was passed (Gojack et.al. 1988: 15).

Richard Threlfall, Professor of Physics at Sydney University, was brought in as the consultant on electrical engineering. He was regarded at the time as Australia's leading expert on electricity and is now thought to have been one of the first modern pure physicists in the world. He was involved in all phases of the design and construction and became mortgagee of the company (Gojak et.al 1988: 15).

The dam for the scheme was constructed at Blue Hole, a large natural pool of water off the Gara River. The generator site was situated at the foot of the Gara Falls. The site was only disadvantaged by its distance from the power consumers in the next gorge and the township. The system used DC (direct current) generators and briefly became one of the most important DC generation schemes in the world.

Although the scheme was hailed as a technical triumph, it was plagued by financial trouble throughout the 1890's. This may have co-incided with the economic decline that hailed the end of the goldrushes in the area. In 1896 the site was taken over by the Sandon County Electrical Light and Power Company and in 1899, the scheme was substantially rebuilt and reactivated. The population of the area however, was dwindling due to reduced mineral production and the Sandon Company sold the plant to the International Railway Corporation of England (Gojak et.al. 1988: 19). By 1905 it was being leased or operated by a Mr Pinto who sold the electricity to local users.

The last mention of the Gara River Hydro-Electric Scheme as a functioning enterprise was in 1907. The history of the site between 1907 and the later part of the twentieth century is unclear. The site now rests within the borders of the Oxley Wild Rivers National Park, under the management of the NSW National Parks and Wildlife Service.

Historic Themes

Records Retrieved: 1

National Theme	State Theme	Local Theme
Building settlements, towns and cities	Unknown	Unknown

Assessment

Criteria a)

Historical Significance

Include

Exclude

The Gara River Hydro-electric scheme provides direct evidence for the early use of electricity in Australia. It was the first scheme in Australia to provide light to a town and the first to make its output commercially available for industry. It represents the only successful venture of the Australasian Purchase Rights Association. It has an association with the NSW parliamentarian, Frank Cotton, who acted as manager for the revived Gara River scheme. It also has an association with Richard Threlfall, Professor of physics at the University of Sydney. (Gojak et.al. 1988: 27-8&32-3).

Criteria b)		
Historical Association Significance	Include	Exclude

Criteria c)		
Aesthetic/Technical Significance	Include	Exclude

Criteria d)		
Social/Cultural Significance	Include	Exclude

The Gara River Hydro-electric scheme, represents a part of the historical heritage of the New England district and still has relevance to the local community. It has long been used as a recreational area by the residents of Armidale. It also provides a time depth for the wider community, for the development of hydro-electricity and its conflict with the environment. This has beome increasingly relevant since the Franklin River dam protests in 1983-4 (Gojak et.al. 1988: 26&32).

Criteria e)		
Research Potential	Include	Exclude

The Gara River Hydro-electric scheme represents several technological firsts, such as the first use of tandem hydro-electric power generating machines in Australia. Technologically it was also a world leader in the use of high voltage power transmission. The overall design, the use of direct current generators and the changes in fluming to improve water flow also have high technological significance. The scheme represents the only known large scale design work carried out by Professor Threlfall, a significant early physicist.

The Gara River Hydro-electric scheme also has research and educational potential. There is enough easily accessible material, visible on the surface to provide for straightforward interpretation. As the records of early hydro-electric development are patchy, the archaeological remains are an invaluable source of information about this technology. A study of the place also reveals how the end of the antimony boom and the collapse of the Australian economy in the 1890s, influenced the local economy of Hillgrove. (Gojak et.al. 198827&33)

Criteria f)		
Rarity	Include	Exclude

Criteria g)

Representative

Include

Exclude

Integrity/Intactness

Updated 10/01/1997

References

References

Records Retrieved: 1

Title	Author	Year	Link	Type
Gara River Hydro-electric Scheme Oxley Wild Rivers National Park, New South Wales: Conservation Plan	Denis Gojak, Grisoula Giopoulos and Gary Dunnett	1988		Written

Heritage Studies

Records Retrieved: 0

Title	Year	Item Number	Author	Inspected By	Guidelines Used
No Results Found					

Procedures / Workflows / Notes

Records Retrieved: 1

Application ID / Procedure ID	Section of Act	Description	Title	Officer	Date Received	Status	Outcome
32830	57(2)	Exemption to allow work	Standard Exemptions	Minister Cowied	11/09/2020		

Management

Management

Records Retrieved: 0

Management Category	Management Name	Date Updated
No Results Found		

Management Summary



Caption: The flume carried water from the dam to the pelton wheel which generated power. The Gara River Hydro-electric scheme provides direct evidence for the early use of electricity in Australia.

Photographer: P. Marquis-Kyle

Copyright Owner: No Credit

Date: 4/9/1995 12:00:00 AM

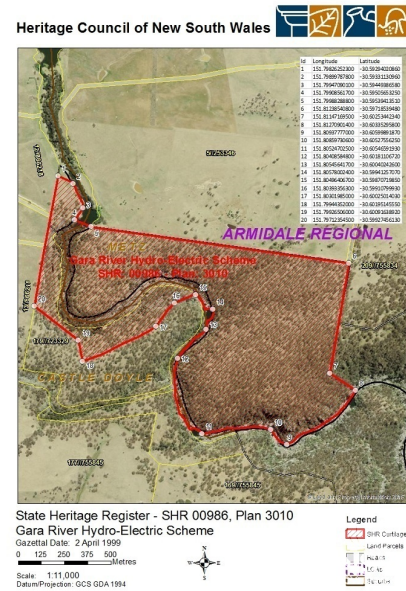


Caption: A walkway following the line of the flume has been installed as part of the site's interpretation. It represents several technological firsts, such as the first use of tandem hydro-electric power generating machines in Australia.

Photographer: P. Marquis-Kyle

Copyright Owner: No Credit

Date: 4/9/1995 12:00:00 AM



Caption: SHR Plan No 3010

Photographer: NULL

Copyright Owner: No Credit

Date: 4/2/1999 12:00:00 AM

Item Details

Name

Gondwana Rainforests of Australia

Other/Formal Names

Central Eastern Rainforest Reserves, Gondwana Rainforests of Australia (new name from 2007), North East Rainforests World Heritage Area;

Address

NAMBUCCA HEADS NSW 2448

Local Govt Area

Nambucca

Group Name

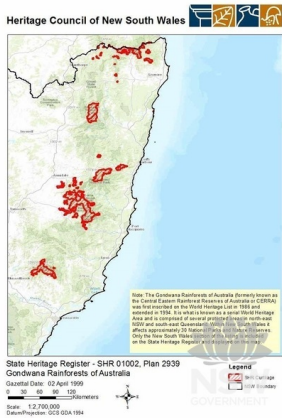
Item Classification

Item Type

Landscape

Item Group

Landscape - Natural



Item Category

Wilderness

Statement Of Significance

This site, comprising several protected areas, is situated predominantly along the Great Escarpment on Australia's east coast. The outstanding geological features displayed around shield volcanic craters and the high number of rare and threatened rainforest species are of international significance for science and conservation. (UNESCO)

An outstanding example representing major stages of the earth's evolutionary history; an outstanding example representing significant ongoing geological processes and biological evolution; and containing important and significant habitats for the in-situ conservation of biodiversity.

Assessed Significance Type

State

Endorsed Significance

State

Date Significance Updated

06/20/2006

Listings

Listing Name	Listing Date	Instrument Name	Instrument No.	Plan No.	Gazette No.	Gazette Number
Heritage Act - State Heritage Register	4/2/1999 12:00:00 AM		01002	2939	1546	27
World Heritage List						
National Heritage List	5/21/2007 12:00:00 AM	Central Eastern Rainforests Reserves				S99
Heritage Act - s.170 NSW State agency heritage register						

Heritage Item ID

5014148

Source

Heritage NSW

Location

Addresses

Records Retrieved: 8

Street No	Street Name	Suburb/Town/Postcode	Local Govt. Area	LALC	Parish	County	Electorate	Address Type
		BARRINGTON/NSW/2422	Mid-Coast	Unknown			CLARENCE	Alternate Address
		DUNGOG/NSW/2420	Dungog	Unknown			CLARENCE	Alternate Address
		BELLINGEN/NSW/2454	Bellingen	Unknown			CLARENCE	Alternate Address
		GLEN INNES/NSW/2370	Glen Innes Severn	Unknown			CLARENCE	Alternate Address
		KEMPSEY/NSW/2440	Kempsey	Unknown			CLARENCE	Alternate Address
		TENTERFIELD/NSW/2372	Tenterfield	Unknown			CLARENCE	Alternate Address
		GRAFTON/NSW/2460	Clarence Valley	Unknown			CLARENCE	Alternate Address
		NAMBUCCA HEADS/NSW/2448	Nambucca	Unknown			CLARENCE	Primary Address

Description

Designer

Builder/Maker

Construction Year Start & End	Circa	Period
	N0	Pre-1788

Physical Description

Updated

In 1986, a number of rainforest reserves located on the Great Escarpment of eastern New South Wales, known as the Australian East Coast Sub-tropical and Temperate Rainforest Parks were inscribed on the World Heritage list for their outstanding natural universal values:

- as an outstanding example representing major stages of the earth's evolutionary history;
- as an outstanding example representing significant ongoing geological processes and biological evolution; and
- containing important and significant habitats for the in situ conservation of biological diversity.

Large extensions, including reserves in south-east Queensland, were listed in 1994 under the new title of the Central Eastern Rainforest Reserves (Australia).

Rainforest occurs in NSW and south east Queensland as discontinuous patches like a chain of islands in a sea of fire-prone eucalypt forest and agricultural lands. These patches range in size from tiny gully stands to lush forests covering large valleys and ranges. The Central Eastern Rainforest Reserves include the most extensive areas of subtropical rainforest in the world, large areas of warm temperate rainforest and nearly all of the Antarctic beech cool temperate rainforest.

Rainforest once covered most of the ancient southern supercontinent Gondwana and remains the most ancient type of vegetation in Australia. The Central Eastern Rainforest Reserves provide an interesting living link with the evolution of Australia and hence a record of the past. Few places on earth contain so many plants and animals whose ancestors can be traced through the fossil record and today remain relatively unchanged. There is a concentration of primitive plant families that are direct links with the birth and spread of flowering plants over 100 million years ago, as well as some of the oldest elements of the world's ferns and conifers.

A range of geological and environmental influences in the Central Eastern Rainforest Reserves determine where forest communities grow. As these change in the future, so will the forest mosaic-it is an ongoing process that has been occurring for millions of years.

High waterfalls crashing into steep gorges are spectacular examples of an important ongoing natural process-erosion. Erosion by coastal rivers created the Great Escarpment and the steep-sided caldera of the Tweed Valley surrounding Mount Warning. Once, this towering mountain was the buried plug of an ancient vast volcano. Today, rainforest grows on the fertile, well watered soils that remain.

The evolution of new species is encouraged by the natural separation and isolation of rainforest stands. Many plants and animals found in the property are locally restricted to a few sites or occur in widely separated populations.

Although rainforests cover only about 0.3 % of Australia, they contain about half of all Australian plant families and about a third of Australia's mammal and bird species. The Central Eastern Rainforest Reserves have an extremely high conservation value and provide habitat for more than 200 rare or threatened plant and animal species. The distributional limits of several species and many centres of species diversity occur in the property. The Border Group is a particularly rich area with the highest concentration of frog, snake, bird and marsupial species in Australia.

The current listing of the Central Eastern Rainforest Reserves includes approximately 50 separate reserves located between Newcastle and Brisbane. It is a serial listing, with only areas of reserved Crown land being listed. These reserves are managed principally by four different agencies: NSW National Parks and Wildlife Service, Qld Parks and Wildlife Service,

State Forests of NSW and Department of Natural Resources (Qld).

A strategic overview for management of the Central Eastern Rainforest Reserves has been prepared to assist the agencies manage the area in a coordinated, consistent and cooperative manner and ensure the integrity of its values is protected.

Exploring the World Heritage Rainforests in the Central Eastern Rainforest Reserves is easy, with many of the reserves readily accessible from major towns by sealed or graded gravel roads. A range of visitor facilities are provided at most reserves. Parts of some reserves in NSW have been declared as wilderness and access roads, facilities, lookouts and marked walking tracks are provided only on their boundaries.

Statistics

Total area of the Central Eastern Rainforest Reserves: 366 507 ha (59 223 ha in Qld, 307 284 ha in NSW).

Types of rainforest found in the property: cool temperate rainforest; warm temperate rainforest; subtropical rainforest; and dry rainforest. (Commonwealth of Australia , Department of Environment and Heritage website)

National Parks and Nature Reserves affected within NSW include:

Mount Royal National Park
Barrington Tops National Park
Mount Seaview Nature Reserve
Werrikimbe National Park
Willi Willi National Park
Oxley Wild Rivers National Park
The Castles Nature Reserve
Cunnawarra National Park
New England National Park
Dorrigo National Park
Mount Hyland National Park
Gibraltar Range National Park
Washpool National Park
Iluka Nature Reserve
Mallanganee National Park
Richmond Range National Park
Toonumbar National Park
Captains Creek Nature Reserve
Nightcap National Park
Tooloom National Park
Border Ranges National Park
Mount Warning National Park
Mount Nothofagus National Park
Amaroo Nature Reserve

Mount Clunie National Park
Limpinwood Nature Reserve
Koreelah National Park
Gambubal State Forest
Mount Chinghee National Park
Mount Barney National Park
Lamington National Park

Physical Condition Updated

Modifications And Dates

Further Comments

History

Historical Notes or Provenance Updated

Jillian Oppenheimer OAM was a founding member of the Walcha Branch of the National Parks Association of NSW and in 1975, was instrumental in creating the Oxley Wild Rivers and the Werrikimbie National Parks (NTA (NSW), 2019, 11).

Historic Themes

Records Retrieved: 50

National Theme	State Theme	Local Theme
Developing cultural institutions and ways of life	Townships	Places of informal community gatherings
Developing cultural institutions and ways of life	Townships	Fund-raising activities for community charities
Developing cultural institutions and ways of life	Townships	Developing local clubs and meeting places
Developing cultural institutions and ways of life	Townships	Developing and maintaining a local museum
Developing cultural institutions and ways of life	Townships	Community volunteering
Developing cultural institutions and ways of life	Townships	Belonging to an historical society or heritage organisation
Developing cultural institutions and ways of life	Environment	Living in a bushland setting
Developing cultural institutions and ways of life	Transport	running

Developing cultural institutions and ways of life	Pastoralism	Bird watching
Developing cultural institutions and ways of life	Pastoralism	Visiting heritage places
Developing cultural institutions and ways of life	Pastoralism	Tourism
Developing cultural institutions and ways of life	Pastoralism	Going to the park
Developing cultural institutions and ways of life	Pastoralism	Going hunting and shooting
Developing cultural institutions and ways of life	Pastoralism	Going bushwalking
Developing cultural institutions and ways of life	Pastoralism	Gathering at landmark places to socialise
Developing cultural institutions and ways of life	Pastoralism	Climbing mountains and peaks
Marking the phases of life	Social institutions	Associations with Jillian Oppenheimer OAM, conservationist, historian, philanthropist
Governing	Land tenure	Open Space Provision
Governing	Land tenure	Federal government
Governing	Land tenure	Developing roles for government - public land administration
Governing	Land tenure	Developing roles for government - conserving cultural and natural heritage
Governing	Land tenure	Developing roles for government - administration of land
Educating	Ethnic influences	Educating people in regional locations
Working	Migration	Working on the land
Working	Migration	Government research station
Building settlements, towns and cities	Mining	Resuming private lands for public purposes
Building settlements, towns and cities	Mining	Administering and alienating Crown lands
Building settlements, towns and cities	Agriculture	Timber and iron vernacular
Building settlements, towns and cities	Agriculture	Accommodating travellers and tourists
Developing local, regional and national economies	Technology	Researching biogeography
Developing local, regional and national economies	Technology	Researching climate change
Developing local, regional and national economies	Technology	Researching weed and pest controls
Developing local, regional and national economies	Technology	Researching native flora
Developing local, regional and national economies	Technology	Researching fauna
Developing local, regional and national economies	Technology	Researching botany and botanical processes

Developing local, regional and national economies	Events	Unknown
Developing local, regional and national economies	Events	Tourism
Developing local, regional and national economies	Events	Places important in developing conservation processes
Developing local, regional and national economies	Events	Landscapes of scenic beauty
Developing local, regional and national economies	Events	Landscapes of passive recreation
Developing local, regional and national economies	Events	Landscapes of passive recreation
Developing local, regional and national economies	Events	Landscapes of cultural and natural interaction
Peopling the continent	Aboriginal post-contact	Aboriginal Culture
Tracing the evolution of a continent's special environments	Exploration	Scientific: Environments important for birdlife
Tracing the evolution of a continent's special environments	Exploration	Scientific: Environments important for animal life
Tracing the evolution of a continent's special environments	Exploration	Parks
Tracing the evolution of a continent's special environments	Exploration	Other open space
Tracing the evolution of a continent's special environments	Exploration	Natural - regenerating native flora valued for conservation purposes
Tracing the evolution of a continent's special environments	Exploration	Cultural: Mountains and peaks providing landmarks for humans
Tracing the evolution of a continent's special environments	Exploration	Cultural - Coasts and coastal features supporting human activities

Assessment

Criteria a)

Historical Significance

Include

Exclude

Criteria b)

Historical Association Significance

Include

Exclude

Criteria c)

Aesthetic/Technical Significance

Include

Exclude

Criteria d)

Social/Cultural Significance

Include

Exclude

Criteria e)

Research Potential

Include

Exclude

Criteria f)

Rarity

Include

Exclude

Criteria g)

Representative

Include

Exclude

Integrity/Intactness

Updated

References

References

Records Retrieved: 9

Title	Author	Year	Link	Type
Protecting Tweed's Gondwana Rainforests is crucial, says ecologist	Kennett, Jo	2020	https://meltwaternews.com/ext/mediac/235687761.pdf	Written
Rare Gondwana Rainforest resort under fire threat near Mount Barney	Moore, Tony	2019		Written
'Splendid Protection'	Ginnis, Elizabeth	2019		Written
In Memory: Jillian Oppenheimer OAM	National Trust of Australia (NSW)	2019		Written
North East Rainforest World Heritage Area	Attraction Homepage	2007	http://www.nationalparks.nsw.gov.au/npws.nsf/Content/Home	Tourism
Map - World Heritage Places - Gondwana Rainforests of Australia			http://www.environment.gov.au/system/files/pages/0e4f8d74-98ce-45b4-be3f-e681f4c4e6fe/files/gondwana-map.pdf	Electronic
Central Eastern Rainforest Reserves (Australia)	UNESCO		http://whc.unesco.org/pg.cfm?cid=31&id_site=368	Electronic
World Heritage Places - Gondwana Rainforests of Australia	Department of Environment and Energy		http://www.environment.gov.au/heritage/places/world/gondwana	Written
Gondwana Rainforests of Australia World Heritage Area	Office of Environment and Heritage		http://www.environment.nsw.gov.au/protectedareas/GondwanaWorldHeritageArea.htm	Electronic

Heritage Studies

Records Retrieved: 0

Title	Year	Item Number	Author	Inspected By	Guidelines Used
No Results Found					

Procedures / Workflows / Notes

Records Retrieved: 1

Application ID / Procedure ID	Section of Act	Description	Title	Officer	Date Received	Status	Outcome
31887	57(2)	Exemption to allow work	Standard Exemptions	Minister Cowied	11/09/2020		

Management

Management

Records Retrieved: 3

Management Category	Management Name	Date Updated
Recommended Management	Review a Conservation Management Plan (CMP)	
Recommended Management	Prepare a maintenance schedule or guidelines	
Recommended Management	Carry out interpretation, promotion and/or education	

Management Summary