Greater Sydney Roads Renewals – Avon Dam Road

Statement of Heritage Impact

Report to Abergeldie Complex Infrastructure

June 2025

artefact

Artefact Heritage and Environment
ABN 73 144 973 526
Suite 56, Jones Bay Wharf
26-32 Pirrama Road
Pyrmont NSW 2009
Australia

+61 2 9518 8411
office@artefact.net.au

Document history and status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
1	23 May 2025	JS	JS	23 June 2025	Draft
2	20 June 2025	SM	SM	20 June 2025	Final
3					
4					

Project name:	Greater Sydney Roads Renewals – Avon Dam
Author:	[redacted]
Project manager:	[redacted]
Project number:	240057
Name of organisation:	Artefact Heritage and Environment
Document version:	Final

EXECUTIVE SUMMARY

Artefact have been engaged to prepare this Statement of Heritage Impact that has been written to satisfy the requirements of a Section 60 Works Application for the proposed road remediation works within the heritage curtilage of Avon Dam. The Statement of Heritage Impact identifies the potential heritage impacts of the proposed works within the listed curtilage of Avon Dam, which includes the roads leading to the dam wall. The report also provides detailed advice on appropriate heritage approval pathways and provides management recommendations for the proposal.

Overview of findings

This report has found that the proposed works are taking place within **three** listed heritage curtilages:

- 'Avon Dam', State Heritage Register no. 125180
- Avon Dam, WaterNSW Section 170 Register no. 4580027
- Avon Dam, Wingecarribee Local Environmental Plan no. I224

Based on the civil drawings for Avon Dam Road renewal works which were issued in April and May 2025, the proposed works on the Main Road, Compressor Area access road, and the Helipad and Chlorine Treatment Plant access roads involve modifications to the road corridors and landscape of the Avon Dam Curtilage. Physical impacts caused by construction activities will occur, but the original road alignments will remain unchanged, and modifications to the landscape would be limited to the road corridors. Overall, these modifications would be consistent with previous roadworks and landscaping in the area. Safety upgrades are essential for preserving the access roads which are necessary for the ongoing operation of Avon Dam as an active water infrastructure asset. The proposed works will have minimal impact on the heritage significance of Avon Dam by utilising an existing road alignment and current road infrastructure. The core heritage values of Avon Dam, including its historical, technological, and aesthetic significance, would be preserved despite the proposed works.

In summary, based on the civil drawings for Avon Dam Road renewal, the proposed works would result in the following heritage impacts:

- **minor adverse** physical and visual heritage impacts
- **minor** archaeological impacts to deposits of low significance.

Approval pathway

As the proposed works are located within the curtilages of the Avon Dam State Heritage Register listing, an approval under Section 60 of the Heritage Act is required. The proposed works cannot be carried out under the Standard Exemptions and WaterNSW Exemptions and therefore obtaining an exemption for the works is not possible. The proposed works are eligible to be conducted under a S60 Works and a Section 60 approval must be obtained prior to the work commencing.

Recommendations and mitigation measures

The following recommendations should be adhered to when implementing the proposed works in order to mitigate potential heritage and archaeological impacts:

General

- An application for approval must be made to Heritage NSW under Section 60 of the Heritage Act
- A heritage induction should be provided to all contractors working on the site to ensure awareness of the site's heritage significance and the need to minimise impacts.

Built Environment

- The methods, tools and materials used should not cause inadvertent damage to original or early fabric within the study areas. Should unexpected damage to original or early fabric occur, the advice of a heritage specialist should be sought before repairs are made
- All works are to be undertaken in accordance with the principles and objectives of the *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance* (the Burra Charter)
- Prior to the commencement of works, extant fabric of the Avon Dam near the dam wall and access gates should be flagged with non-intrusive markers for the purpose of visibility to ensure that no impacts from vehicular movements occur.

Archaeology

- An unexpected finds procedure should be implemented during ground disturbance works in case of any archaeological discoveries. The contact details of a suitably qualified archaeologist should be included in the unexpected finds procedure provide advice or attend site if needed.
- If found, the original macadam road would be of interest and sample recording should be undertaken by a suitable qualified heritage consultant.
- As there would be little to no visual impacts to the overall heritage item, the preparation of a photographic archival recording of the study area to document the changes to the landscape is not recommended.

CONTENTS

FIGURES

TABLES

1.0 INTRODUCTION

1.1 Project background

Artefact Heritage and Environment have been engaged by Abergeldie Complex Infrastructure to prepare a Statement of Heritage Impact (SoHI) for proposed road remediation works at Avon Dam. This report will assess the built heritage impact and historical archaeological assessment of the proposed works which will form part of a Section 60 works application to Heritage NSW.

Avon Dam is a state listed heritage item under the Heritage Act 1977 as 'Avon dam' (SHR # 125180). It is listed on the WaterNSW Section 170 Heritage and Conservation Register (S170) as 'Avon Dam', (Listing No. 4580027). The study area falls within the heritage item listed on the Wingecarribee Local Environment Plan 2010 (LEP) as 'Avon Dam' (LEP I224).

WaterNSW has an extensive number of assets throughout NSW that require access via safe and well-maintained access roads. During development of the Greater Sydney Independent Pricing and Regulatory Tribunal (IPART) FY21-24 Submission, several dam access roads at Avon Dam were identified as candidates for renewal as part of the Greater Sydney Roads Renewal project (GSRR), due to their poor condition. A Condition Assessment was conducted by AssetReady and WaterNSW personnel in November 2021, and a remediation and renewal works have been proposed. Abergeldie Complex Infrastructure (Abergeldie) is the firm undertaking the remediation works.

Artefact have been engaged to prepare a SoHI to satisfy the requirements of a Section 60 Works Application for the proposed remediation works to Avon Dam Road, and within the SHR curtilage of Avon Dam. This report identifies the potential heritage impacts of the proposed works. The report also provides detailed advice on appropriate heritage approval pathways and provides management recommendations for the proposal.

Project justification is outlined in a Condition Assessment of the site was undertaken as part of the GSRR Project. The assessment was completed by AssetReady and WaterNSW personnel in November 2021 (D2019/88317). The main observations relevant to Avon Dam Road, which were included in the Scope of Works Report by WaterNSW are noted below:

- Access to Compressor area: Narrow unsealed road with inadequate drainage, requires vegetation clearance. Uncontrolled stormwater flowing onto access road and into Compressor area.
- Access to Helipad and Chlorine Treatment Plant: Uneven and unsealed road with no drainage system present. Evidence of scouring along access road.[1]

1.2 Study area

The study area consists of two separate sections (illustrated below in Figure 2) near the Avon Dam Road corridor. The study area is in close proximity to the Avon Dam site which is located on the northern most extent of Lake Avon, the largest of four water reservoirs within the Upper Nepean Scheme. Lake Avon is approximately 15 kilometres west of Port Kembla and west of the Illawarra Escarpment with an elevation of 348 metres above sea level. The study area is located within the Wingecarribee Local Government Area (LGA) and is contained within Lot 14 DP1233164; it is under the ownership of WaterNSW.

[1] WaterNSW, GSSR Design and Construct Roads and Drainage – Scope of Works D2024/41172, 7 June 2024

Figure 1: Map of the study areas near Avon Dam

1.3 Authorship

This report has been prepared by Daniel Dompierre-Outridge (Heritage Consultant) from Artefact Heritage.

1.4 Limitations

This report provides an assessment of built heritage and historical archaeology only. This report does not include an assessment of Aboriginal cultural heritage.

2.0 LEGISLATIVE CONTEXT

2.1 Overview

This section discusses the heritage management framework, notably legislative and policy context, applicable to the proposed development and study area.

2.2 Identification of heritage listed items

Heritage listed items were identified through a search of relevant state and federal statutory and non-statutory heritage registers:

- World Heritage List (WHL)
- Commonwealth Heritage List (CHL)
- National Heritage List (NHL)
- State Heritage Register (SHR)
- Section 170 Heritage and Conservation Registers
- NSW State Heritage Inventory database
- Wingecarribee Local Environmental Plan (LEP) 2010
- Register of the National Estate (RNE)
- National Trust of Australia (NSW) register.

Items listed on these registers have previously been assessed against the heritage assessment guidelines relevant to their peak governing body. Items that are of Commonwealth, National and World heritage significance have been assessed in accordance with the Environmental Protection and Biodiversity Conservation Act 1999 (the EPBC Act). Items of state or local significance have been assessed against the NSW Heritage Assessment guidelines. Assessments of heritage significance as they appear in relevant heritage inventory sheets and documents, are provided in this assessment.

There are several items of legislation that are relevant to the current study area. A summary of the relevant Acts and the potential legislative implications are provided below.

2.3 Heritage Act 1977

The NSW *Heritage Act 1977* (Heritage Act) provides protection for items of 'environmental heritage' in NSW. 'Environmental heritage' includes places, buildings, works, relics, movable objects or precincts considered significant based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. Items considered to be significant to the State are listed on the SHR and cannot be demolished, altered, moved or damaged, or their significance altered without approval from the Heritage Council of NSW.

2.3.1 State Heritage Register

The SHR was established under Section 22 of the Heritage Act and is a list of places and objects of particular importance to the people of NSW, including archaeological sites. The SHR is administered by Heritage NSW, and includes a diverse range of over 1,500 items, in both private and public ownership. To be listed, an item must be deemed to be of heritage significance for the whole of NSW. For works to an SHR item, a Section 60 application must be prepared for works that are not exempt under Section 57(2) of the Heritage Act.

Avon Dam (SHR #12580) is listed on the State Heritage Register.

2.3.2 Archaeological relics and works

The Heritage Act also provides protection for 'relics', which includes archaeological material or deposits. Section 4 (1) of the Heritage Act (as amended in 2009) defines a relic as:

> *"...any deposit, artefact, object or material evidence that:*
>
> *relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
>
> *is of State or local heritage significance"*

Sections 139 to 145 of the Heritage Act prevent the excavation or disturbance of land known or likely to contain relics, unless under an excavation permit. Section 139 (1) states:

> *A person must not disturb or excavate any land knowingly or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, damaged or destroyed unless the disturbance is carried out in accordance with an excavation permit.*

Excavation permits are issued by the Heritage Council of NSW, or its Delegate, under Section 140 of the Heritage Act for relics not listed on the SHR, or under Section 60 for impacts within SHR curtilages. An application for an excavation permit must be supported by an Archaeological Research Design (ARD) and Archaeological Assessment prepared in accordance with the Heritage NSW archaeological guidelines. Outside SHR curtilage, minor works that would have a minimal impact on archaeological relics may be eligible to take place under Section 139 (4) exceptions.

2.3.3 Conservation Management Plans

Under Section 38A of the Heritage Act, if a Conservation Management Plan (CMP) is prepared for an item listed on the SHR, the Heritage Council of NSW may endorse the plan, and use the CMP to make regulations or provisions in relation to the SHR item. A CMP is not required under the Heritage Act, however the Heritage Council of NSW continues to recommend the preparation of CMPs as best practice heritage management documents for places of State Heritage significance and to consider suitable site-specific exemptions.

The following CMP has been prepared for Avon Dam:

- Extent Heritage, *Avon Dam Site Conservation Management Plan Update*, May 2019

2.3.4 Section 170 registers

Under the Heritage Act all government agencies are required to identify, conserve and manage heritage items in their ownership or control. Section 170 (s170) requires all government agencies to maintain a Heritage and Conservation Register that lists all heritage assets and an assessment of the significance of each asset. They must also ensure that all items inscribed on its list are maintained with due diligence in accordance with State Owned Heritage Management Principles approved by the Government on advice of the NSW Heritage Council. These principles serve to protect and conserve the heritage significance of items and are based on NSW heritage legislation and guidelines.

Avon Dam is listed on the Water NSW s170 register under the following listing:

- Avon Dam (#4580027)

2.4 Environmental Planning and Assessment Act 1979 (NSW)

The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the framework for cultural heritage values to be formally assessed in the land use planning and development consent process. The EP&A Act requires that environmental impacts are considered prior to land development; this includes impacts on cultural heritage items and places as well as archaeological sites and deposits.

The EP&A Act also requires that local governments prepare planning instruments (such as Local Environmental Plans and Development Control Plans [DCPs]) in accordance with the EP&A Act to provide guidance on the level of environmental assessment required. The study area falls within the boundaries of the Wollongong and Wollondilly local government areas. Schedule 5 of each of the *Wollongong Local Environmental Plan* 2009 (LEP) and Wollondilly Local Environment Plan 2011 (LEP) includes a list of items/sites of heritage significance within this LGA.

2.4.1 Wingecarribee Local Environmental Plan 2010

Heritage items listed on the Wingecarribee LEP 2010 are managed in accordance with the provisions of Section 5.10 Heritage Conservation of this LEP. Under Clause 5 of this section of the Wingecarribee LEP 2010:

> *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*
>
> *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.*

Part of the study area is included on Schedule 5 of the Wollondilly Local Environmental Plan [2011] as:

- 'Avon Dam' Item No. I224.

2.4.2 Development Control Plan

The Wingecarribee DCP – Rural Lands (2010) is a supporting document that compliments the provisions contained within the LEP and provides specific design detail in regard to sympathetic development on, or in the vicinity of, items listed on Schedule 5 of the each of the Wingecarribee LEP.

While there are no specific provisions in The Wingecarribee DCP which pertain to Avon Dam, the section titled Rural Lands provides sympathetic considerations for development that is in the vicinity of a heritage listed item in rural areas. These considerations include ensuring that the character, bulk, scale and height of new development does not unreasonably overshadow a nearby heritage item, that

colouring and texture of new materials of a new development is sympathetic to a heritage item, and that views of a heritage item should not be obscured from the point of view of areas of public domain.

2.5 Non-Statutory Considerations

2.5.1 Register of the National Estate

The RNE is no longer a statutory list; however, it remains available as an archive.

Avon Dam is listed under a group listing for the 'Upper Nepean Water Catchment' (id # 14746).

2.5.2 National Trust of Australia (NSW)

Listing on the National Trust Heritage Register does not impose statutory obligations and is more an indication of the heritage significance held by the community.

Avon Dam is listed on the National Trust Heritage Register as 'Avon Dam etc' (id #1409).

2.6 Summary of heritage listings

2.6.1 Avon Dam

The study area is comprised of the Avon Dam Road corridor, located in the curtilage of the Avon Dam, which is listed on multiple statutory heritage registers as outlined in Table 1. Figure 2 shows the curtilages present within the study area, while Figure 3 shows the extent of the SHR curtilage of Avon Dam.

Table 1: Summary of heritage register search results

Item name	Address	Listings	Item number	Significance
Avon Dam	Avon Dam Road, Yerrinbool	SHR	125180	State
		WaterNSW S170	4580027	State
		Wingecarribee LEP 2010	I224	State

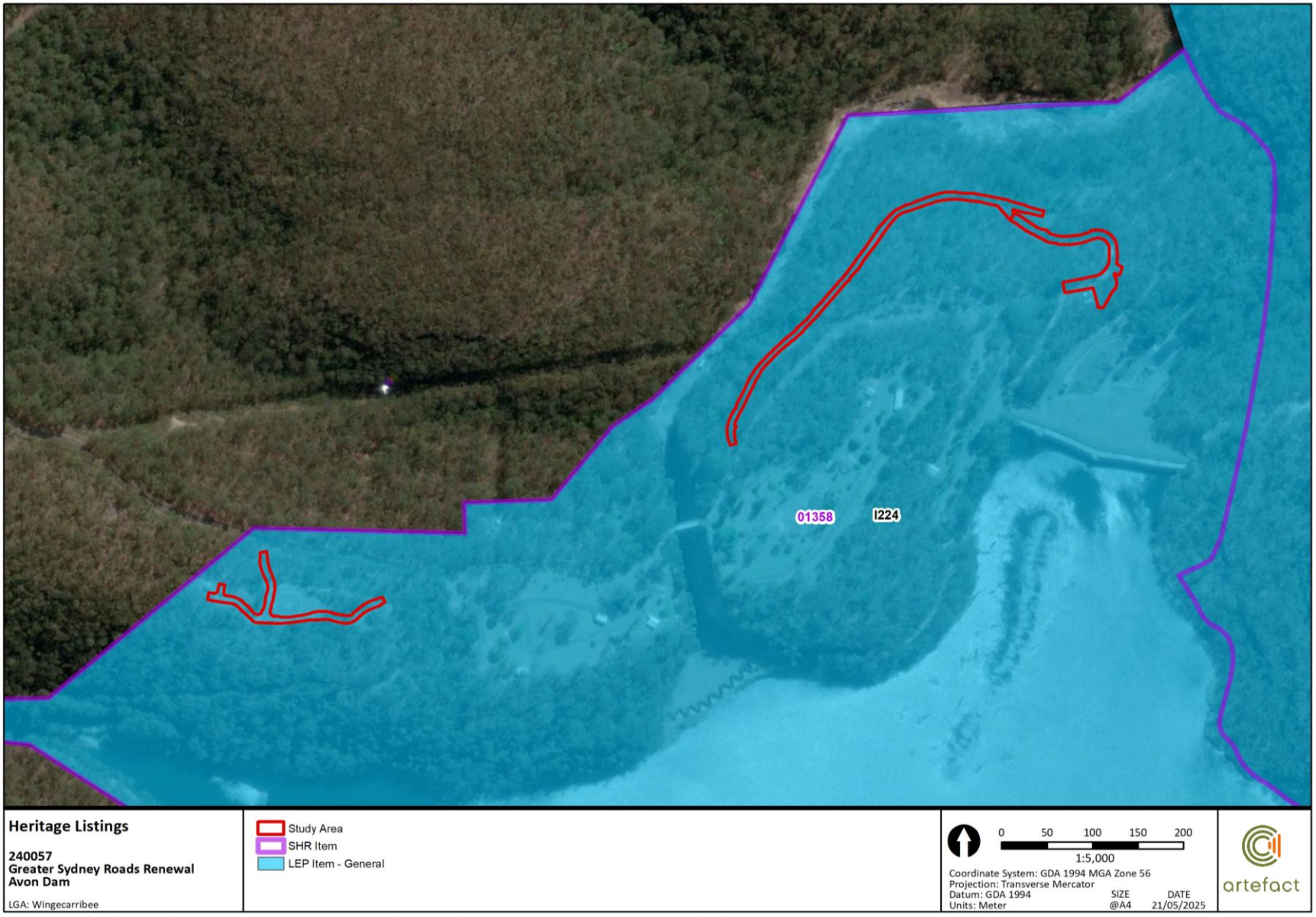

Figure 2: Heritage items in the vicinity of the study area

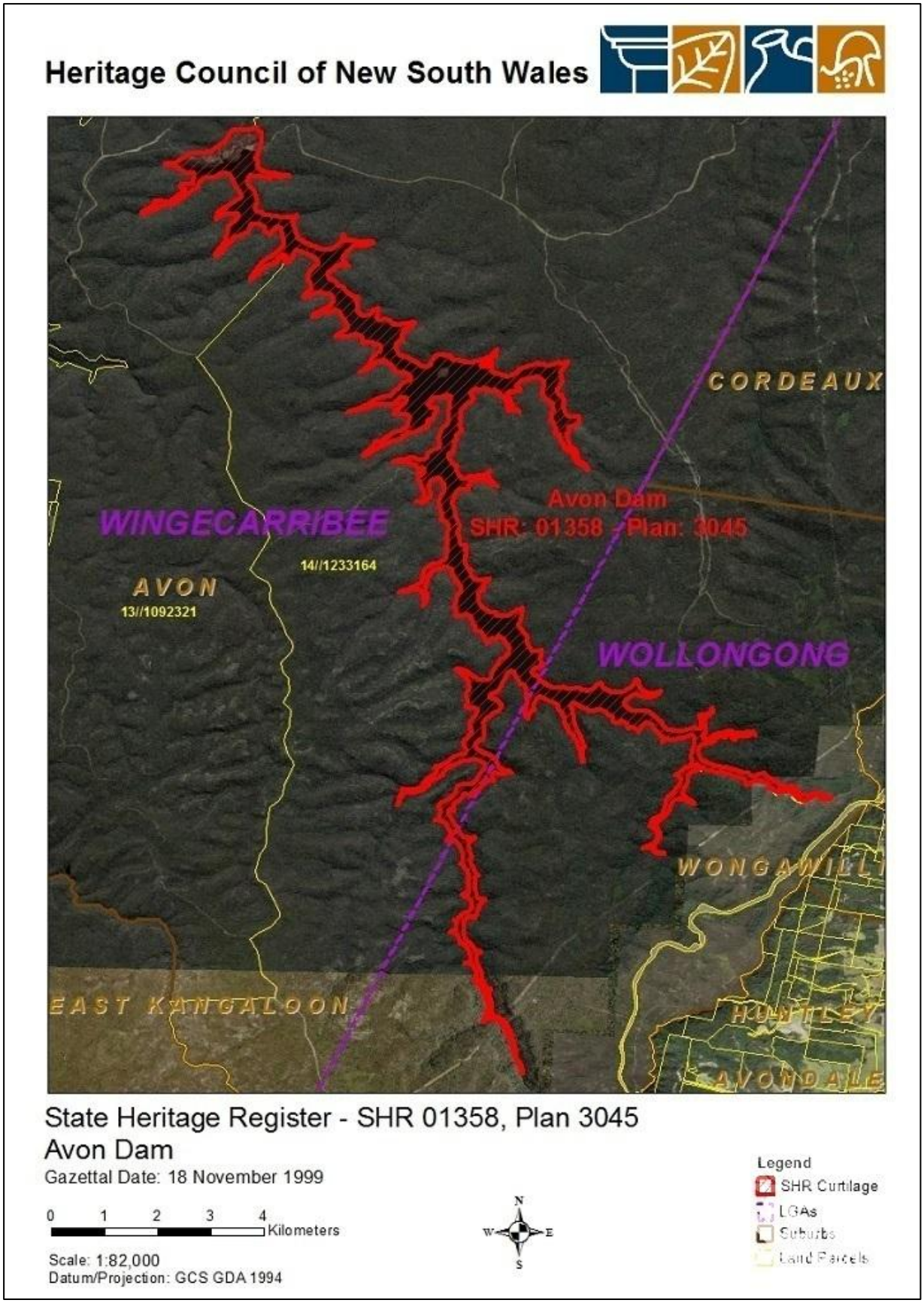

Figure 3: Avon Dam State Heritage Register Heritage Curtilage (source: Heritage NSW, SHI, *Avon Dam*)

3.0 HISTORICAL BACKGROUND

Artefact have previously prepared a report for the Avon Dam area as part of an earlier project.[2] The following historical overview is derived from this report.

3.1 Upper Nepean Scheme

The dams of the Upper Nepean Scheme, which comprises 924.6 square kilometres of natural river catchments and basins, were constructed in the early twentieth century in response to water insecurity in the Sydney region.[3] A severe drought between 1901 and 1902 caused the water levels in the Greater Sydney Basin to drop so low that the existing water storage provisions were found to be inadequate to supply the growing demand for water. As a result, four dams (whose locations are illustrated in Figure 10) were constructed to supplement the Upper Nepean Scheme's capacity and provide a reliable water supply to Sydney.[4] The first stage of the Upper Nepean Scheme was commenced in 1880 after supply from the Botany Swamps proved to be inadequate to meet Sydney's water supply needs.

By 1902, however, it became clear that the initial Upper Nepean scheme was inadequate after a severe drought had depleted the water supply. Construction of the Cataract Dam was completed in 1907. The site for a second storage dam, to be built on the Cordeaux River, was selected by the Water Board in the latter part of 1911 and a gauging weir was constructed. The dam was not begun until 1918 and was completed in 1926. In November of 1918 a Special Board of Experts recommended the construction of the Avon and Nepean Dams as well.[5]

The four dams of the Metropolitan Catchment – Cataract, Nepean, Avon & Cordeaux - were completed between 1907 and 1936 and collectively represent the largest major water supply scheme undertaken in New South Wales in the first half of the 20th century. They are one of the major engineering feats undertaken in Australia at any time. The construction of the system of dams marked a natural progression from the Upper Nepean Water Supply Scheme, which was inaugurated in the 1880s as the principal water supply source for metropolitan Sydney.

The design and construction of the dams was principally under the one Government authority - the Water Supply and Sewerage Branch of the NSW Department of Public Works. This Branch was led at different periods by two of Australia's leading water supply engineers - Leslie A.B. Wade and Ernest M. de Burgh. The completion of the dams necessitated the introduction of overseas derived forms of construction technologies that were subsequently developed as standard practice in major civil engineering works. Similarly, the technologies of water delivery required for the dams were on a scale and complexity hitherto unseen in New South Wales.

3.2 Avon Dam

Construction of the third dam, Avon Dam, began in 1920 and was completed in 1927. Avon Dam is the highest and largest of the four dams; like the others, it was constructed by the Public Works Authority and designed by Chief Engineer for Water Supply and Sewerage, E.M. De Burgh.[6] A 1923

[2] Artefact, *Avon Dam HV Upgrade Statement of Non-Indigenous (historic) Heritage Impact*, September 2015
[3] Graham Brooks and Associates, *Metropolitan Dams Conservation Management Plan Vol. 4,* April 2003
[4] Biosis Research, 2012. Camden Gas Project Amended Northern Expansion: Historic Cultural Heritage Assessment, p 54-55.
[5] Artefact, *Avon Dam HV Upgrade Statement of Non-Indigenous (historic) Heritage Impact*, September 2015
[6] NSW Office of Environment and Heritage: Avon Dam. (Accessed on 10/3/2015 at http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5051468)

article in the *Picton Post* details how, upon completion, Avon Dam would "greatly exceed the total capacities of the Cordeaux and Cataract dams".[7]

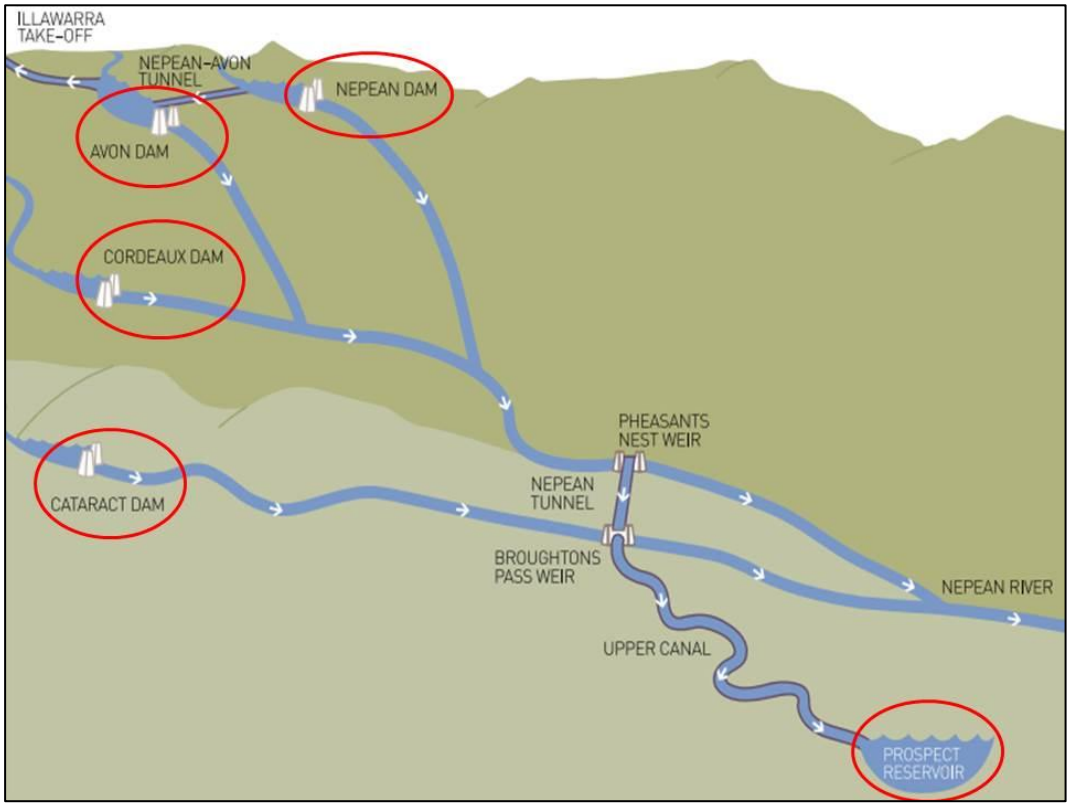

Figure 4. Diagram of Upper Nepean Scheme. (Water NSW: Dams of Greater Sydney and Surrounds, Upper Nepean Brochure.)

[7] The Picton Post, "Avon Dam". Wednesday 14 November 1923.

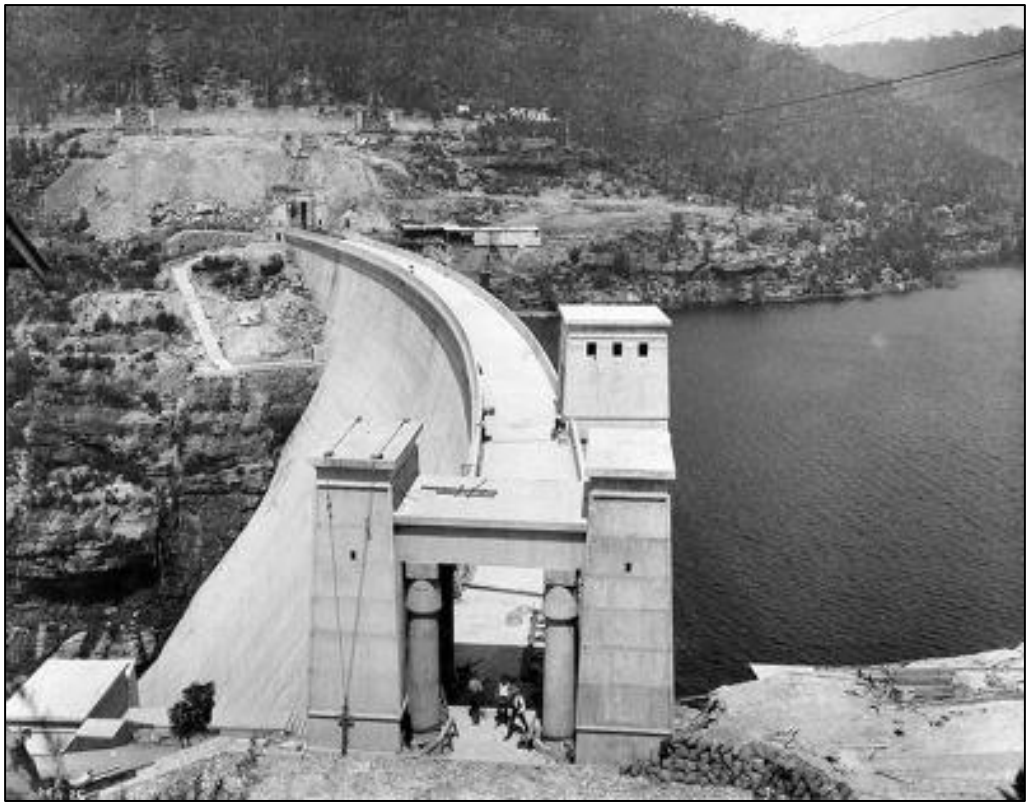

Figure 5. 1928 image of Avon dam, nearing completion. Sydney Catchment Authority: Take a journey in time - water supply 1778 to now. (Accessed at http://www.sca.nsw.gov.au/water/heritage/timeline)

A *Southern Mail* article from October 29, 1920 advertised the appropriation of land on Mount Gibraltar for the quarrying of rock for the dam;

> *"The land in question, with its immediate surroundings contains a vast quantity of trachyte, and the stone is required by the Public Works Department for the construction of concrete and masonry work for the reservoir at the Avon River."*

The article describes the appropriation as "a big thing for the district", proffering the opening up of large quarries which would be maintained by the government beyond the construction of Avon Dam.[8]

The SHR listing for the dam describes it as curved in plan with a spillway channel constructed through a ridge between the reservoir and a watercourse. Both ends of the dam wall are flanked by Egyptian style pylons complete with decorative lotus columns. The dam contains two levels of outlet valves. The dam was constructed of sandstone blocks, quarried from the site. The sandstone was fitted into an irregular pattern and packed with sandstone concrete. Consistent with the Cataract and Cordeaux dams, the upstream face of the Avon dam contains a two feet thick waterproofing layer of basaltic concrete to resist erosion from tidal forces.

Several Wongawilli Parish maps from 1903-1978 show the development of the Avon River Catchment and the Avon Dam over time (Figure 6 through Figure 9). These maps, although capturing the progression of the Upper Nepean Scheme and construction of the Avon Dam, do not provide evidence of structures or infrastructure associated with the dam.

[8] Southern Mail, "Trachyte for Avon Dam", Friday 29 October 1920, p 2.

Accommodation in the form of single-storey barracks for single men was provided for dam workers. Married men were allocated land and were assisted in building temporary houses for themselves and their families.[9]

Water from Avon Dam served Sydney until the completion of Warragamba Dam in 1960. In 1963, the water stored in the Avon Dam was reserved to meet the increased water supply needs of the Wollongong area.[10]

The 1903 Wongawilli Parish Map demonstrates that prior to the commencement of the construction of the Avon Dam in 1920 the land surrounding the Avon Catchment remained unoccupied and undeveloped. No historical evidence of previous structures in the study area dating to this time is available. This is largely due to the catchment of the Avon River being characterised by "poor forest cover and little depth of soil" which "in general discouraged European settlement during the nineteenth century." Figure 11 below illustrates the current arrangement of structures and areas of the Avon Dam curtilage.

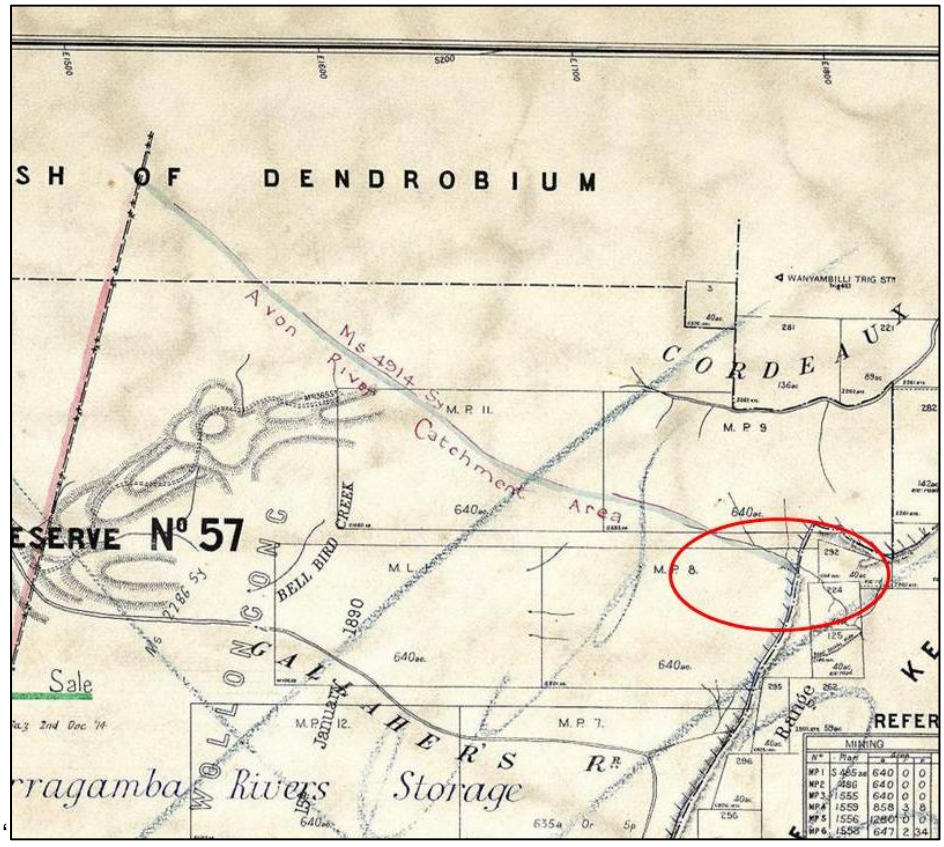

Figure 6. 1903 Wongawilli Parish Map showing approximate location of future Avon Dam (highlighted in red). (Source: NSW Land and Property Information Parish of Wongawilli, 1903)

[9] NSW Office of Environment and Heritage: Avon Dam. (Accessed on 10/3/2015 at http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5051468)
[10] NSW Office of Environment and Heritage: Avon Dam. (Accessed on 10/3/2015 at http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5051468)

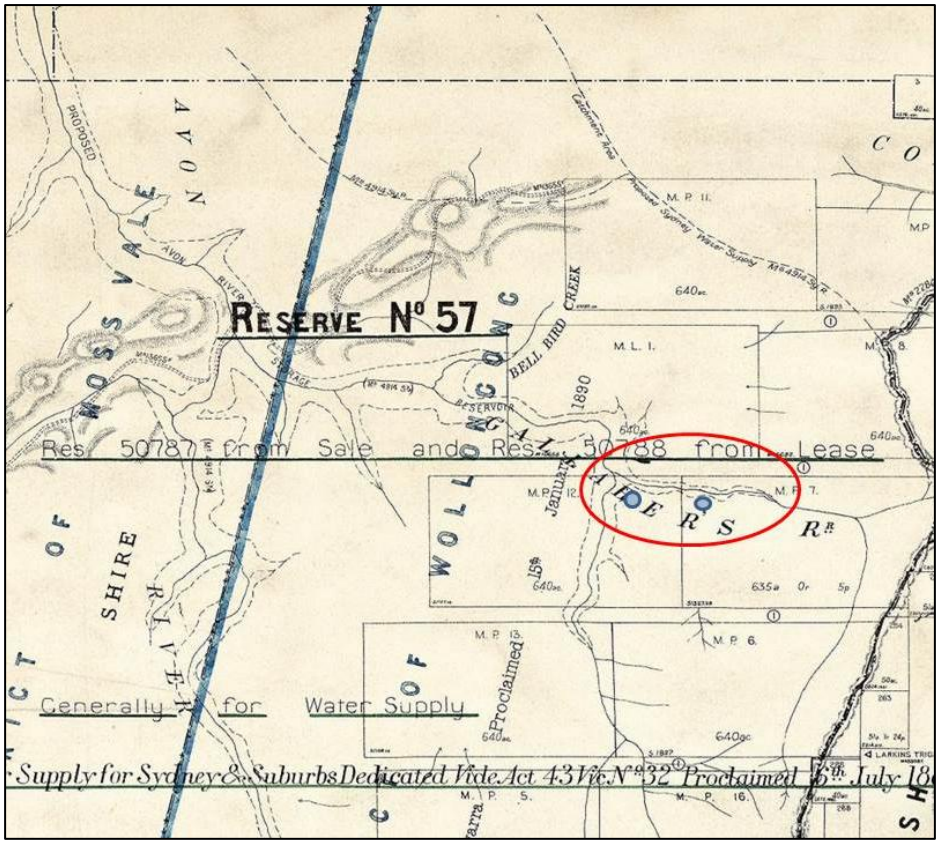

Figure 7. 1921 Wongawilli Parish Map showing location of Avon Dam (highlighted in red) (Source: NSW Land and Property Information Parish of Wongawilli, 1921)

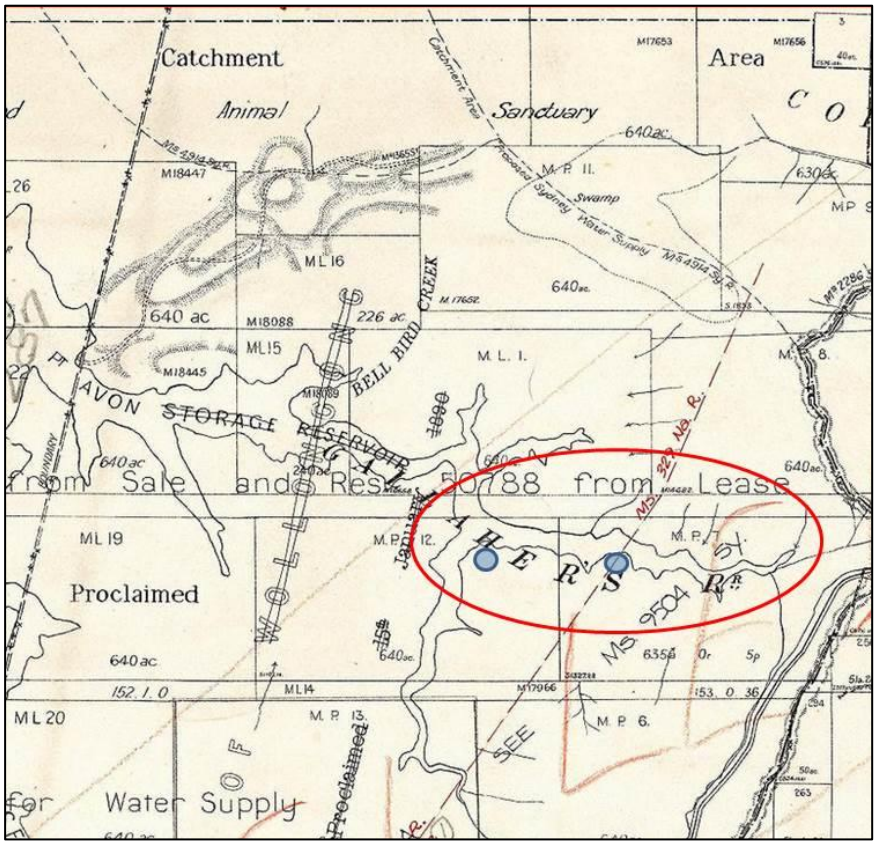

Figure 8. 1931 Wongawilli Parish Map showing location of Avon Dam (highlighted in red) (Source: NSW Land and Property Information Parish of Wongawilli, 1931)

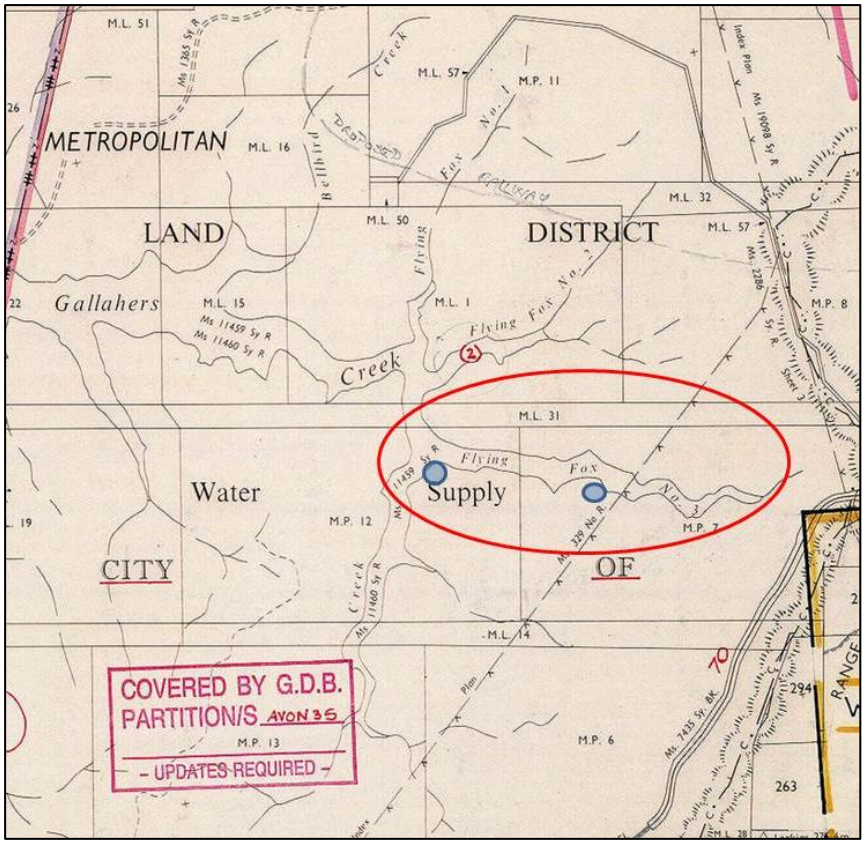

Figure 9. 1978 Wongawilli Parish Map showing location of Avon Dam (highlighted in red) (Source: NSW Land and Property Information Parish of Wongawilli, 1978)

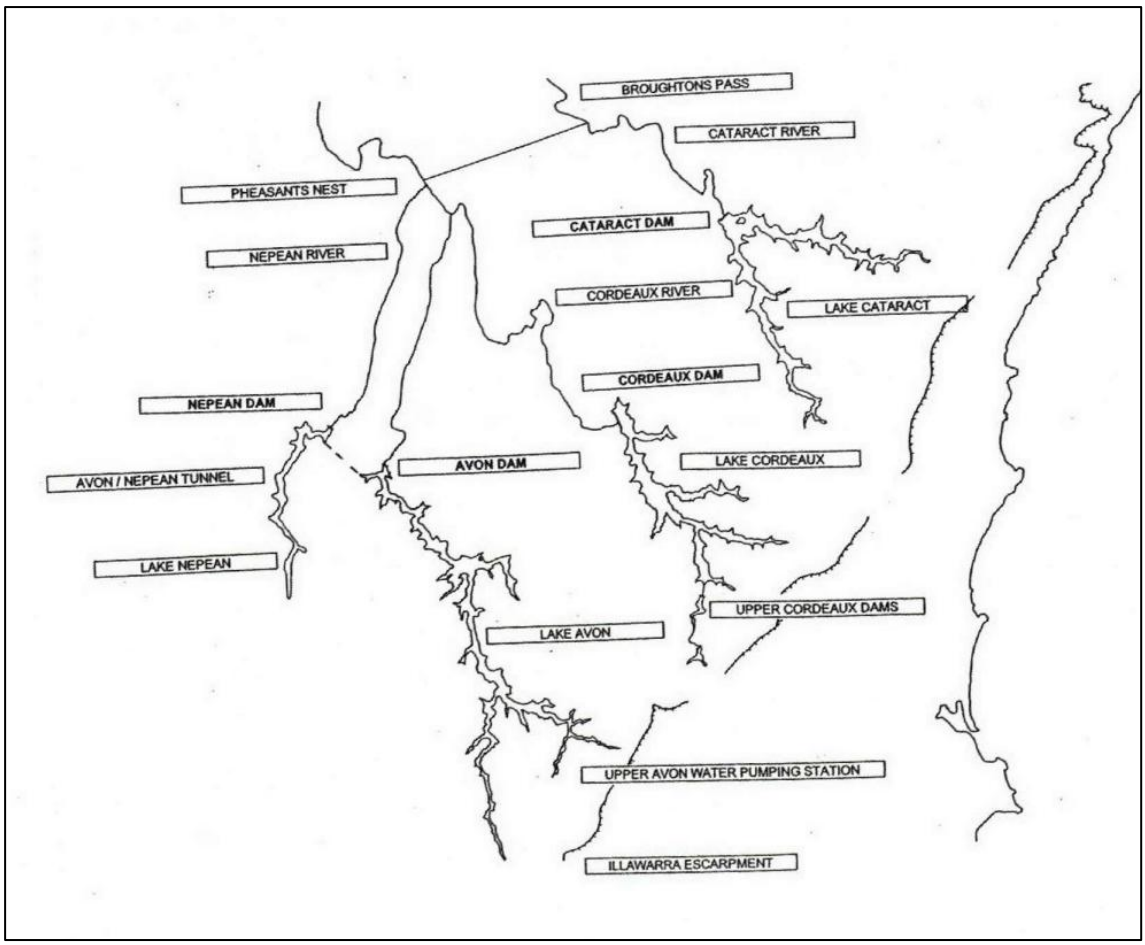

Figure 10: The Sydney Catchment Authority's Metropolitan Dams (Source: Sydney Catchment Authority Metropolitan Conservation Management Plan - Volume 1)

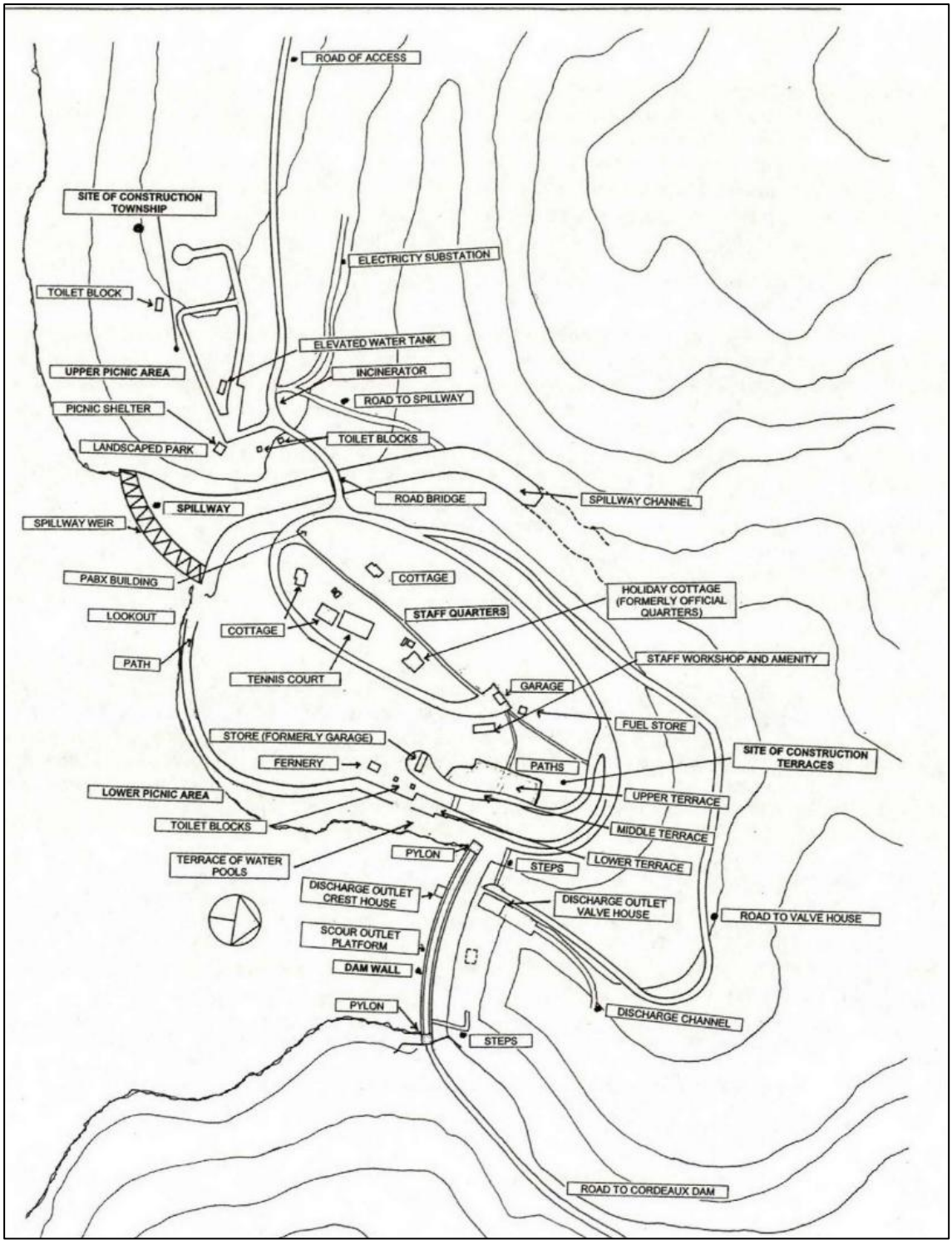

Figure 11: Avon Dam site plan (Source: Sydney Catchment Authority Metropolitan Dams Conservation Management Plan 2003)

3.2.1 Historical activities at Avon Dam

The following section outlines the history of the construction and development of Avon Dam Road as it relates to the construction and ongoing use of the Avon Dam site.

1918-1928: Construction of Avon Dam Road

A number of preliminary works preceded the construction of the dam. For instance, the Avon Dam Road was constructed in the years prior to the dam, beginning in 1918 as a macadam road (illustrated below in Figure 12) which connected the site to the town of Bargo approximately 9.6 km away. A main source of labour for the construction of the road consisted of war veterans returning from Europe (Figure 13). The road was completed in 1921, and photographic evidence indicates it was originally fenced with slab post and rails; it was resealed in asphalt during 1928 and 1929.

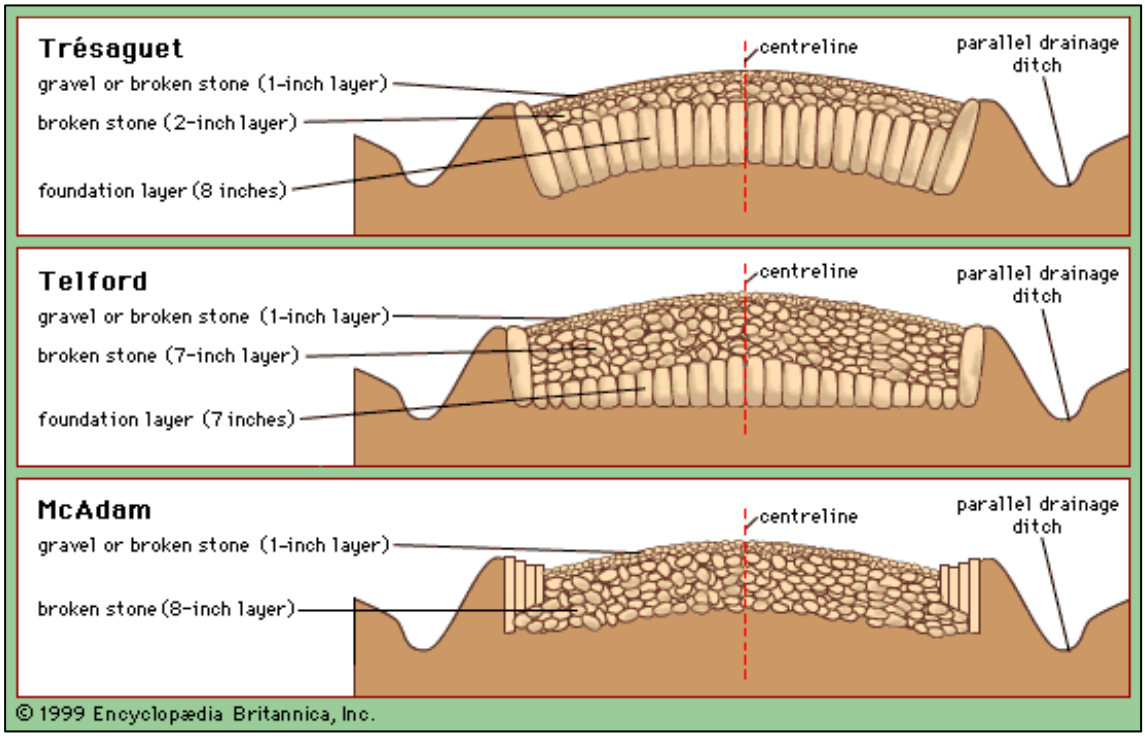

Figure 12. Illustration of three 18th-century European road construction methods; McAdam or "macadam" road construction is shown on the bottom rank (Source: Encyclopedia Britannica, *John Loudon McAdam*, accessed online 25 October 2024)

Figure 13. Construction of Avon Dam Road by war veterans in the Nepean River valley, February 1921 (Source: Mitchell Library, Government Printing Office Collection – Disk 1, Frame 4978

Terracing of the hillside above the dam also took place from 1919 through to 1921: three platforms provided space for cableway towers, cement storage, bluestone or "blue metal" storage, concrete batching plant, machine shops, and supplies storage (photographed below in Figure 14).[11] These terraces were later remediated and planted following the completion of the dam.

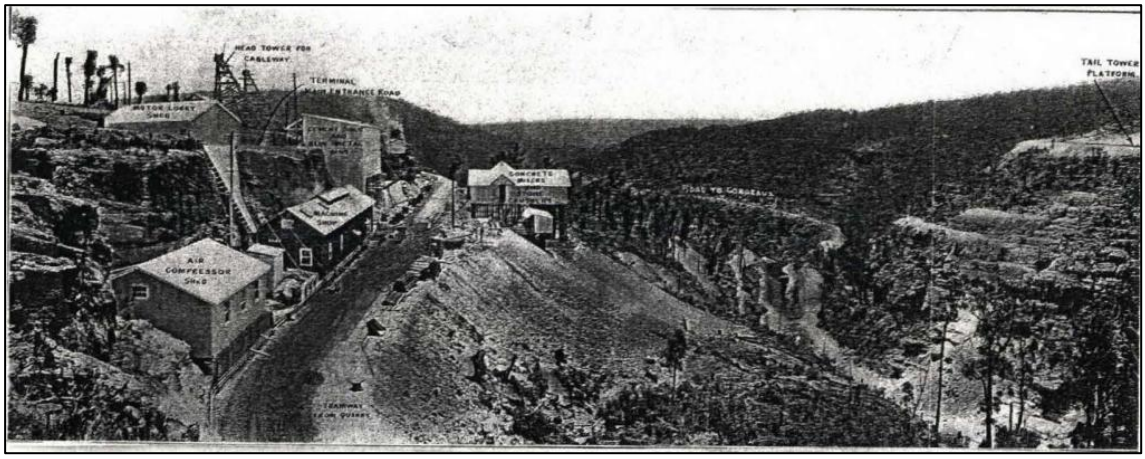

Figure 14. Panoramic photo of the construction terraces taken in December 1921, facing south (Source: Department of Public Works, Avon Dam, NSW Government Printer, c.1928)

The SHR listing for Avon Dam notes the construction of structures, including temporary accommodation and construction services, in the vicinity of the dam during this time. Numerous

[11]Graham Brooks and Associates, *Metropolitan Dams Conservation Management Plan Vol. 4,* April 2003

tradespeople and labourers were employed in constructing the dam: by 1923 between 230 and 250 employees worked on the dam at any given time. A township to house the workers (including some who lived onsite with their families) and ancillary services was also constructed nearby. Altogether, by 1923 some 400 people lived in the township.[12]

The township was located below the current picnic grounds of Avon Dam.[13] The below images of the workers' accommodation, taken between 1921 and 1928 provides clear evidence that the workers' township was erected on a large, flat, treeless landscape (Figure 15).

Figure 15. Image of workers' accommodation, with tents and barracks 1921-1928. *Sydney Catchment Authority: Take a journey in time - water supply 1778 to now*. (Accessed at http://www.sca.nsw.gov.au/water/heritage/timeline on 12/3/2015).

[12] Graham Brooks and Associates, *Metropolitan Dams Conservation Management Plan Vol. 4,* April 2003
[13] Graham Brooks and Associates, *Metropolitan Dams Conservation Management Plan Vol. 4,* April 2003

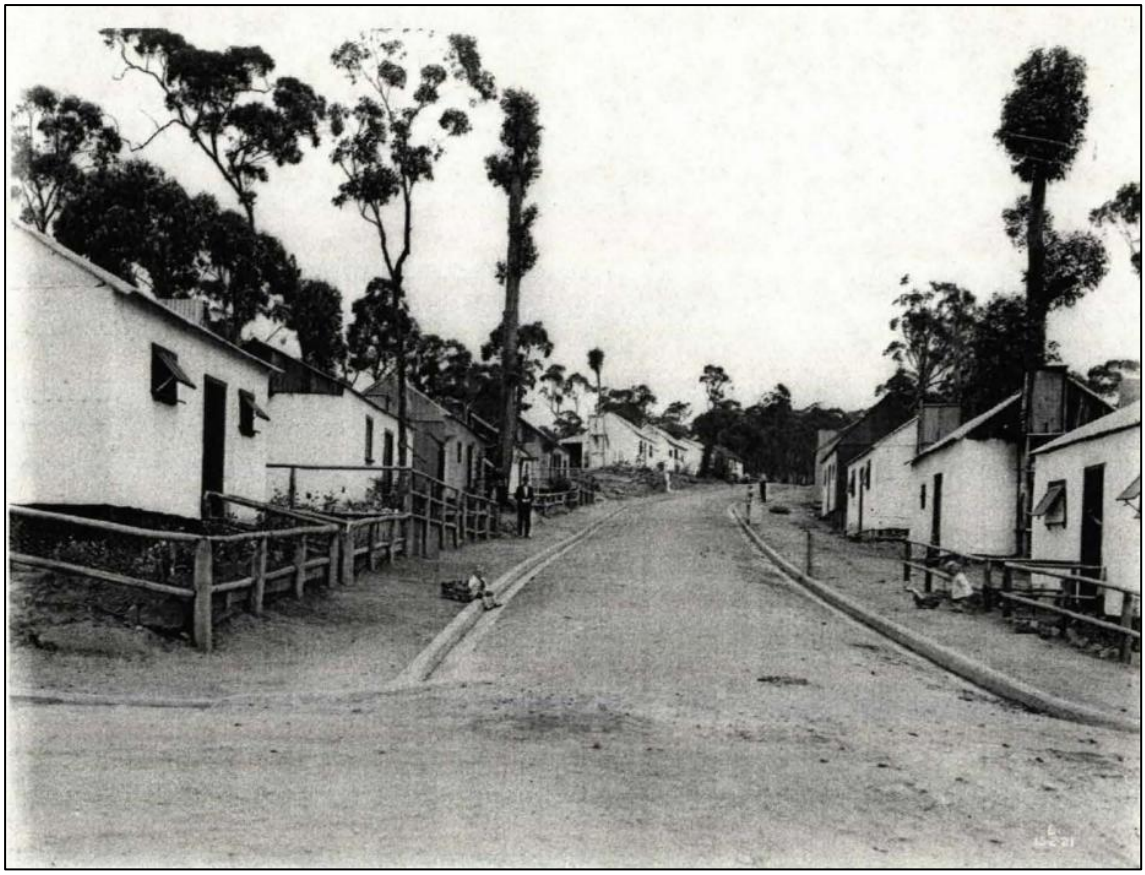

Figure 16. The main street of the construction township bordered by small houses which housed married workers and their families; taken in February 1921 (Source: Mitchell Library, Government Printing Office Collection – Disk 1, Frame 49796

The dam was completed in June 1927 and handed over to the Water Board by the Public Works Department on 20th February 1928; by this time the majority of the township and construction area had been demolished or relocated. Most of the residents had also moved away, however the dam continued to be maintained by a permanent staff who resided in construction cottages supplied by the Public Works Department.[14] Avon Dam Road has been in continuous usage following the completion of the dam.

Ongoing usage 1927 to present

Visitation to the dam by the public as a form of tourism was possible from the completion of the dam onward. This is reflected in the development of infrastructure in the dam area such as the construction of a shelter shed, male and female lavatories, picnic facilities and a parking area in 1927. Visitation was actively encouraged in the post-WWII period, and public facilities at the dam were substantially improved in the 1960's with the construction of new septic system lavatory blocks, brick shelter sheds, and extensive landscaping.

Avon Dam Road was improved over the years, having been resealed in asphalt in 1928-1929, later undergoing a road safety upgrade in 2005.[15] Upgrades included

> *replacement of the existing fencing and concrete posts; installation of guardrail along outer edge; construction of sealed shoulders; rock stabilisation works; minor*

[14] Graham Brooks and Associates, *Metropolitan Dams Conservation Management Plan Vol. 4,* April 2003
[15] Sydney Catchment Authority, *Draft Heritage and Conservation Register, Avon Dam*, June 2010

infilling of collapsed sections of the road shoulder; as well as installation of signage, mirrors and line marking.[16]

The 1960's also saw renewed landscaping and works in the vicinity of Avon Dam. The location of the proposed works in Map ID Sections 3 and 4 is an in area which until the 1960s appears to have been covered in vegetation and intersected with some unformed tracks, as shown in Figure 17. By 1982 the area had been cleared and the helipad installed. The location of the proposed works in Map ID Sections 3 and 4 are located on unsealed vehicle tracks which appear to be associated with the construction of the helipad and associated area.

Figure 17. Aerial photo of the future Compressor Area and Helipad in 1969, (Source: NSW Spatial Services, *Historical Imagery*)

[16] Extent Heritage, *Avon Dam Site Conservation Management Plan,* 2019

Figure 18. Aerial photo of the future Compressor Access and Helipad area in 1982 (Source: NSW Spatial Services, *Historical Imagery*)

4.0 PHYSICAL CONTEXT

4.1 Site Inspection

A site inspection was conducted on 05 February 2025 by Emily Bennett (Heritage Consultant) of Artefact Heritage. The aim of the site inspection was to inspect the area of proposed impacts, inform a preliminary assessment of archaeological potential, and identify heritage items and heritage significant fabric of the item and in the vicinity that may be affected by the project. The inspection was undertaken on foot and a photographic record was made.

4.1.1 Study area

The landscape of the study area consists of hilly terrain containing sealed and unsealed roads, as well as infrastructure associated with Avon Dam. Though much of study area has been landscaped to be a flat grassy plateau, it remains largely undeveloped, with thick brush and mature trees covering the hillsides that surround the dam and roads. The ground presents a mix of rocky, sandy soil and exposed bedrock.

4.1.2 Avon Dam

Figure 19. The landscaping of the Upper Picnic Area, facing west

Figure 20. The top of the spillway at the edge of the Upper Picnic Area, facing east

Figure 21. the Helipad area, facing northeast

Figure 22. Avon Dam Road near the Upper Picnic Area, facing southwest

Figure 23. The exposed bedrock of the Avon Dam area

Figure 24. The rear of Avon Dam wall

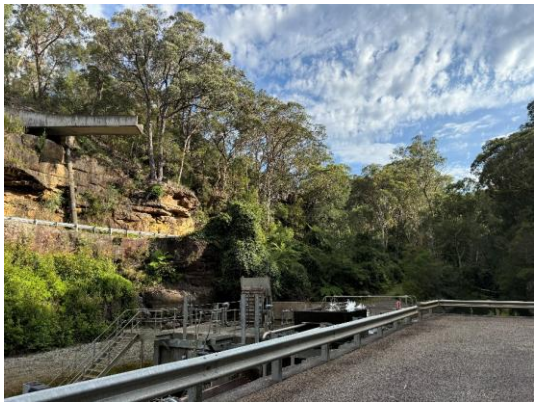

Figure 25. Infrastructure at base and to the rear of the Avon Dam wall, facing north

Figure 26. The landscape near the Compressor Area, facing southwest toward the Avon Dam wall

Figure 27. The Compressor Area, facing west

Figure 28. The unsealed Compressor Area access road, facing north

Figure 29. Erosion on the Compressor Area access road

Figure 30. The extant drainage at the intersection of the Main Road and the Compressor Area access road

5.0 SIGNIFICANCE ASSESSMENT

5.1 Methodology

Determining the significance of heritage items or a potential archaeological resource is undertaken by utilising a system of assessment centred on the *Burra Charter* (Australia ICOMOS 2013). The principles of the charter are relevant to the assessment, conservation and management of sites and relics. The assessment of heritage significance is outlined through legislation in the *Heritage Act* and implemented through the *NSW Heritage Manual*, the *Archaeological Assessment Guidelines*[17] and the document *Assessing Significance for Historical Archaeological Sites and 'Relics'*.[18]

If an item meets one of the seven heritage criteria and retains the integrity of its key attributes, it can be considered to have heritage significance (see Table 2). The significance of an item or potential archaeological site can then be assessed as being of local or State significance. If a potential archaeological resource does not reach the local or state significance threshold, then it is not classified as a relic under the *Heritage Act*.

'State heritage significance', in relation to a place, building, work, relic, moveable object or precinct, means significance to the State in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.

'Local heritage significance', in relation to a place, building, work, relic, moveable object or precinct, means significance to an area in relation to the historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic value of the item.[19]

Table 2. NSW heritage assessment criteria

Criteria	Description
A – Historical Significance	An item is important in the course or pattern of the local area's cultural or natural history.
B – Associative Significance	An item has strong or special associations with the life or works of a person, or group of persons, of importance in the local area's cultural or natural history.
C – Aesthetic or Technical Significance	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in the local area.
D – Social Significance	An item has strong or special association with a particular community or cultural group in the local area for social, cultural or spiritual reasons.
E – Research Potential	An item has potential to yield information that will contribute to an understanding of the local area's cultural or natural history.
F – Rarity	An item possesses uncommon, rare or endangered aspects of the local area's cultural or natural history.

[17] NSW Heritage Office 1996, 25-27.
[18] NSW Heritage Branch 2009.
[19] This section is an extract based on the Heritage Office Assessing Significance for Historical Archaeological Sites and Relics 2009:6.

Criteria	Description
G - Representativeness	An item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places of cultural or natural environments (or the cultural or natural history of the local area).

Integrity

Integrity relates to whether all the attributes that convey heritage significance are extant within the subject site and not eroded or under threat[20]. Integrity is a measure of the wholeness and intactness of the place and its attributes. Examining the conditions of integrity, therefore requires assessing the extent to which the subject site or element:

a) includes all elements necessary to express its heritage significance;

b) is of adequate size to ensure the complete representation of the features and processes which convey the property's heritage significance;

c) suffers from adverse effects of development and/or neglect.

Table 3: Levels of Integrity

Level	Definition
High	The physical fabric of the property and/or its significant features is in good condition, and the impact of deterioration processes controlled. A significant proportion of the elements necessary to convey the totality of the heritage significance conveyed by the property is included[21].
Moderate	The physical fabric of the property and/or its significant features have undergone some modifications. The changes may be reversible.
Low	The physical fabric of the property and/or its significant features have undergone substantial modifications and the original is irretrievable
N/A	Modern and / or intrusive fabric
Unknown	Elements that cannot be evaluated (i.e.. natural ventilation systems where their continued operation cannot be determined, fabric that cannot be inspected)

[20] Guidance on Heritage Impact Assessments for Cultural World Heritage Properties, ICOMOS 2011, p10.
[21].Sheridan Burke, The long and winding road: a challenge to ICOMOS members, in *Changing World, Changing Views of Heritage: heritage and social change* ICOMOS, 2010

5.2 Existing heritage assessments

5.2.1 Statement of Significance

5.2.1.1 Avon Dam CMP 2019 Statement of Significance

As of the preparation of this report, there are two extant Statements of Significance for the Avon Dam site. The most recent is quoted here from the 2019 conservation management plan (CMP) prepared by Extent, which is replicated in the S170 listing for Avon Dam on the State Heritage Inventory:

Avon Dam has STATE heritage significance. This significance is largely embodied in: the dam wall, inlet and outlet system and water body; the architectural detailing of the dam wall and outlet towers; evidence of the construction phase such as terraces and remnant buildings; the recreational landscaping; and the natural bushland setting.

Avon Dam is the third of the four water supply dams in the Metropolitan Catchment constructed between 1903 and 1936 to provide a secure water supply to satisfy the demands of industrial, commercial and residential development of metropolitan Sydney up to c.1960. It derives some of its significance as a component of the Upper Nepean Scheme.

Albeit significantly modified in the 1970s with a rockfill embankment, the foundation and wall drainage systems, the Neo-Egyptian architectural expression of the crest and valve houses and pylons, screen tower and crest road collectively continue to be integral elements of this Inter-War era high, curved, cyclopean gravity dam. As such, it is an excellent representative example of this dam construction type in NSW.

The dam at the time of its construction held the largest area of impounded water in the Sydney water supply system and at 200 feet, (61 metres) high from foundation level, was the second highest dam in New South Wales at the time. It is part of a group of like structures (the Metropolitan Dams) which are the State's largest and most intact ensemble of large dams completed prior to the Snowy Mountains HydroElectricity scheme.

The dam contains in-situ items of Inter-War era water delivery technologies developed by the Public Works Department, such as lengths of cast iron discharge pipes, emergency roller gates, and penstocks and hydraulic operating system, and the concept of dual level discharge which in consideration of their scale and integrity are rare examples of their types. The scour outlet roller emergency gate arrangement is only the example of its kind.

The site of the Avon Dam contains remnants of the construction platforms and roadways blasted out of the hillside for plant and machinery, the site of the township specifically established for the construction of the dam, a purpose built road of access cut through the valley of the Nepean River, and a staff residential precinct inclusive of an original Public Works Department's cottage that collectively continue to evoke through ongoing landscape management the era of the dam's construction to the contemporary viewer. The Avon Dam site contains areas which with archaeological examination may reveal new information about the construction era of the dam and subsequent early beautification works.

The spillway of the Dam dramatically cut though the saddle of the hillside is the earliest and largest example of such design in New South Wales. The scale of this undertaking in its depth and width continues to impress the contemporary viewer.

The setting of the dam within the native bushland of the catchment is one of the most attractive of the Metropolitan Dams. The dam is a landmark that has engendered beautification works undertaken in the 1920s and again in the 1960s for the general visiting public through the picnic areas and for the management hierarchy of the Water Board in the former Official Quarters (holiday cottage). The mid twentieth century landscaping is the most complex and intact of any scheme surviving at the metropolitan dam sites and possibly in NSW.[22]

5.2.1.2 Avon Dam SHR Statement of Significance

Avon Dam is also listed on the SHR; the following significance summary is from State Heritage Inventory listing card for the item.[23]

The Avon Dam was the third and the largest of the four water supply dams built as part of the development of the Upper Nepean Water Supply Scheme, one of the most important engineering works and items of public infrastructure in Australia, and is still the second largest of all the NSW water supply dams in terms of storage capacity. It was designed by the NSW Public Works Department under the direction of one of Australia's leading water supply engineers, E.M. De Burgh. The completion of the Avon Dam was a significant step in the continuing process of providing a reliable water supply for Sydney and surrounding areas as part of the Upper Nepean Scheme. Even by the international standards of the time, Avon was a high dam with a large impoundment of water and was a significant work of engineering in its day. It continues to play an important role as the major source of supply for the Wollongong, Port Kembla and surrounding towns and areas.

Additionally, the Avon Dam is a handsome, well proportioned structure with strong Egyptian style architectural character which complements the monumental nature of the structure and its attractive natural surroundings.

The roadway was constructed prior to the Dam between 1918 and 1921, and was used to transport all materials, stores and labour and significantly provided the sole route of transportation, other dam sites relying on a combination of road, tram or ropeway, and continues to be used as the main access to the present time.

The Avon Dam includes a range of ancillary structures which form components of the overall site. One building is believed to be the original Residential Engineers residence and is a fine example of an Interwar Bungalow. The other residential buildings associated with the dam are relatively modern replacements for the original set of houses, but are representative of their type.

The grounds associated with the Avon Dam are of considerable aesthetic and social value.

They contain an important, substantially intact interwar landscape design - including ornamental ponds, grottoes and rustic picnic structures - particularly

[22] Extent Heritage; *Avon Dam Site Conservation Management Plan*, 2019
[23] https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=5051468

incorporating various Egyptian Revival references to compliment the thematic treatment of the architecture associated with the main dam structures. The immediate dam area is of distinction as a scenic landscape.

Both Statements of Significance have been used to inform the assessment of impacts provided in this SoHI. The heritage significance of the Avon Dam has been previously assessed against the NSW heritage significance criteria.[24] The assessment has been included below in Section 5.2.2.

5.2.2 Assessment of Significance

5.2.2.1 Avon Dam CMP 2019 Assessment of Significance

The following assessment of significance has been extracted from the *Avon Dam Conservation Management Plan*, 2019 prepared by Extent Heritage.[25] This assessment of significance has been replicated in the WaterNSW s170 listing for the heritage item. All text extracted is in italics, any additional text by Artefact is in plain font.

Table 4. Heritage significance assessment for Avon Dam

Criteria	Discussion
A) Historical Significance	*Avon Dam is part of the Upper Nepean Scheme and derives some of its significance from its association with the Scheme, which is itself of State heritage significance. The Scheme was developed from 1888 as the major water supply for Sydney. Initially a run of rivers into the Upper Canal and Prospect Reservoir, the storage capacity of the Scheme was fully developed through the construction of four major dams between 1903 and 1936. Avon Dam is the third of these dams to have been completed. The Upper Nepean Scheme continues to supply the regions of Sydney and the Illawarra as originally designed, with Avon Dam providing a supply to the Illawarra region through the Upper Avon water pumping station.* *In conjunction with the completion of Cordeaux Dam in 1926, the impounded water of the Avon Catchment Area provided one of the major sources of water for domestic and industrial consumption in metropolitan Sydney, the largest city in New South Wales. In providing water for metropolitan Sydney during this era, the dam, in ensuring security of supply, contributed to the extensive residential, commercial and industrial development of Sydney during the 1920s and 1930s.* *The landscaping of the former construction terraces for recreational facilities continues to demonstrate the beautification of dam sites in NSW in the early to mid twentieth century and the emphasis on visitor access to and appreciation of major government engineering works. The remains of the construction workers camp in the form of roads, terracing and other archaeological features, provide tangible evidence of the construction period of the site's history and the lives of dam construction workers in NSW in the early twentieth century. The remnants of the former construction camp demonstrate a practice of on site accommodation for construction workers and their families.* *Avon Dam has STATE heritage significance under this criterion. This significance is largely embodied in: the dam wall, inlet and outlet system and water body; and the recreational landscaping.*
B) Associative Significance	*The design and construction of Avon Dam was undertaken by the Water Supply and Sewerage Branch of the New South Wales Public Works Department. The construction of the dam drew upon the knowledge and experience of a number of*

[24] This information can be accessed online via the Office of Environment & Heritage, State Heritage Inventory.
[25] Extent Heritage, *Avon Dam Site Conservation Management Plan Update,* 2019, pp. 7-12

Criteria	Discussion
	the engineers employed in the Branch at the time, including Ernest M. de Burgh (engineer-in-chief). The successful completion of the dam and its continuation of use as a water supply dam are a lasting testament to the professional capabilities of the Federation/Inter War era generation of engineers of the Public Works Department. *The former official quarters at Avon Dam has associations with past identities of the former Water Board. The tract of West Australian gum trees situated to the north west of the former official quarters also has associations with former Board members, having been planted by members of the Water Board in 1928. These associations are important because the Water Board was one of the major government departments in New South Wales in regard to its economic power and political influence. Its development of water infrastructure had a major influence over settlement and development in NSW throughout the late nineteenth and twentieth centuries.* *In a local context, the construction of Avon Dam between the years 1918 and 1927 necessitated the employment of a large body of labourers and tradesmen who lived at the construction sites with their families. The number of residents at Avon was in the hundreds, a number which represents a major influx to the local, predominantly rural, population of the local area. The road of access to the dam was constructed in part by the labour of returned soldiers of the Australian Imperial Force.* *Avon Dam has LOCAL heritage significance under this criterion. This significance is largely embodied in: the former official quarters; commemorative plaques and landscaping; staff quarters and the line of the road of access..*
C) Aesthetic Significance	*The design and technologies used in the construction of the dam are representative of methods of dam construction and water supply technology practised by the Public Works Department of New South Wales at the time. The cyclopean masonry of the dam is an excellent and early example of gravity dam construction in the Inter War era incorporating: inspection galleries; contraction joints; foundation drainage system; double level discharge; penstock gates; and roller gates which collectively demonstrate the principal characteristics of the state of development of this technology at the time.* *The wall of Avon Dam is an engineering work imbued with a sense of high aesthetic value expressed through the long curved wall set within the steep valley of the Avon River. The design and finishes of the crest house, entry pylons and lower valve house in the Inter War Egyptian style were undertaken by the Government Architects Branch of the Public Works Department, at that time headed by George McCrae. The architectural detailing of the superstructures evokes a romanticised vision of the 'Ancient Near East' at a time when many Australians had first-hand experience of the area through military service, and through knowledge of archaeological finds reported in the popular press.* *The dam is set within the valley of the Avon River. Upstream of the dam wall, this setting is characterised by the broad expanse of the pool of water bordered by the crests of the valley sides. Downstream of the dam wall the setting is characterised by steeper inclines that graduate into the river gorge created. This topography, at times of high water level, imparts a picturesque scene when viewed from selective vantage points above and on the dam wall.* *The landscaping of the upper and lower picnic grounds exhibits a high level of design awareness through its planning, evolution and association with the Botanic Gardens in the original layout and selection of species. The subsequent development of the landscaping through the 1960s exhibits a degree of original design and approach, particularly the circular ponds adjacent to the dam wall and the terrace paved with water features in the Upper Picnic area, which are of considerable note.* *Avon Dam has STATE heritage significance under this criterion. This significance is largely embodied in: the dam wall, inlet and outlet system; the natural setting of the dam wall and the recreational landscaping.*

Criteria	Discussion
D) Social Significance	*The social significance of the dam has not been formally assessed. However, the dam and grounds are recognised by:* ▪ *the National Trust of Australia (NSW), as being a place which is part of the cultural environment of Australia, which has aesthetic, historical, architectural, archaeological, scientific, social significance for future generations, as well as for the present community of New South Wales. the Heritage Council of NSW, as a place which is of significance to NSW in relation to its historical, scientific, cultural, social, archaeological, natural and aesthetic values.* ▪ *Wingecarribee Shire Council as being part of the historic built environment of the local area.* *The grounds of the Avon Dam have also provided a centre of recreational amenity for the region for a considerable period of time (from c1928). The picnic and lookout areas of the dam are a tourist destination in the local area.*
E) Research Potential	*Apart from the technical information about dam construction and the development of water supply technology that are embodied in the site, the site is also likely to have archaeological potential associated primarily with the construction phase of the dam. The terraces and platforms adjoining the dam abutments demarcate the location of plant and equipment used in the construction of the dam and a range of building and equipment footings as well as services are known to remain in these areas.* *The Upper Picnic Area is likely to contain evidence associated with the construction camp that is not available in other sources.* *The grounds of the dam retain numerous tree plantings undertaken from the time of the completion of the dam in 1928. Collectively, the diversity of these trees presents a good record of past horticultural practices and attitudes to the dam landscaping.* *The catchment area, being relatively untouched bushland in close proximity to a major urban area, has a high potential for further research into natural ecosystems.* *Avon Dam is likely to have LOCAL heritage significance under this criterion. This significance is largely embodied in: potential and known remnants associated with construction contained in the construction terraces and the areas occupied by the former construction village; and the remnant historic plantings on the site.*
F) Rarity	*Avon Dam is one of only three dams in NSW which incorporate extensive Inter War Egyptian architectural detailing. Avon Dam is, however, unique as it also retains remnant landscape features that continue to evoke the imagery of an Egyptian Revival landscape.* *The Avon Dam site contains the most elaborate and intact mid-twentieth century recreational landscape of any dam site in the Sydney region and possibly in NSW.* *Avon Dam is one of two dams in NSW which incorporate pedestrian and vehicular entry pavilions to the crest wall.* *The crest and valve houses and inlet works retain original ironwork and machinery such as the roller gates and penstock gates and operating mechanism which represent a substantial repository of water supply delivery technology for the era.* *The spillway channel was the largest in terms of depth and width constructed up to that date within the Sydney metropolitan area.* *In the local context, the purpose built road of access to the dam wall from the railhead at Bargo is unique within the context of the Metropolitan Dams in being the principal means by which all general supplies, men and raw materials were transported during the construction process.*

Criteria	Discussion
	The dam wall retains evidence for a scour outlet operating system which was unique to Avon Dam. *Avon Dam has STATE heritage significance under this criterion. This significance is largely embodied in: the dam wall and its architectural detailing; the inlet and outlet system; the spillway; and the recreational landscaping.*
G) Representativeness	*Avon Dam is an outstanding representative of a type of dam (cyclopean masonry gravity dam) constructed in New South Wales by the Water Supply and Sewerage Branch of the Public Works Department during the first half of the twentieth century.* *Key representative attributes of the dam's design and construction include: the use of Cyclopean masonry bedded in sandstone concrete; use of blue metal concrete in facing the upstream face; use of sandstone concrete in facing the downstream face; use of a spillway set away from the gravity wall; lower valve/crest houses attractively designed and finished to a high standard; the use of an array of upstream intakes to regulate the quality of water supply; the internal inspection galleries; the foundation drainage system; the contraction joints; and the internal drainage system.* *The construction technologies used at Avon Dam are representative of dams constructed in New South Wales through the first half of the twentieth century by the Public Works Department. Key representative attributes of the dam's construction techniques include the use of cableways, the building of temporary camps to house labourers and tradesmen, building of permanent cottages to house salaried staff, the construction of terrace platforms to house plant and machinery, mechanisation of concrete production, the construction of a purpose built road of access to transport men, supplies and materials from the nearest railhead to the construction site, the building of permanent infrastructure such as water supply for plant and men and houses, and the use of electricity to power plant and equipment.* *The upgrading works to the spillway and dam wall with the compacted rock embankment and spillway weir re-design, completed in 1971 to make the dam meet modern safety requirements, are representative of engineering practice of the day.* *The upgrading of the valves within the dam wall and ancillary monitoring and operating equipment is representative of modern dam safe operating practice.* *The rehabilitation of tracts of land scarred in the construction processes employed at Avon Dam through beautification works is representative of practices undertaken at other dams throughout New South Wales. Key representative attributes of this practice include utilising the former camp as a picnic area, utilising the former terraced construction platforms as picnic areas and lookouts, and utilising the former construction roads for vehicular access to the dam site and dam wall.* *The practice of ongoing maintenance of the wall after completion through resident staff and workshop facilities is representative of procedures undertaken at other dams and weirs constructed in New South Wales.* *The provision of public amenity at the dam site is representative of the use of large water supply and irrigation dams in New South Wales as places for recreation by the greater community.* *Avon Dam has STATE heritage significance under this criterion. This significance is largely embodied in: the dam wall and its architectural detailing; the inlet and outlet system; the spillway; and the recreational landscaping.*

5.2.2.2 Avon Dam SHR Assessment of Significance

The following table contains the assessment of significant values extracted from the SHR listing for the Avon Dam heritage item (SHR no. 01358).

Table 5. Avon Dam SHR

Criteria	Description
	Avon Dam is constructed within the Upper Nepean Catchment Area which was developed with the completion of the Cataract and Nepean tunnels in 1888 as the fourth source of water supply for Sydney. The potential of the Upper Nepean Catchment Area to supply water was fully developed through the construction of four major dams between 1903 and 1936. Avon Dam is the third of these dams to have been completed. The Upper Nepean Catchment Area continues to supply the regions of Sydney and the Illawarra, with Avon Dam providing a supply to the Illawarra region through the Upper Avon water pumping station.
A – Historical Significance	*Avon Dam was the fifth of the major water supply/irrigation dams constructed in NSW during the first half of the twentieth century. The design and technologies used in the construction of the dam are representative of methods developed by the Public Works Department of NSW at the time.* *In conjunction with the completion of Cordeaux Dam in 1926, the impounded water of the Avon Catchment Area provided one of the major sources of water for domestic and industrial consumption in metropolitan Sydney, the largest city in NSW. In providing water for metropolitan Sydney during this era the dam, in ensuring security of supply, contributed to the extensive residential, commercial and industrial development of Sydney during the 1920's and 1930s.*
B – Associative Significance	*The design and construction of Avon Dam was undertaken by the Water Supply and Sewerage Branch of the NSW Public Works Department. The construction of the dam drew upon the knowledge and experience of a number of the engineers employed in the Branch at the time including Ernest M. De Burgh (engineer in chief), the successful completion of the dam and its continuation of use as a water supply dam are a lasting testament to the professional capabilities of the Federation/Inter War era generation of engineers of the Public Works Department.* *The former official quarters at Avon Dam, has provided for a number of generations, a holiday type residence for the board members of the Water Board. The buildings and grounds have some associations with past identities of the board, which was until comparatively recently one of the major government departments in NSW in regard to its economic and political influence.* *The tract of West Australian gum trees situated to the north west of the former official quarters was planted out by board members of the Water Board in 1928. The trees have particular memorial associations with past identities of the Board.*
C – Aesthetic or Technical Significance	*The wall of Avon Dam is an engineering work imbued with a sense of high aesthetic value expressed through the long curved wall set within the steep valley of the Avon River.* *The design and finishes of the crest house, entry pylons and lower valve house in the Inter War Egyptian style were undertaken by the Government Architects Branch of the Public Works Department at that time headed by George McCrae. The architectural detailing of the superstructures evokes a romanticised vision of the 'Ancient Near East' at a time when many Australians had first hand experience of the area through military service, and through knowledge of archaeological finds reported in the popular press.* *The dam is set within the valley of the Avon River. Upstream of the dam wall this setting is characterised by the broad expanse of the pool of water bordered by the crests of the valley sides. Downstream of the dam wall the setting is characterised by the steeper inclines that graduate into the river gorge. The topography, at times of high*

Criteria	Description
	water level, imparts a picturesque scene when viewed from selective vantage points above and on the dam wall. *The former resident officer's cottage erected at the time of construction is an excellent, albeit much modified, example of the high standard of accommodation provided for resident Public Works Department for its senior staff.* *The landscaping of its lower picnic grounds exhibit a high level of design awareness through its planning, evolution and association with the Botanic Gardens on the original layout and selection of species.*
D – Social Significance	*The dam and grounds are recognised by the National Trust of Australia (NSW) as being a place which is part of the cultural environment of Australia which has aesthetic, historical, architectural, archaeological, scientific and social significance for future generations, as well as for the present community of NSW.* *The dam and grounds are recognised by the Heritage Council of NSW as a place which is of significance to NSW in relation to its historical, scientific, cultural, social, archaeological, natural and aesthetic values.*
E – Research Potential	*The cyclopean masonry of the dam is an excellent and early example of gravity dam construction in the Inter War era incorporating inspection galleries, contraction, joints and foundation drainage system which collectively demonstrate the principal characteristics of the state development of this technology at the time.* *The double level discharge, penstock gates and roller gates collectively demonstrate the principal characteristics of the state development* *of this technology at the time. The terraces and platforms adjoining the dam abutments demarcate the location of plant and equipment used to in the construction of the dam, in particular the location of the cableway head towers, the quarry railway terrace, the motor vehicle garage, and the electricity substation.* *The grounds of the dam retain numerous tree plantings undertaken from the time of the completion of the dam in 1928. Collectively the diversity of these trees present a good record of past horticultural practices.* *The catchment area in being relatively untouched bushland in close proximity to a major urban area has a high potential for further* *research into natural ecosystems.*
F – Rarity	*The basin of the reservoir of Avon Dam is the area of the largest impoundment within the Upper Nepean Catchment Area.* *Avon Dam is one of three dams in NSW which incorporate extensive Inter War Egyptian Architectural detailing. Avon Dam is however unique in always retaining remnant landscape features that continues to evoke the imagery of an Egyptian revival landscape.* *Avon Dam is one of two dams in NSW which incorporate pedestrian and vehicular entry pavilions to the crest wall.* *The crest and valve houses and inlet works retain original ironwork and machinery such as the roller gates and penstock gates and operating mechanism which represent a substantial repository of water supply delivery technology of the era.* *The spillway channel was the largest in terms of the depth and width constructed up to that date within the Sydney metropolitan area.* *The purpose built road of access to the dam wall from the railhead at Bargo is unique within the context of the four metropolitan Dams in being the principal means by which*

Criteria	Description
	the general supplies, men and raw materials were transported during the construction process. The dam wall retains evidence for a scour outlet operating system which was unique to Avon Dam. *The dam incorporates cyclopean masonry which is a construction technique unique to the Metropolitan Dams in Australia*
	Avon Dam is representative of a type of dam (cyclopean masonry gravity dam) constructed in NSW by the Water Supply and sewerage Branch of the Public Works department during the first half of the twentieth century. Key representative attributes of the dam's design and construction include the use of cyclopean masonry bedded in sandstone concrete, use of blue metal concrete in facing the upstream face, use of sandstone concrete in the facing of the downstream face, use of a spillway set away from the gravity wall, lower valve/crest house attractively designed and finished to a high standard, the use of an array of upstream intakes to regulate the quality of water supply, the internal inspection galleries, the foundation drainage system, the contraction joints, and the internal drainage system. *The upgrading works to the spillway and dam wall with the compacted rock embankment and spill weir redesign, competed in 1971 to* *make the dam meet modern safety requirements, are representative of engineering practice of the day. The upgrading of the valves within the dam wall and ancillary monitoring and operating equipment is representative of modern dam safe operating practice.*
G - Representativeness	*The construction technologies used at Avon Dam are representative of dams constructed in NSW through the first half of the twentieth century by the Public Works Department. Key representative attributes of the dam's construction techniques include the use of cableways, the building of temporary camps to house labourers and tradesmen, building of permanent cottages to house salaried staff, the construction of terrace platforms to house plant and machinery, mechanisation of concrete production, the construction of a purpose built road of access to transport men, supplies and materials from the nearest railhead to the construction sites, the building of permanent infrastructure such as water supply for plant and men and houses, the use of electricity to power plant and equipment.* *The rehabilitation of tracts of scarred in the construction process employed at Avon Dam through beautification works is representative of practices undertaken at other dams throughout NSW. Key representative attributes of this practice include utilising the former camp as a picnic area, utilising the former terraced construction platforms as picnic areas and lookouts, and utilising the former construction roads for vehicular access to the dam site and dam wall.* *The practice of ongoing maintenance of the wall after completion through resident staff and workshop facilities is representative of procedures undertaken at other dams and weirs constructed in NSW.*[26]

5.2.3 Grading of Significant Elements

Individual elements of the Avon Dam heritage item and associated elements have been assessed and a level of significance has been applied. This detailed assessment is provided in Table 6 below to enable decisions on the future conservation and development of the place.

[26] Heritage NSW SHI, *Avon Dam*, accessed online via https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=5051468

Table 6. Standard grades of cultural significance

Id.	Level	Justification	Status
E	Exceptional	Where an individual space, element, tree or shrub is assessed as making a rare or outstanding contribution to the overall significance of the place. Spaces, elements or fabric exhibit a high degree of intactness and quality. Minor alterations or degradation may be evident, but does not detract from the overall significance of the place. Demolition/removal of the element would diminish the heritage significance of the place.	Fulfils criteria for local or state listings.
H	High	Where an individual space, element, tree or shrub is assessed as making considerable contribution to the overall significance of the place. Spaces, elements or fabric exhibit a considerable degree of intactness and were originally of substantial quality. Considerable alteration may have been undertaken, which may alter the presentation and completeness, but does not detract substantially from the overall significance of the place. Demolition/removal of the element would diminish the heritage significance of the place.	Fulfils criteria for local or state listings.
M	Moderate	Where an individual space, element, tree or shrub is assessed as making a moderate contribution to the overall significance of the place. Original spaces, elements or fabric may exhibit considerable alteration and/or degradation which detracts from the overall significance of the place. Original space, elements or fabric which were of some intrinsic quality, but are relatively intact may be included. Elements with little heritage value but contribute to the overall cumulative significance of the place may also be included. New elements of high-quality design and aesthetic value may be considered to contribute to the significance of the place. Demolition/removal of the element may diminish the heritage significance of the place. Elements or spaces can be altered or adaptively reused.	Fulfils criteria for local or state listings.
L	Little	Where an individual space, element, tree or shrub is assessed as making a minor contribution to the overall significance of the place, particularly compared with other elements. Original elements may exhibit extensive alterations or degradations which impact their significance and ability to interpret. New elements of little intrinsic quality or aesthetic value may be considered in this category. Demolition/removal of the element would not diminish the heritage significance of the place. Elements or spaces can be altered or adaptively reused.	Does not fulfil criteria for local or state listings.
I	Intrusive	Where an individual space, element, tree or shrub is assessed as detracting from the appreciation and overall significance of a place. The element may be adversely affecting or obscuring other significant areas, elements or items.	Does not fulfil criteria for local or state listings.

Id. Level	Justification	Status
	Demolition/removal of the element is recommended.	

Table 7 below lists the relevant elements of Avon Dam Road in the vicinity of the proposed works and provides a significance grading for each. The gradings of significance have been informed by the historical overview, significance assessments, and physical descriptions that have been prepared for Avon Dam.

Table 7: Grading of Significance for Avon Dam

Component	Assessment	Grading
Avon Dam Road	Avon Dam Road was constructed as a macadam road between 1918 and 1921, as a preliminary piece of infrastructure in the lead-up to the construction of the Avon Dam. It was in fact the first recorded European development in the area. An important source of labour for the road came from WWI veterans returning from Europe. Avon Dam Road is unique in that it provided the sole means of access to the Avon Dam construction site, whereas the other dams constructed as part of the Upper Nepean Scheme made use of differing kinds of infrastructure to transport materials to and from their construction sites. It has been since been continuously used by visitors to the area. The road surface has been modified over the years, having been resealed in asphalt in 1928 and 1929, and having undergone road safety upgrades in 2005. However, the subsurface construction of the road is most likely still extant. Its alignment has largely remained unchanged since its original construction in 1918-1921. The road was initially fenced, however the original slab and post fencing has since been replaced with precast concrete or steel posts and wires. The early or original drainage of the road is still present in places (Figure 30), and likely constitutes an element of moderate significance to the historic heritage values of the Avon Dam item.	**Integrity: Moderate** *High*: Road alignment *Moderate:* Drainage infrastructure *Little:* Modern fencing; asphalt surface
Avon Dam Landscape	The landscape of the Avon Dam location is characterised by a broad expanse of water set in a hilly terrain featuring steeper inclines. The Upper and lower picnic grounds feature landscaping works that were undertaken as part of the remediation of the site following completion of the dam in 1927, as well as beautification of the site in 1960s. The surviving landscaping is some of the most intact and complex of any dam in NSW. Altogether, the natural setting in combination with the landscaping works serve to make the Avon Dam area a picturesque recreational site. The purpose-built Avon Dam Road serves as a feature of this landscape, as it winds through the hilly wooded terrain surrounding the dam.	**Integrity: High** *High:* Natural setting, Beautification landscaping, upper picnic grounds *Moderate:* Avon Dam Road alignment

Component	Assessment	Grading
Avon Dam and associated infrastructure	Avon Dam was one of four dams that were part of the Metropolitan Catchment, which were designed up substantially upgrade Sydney's water supply following a period of extended drought. Built from 1921 to 1927, substantial auxiliary infrastructure was also built to support its construction. It has been upgraded to ensure its long term safety and stability throughout the years, however the Egyptian-inspired architectural features that contribute to the dam's uniqueness are largely unchanged. Such infrastructure included the township housing the labour force, and numerous facilities including supply stores and machine shops. Most of these elements were demolished following completion of the dam in 1927. Visitors' facilities were constructed on site from 1927, and were expanded in the 1960s. These newer facilities are still extant, although they have been modified over time as part of maintenance, repair and upgrade works.	**Integrity: High** *High:* Neo-Egyptian architectural features; Avon Dam original fabric *Moderate:* Visitors' facilities

5.2.4 Significant views and vistas

The 2019 CMP identifies important sightlines to and from the dam wall and water body as being particularly significant to Avon Dam. Sightlines from the Lower Picnic Area and Lower Carpark to the waterbody, spillway, and wall are also noted in the CMP.[27]

[27] Extent, 2019, *Avon Dam CMP,* p. 28

6.0 ARCHAEOLOGICAL ASSESSMENT

6.1 Introduction

This section discusses the study area's potential to contain historical archaeological resources. The potential for the survival of archaeological remains is significantly affected by activities which may have caused ground disturbance. This assessment is therefore based on consideration of current ground conditions, and analysis of the historical development of the study area.

'Archaeological potential' refers to the likelihood that an area contains physical remains associated with an earlier phase of occupation, activity or development of that area. This is distinct from 'archaeological significance' and 'archaeological research potential'. These designations refer to the cultural value of potential archaeological remains and are the primary basis of the recommended management actions included in this document.

6.2 Archaeological potential

The archaeological potential of each site is presented in terms of the likelihood of the presence of archaeological remains, considering the land use history and previous impacts at the site. This evaluation is presented using the following grades of archaeological potential:

Table 8: Grading of archaeological potential

Grading	Rationale
Nil	No evidence of historical development or use, or where previous impacts would have removed all archaeological potential
Low	Research indicates little historical development, or where there have been substantial previous impacts, disturbance and truncation in locations where some archaeological remains such as deep subsurface features may survive
Moderate	Analysis demonstrates known historical development and some previous impacts, but it is likely that archaeological remains survive with some localised truncation and disturbance
High	Evidence of multiple phases of historical development and structures with minimal or localised twentieth century development impacts, and it is likely the archaeological resource would be largely intact

6.2.1 Land use summary

The following table summarises the archaeological potential of each area of the proposed works (identified as Map ID Sections as per Figure 33).

Table 9. Summary table of land use

Phase	Discussion
Phase 1 (1918-1928) Construction of the road and Avon Dam	• Helipad and Chlorine Treatment Plant Access Roads (Map ID Sections 3 and 4): o Area likely to have been vegetated with the possibility of occasional unformed tracks • Main Road and Compressor Access Roads (Map ID Sections 1 and 2): o Construction of Avon Dam Road 1918 through 1921 o Road is of a macadam design o Fenced with slab posts and rails o Avon Dam was constructed by 1927, along with ancillary construction facilities (largely demolished by 1928)
Phase 2 (1927-present) Operation and ongoing usage	• Helipad and Chlorine Treatment Plant Access Roads (Map ID Sections 3 and 4): o Vegetation clearance and construction of Helipad and Chlorine Plant • Main Road and Compressor Access Roads (Map ID Sections 1 and 2): o Road has been re-fenced in precast concrete post and wire, as well as steel post and wire o Road resealed in 1928, 1928; safety upgrades in 2005

6.2.2 Relevant archaeological investigations

Previous archaeological assessments are limited for Avon Dam. A brief summary of three are presented below for comparative analysis.

Reference	Summary
Extent Heritage Advisors (2019): Avon Dam Site Conservation Management Plan	Extent were engaged by WaterNSW in 2019 to finalise a draft CMP for the Avon Dam site. It was adopted as the guiding document for all future works at those areas of the site which are owned by WaterNSW. The document provides policies which include parameters for works in areas that may contain archaeological resources. It advises that such areas should be identified, and that below-ground works "follow existing service lines and/or are located within the area of the existing road network." This report satisfies the identification of archaeological resources requirement, while the proposed works adhere to the requirement that they remain within the existing road corridor.
Artefact Heritage and Environment (2015): Avon Dam HV Upgrade Statement of Non-Indigenous (Historic) Heritage Impact	Artefact have previously prepared a SoHI in 2015 which assessed proposed works associated with a different project in the Avon Dam catchment area. That report does offer some insight on the historical development of the general Avon Dam area. The archaeological assessment concluded that the Avon River catchment was undeveloped prior to the construction of the Avon Dam, and that there was nil-low potential for historical archaeological deposits predating the dam. The 2015 report did not directly address archaeological potential in the vicinity of Avon Dam for the phases following dam construction.

Reference	Summary
Artefact Heritage and Environment (2025): Greater Sydney Road Renewals Avon Dam Geotechnical Investigations Statement of Heritage Impact	Artefact were engaged to prepare a SoHI assessing the geotechnical investigations undertaken by Abergeldie in anticipation of the proposed roadworks assessed in this report. The geotechnical investigations were in the form of 11 boreholes excavated in and near the Avon Dam Road corridor, to a maximum depth of 1.5 metres. The former locations of these boreholes (illustrated in Figure 31) are entirely captured by the present study area, which divides the locations of proposed works between Map ID Sections 1 through 4 (illustrated in Figure 33). Given the similarity in locations between the previously assessed boreholes and the proposed roadworks, the archaeological potential assessed in the previous report largely corresponds to the assessment of archaeological potential for the present proposed works. The proposed works are outlined in Part 7.0 of this report. The previous SoHI found that there would likely be **minor adverse** impacts to archaeological deposits of local significance as a result of the boreholes. Specifically, boreholes in Map ID Section 1 (Main Road) and its intersection with Section 2 (Compressor Area Access Road) would likely encounter the original macadam road surface of the Avon Dam Road surface. Given the low research potential for such archaeological deposits, they were assessed as being unlikely to cause adverse impacts to archaeological resources. Furthermore, these impacts would be located away from areas of known archaeological sensitivity related to the construction of Avon Dam and its associated infrastructure (identified in Figure 32).

6.2.3 Assessment of historical archaeological potential

For ease of interpretation the archaeological potential is discussed below in terms of Map ID Sections (aligning with the terminology of Figure 33). Map ID Section 1 corresponds to the Main Road corridor, while Section 2 corresponds to the Compressor Area and access road. Section 3 corresponds to the Chlorine Treatment Plant access road, and Section 4 corresponds to the access road running south of the Helipad.

Map ID Section 1 and 2

Although Avon Dam Road has undergone works in the past, these have been limited to resealing, and safety upgrades. This would indicate that a substantial amount of the original subsurface construction of Avon Dam Road is likely still extant, including beneath the extant Main Road (Map ID Section 1) identified in Section 7.1, and its intersection with the Compressor Area access road (Section 2). The access road to the Compressor Area deviates from the alignment of the original Avon Dam Road, and is therefore unlikely to contain remains of the Macadam Road structure in areas closer to the Compressor. There is overall **moderate potential** to encounter the original macadam road fabric in Map ID Section 1 and its intersection with Section 2. The remaining surface of the Compressor Area Access Road (Map ID Section 2) does not appear to have ever been paved or sealed

As such, there is **moderate archaeological potential** associated with this area.

Map ID Section 3 and 4

Map ID Sections 3 and 4 are located west of the former workers camp area, and in an area that is likely to have been vegetated until the 1960s and 1970s when the area was cleared for construction of a Helipad, Chlorine Treatment Plant, and associated items. Due to the lack of evidence of activities associated with construction of Avon Dam in that area, it is assessed as demonstrating **nil-to-low** archaeological potential. The area of high archaeological potential (as identified in the 2003 and 2019 CMPs) is located east of the picnic area, at some distance from the proposed roadworks (Figure 32)

As such, there is **nil-to-low archaeological potential** associated with this area.

Figure 31. Overall map of the locations of the geotechnical survey boreholes previously assessed by Artefact. The red area corresponds to Map ID Sections 3 and 4; blue corresponds to Section 1, and yellow corresponds to Section 2 (Source: Abergeldie Complex Infrastructure, October 2024)

The graphic representation of the site's archaeological potential is presented in Figure 32; the base figure is extracted from the Avon Dam CMP prepared by Extent, with a study area overlay by Artefact.

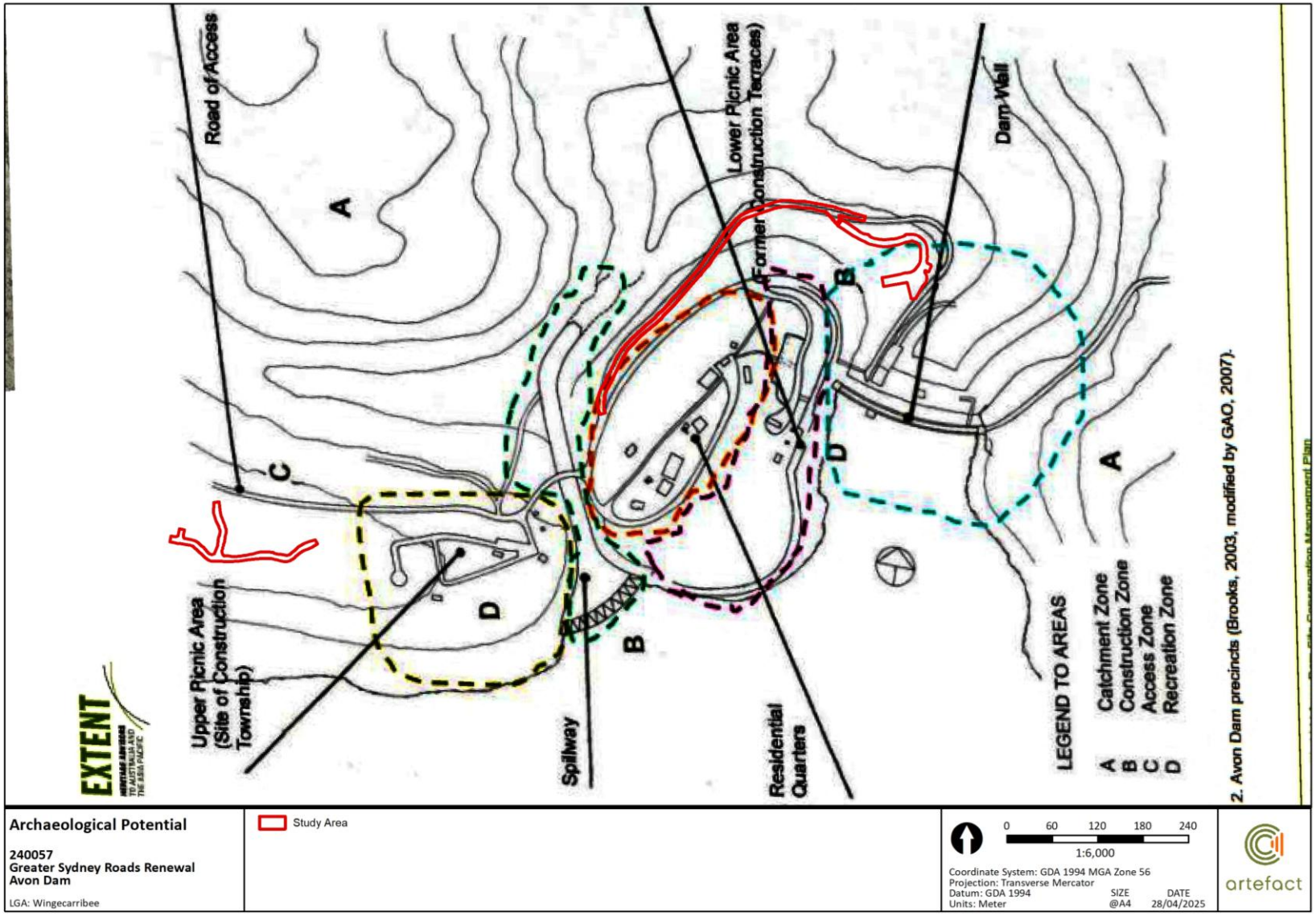

Figure 32: Archaeological potential map of the study areas (Source: Extent CMP, Artefact overlay).

6.3 Archaeological significance

The significance assessment of historical archaeological sites and items requires a specialised framework in order to consider the range of values associated with each site/item. This because of the challenges associated with the often-unknown nature and extent of buried archaeological remains and judgment is usually based on anticipated attributes.

To facilitate assessment of archaeological significance, the NSW Heritage Branch (now Heritage NSW) arranged the seven heritage criteria into four groups (see below). The value of archaeological sources primarily lies in their research potential or the ability to provide additional information about site/item that is not contained in historical records. The following significance assessment of the study area's potential archaeological remains has been carried out by using these criteria as outlined in the *Assessing Significance for Historical Archaeological Sites and 'Relics'*.NSW Heritage criteria for assessing significance related to archaeological sites and relics

6.3.1 Archaeological research potential (NSW Criterion E)

Previous assessments have concluded that there is a high potential for archaeological resources pertaining to the construction of the dam and later developments (particularly the construction of visitor facilities) in the vicinity of the Avon Dam. Such evidence of the dam's construction would likely be of State heritage significance.

Map ID Sections 3 and 4 are located in an area with **low** archaeological potential and, therefore, unlikely to reach the threshold for significance under Criterion E.

Map ID Sections 1 and 2 are along Avon Dam Road. Given the absence of development in the Avon River area prior to the construction of the road, it is likely that any archaeological evidence contained within the road corridor would be limited to road-building activities only. These archaeological deposits would likely be of **local significance.**

6.3.2 Association with individuals, events or groups of historical importance (Criteria A, B & D)

Map ID Sections 3 and 4 are not situated in an area identified as having been utilised for workers camps or other facilities during construction of Avon Dam. Should archaeological remains associated with Avon Dam construction be identified, these archaeological deposits would likely be of **local significance**.

The Avon Dam Road (Map ID Sections 1 and 2) was constructed specifically to facilitate the construction of Avon Dam and subsequent development of the area. In this sense, it is historically associated with the broader Upper Nepean Scheme, which was designed to improve the water storage facilities of Sydney following a period of drought. The employment of substantial numbers of WWI veterans returning from Europe creates a link between the Avon Dam Road and the historic trend of reintegrating former soldiers as productive members of society via the development of public works. These archaeological deposits would likely be of **local significance**.

6.3.3 Aesthetic or technical significance (Criterion C)

Map ID Sections 3 and 4 are not situated in an areas identified as having been utilised for workers camps or other facilities during construction of Avon Dam. Should archaeological remains associated with Avon Dam construction be identified, these archaeological deposits would likely be of **local significance**.

The Avon Dam Road is an integral part of the landscape of the Avon Dam heritage item. Though it has been superficially altered in the past (having been resealed in 1928, 1929, and having undergone road safety upgrades in 2005), the original subsurface construction of the road is likely still substantially intact. This would mean that there is potential for the road to provide evidence of the technical means by which early 20th century roads were constructed. However, it should be noted that such construction methods are already well understood at this time. These archaeological deposits would likely be of **local significance**.

6.3.4 Ability to demonstrate the past through archaeological remains (Criteria A, C, F & G)

As noted above, the Avon Dam Road corridor has the potential to demonstrate early-20th century road construction techniques; the broader Avon Dam area has high potential to contain archaeological evidence of the construction of the dam and ancillary infrastructure. There is furthermore historical evidence of early fencing for the road in the form of slab-posts and rails.

In the context of archaeological investigations, postholes are generally considered to be important sites of potential archaeological resources. In this instance, however, given that these particular fence posts were already extant when construction of the dam was completed, it is unlikely that they would contain evidence pertaining to the construction of the dam.

6.3.5 Assessment of archaeological significance

The proposed work areas at the Avon Dam site, part of the Metropolitan Dams system, offers limited archaeological research potential due to its historical use as an active work zone and ongoing maintenance activities. The primary archaeological elements likely to be present are remnants of early road infrastructure, such as macadam road surfaces, culverts, and kerbs. These elements, if discovered, would likely meet the threshold for local significance under the NSW Heritage Criteria, particularly in demonstrating past construction practices and community life.

Key archaeological themes at the site include insights into early 20th-century dam construction techniques and technologies, as well as the working conditions and daily lives of workers during construction. Additionally, evidence of past infrastructure and modifications to the landscape could inform the management of water supply and catchment areas.

From an analysis of the extant historical research, and the proposed locations of the road remediation works, it would appear that the works would be taking place away from archaeologically sensitive areas associated with the construction of the dam, such as the upper picnic area and the Dam itself (illustrated below in Figure 32). There is therefore **nil-to-low** potential to encounter archaeological deposits related to phases of the Dam's construction. There is **moderate** potential to encounter archaeological remains related to phases of the original macadam road surface.

6.4 Summary of historical archaeological potential and significance

This archaeological assessment has identified **nil** to **moderate** potential for historical archaeological remains of local significance. These remains are summarised in Table 10.

Table 10: Historical archaeological potential and significance

Map ID Section #	Phase	Archaeological potential	Archaeological significance
Map ID Sections 3 and 4	**Phase 1 (1918-1928)** Construction of the road and Avon Dam	Nil to low	If substantial archaeological remains are identified - local
	Phase 2 (1927-present) Operation and ongoing usage	Nil to low	If substantial archaeological remains are identified - local
Map ID Sections 1 and 2	**Phase 1 (1918-1928)** Construction of the road and Avon Dam	Moderate for original macadam road surface	Local
	Phase 2 (1927-present) Operation and ongoing usage	Nil-Low	Local

7.0 THE PROPOSED WORKS

7.1 The proposed works

The proposed works for Avon Dam Road which are assessed in this report include remediation works to the sealed and unsealed Compressor Area, Helipad, and Chlorine Water Treatment Plant roads. The study area is divided into four smaller sections in relation to the construction works along these roads. The indicative locations of the work areas have been illustrated in Figure 33 and Figure 44 and tabulated in Table 11.

Table 11: Avon Dam Construction Locations

Site	Location	Map ID (Figure 33)
Avon Dam	Main Road leading to Compressor Area access road	Section 1
	Access road to Compressor Area	Section 2
	Access road to Chlorine Treatment Plant	Section 3
	Access road to Helipad	Section 4

The proposed works are illustrated below in Figure 33 through Figure 48; they include:

- Road remediation and construction at all locations in Table 11, including sealed and unsealed roads
- Drainage establishment, rectification, or extension at all locations in Table 11, including surface and underground drainage structures
- A construction laydown/site shed area (location to TBC)
- All construction works associated with Drawings and required as per Detailed Design
- Main Road works include:
  - Main Road foundation establishment or rectification as per Civil Engineer's specifications
  - Cuts to a depth of between 0.41 metres and 0.18 metres along the centreline of the Main Road
  - Re-establishment and clearing of the blocked open table drain along the Main Road
  - Relevelling of the intersection between the Main Road and the Compressor Area access road
- Compressor Area works include:
  - Vegetation clearance along the Compressor Area access road
  - Establishment of an open table drainage along access road
  - Establishment of a road base layer on the prepared access road as per Civil Engineer's specifications, followed by a bitumen seal

    - Removal of poor-quality natural sub-grade soils, materials, and vegetation from the access road
    - Cutting of approximately 40 square metres of the rock outcrop along the west shoulder of the Compressor Area access road as part of the widening of the intersection of the access road and the Main Road
    - Lengthening of the cross drainage reinforced concrete pipe (RCP) to 16 metres at the intersection of the Main Road and Compressor Area access road (location illustrated below in Figure 43)
- Chlorine Treatment Plant and Helipad Area access road works include:
    - Upgrades to the existing dirt access roads
    - Establishment of open table drainage and construction of two underground cross drain culvert pipes
    - Removal of poor-quality natural sub-grade soils, materials, and vegetation from the access road
    - Establishment of a road base layer on the prepared access road as per Civil Engineer's specifications, followed by a bitumen seal

All works shall be completed in accordance with the following documents:

- Sydney Catchment Authority Road Management Manual
- WaterNSW Roads Asset Class Strategy
- WaterNSW signage manual

The proposal is documented in drawings prepared by Harryan Engineering Consulting and WaterNSW, issued on 15 April 2025 and 20 May 2025, that are extracted here and included at full size in Appendix A.

Figure 33: Section ID Map Markup - Avon Dam (Source: WaterNSW, *Greater Sydney Road Renewals Scope of Works Design and Construct, D2024/41172*, 2024).

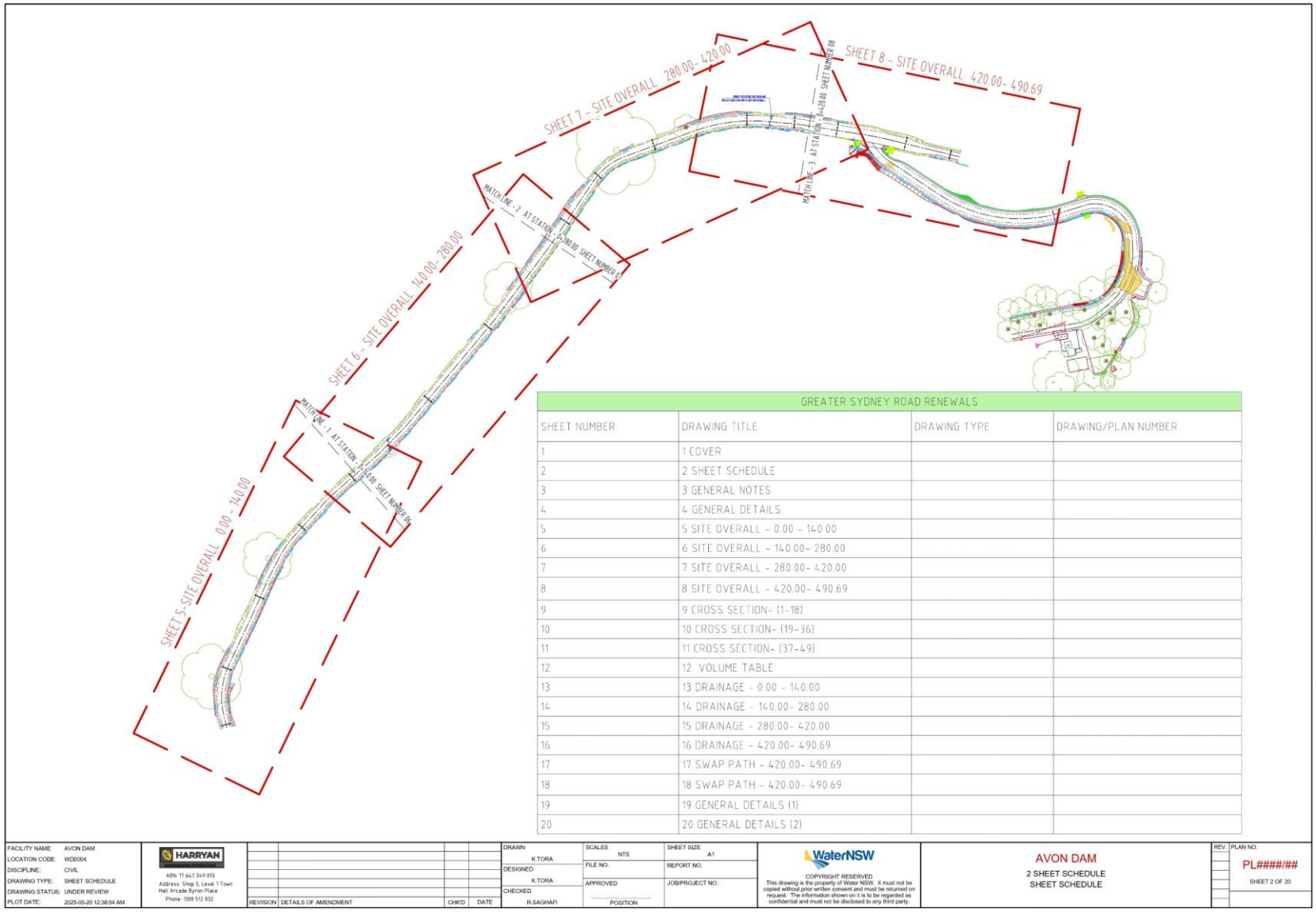

Figure 34. Map ID Section 1 plan (Source: Water NSW, May 2025

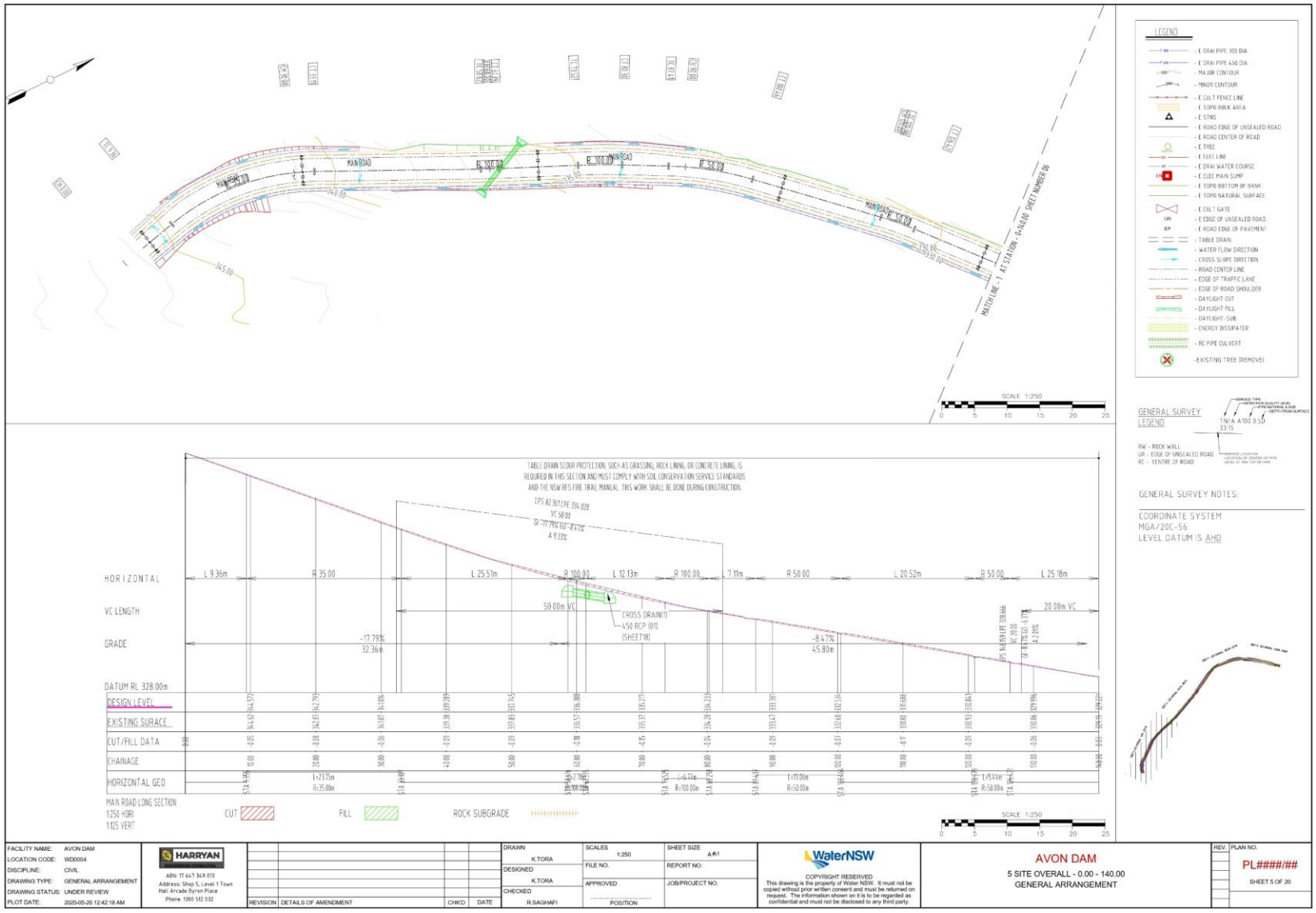

Figure 35. Map ID Section 1 (Main Road) proposed works overview Sheet 5 (Source: Water NSW, May 2025)

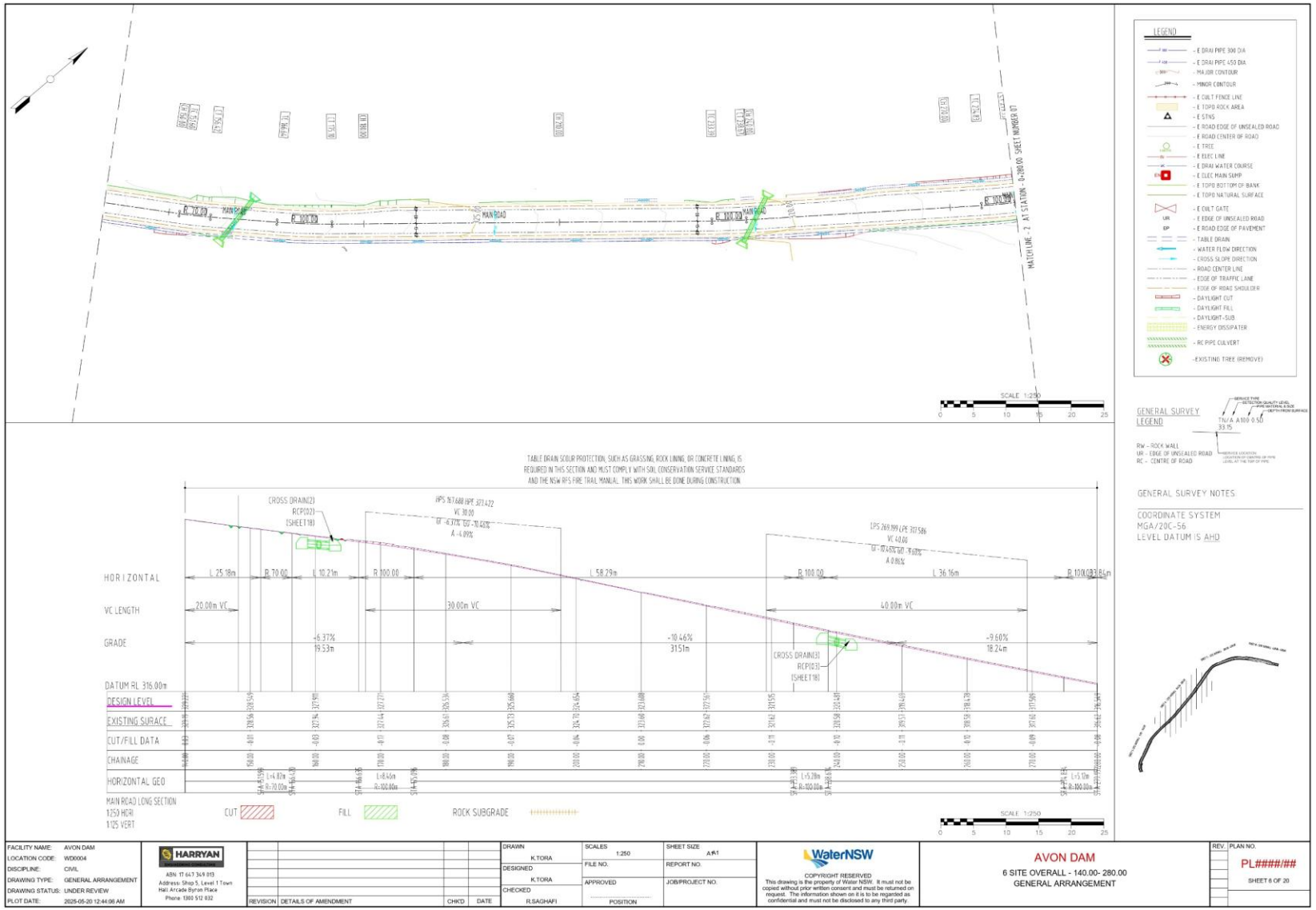

Figure 36. Map ID Section 1 (Main Road) proposed works overview Sheet 6 (Source: Water NSW, May 2025)

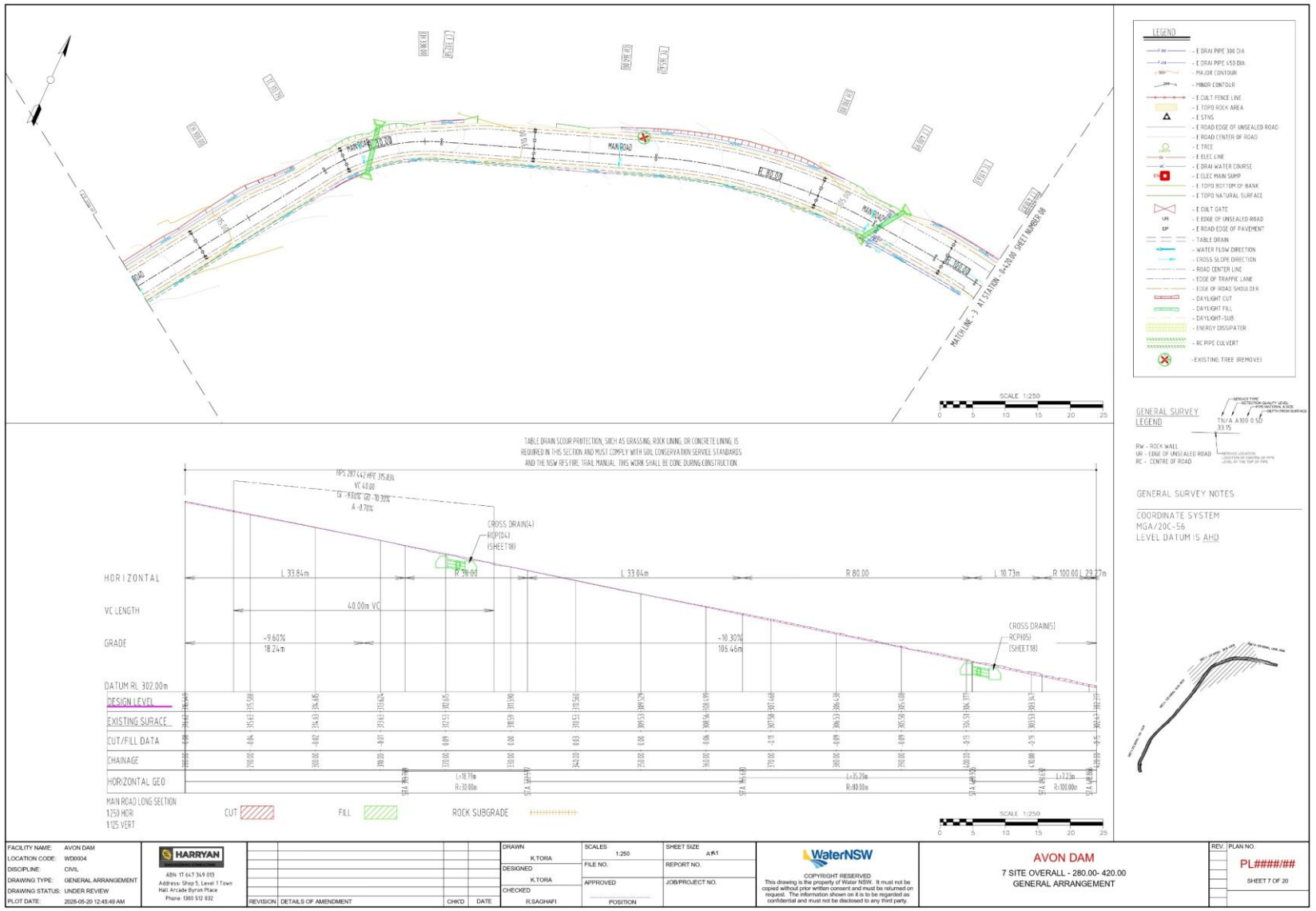

Figure 37. Map ID Section 1 (Main Road) proposed works overview Sheet 7 (Source: Water NSW, May 2025)

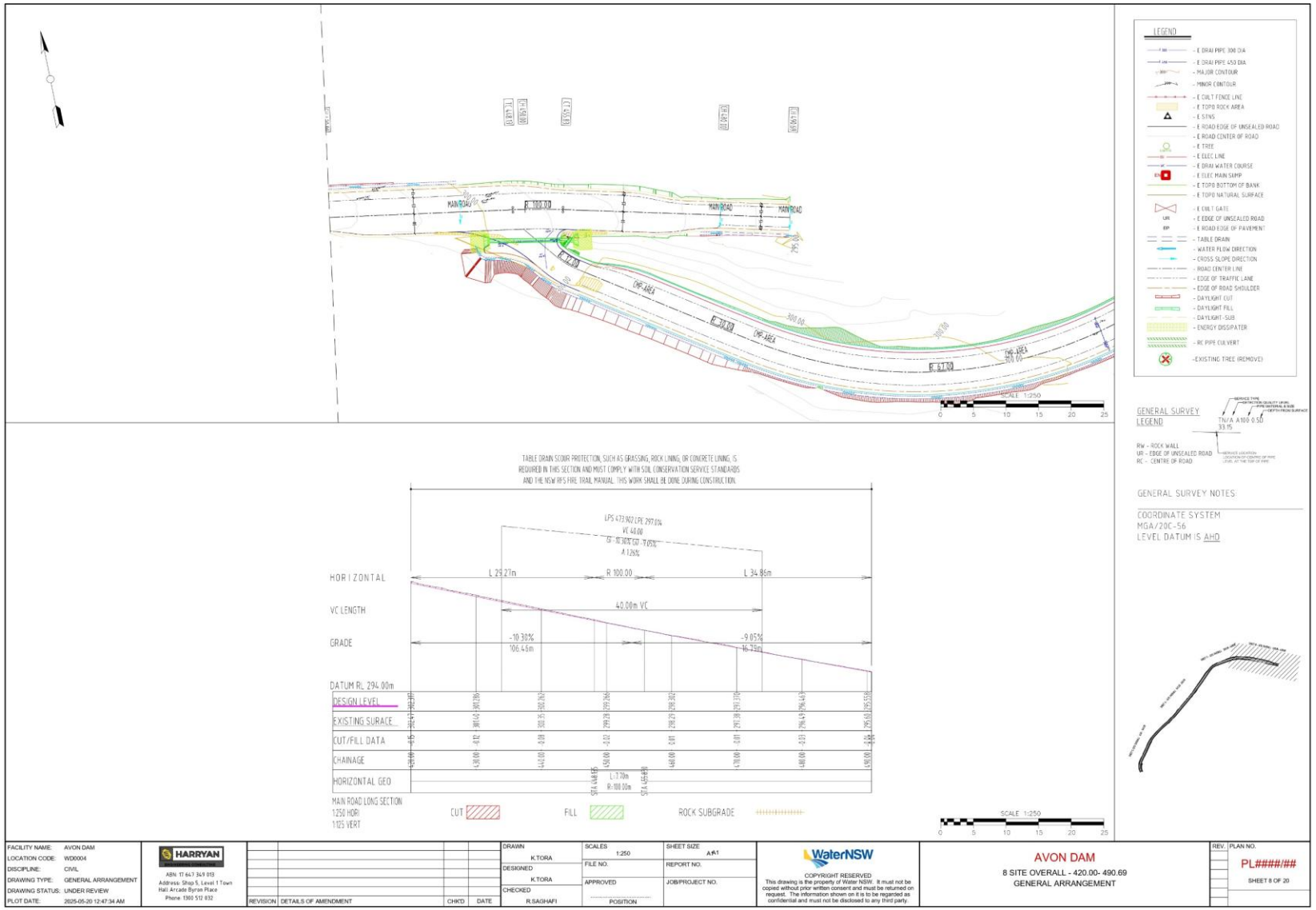

Figure 38. Map ID Section 1 (Main Road) proposed works overview Sheet 8 (Source: Water NSW, May 2025)

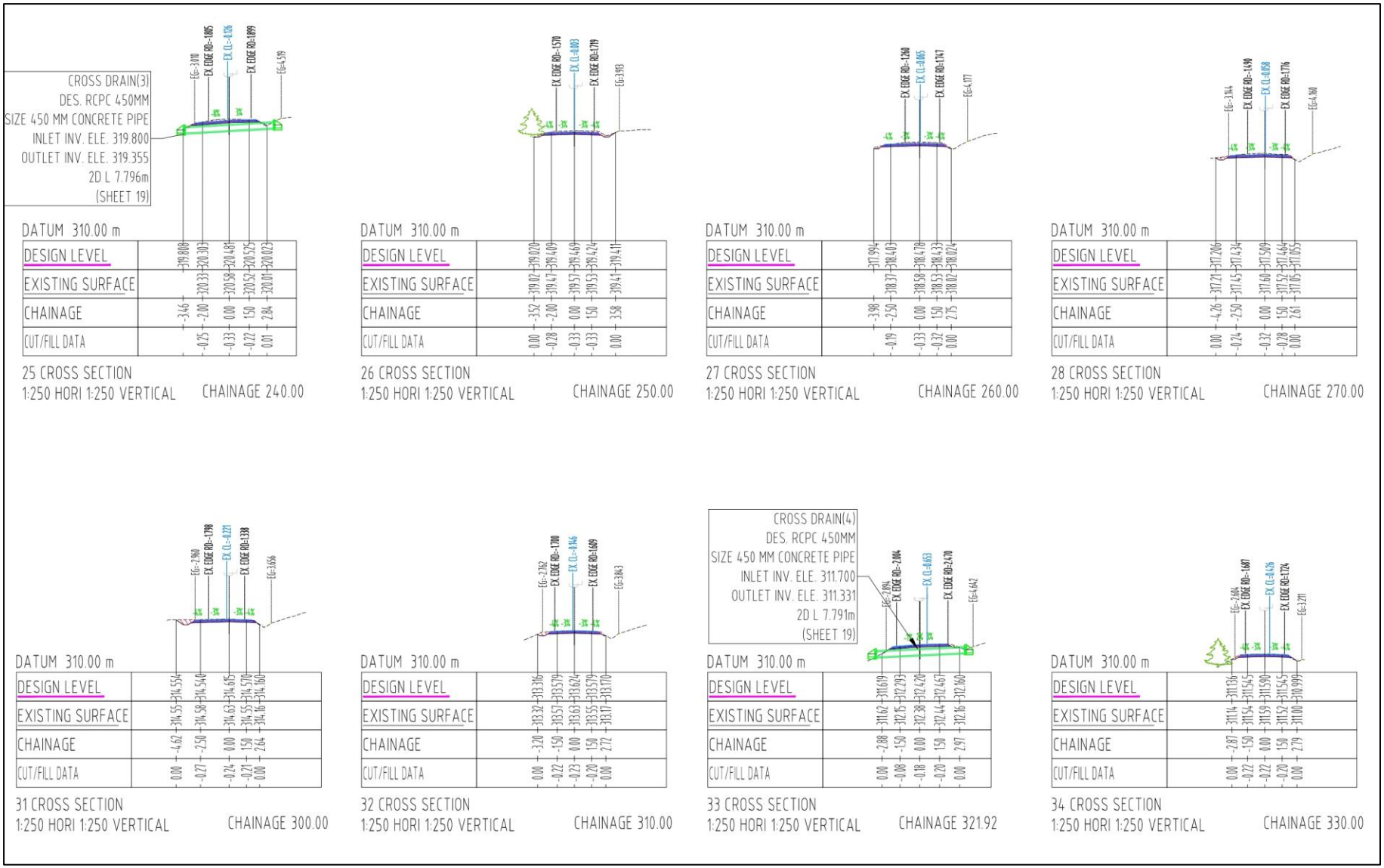

Figure 39. Map ID Section 1 (Main Road) typical cross-sections of proposed roadworks (Source: Water NSW, May 2025)

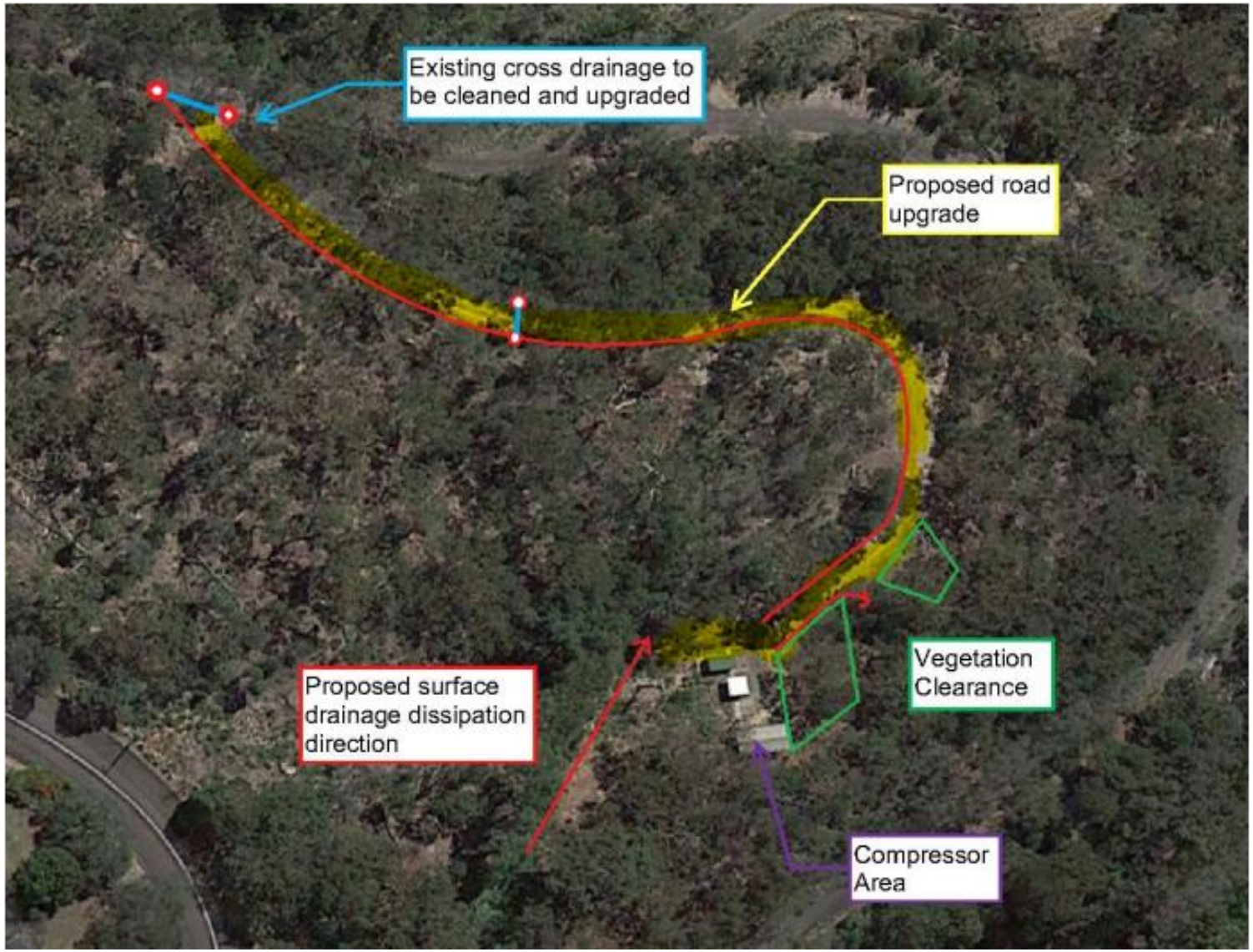

Figure 40. Map ID Section 2, showing the proposed works in the Compressor Area (Source: WaterNSW, 2024)

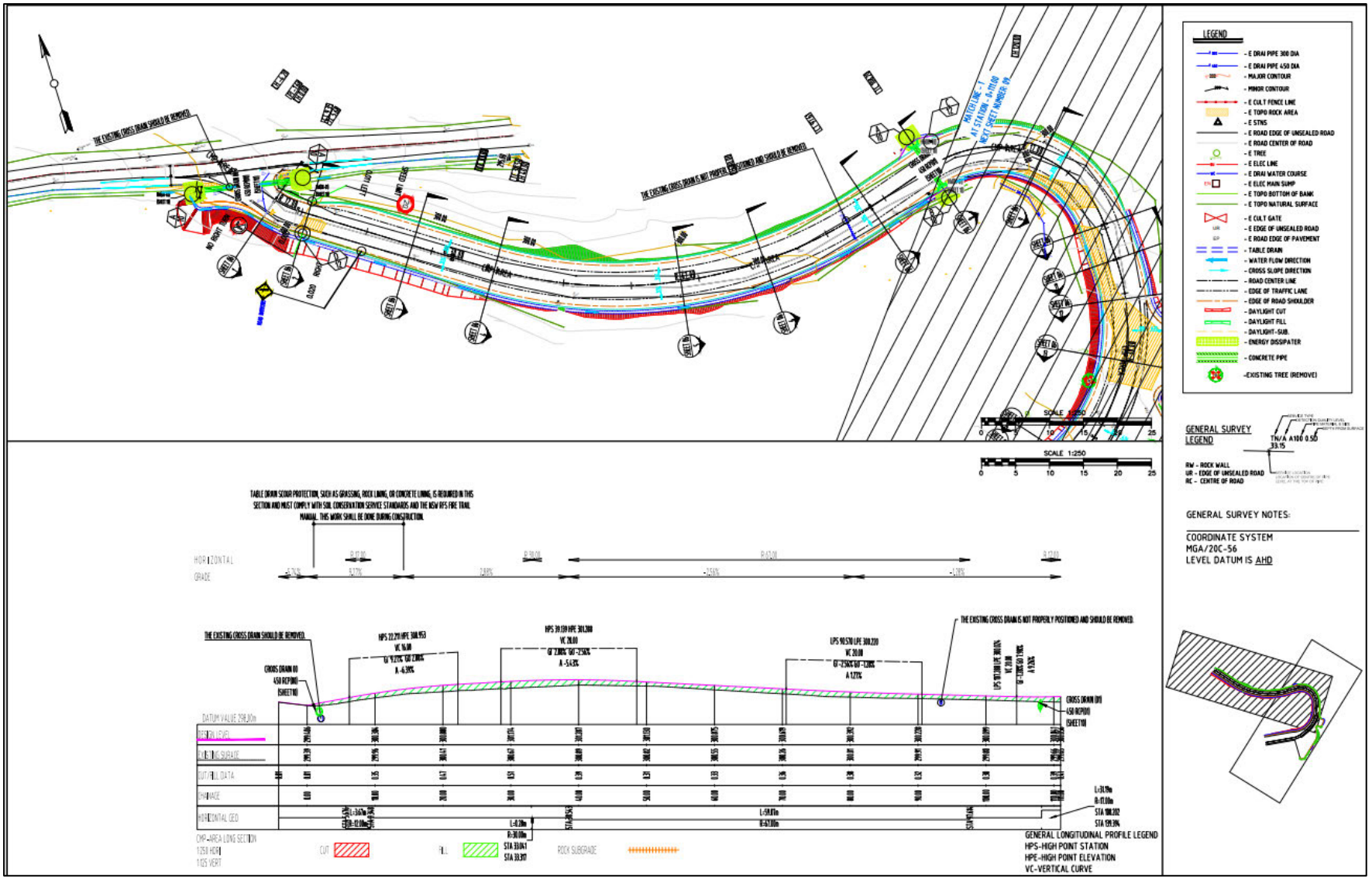

Figure 41. Site plan showing the proposed locations of cuts, fills, and tree removal in Map ID Section 2 (Source: WaterNSW, April 2025)

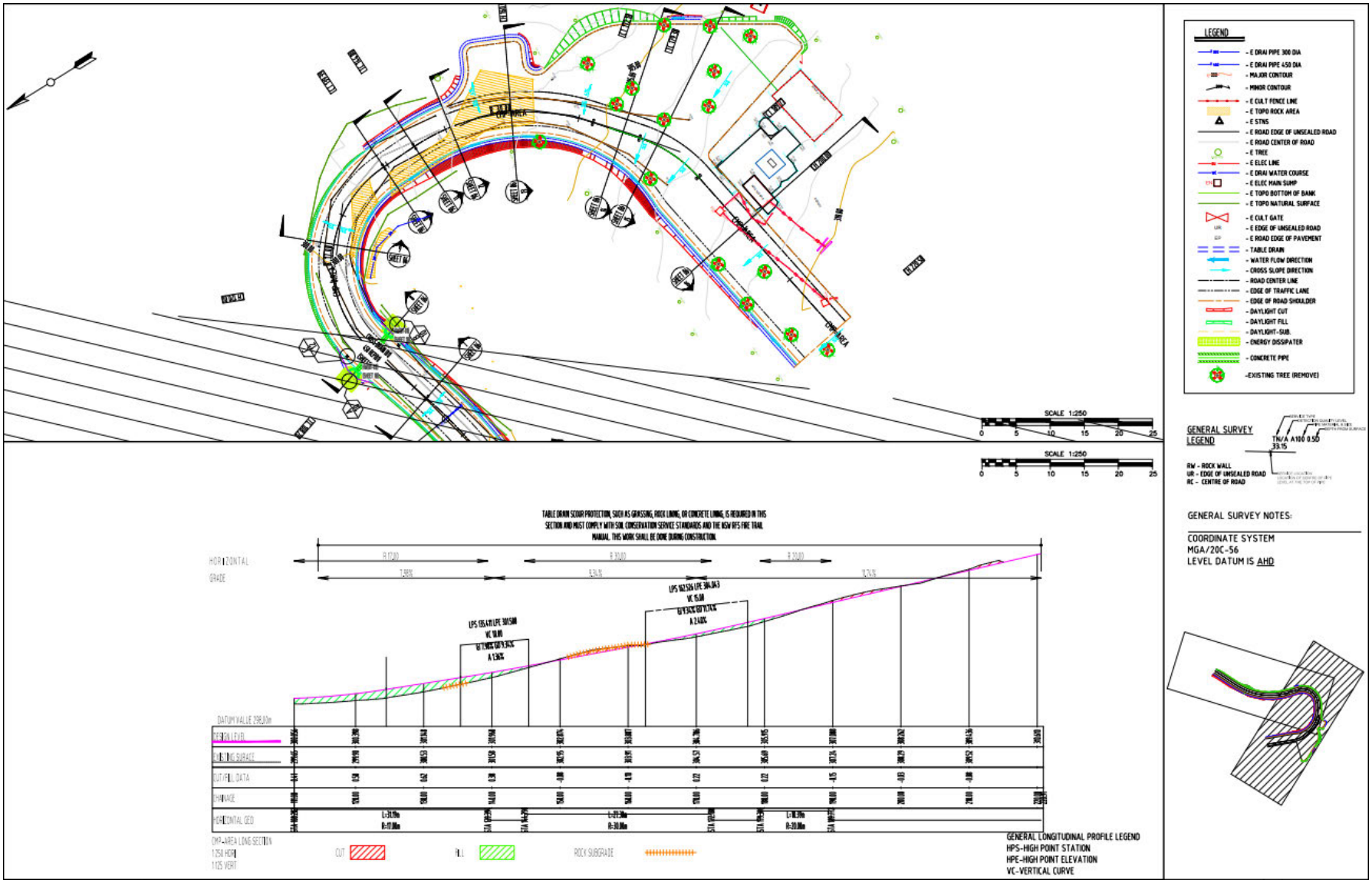

Figure 42. Site plan showing the proposed locations of cuts, fills, and tree removal in Map ID Section 2 (Source: WaterNSW, April 2025)

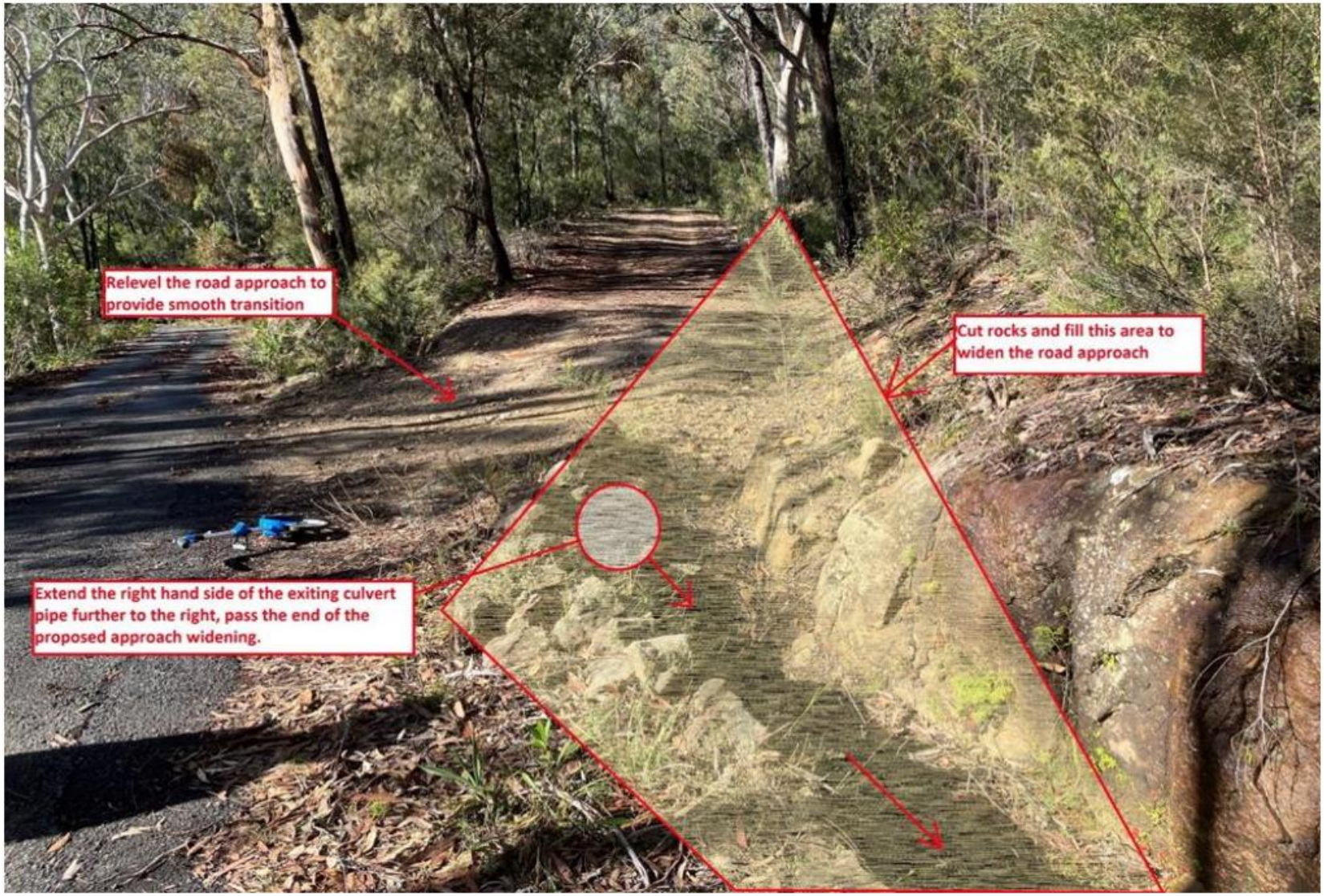

Figure 43. Markup of the proposed re-alignment works at the approach road at the beginning of the access road leading to the Compressor Area, Map ID Sections 1 and 2 (Source: WaterNSW, 2024)

Figure 44. Map ID Section 3 & 4, showing the proposed works at the Chlorine Treatment Plant and Helipad (Source: WaterNSW, 2024)

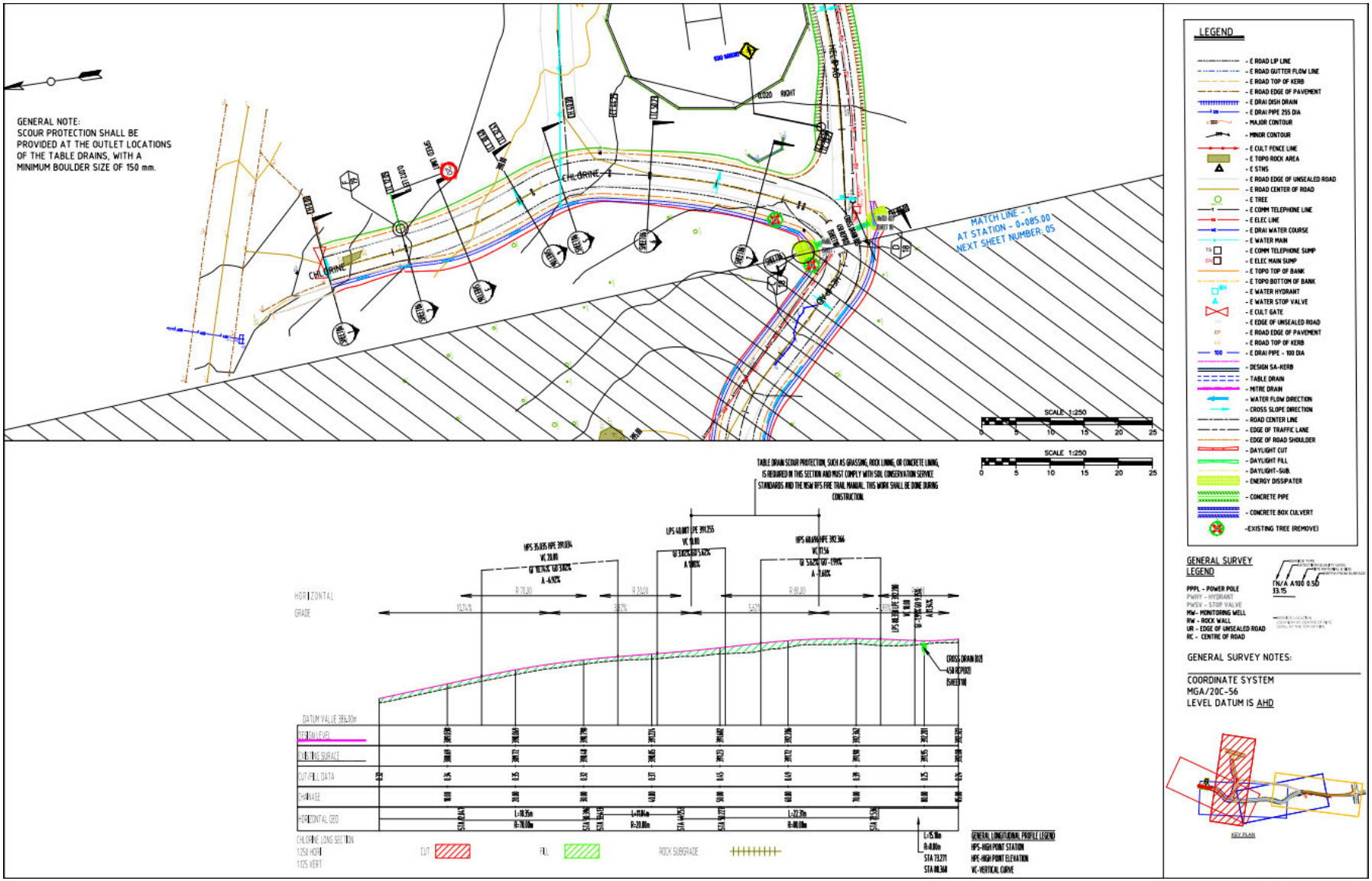

Figure 45. Site plan showing the proposed locations of cuts, fills, and tree removal in Map ID Section 3 (Source: WaterNSW, April 2025)

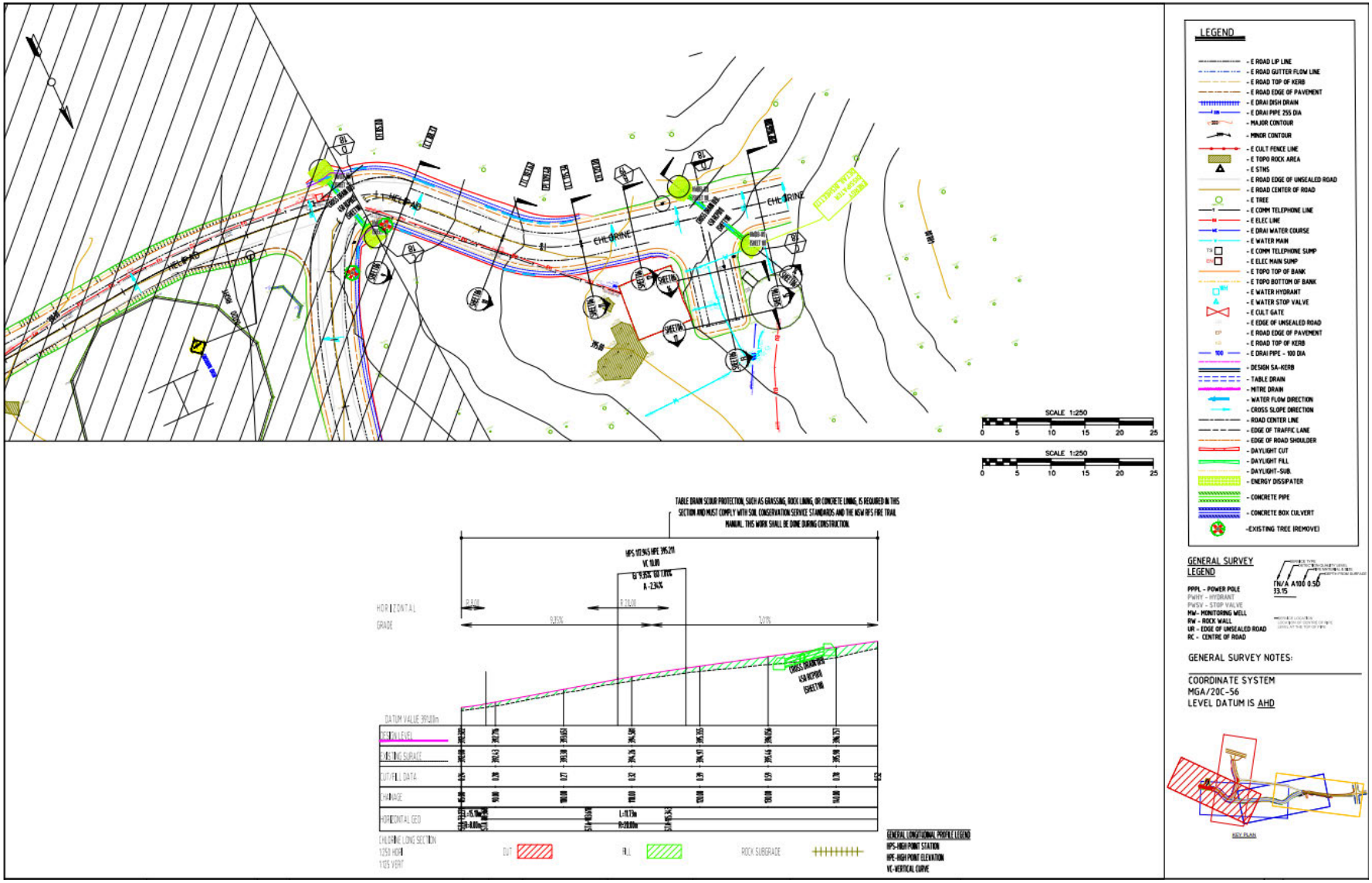

Figure 46. Site plan showing the proposed locations of cuts, fills, and tree removal in Map ID Section 3 (Source: WaterNSW, April 2025)

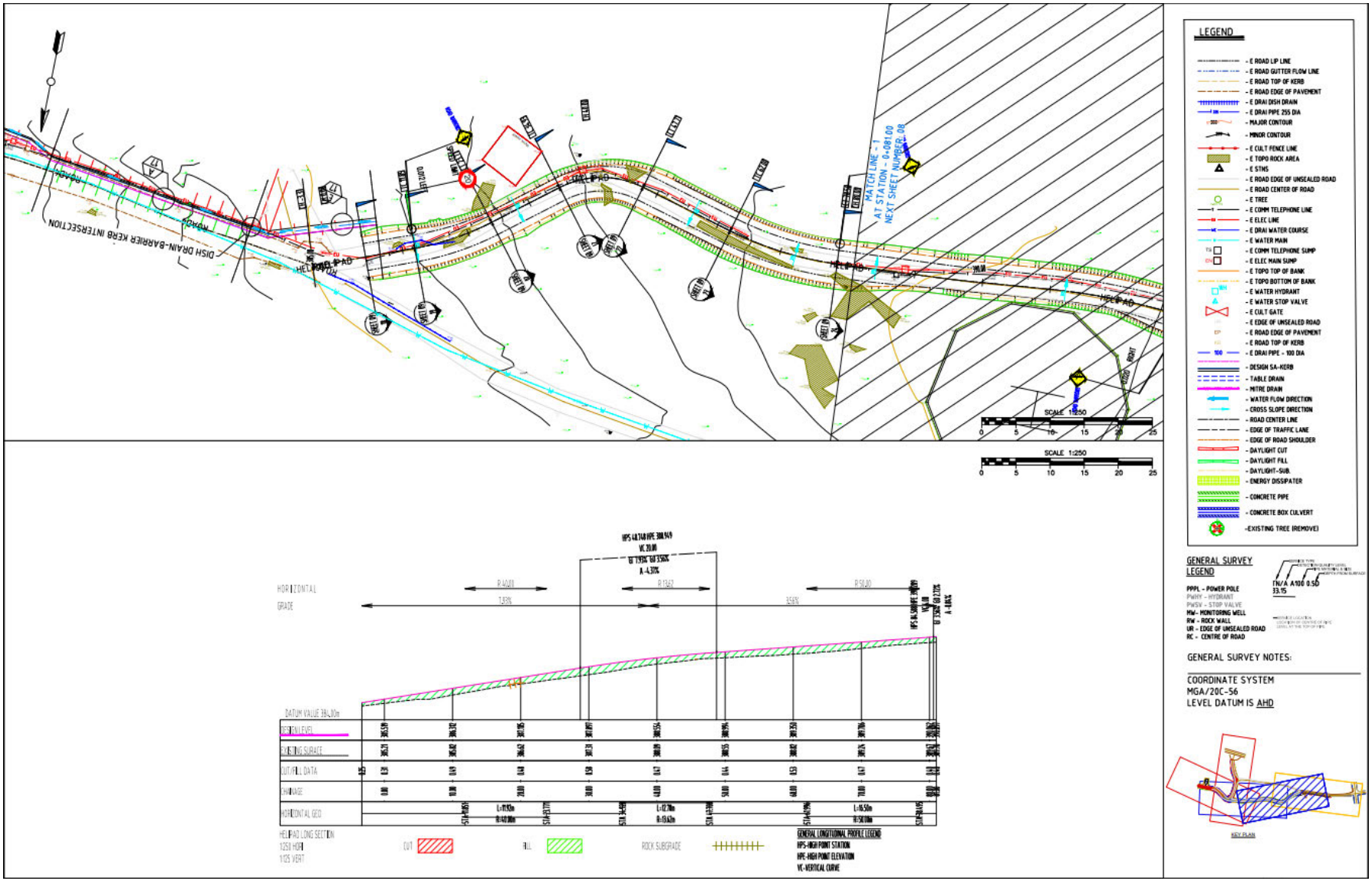

Figure 47. Site plan showing the proposed locations of cuts, fills, and tree removal in Map ID Section 4 (Source: WaterNSW, April 2025)

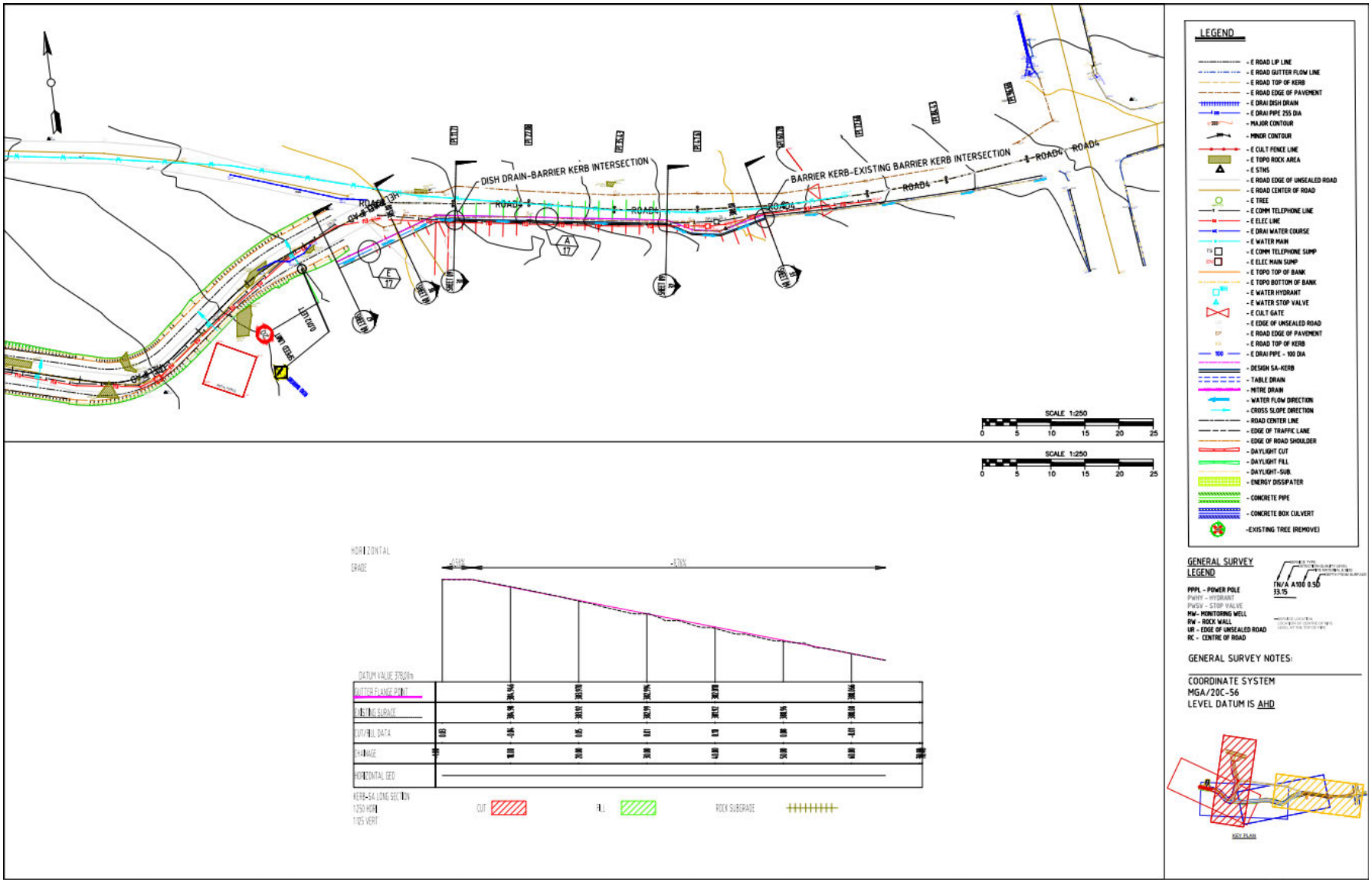

Figure 48. Site plan showing the proposed locations of cuts, fills, and tree removal in Map ID Section 4 (Source: WaterNSW, April 2025

8.0 HERITAGE IMPACT ASSESSMENT

8.1 Overview

This section assesses the heritage impact of the proposed works at the study area on heritage values within the study area. Justifications are also provided for the proposed works.

Within this approach, the objective of a heritage impact assessment is to evaluate and explain how the proposed works will affect the heritage value of the study area and/or place. A heritage impact assessment should also address how the heritage value of the site/place can be conserved or maintained, or preferably enhanced by the proposed works.

In order to consistently identify the impact of the proposed works, the terminology contained in the following table has been references throughout this document. The terminology and definitions are based on those contained in guidelines produced by Heritage NSW[28] and are shown in Table 12.

Table 12: Terminology for assessing the magnitude of heritage impact.

Grading	Definition
Total loss of significance	Major adverse impacts to the extent where the place would no longer meet the criteria for listing on the SHR.
Adverse impact	Major (that is, more than minor or moderate) adverse impacts to State heritage significance, defined as removing significant features, obscuring key views, or removing evidence of significant historical associations, which require substantial changes to the scope of works or design to sufficiently reduce those impacts. The material threshold applies when substantial changes to the application are required to reduce the adverse impacts to a moderate or minor level.
	Moderate adverse impacts to State heritage significance. Actions in this category would include removal of an important part of a heritage item's setting or temporary removal of significant elements or fabric. The impact of these actions could be reduced through appropriate mitigation measures.
	Minor adverse impacts to State heritage significance, defined as impacts to State heritage significance that are minor enough that they are outweighed by other benefits of the application, for example sympathetic alterations to an original non-compliant balustrade to enable continued public use.
Little to no impact*	An alteration to State heritage significance that is so minor that it is considered negligible. * Little to no impact (as opposed to no impact) acknowledges that any change will result in some level of impact/alteration to State heritage significance.
Positive impact	Alterations that enhance the ability to demonstrate the State heritage significance of an SHR listed place.

[28] Heritage NSW, *Material Threshold Policy*, 2020

Table 13: Terminology for heritage impact types

Impact	Definition
Physical	Impacts resulting from works located within or outside the curtilage boundaries of the heritage item, caused by removing or altering the item or fabric of heritage significance
Visual	Impact to views, vistas and setting of the heritage item resulting from proposed works within or outside the curtilage boundaries of the heritage item.
Potential	Impacts resulting from increased noise, vibrations and construction works located within or outside the curtilage boundaries of the heritage item.
Archaeological	Impacts to potential archaeological remains located within the curtilage boundaries of the heritage item.

8.1.1 Physical heritage impacts

The proposed works would modify the road corridors in the Avon Dam's SHR curtilage (including Main Road, the Compressor Area access road, the Helipad access road, and the Chlorine Treatment Plant access road) and the landscape in their immediate vicinity. These works would entail the modification of the roads' fabric, including the removal of poor-quality subsoils, establishing or rectifying road foundations, and adding or re-establishing bitumen pavement. Other modifications to the road corridors and the surrounding landscape would include the removal of vegetation (including a number of trees around the Compressor itself), cutting rock outcroppings, and clearing out or establishing drainage infrastructure (both underground and open table drainage). No works are proposed to take place on Avon Dam itself, or its associated heritage-significant infrastructure.

The proposed works would not greatly alter the alignment of the roads identified as the work sites, although the intersection of the Main Road and Compressor Area access road would be widened to allow work vehicles to more easily access the Compressor Area. The extant surfaces of the roads are not elements of significance to the site, therefore the expansion of paved surfaces or the renovation of the dirt road surfaces would not interfere with significant fabric.

Widening the road would, in effect, remove the extant drainage at the intersection of the Main Road and the Compressor Access Road (photographed above in Figure 30), which may be early or original fabric belonging to the Avon Dam Road, and is an element of moderate historic significance to the Avon Dam heritage item. Its partial removal would therefore constitute a localised **minor adverse** physical impact to an element of significance in the Avon Dam curtilage. This impact could be mitigated by salvaging the stones which make up the shoring of the drain as much as possible, and reconstructing them as part of the new drainage solution where possible.

The landscape within and around the roads of the Avon Dam SHR curtilage is characterised in part by its picturesque, natural appearance and the landscaped features of the Upper and Lower picnic grounds. The vegetation clearance, drainage works, and cutting of approximately 40 square metres of rock outcroppings in the road corridors identified in Section 7.1 would encroach on and alter this highly significant landscape. However, the encroachment would be limited to the road corridors that have previously been modified, and the proposed works would be consistent with previous road works. Previous works included the installation of modern elements such as fencing and asphalt surfacing, which are of little heritage significance, yet are not considered intrusive in the landscape.

Furthermore, the proposed works would be located within the curtilage of the Avon Dam heritage item. The perceptible distance for cosmetic damage from construction related vibration has been established to be items located less than 25m away from the construction work as determined by Transport for NSW in their *Construction Noise and Vibration Guideline (Roads)* prepared in July 2023. There are elements comprising the built heritage environment within 25m of the proposed roadworks, primarily in the form of the extant drainage infrastructure associated with Avon Dam Road, which would likely experience **minor adverse** physical impacts as a result of vibration-inducing road construction activities.

Overall, the proposed works would not substantially interfere with heritage-significant fabric associated with Avon Dam or Avon Dam Road, and while they would somewhat modify the landscape and above-ground drainage in the SHR curtilage, these modifications would be consistent with previous landscaping and roadworks. Therefore, the proposed works would likely have **minor adverse** physical impacts on the heritage significance of the Avon Dam SHR item.

Physical impact: minor adverse impact overall.

8.1.2 Visual heritage impacts

The proposed works would modify the appearance of the existing roads, as well as the road corridors, and immediate landscape of the corridors. Likely the most prominent changes would consist of the expansion of the bitumen of the existing roads, and the clearance of vegetation along the road corridors. Other proposed works such as expansion of the open-table drainage on the surface and the cutting of rock outcroppings would also be visible, however they would likely not be as prominent, as they would not contrast with the surrounding environment as much as the bitumen. The surrounding environment itself has previously been modified by roadworks and landscaping, both as part of the construction of the dam and subsequent operations and upgrades.

The expanded pavement would be visible and more prominent, however it likely be visually consistent with the previously installed modern road surfaces (such as the surface of Avon Dam Road and parts of the access roads). These modern road surfaces are assessed as being of little heritage significance, however they are also not considered intrusive. The expanded pavement, which would be limited to the existing road corridors, would therefore not have a considerable impact visual impact on the heritage significance of the Avon Dam heritage item or its associated landscape.

Underground modifications including the rehabilitation of underground drainage pipes and the reestablishment of road foundations would not be visible on the surface when works are complete, and would have no discernible visual impact on the significance of Avon Dam or its associated landscape. The significant views and vistas of the Avon Dam heritage item (identified above in Section 5.2.4) would not be adversely affected by the road works, as these would not raise or cause any obstructions in the important sightlines.

The landscape would be modified by above-ground drainage works, and by cutting 40 square metres of rock outcroppings to make way for the widened intersection of the Main Road and Compressor Area access road. However, this section of the landscape (photographed above in Figure 43) is not in a prominent location of the Avon Dam curtilage, and would likely not be seen frequently by members of the general public. Furthermore, upon completion of the road remediation works, the landscape in this area would likely retain its character prior to the commencement of works.

Vegetation clearance is proposed in a few locations in the study areas, and particularly in the immediate vicinity of the Compressor (Map ID Section 2; see Figure 42). Though trees contribute positively to the character of the landscape and the setting of the Avon Dam's heritage item, none are individually listed or identified as being individually heritage significant. The locations of tree removals around the Compressor would furthermore not be particularly visible to the majority of the visiting

public, as this area is removed from the more frequented Picnic Areas (identified in Section 5.05.2.3) and is screened by dense brush and trees. Overall, the proposed removal of trees would be unlikely to cause measurable adverse visual impacts to the setting of Avon Dam or the significant views and vistas in its heritage curtilage (identified in Section 5.2.4).

Overall, the proposed works would likely be consistent with the current appearance of landscape, which is itself in part the result of previous landscaping and roadworks. They would likely **minor adverse** visual impact on the heritage significance of the Avon Dam SHR curtilage.

Visual impact: minor adverse impact

8.1.3 Archaeological impacts

The proposed works would include activities causing ground disturbance including road resurfacing, drainage extension and remediation, and rock cutting. The previous SoHI prepared by Artefact which assessed the geotechnical survey works in the Avon Dam curtilage[29] identified **low archaeological potential** in the vicinity of the Helipad and Chlorine Treatment Plant (Map ID Sections 3 and 4). Conversely, given the similarity in locations of the proposed works to the previous assessed works, it is likely that the proposed road remediation works also have **nil-to-low potential** to cause adverse impacts on archaeological resources in these areas.

There is **moderate potential** for the proposed works to encounter the original macadam road fabric in the corridor of the Main Road (Map ID Section 1), which likely remains in substantial amounts beneath the existing sealed surface. The depth of the original macadam road fabric is not known, but as the proposed works would cut into the road surface by up to 0.41 metres at the centreline, it is likely that the original fabric would be exposed or disturbed in places by road remediation activities within the study area. However, given the low research potential for such archaeological deposits, this would be unlikely to cause adverse impacts to archaeological resources.

The proposed road remediation would be restricted to the road corridor and would take place away from areas of known archaeological sensitivity related to the construction of Avon Dam and its associated infrastructure. There would likely be only **minor** adverse impacts to archaeological deposits of local significance, but unrelated to the dam's construction, as a result of the proposed works in the Main Road Corridor.

Archaeological impacts: minor

8.1.4 Cumulative impacts

Cumulative impacts refer to the combined or overlaid or added actions and interactions within a particular place associated with the past, present and the reasonably foreseeable future.

This report has assessed that the proposed works would likely have little to no adverse physical and visual impacts on the heritage significance of Avon Dam, and **moderate** adverse impacts on the archaeological resource.

The proposed works would allow easier and safer access to active infrastructure (including the Compressor Area, Chlorine Treatment Plant, and Helipad) associated with the operation of Avon Dam. This would facilitate one of the dam's historic functions (the other being the use of the site for recreational activities since the completion of the dam's construction). Furthermore, the construction, remediation, or use of roads dedicated to the operation of the dam would be consistent with the

[29] Artefact, *Avon Dam Geotechnical Investigations Statement of Heritage Impact,* 2024)

construction of Avon Dam Road, which was a unique feature historically in the development of the Upper Nepean Scheme (Section 5.2.3). The proposed works therefore would likely be consistent with the historic use of roadways for the operation Avon Dam, where other dams in the Upper Nepean Scheme made use of railways.

Overall, while the proposed works would result in a modification of the roads and part of the landscape in the curtilage of Avon Dam which have previously been modified by similar works, they would not considerably alter their form, fabric, or appearance. They would be consistent with the ongoing use of the dam as an active water infrastructure site, which has been one of the historically significant functions of the site since its construction in the early 20th century. As there would be only **minor adverse** immediate physical or visual heritage impacts caused by the proposed works, this would likely constitute an overall **positive cumulative impact** for the Avon Dam heritage item.

8.2 Heritage considerations for the proposal

8.2.1 Matters for consideration

Heritage guidelines[30] prepared by Heritage NSW outline design considerations for projects involving heritage items. Design considerations are discussed in Table 14.

Table 14: Heritage considerations for Avon Dam (Source: NSW DPE, 2023).

Heritage Consideration	Discussion
General Considerations	
Do the proposed works affect the setting of the heritage item, including views and vistas to and from the heritage item and/or a cultural landscape in which it is sited? Can the impacts be avoided and/or mitigated?	The proposed works would have little to no adverse impacts on the visual setting of the access roads and views to the dam wall. Since the work is focused on the road areas and involves infrastructure improvements, it will not visually affect the dam wall itself.
Are the proposed works part of a broader scope of works?	The proposed works are part of a broader program by for Water NSW assets that involve remediation measures and construction works to several dam access roads.
Does this proposal relate to any previous or future works? If so, what cumulative impact (positive and/or adverse) will these works have on the heritage significance of the item?	The proposed works involves ongoing remediation of the access roads to infrastructure associated with Avon Dam by WaterNSW. These works are essential for preserving the original access roads and would have a positive cumulative impact on the heritage site.
Will the proposed works result in adverse heritage impact? If so, how will this be avoided, minimised or mitigated?	The proposed works will result in localised **minor adverse** physical impacts on the heritage item as a result of removing the early or original drainage fabric at the intersection of the Main Road and the Compressor Area access Road. However, this impact would be localised to this specific area, and would not substantially impact the broader Avon Dam heritage item. The

[30] 'Guidelines for preparing a statement of heritage impact', Department of Planning and Environment, 2023

Heritage Consideration	Discussion
	impact could be further mitigated by salvaging the stones that make up the shoring of the early or original drain and reconstructing them as part of the new drainage solution. In doing so, there would likely be **minor adverse** adverse physical impacts to the significance of Avon Dam. These road remediation works would not affect the views of the dam wall and water body, and would have **minor adverse** visual impacts as a result. Additionally, the overall character and alignment of the original access roads will be preserved.
Alterations and Additions	
Do the proposed works comply with Article 22 of The Burra Charter, specifically Practice note article 22 — new work (Australia ICOMOS 2013b)?	The proposed works comply with Article 22 of The Burra Charter. An assessment against the relevant conservation articles is provided below.
Will the proposed works impact on the significant fabric, design or layout, significant garden setting, landscape and trees or on the heritage item's setting or any significant views?	The proposed works are generally sympathetic upgrades to the heritage item. They are situated away from the dam wall and will aim to retain significant elements and layouts. The significant views associated with the dam would not be adversely impacted by the proposed works. Where the proposed widening of the intersection and remediation of the drainage at the intersection of the Main Road and Compressor Area access road would remove the early or original drainage fabric (Figure 30), this would have only a localised **minor adverse** physical impact overall to the Avon Dam item.
How have the impact of the alterations/additions on the heritage item been minimised?	The proposed location and scale of the new infrastructure elements have been carefully considered to reduce any potential adverse visual impacts.
New Services and service upgrades	
Are any of the existing services of significance? In what way are they affected by the proposed works?	The original access roads' alignment, as well as the existing drains and culverts (completed in 1926), and the landscaped Upper and Lower Picnic grounds are significant elements within the Avon Dam site. The proposed works seek to upgrade the existing roads and drainage infrastructure while installing new services as necessary.
How have the impacts of the installation of new services on heritage significance been minimised?	The proposed new services and upgrade works would be in areas away from the dam wall and are minor in scale to minimise any visual or physical impacts. As per the CMP, the original road alignment is maintained, and existing drains and culverts are retained and upgraded.

8.2.2 Statement of Heritage Impact

A statement of heritage impact has been prepared according to Heritage NSW guidelines[31] in Table 15 below.

Table 15. Preliminary Statement of Heritage Impact for the proposed works at Avon Dam

Development	Discussion
Do the proposed works include removal of unsympathetic alterations and additions? How does this benefit or impact the heritage item and its significance?	The proposed road works do not include the removal of unsympathetic alterations and additions. The planned remediation efforts, which include upgrading the road surfaces and updating/cleaning drainage infrastructure, aim to improve both the visual appeal and functionality of the roads. The works will be conducted away from the dam wall, ensuring that there will be no physical or visual impact on the main heritage item. The associated Upper and Lower Picnic grounds would also not be affected by the proposed works.
Do the proposed works affect the setting of the heritage item, including views and vistas to and from the heritage item and/or a cultural landscape in which it is sited? Can the impacts be avoided and/or mitigated?	The proposed road remediation works would modify the appearance of the existing roads, road corridors, and immediate landscape around the corridors, resulting in **minor adverse** visual impacts to the heritage significance of Avon Dam. However, as noted in Section 8.1.2 above, this would not cause measurable adverse impacts to the significant views and vistas identified within its heritage curtilage (Section 5.2.4).
Are the proposed works part of a broader scope of works?	The proposed works at Avon Dam are included as part of the broader scope of works proposed by the Greater Sydney Roads Renewal (GSRR) project, which also include road remediation works at Cordeaux Dam.
Does this proposal relate to any previous or future works? If so, what cumulative impact (positive and/or adverse) will these works have on the heritage significance of the item?	The proposed road remediation works assessed in this report directly follow geotechnical investigations in the area of Avon Dam. These investigations consisted of an earlier phase of the GSRR project, and were assessed in a previous SoHI prepared by Artefact.[32] The previous report concluded that there would be **little to no adverse** physical and visual impacts to the Avon Dam heritage item, and **minor adverse** impacts to archaeological resources as a result of the geotechnical boreholes. This report has assessed that there would be a **positive cumulative impact** to the heritage significance values of Avon Dam as a result of the proposed road remediation, as these works would be consistent with the ongoing use of the dam as an active water infrastructure site, which has been one of the historically significant functions of the site since its construction in the early 20th century
Are the proposed works to a heritage item that is also significant for its Aboriginal cultural heritage values? If so, have experts in Aboriginal cultural heritage been consulted?	This report does not include an assessment of Aboriginal Cultural Heritage Values. As the proposed works are taking place within the existing road corridor which has previously been disturbed, the potential for Aboriginal archaeological deposits is considered to be low or nil. Should the proposal be modified to include areas outside of the road corridor, an assessment of Aboriginal archaeological potential would be required. This report includes a recommendation to implement an unexpected finds procedure in case of the unlikely event that archaeological resources are encountered during the road remediation works (Section 9.3).

[31] Heritage NSW, Dept. of Planning and Environment, 2023
[32] Artefact, 2024, *Greater Sydney Roads Renewals Avon Dam Geotechnical Investigations: Statement of Heritage Impact*

Development	Discussion
Has the applicant checked if any other approvals or a separate process to evaluate the potential for impacts is required?	This report contains advice pertaining to the relevant approvals pathway for the proposed works in Section 9.2.
Do the proposed works trigger a change of use classification under the National construction code that may result in prescriptive building requirements? If so, have options that avoid impact on the heritage values been investigated?	The proposed works would not trigger a change of use classification.
If the proposed works are to a local heritage item, are the requirements of the development control plans or any local design guidelines that may apply to the site considered?	Avon Dam is listed on the Wingecarribee LEP, as well as the SHR, and the WaterNSW S170 register. While there are no specific provisions in The Wingecarribee DCP which pertain to Avon Dam, the section titled Rural Lands provides sympathetic considerations for development that is in the vicinity of a heritage listed item in rural areas. These considerations include ensuring that the character, bulk, scale and height of new development does not unreasonably overshadow a nearby heritage item, that colouring and texture of new materials of a new development is sympathetic to a heritage item, and that views of a heritage item should not be obscured from the point of view of areas of public domain. The proposed works would not result in overshadowing of the heritage item, and would not affect the significant views and vistas identified for the item in the CMP (outlined in Section 5.2.4 above). The proposed road remediation would not introduce materials that are unsympathetic to the heritage character of the dam in terms of their colour or texture.
Will the proposed works result in adverse heritage impact? If so, how will this be avoided, minimised or mitigated?	The proposed road remediation works would not result in more than **minor adverse** physical, visual, or archaeological impacts, and **positive cumulative** impacts to the Avon Dam's heritage significance. This report includes guidance on mitigation measures which can should implemented to minimise the risk of further heritage impacts in Section 9.3 below.

8.3 Assessment against relevant policies

8.3.1 Conservation Management Plan policies

The following table records the policies that are assessed as being directly relevant to the proposed works. A full list of policies can be seen in the 2019 Conservation Management Plan.[33]

[33] Extent, Avon Dam Site Conservation Management Plan, 2019

Table 16: Assessment of proposal against 2019 CMP policies

Policy	Policy detail	Are works consistent with CMP policy? (Yes/No?)	Comments
Conservation of Significant Values	*Conservation of the identified heritage values and characteristics of Avon Dam* *and its components is to inform future management decisions about the place*	Yes	The proposed works will not affect the dam wall or the waterbody, both of which are significant original fabric. The proposal seeks to upgrade the access roads while preserving the interpretation of the original features and road alignment. Original elements, such as existing drains and culverts, will be maintained. Areas of pavement, dirt road surfaces, and drainage infrastructure that are in poor condition will be upgraded sensitively.
Maintenance	*Develop and implement a maintenance program for the Avon Dam site,* *particularly for those items that are of a high level of heritage significance, but not* *subject to regular operational related maintenance.*	Yes	A remediation works program would be implemented by WaterNSW to upgrade the access roads to the dam wall and drainage infrastructure which are listed as significant elements in the CMP.
Landscape and setting	*Manage and maintain the cultural landscape areas of the Avon Dam site, in particular the Lower Carpark and Lower Picnic Area Plantings.*	Yes	The proposal seeks to upgrade and continue the use of the existing original access roads. The plantings in the Lower Carpark and Lower Picnic Area would likely not be affected by the road and drainage remediation works
Views.	*Maintain key significant views to and from the dam wall and waterbody*	Yes	The proposed work will be confined to areas along the access roads, ensuring there is no visual impact or obstruction of views to the dam wall and waterbody.
Managing Change	*Make decisions requiring change to the Avon Dam site with a clear* *understanding of the potential impacts on the identified heritage values of the place* *and seek to minimise negative heritage impacts.*	Yes	The proposed works are necessary to maintain the heritage item and its means of access. They are required to maintain the safety standards and functionality of the access roads.

Policy	Policy detail	Are works consistent with CMP policy? (Yes/No?)	Comments
Safety and Security Upgrades	*Consider both visual and physical impacts associated with planned safety and* *security upgrades and aim to minimise negative heritage impacts. Seek heritage* *advice where the proposed work will impact an item of Exceptional or High heritage* *significance*	Yes	The proposed work will not affect the structure of the dam wall. However, it will have physical and visual impacts on the landscape of the Avon Dam curtilage, which is an element of high significance to the heritage item. The proposed works are in line with the conservation policies for the access roads outlined in the CMP. These improvements will ensure the continued use of the roads while preserving the original layout and sympathetically upgrading the existing drainage systems.
Archaeological Resources	*Identify significant archaeological resources, minimise impacts to them when new work is planned and interpret those that embody key aspects of the significance of the Avon Dam site.*	Yes	This report contains an assessment of the potential for the proposed works to impact archaeological resources. Based on this assessment (Section 6.0), the proposed road and drainage remediation in Map ID Section 1 (Main Road) would likely result in **moderate** adverse impacts to the archaeological remains of the original macadam road surface, kerbs, and associated early drainage infrastructure. These remains, if encountered, would likely be of local significance under Criteria A, B, C, D, and E (Section 6.3). Being remnants of infrastructure built to serve the construction of Avon Dam, they furthermore inform the historic and technical heritage significance of Avon Dam itself. The proposed road remediation works are considered necessary for ongoing safe access to the area, particularly to the compressor area which is an active part of the dam's operations. As such, remediating the Main Road, though it would cause a **moderate** adverse impact to archaeological remains, in this sense has a beneficial effect on the dam's functions, which is part of its historic heritage significance.

8.3.2 Burra Charter

The conservation articles provided in Table 17 below from the Burra Charter, which are of particular relevance to the proposal, should be followed.

Table 17: Relevant articles from the *Burra Charter*[34]

Article No.	Article	Proposal
3.1	*Conservation is based on a respect for the existing fabric, use, associations and meanings. It requires a cautious approach of changing as much as necessary but as little as possible.*	The proposed works will retain the original access road layouts, existing drainage works and will not impact the dam wall and waterbody. The works will be visible to the public along the access roads, but they are consistent with previous road works in the area and are located to have the least visual and physical impact on the dam wall.
14	*Conservation may, according to circumstance, include the processes of: retention or reintroduction of a use; retention of associations and meanings; maintenance, preservation, restoration, reconstruction, adaptation and interpretation; and will commonly include a combination of more than one of these. Conservation may also include retention of the contribution that related spaces and related objects make to the cultural significance of a place.*	The proposed works would not adversely impact the original significant fabric of Avon Dam itself, and would facilitate the daily operation of its infrastructure. This would benefit the dam's function, which in turn would benefit its historic and technical significance. There is **moderate** potential for the proposed works to encounter the original macadam road construction of Avon Dam Road, however such archaeological deposits are assessed as having only low research potential. The proposed works would be unlikely cause adverse impacts to archaeological resources. Furthermore, while there would be general excavation in the road corridors, and upgrade works to the roads and the drainage, the existing layout of the road and its infrastructure would be retained.
17	*Preservation is appropriate where the existing fabric or its condition constitutes evidence of cultural significance, or where insufficient evidence is available to allow other conservation processes to be carried out.*	The original road alignments would be maintained, as would the significant fabric of Avon Dam itself. The landscape would be slightly modified as part of the road remediation works, however this would be consistent with previous road works and landscaping in the area. Rock cuts as part of the proposed road upgrade would generally not be visible to the visiting public, as they would take place in less frequented areas of the curtilage. Should the rock cuts be seen, they would be visually consistent with the extant landscaping.

[34] Australia ICOMOS 2013. *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance.*

Article No.	Article	Proposal
22.1	*New work such as additions or other changes to the place may be acceptable where it respects and does not distort or obscure the cultural significance of the place, or detract from its interpretation and appreciation.*	The dam access roads are in poor condition and require necessary upgrades to ensure its continued use. The proposed remediation works seek to enhance the appearance and safety of the roads and upgrade the drainage systems. In doing so, the proposed road remediation would facilitate the ongoing use of the dam as an active water infrastructure asset providing a stable water supply and recreational space for the community. As such, the proposed road remediation works would have a positive impact on the dam's historic and technical heritage significance values.
22.2	*New work should be readily identifiable as such, but must respect and have minimal impact on the cultural significance of the place.*	The new paved road surfaces and open table drainage do not alter the layout of the access roads and are located away from the dam wall.
27.1	*The impact of proposed changes, including incremental changes, on the* cultural significance *of a* place *should be assessed with reference to the statement of significance and the policy for managing the* place*. It may be necessary to modify proposed changes to better retain cultural significance.*	This report provides an assessment of potential impacts of the proposal and includes reference to the statement of significance of Avon Dam and the relevant CMP. The proposed construction works has been thoughtfully considered to ensure minimal impacts on the heritage significance of the heritage item.

9.0 CONCLUSION

9.1 Summary of findings

This report has found that the proposed works are taking place within **three** listed heritage curtilages:

- 'Avon Dam', SHR #125180
- Avon Dam, WaterNSW S170 #4580027
- Avon Dam, Wingecarribee LEP #I224

Based on the civil drawings for Avon Dam Road renewal works which were issued in April and May 2025, the proposed works on the Main Road, Compressor Area access road, and the Helipad and Chlorine Treatment Plant access roads involve modifications to the road corridors and landscape of the Avon Dam Curtilage. Physical impacts caused by construction activities will occur, but the original road alignments will remain unchanged, and modifications to the landscape would be limited to the road corridors. Overall, these modifications would be consistent with previous roadworks and landscaping in the area. Safety upgrades are essential for preserving the access roads which are necessary for the ongoing operation of Avon Dam as an active water infrastructure asset. The proposed works will have minimal impact on the heritage significance of Avon Dam by utilising an existing road alignment and current road infrastructure. The core heritage values of Avon Dam, including its historical, technological, and aesthetic significance, would be preserved despite the proposed works.

In summary, based on the civil drawings for Avon Dam Road renewal, the proposed works would result in the following heritage impacts:

- **minor adverse** physical and visual heritage impacts
- **minor** archaeological impacts to deposits of low significance.

9.2 Approval pathway

As the proposed works are located within the curtilages of the Avon Dam SHR listing an approval under Section 60 of the Heritage Act is required. The proposed works cannot be carried out under the Standard Exemptions and WaterNSW Exemptions and therefore obtaining an exemption for the works is not possible. The proposed works are eligible to be conducted under a S60 Works and a Section 60 approval must be obtained prior to the work commencing.

9.3 Recommendations and mitigation measures

The following recommendations should be adhered to when implementing the proposed works in order to mitigate potential heritage and archaeological impacts:

9.3.1 General

- An application for approval must be made to Heritage NSW under Section 60 of the Heritage Act
- A heritage induction should be provided to all contractors working on the site to ensure awareness of the site's heritage significance and the need to minimise impacts.

9.3.2 Built Environment

- The methods, tools and materials used should not cause inadvertent damage to original or early fabric within the study areas. Should unexpected damage to original or early fabric occur, the advice of a heritage specialist should be sought before repairs are made
- All works are to be undertaken in accordance with the principles and objectives of the *Australia ICOMOS Charter for the Conservation of Places of Cultural Significance* (the Burra Charter)
- Prior to the commencement of works, extant fabric of the Avon Dam near the dam wall and access gates should be flagged with non-intrusive markers for the purpose of visibility to ensure that no impacts from vehicular movements occur.

9.3.3 Archaeology

- An unexpected finds procedure (UFP) should be implemented during ground disturbance works in case of any archaeological discoveries. The contact details of a suitably qualified archaeologist should be included in the UFP to provide advice or attend site if needed.
- If found, the original macadam road would be of interest and sample recording should be undertaken by a suitable qualified heritage consultant.
- As there would be little to no visual impacts to the overall heritage item, the preparation of a photographic archival recording of the study area to document the changes to the landscape is not recommended.

10.0 REFERENCES

Artefact, *Avon Dam HV Upgrade Statement of Non-Indigenous (historic) Heritage Impact*, September 2015

Artefact, *Greater Sydney Roads Renewals Avon Dam Geotechnical Investigations: Statement of Heritage Impact,* 16 December 2024

Australia ICOMOS, *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*, 2013.

Biosis Research, *Camden Gas Project Amended Northern Expansion: Historic Cultural Heritage Assessment,* 2012

Department of Planning and Environment, *Assessing heritage significance: Guidelines for assessing places and objects against the Heritage Council of NSW criteria*, 2023)

Department of Planning and Environment *Assessing Significance for Historical Archaeological Sites and 'Relics'*, 2009)

Department of Planning and Environment, *Guidelines for preparing a statement of heritage impact*, 2023

Department of Planning and Environment, *Investigating Heritage Significance Guidelines*, 2021

Extent, *Avon Dam Site Conservation Management Plan,* May 2019

Department of Planning and Environment, *Material Threshold Policy*, 2022

Government of NSW, *Environmental Protection and Biodiversity Conservation Act 1999*

Government of NSW, *NSW Environmental Planning and Assessment Act 1979*

Government of NSW, *NSW Heritage Act 1977*

Government of NSW, *NSW State Environmental Planning Policy (Transport and Infrastructure) 2021*

Graham Brooks and Associates, *Metropolitan Dams Conservation Management Plan Vol. 4*, April 2003

Graham Brooks and Associates, *Metropolitan Dams Conservation Management Plan Vol. 3,* April 2003

NSW Heritage Office, *Levels of Heritage Significance*, 2008

NSW Heritage Office and Department of Urban Affairs & Planning, 1996; Department of Planning, Industry & Environment and Heritage Council of NSW, 2022.

NSW Office of Environment and Heritage: *Avon Dam*. (Accessed on 10/3/2015 at http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5051468)

WaterNSW, *GSSR Design and Construct Roads and Drainage – Scope of Works D2024/41172*, 7 June 2024

artefact

Artefact Heritage

ABN 73 144 973 526
Suite 56, Jones Bay Wharf
26-32 Pirrama Road
Pyrmont NSW 2009 Australia

+61 2 9518 8411
office@artefact.net.au
www.artefact.net.au