



Appendix AA

| *Historical archaeological
assessment*

Historical archaeological assessment

Woodlawn Advanced Energy Recovery Centre

Prepared for Veolia Environmental Services (Australia) Pty Ltd

June 2022

Historical archaeological assessment

Woodlawn Advanced Energy Recovery Centre

Veolia Environmental Services (Australia) Pty Ltd

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1 Introduction

1.1 Project background

Veolia Environmental Services (Australia) Pty Ltd (Veolia) owns and operates the Woodlawn Eco Precinct (the Eco Precinct), located on Collector Road, approximately 6 kilometres (km) west of Tarago, approximately 50 km south of Goulburn and 70 km north of Canberra. The Eco Precinct is located in the Goulburn Mulwaree local government area (LGA). The Eco Precinct has provided sustainable and innovative waste management services since 2004.

The Eco Precinct comprises the following integrated waste management operations, energy recovery technologies and energy generation, and other sustainable land uses, including the following:

- Woodlawn Bioreactor (the Bioreactor) – a landfill facility in which leachate is recirculated to help bacteria break down the waste, enhancing the early generation, capture and extraction of landfill gas, including leachate and landfill gas management systems.
- Woodlawn BioEnergy Power Station – utilises landfill gas from the Bioreactor to generate electricity.
- Woodlawn Mechanical Biological Treatment (MBT) Facility – extracts the organic content from a portion of the municipal solid waste (MSW) for use in tailings dam remediation.
- Agriculture – includes a working farm that applies sustainable management practices.
- Aquaculture and horticulture – use of captured waste heat from the BioEnergy Power Station for use in sustainable fish farming and hydroponic horticulture at the Eco Precinct.
- Renewable energy generation – the Woodlawn Wind Farm (operated by Iberdrola) which has an installed capacity to generate up to 48.3 MW of clean energy, and a solar farm with installed capacity to produce up to 2.3 MW of clean energy.

The Eco Precinct is served by the Crisps Creek IMF near the village of Tarago. The Crisps Creek IMF is located approximately 8.5 km to the east of the Eco Precinct (by road). Operations are augmented by two waste transfer terminals located in Sydney; the Clyde Transfer Terminal, which commenced operation in 2004 with the Bioreactor and Crisps Creek IMF, and the Banksmeadow Transfer Terminal, which commenced operating in 2016.

Waste is transported from the Sydney transfer terminals in purpose-built shipping containers by rail on the Goulburn-Bombala Railway line to the Crisps Creek IMF from the Eco Precinct. At the Crisps Creek IMF the containers are loaded on to trucks for delivery to the Eco Precinct. Waste from the local area is also approved to be transported to the Eco Precinct by road.

Veolia proposes to develop and operate the Woodlawn Advanced Energy Recovery Centre (ARC) (the project), an energy recovery facility (ERF), at the Eco Precinct. This involves the development of an additional waste management technology at the Eco Precinct, processing a portion of the waste stream which is already approved to be received as part of integrated waste management operations, and recovering energy from the process.

Compared to other countries, energy recovery from waste is relatively new in Australia. Energy recovery is a well-established and recognised waste management technology globally, acknowledged to be a preferable method of waste management, diverting waste from landfill.

1.2 Project overview

The project will involve construction and operation of the following key components comprising the ARC:

- construction of the ARC, comprising an ERF for the thermal treatment of residual MSW and commercial and industrial (C&I) waste (the residual waste feedstock) that will otherwise be disposed of to landfill;
- thermal treatment in the ARC of approximately 380,000 tonnes per annum (tpa) of the residual waste feedstock;
- installed capacity of up to 30 megawatts (MW) of electricity (generation of up to 240,000 megawatt hours (MWh) of electricity per annum);
- on-site management of residual by-products generated by the ARC, including construction of an encapsulation cell; and
- construction of ancillary infrastructure to facilitate construction and operation of the project, including a new access road.

This assessment has been written to support the environmental impact statement (EIS) prepared by EMM Consulting (EMM) to respond to the Secretary's Environmental Assessment Requirements (SEARs) provided to Veolia on 2 July 2021.

1.3 Location and context

The Eco Precinct is within the local government area (LGA) of Goulburn Mulwaree, County of Murray, Parish Werriwa. The regional setting is shown in Figure 1.1.

The Great Dividing Range and the Lachlan Fold Belt define the geographical and topographical elements of the Eco Precinct, which is located off Collector Road, approximately 50 km south of Goulburn and 6 km west of the township of Tarago. It is a highly disturbed landscape with extensive open pit mining having been undertaken between the late 1970s and the late 1990s. The Woodlawn Bioreactor commenced operation in 2004 and has operated since that time. Veolia continues to manage, operate and develop the Eco Precinct for waste management and energy generation purposes.

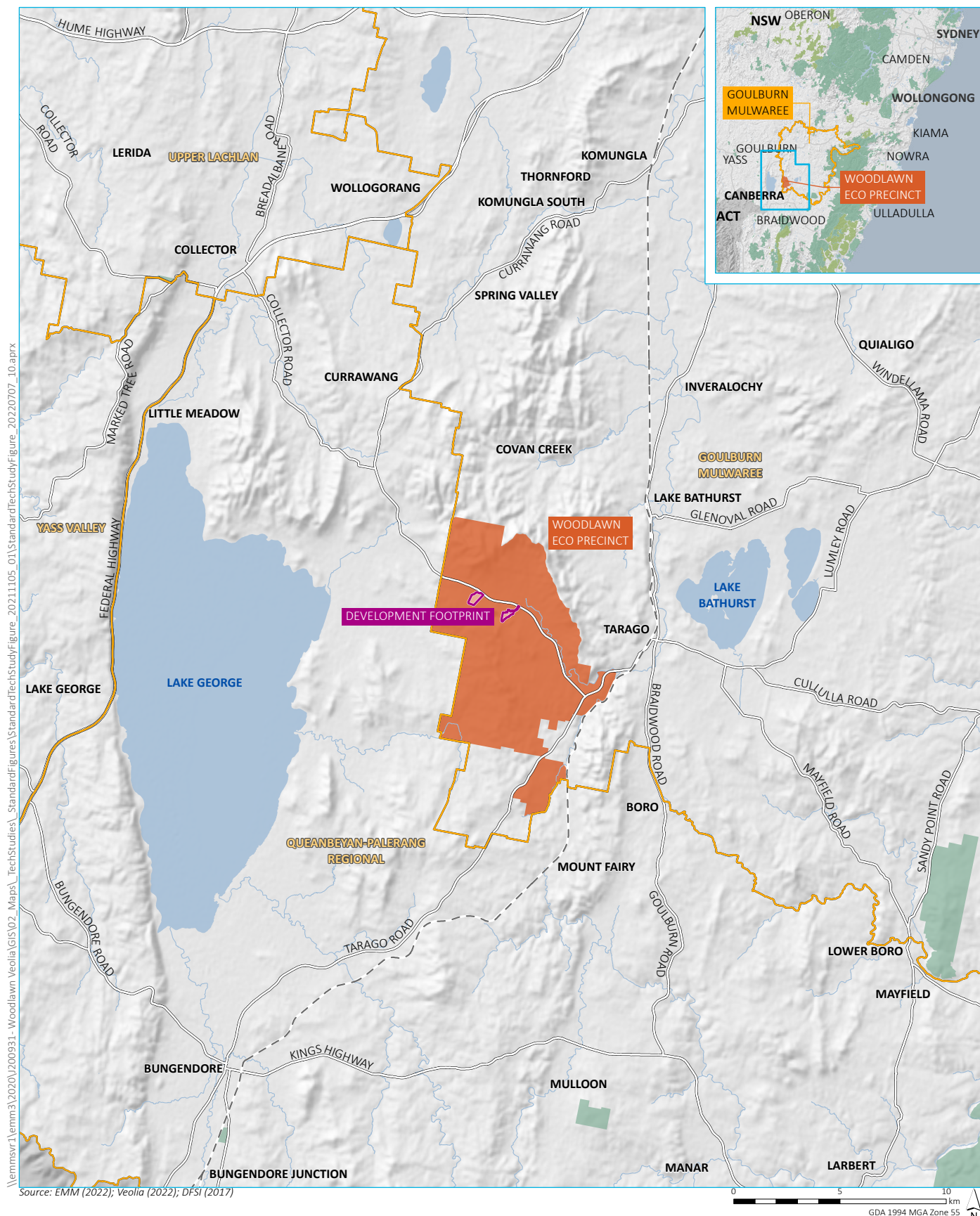
1.4 Secretary's Environmental Assessment Requirements

This assessment has been prepared in accordance with the SEARs for the Woodlawn Advanced Energy Recovery Centre project, issued on 2 July 2021, as well as relevant government assessment requirements, guidelines and policies, and in consultation with the relevant government agencies.

The SEARs did not provide requirements for the assessment of historical heritage, with the following advice being provided by the Heritage Council of NSW:

Thank you for your referral dated 3 June 2021 inviting SEARS input from the Heritage Council of NSW on the above State Significant Development proposal. The subject site is not listed on the State Heritage Register (SHR), nor is it in the immediate vicinity of any SHR items. Further, the site does not contain any known historical archaeological relics. Therefore, no heritage comments are required. The Department does not need to refer subsequent stages of this proposal to the Heritage Council of NSW.

The Goulburn Mulwaree Council (Council) requested a due diligence assessment to be prepared. This document fulfills the requirement provided by the Council.



KEY

- Development footprint
- Woodlawn Eco Precinct
- Rail line
- Major road
- Watercourse
- Named waterbody
- NPWS reserve
- Local government area

Regional context

Woodlawn Advanced Energy Recovery Centre
Historical archaeological assessment
Figure 1.1

1.5 Assessment methods

1.5.1 Objectives

The objectives of this report are:

- high-level desktop investigation of the development footprint to capture constraints; and
- provide recommendations and management measures going forward.

1.5.2 Guidelines

This report has been prepared in accordance with the principles of:

- the Australian International Council on Monuments and Sites, Charter for Places of Cultural Significance (also known as the Burra Charter), (ICOMOS (Australia) 2013); and
- the New South Wales (NSW) *Heritage Manual* (NSW Heritage Office and NSW Department of Urban Affairs and Planning 1996) with particular attention to:
 - *Assessing Heritage Significance* (NSW Heritage Office 2001);
 - *Statements of Heritage Impact* (NSW Heritage Office 2002);
 - *Investigating Heritage Significance* (NSW Heritage Office 2004); and
 - *Assessing Significance for Historical Archaeological Sites and 'Relics'* (NSW Heritage Branch 2009).

The NSW heritage assessment criteria, as laid out in Table 1.1, are applied in Section 5.

Table 1.1 NSW heritage assessment criteria

Criterion	Explanation
a)	An item is important in the course or pattern of NSW's (or the local area's) cultural or natural history (Historical Significance).
b)	An item has strong or special association with the life or works of a person, or group of persons of importance in NSW's (or the local area's) cultural or natural history (Associative Significance).
c)	An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area) (Aesthetic Significance).
d)	An item has a strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons (Social Significance).
e)	An item has the potential to yield information that will contribute to an understanding of NSW's (or the local area's) cultural or natural history (Research Significance).
f)	An item possesses uncommon, rare or endangered aspects of NSW's (or the local area's) cultural or natural history (Rarity).
g)	An item is important in demonstrating the principal characteristics of a class of NSW's (or the local area's) cultural or natural places or environments (Representativeness).

1.5.3 Background and historical research

Background research was conducted by EMM archaeologist Susan Lampard and research assistant Amelia O'Donnell. Research was conducted using a review of primary and secondary sources including:

- original land deeds;
- historical aerial sequences;
- relevant heritage register searches; and
- relevant reports including:
 - Environmental Assessment: TriAusMin Woodlawn Project. Volume 1 prepared by Parsons Brinckerhoff (2012); and
 - Goulburn Mulwaree Heritage Study Review prepared by Barker Ryan Stewart Pty Ltd and Sue Rosen and Associates (2018).

1.5.4 Field assessment

The site inspection was undertaken by EMM archaeologist Alan Williams on 2 June 2021.

1.6 Limitations of the report

This assessment was prepared to investigate the potential for relics to survive on or beneath the surface of the development footprint. Within this report, EMM provides predictions regarding the probability of surface and subsurface archaeological material occurring within the development footprint, based on surface indications and environmental context. However, it is possible that materials may occur in areas without surface indications and in any environmental context.

Section 2 provides an overview of the statutory and non-statutory obligations of Veolia in relation to heritage. The overview is based on the author's experience within the heritage sector. It is not legal advice. The advice provided in this report is correct at the time of writing. Legislation, regulations, and guidelines can change, and users are encouraged to ensure statutory obligations have not changed since the report was written.

2 Planning framework

2.1 Overview

Development in NSW is managed by legislation and the guidelines that underpin the assessment process. The following section discusses legislation that frames the approvals process. The purpose of all assessment processes is to consider impacts to, among other things, cultural heritage items and places as well as archaeological sites and deposits associated with the project and to identify measures to avoid, mitigate or ameliorate impacts.

The project is classified as a State Significant Development (SSD) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) in accordance with clauses 20 and 23 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011*. The applicant for the project is Veolia Environmental Services (Australia) Pty Ltd (Veolia).

2.2 Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legal framework to protect the environment. The EPBC Act definition of environment includes places of natural, Indigenous and historic heritage value. Under the EPBC Act, heritage places can be listed on:

- World Heritage List (WHL) – places inscribed on the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage List;
- National Heritage List (NHL) - places of significance to the nation; and
- Commonwealth Heritage List (CHL) - items belonging to the Commonwealth or its agencies.

Additionally, actions that may impact on Matters of National Environmental Significance (MNES) must also be assessed for impacts. MNES that relate to heritage include identification on the WHL or NHL. Under the EPBC Act, an action that may have a significant impact on a MNES is deemed to be a ‘controlled action’ and can only proceed with the approval of the Commonwealth Minister for the Environment. An action that has the potential for significant impact on a MNES is to be referred to the Department of Agriculture, Water and the Environment (DAWE) for determination as to whether or not it should be classified as a controlled action. If deemed a controlled action, the project is approved under the EPBC Act.

The development footprint is not in the vicinity of any world heritage properties or places listed on the National Heritage Register, and the EPBC Act is not discussed further.

2.3 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) establishes the framework for development assessment within NSW, with one of the objects of the Act being to promote the sustainable management of built and cultural heritage, including Aboriginal cultural heritage.

Implementation of the EP&A Act is the responsibility of the Minister for Planning and Public Spaces, statutory authorities and local councils. It contains three parts that impose requirements for planning approval:

- Part 4, which provides for control of ‘development’ that requires development consent from the relevant consent authority. A division of Part 4 (Division 4.7) provides for the assessment of SSD where the Minister for Planning and Public Spaces (the delegate) or the Independent Planning Commission (IPC) is the consent authority.
- Part 5, which provides for control of ‘activities’ that do not require approval or development consent under Part 4.
- Division 5.2, which provides for control of State significant infrastructure (SSI) that does not require approval or development consent under Part 4.

The requirement for development consent is set out in environmental planning instruments (EPIs) being State environmental planning policies (SEPPs), local environmental plans (LEPs), or development control plans (DCPs).

Schedule 5 of the *Goulburn Mulwaree Local Environmental Plan 2009* (Goulburn Mulwaree LEP) provides a list of identified environmental heritage within the Goulburn Mulwaree LGA, impacts to which are to be considered during the development assessment and approval process. DCPs provide policies that are specific to the local environment and character of the LGA or a subset of the LGA. The NSW Department of Planning, Infrastructure and the Environment (DPIE) may also prepare SEPPs to guide planning across the State.

The project is classified as SSD under the EP&A Act as it is development that requires consent, being the type of development listed in Schedule 1 of the *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP), namely it meets the definition of both ‘electricity generating works and heat or co-generation’ (clause 20) and ‘waste and resource management facilities’ (clause 23) under Schedule 1.

Therefore, the project is SSD and approval is sought under Part 4, Division 4.7 of the EP&A Act. The consent authority for SSD is either the delegate or the IPC.

2.4 Heritage Act 1977

The *Heritage Act 1977* (Heritage Act) serves to conserve the heritage places, items and objects of NSW. The Heritage Council of NSW is constituted under the Heritage Act to advise the Minister with responsibility for heritage on matters relating to the conservation of the State’s heritage. In practice, this power is largely delegated to Heritage NSW.

Under the Heritage Act, items of significance to the State can be recognised on the State Heritage Register (SHR). Items on the SHR cannot be demolished, damaged, developed, altered or excavation undertake without approval from the Heritage Council of NSW (or its delegate) under Section 59 of the Act.

Archaeological relics, defined as “any deposit, artefact, object or material evidence that relates to the settlement of the area that comprises NSW, not being Aboriginal settlement, and is of State or local significance”, are protected under Section 139 of the Heritage Act. A person cannot knowingly disturb or excavate land when they suspect a relic to be present without holding an excavation permit or an exemption. Section 139 applies to all land in NSW not listed on the SHR. Section 146 requires persons to notify the Heritage Council of NSW within a reasonable time if an unanticipated relic is discovered. The Heritage Act identifies the category of ‘works’, which refers to historical infrastructure, and is viewed as separate to that of archaeological ‘relics’ under the Heritage Act. ‘Works’ may be buried, and are therefore archaeological in nature, but exposing a ‘work’ does not trigger reporting obligations under the Heritage Act unless it is of demonstrable significance.

Section 170 of the Heritage Act requires State government agencies establish and maintain a register of heritage items, to be known as a Heritage and Conservation Register. State agencies are required to undertake due diligence with regard to the care, control and management of items listed on their Section 170 Heritage and Conservation Register. Additionally, State agencies must notify the Heritage Council of NSW 14 days in advance if they intend to remove an item from their register, transfer ownership, cease occupation, and or demolish. Section 170 does not place statutory requirements on individuals or non-State government entities.

Approval under the Heritage Act is not applicable for projects assessed as SSD under the Planning Systems SEPP, in accordance with Division 4.7, Section 4.41(1)(c) of the EP&A Act.

2.5 Heritage Items

A search of the relevant heritage registers was undertaken on 6 July 2021. No heritage items were identified within the development footprint or in a 1 km buffer as represented in Table 2.1. The closest heritage item is 'Willeroo', located approximately 3.5 km to the north west of the development footprint, which is listed on the Palerang LEP (2014) as #I271.

Table 2.1 Heritage register search

Jurisdiction	Heritage Register	Listings within the development footprint	Listings within 1 km buffer of the development footprint
Federal	World Heritage Register	Nil	Nil
	Commonwealth Heritage Register	Nil	Nil
	National Heritage Register	Nil	Nil
	Register of the National Estate (non-statutory)	Nil	Nil
State	State Heritage Register	Nil	Nil
Local	Goulburn Mulwaree LEP	Nil	Nil
	Palerang LEP	Nil	Nil

3 Historical analysis

3.1 The Aboriginal past

Information about the socio-cultural structure of Aboriginal society prior to European contact largely comes from ethno-historic accounts made by Europeans. These accounts and observations were made after massive social disruption due to disease and displacement. As a result, this information is often contentious, particularly in relation to language area boundaries.

Information on the practices of Aboriginal people has been lost due to settlement and interactions with European settlers but certain generalisations can be made from early colonial records and subsequent research. Aboriginal people moved in small family groups (Smith 1992), which belonged to clans all of which were united by language and cultural affinities with ties to specific territories.

The project is located on the boundary of four Aboriginal groups (based on Tindale 1974) comprising the Gandangara, Ngunawal, Wodi Wodi and Wandandian.

Generally Aboriginal people lived in family based clan groups of between 30 and 50 people in a defined area. Each group would have been mobile for at least part of the year and comprised of various age males and females with approximately four to eight pairs of husbands and wives. Most men were considered to have only one wife; although Govett (1836) notes that the chiefs of each tribe were able to have two wives. Historical records have noted large gatherings of people took place in Goulburn in the early 1800s (Smith 1992).

Timber and bark were also used to make tools and weapons adhered with resin from plants. Local and imported stones including quartz and silcrete were used to make a variety of tools. There is evidence of the construction of covered sleeping areas known as gunyahs – shelters made of bark or bushes laid against supporting trees or poles (Bluett 1927, p.11; Govett 1836, p.19).

3.2 Regional context

Earliest European exploration of the Goulburn Mulwaree area occurred in 1798 when Henry Hacking, with an escort of at least three, searched the area near present day Goulburn (Sue Rosen & Associates and Barker Ryan Stewart 2018, p.20, hereafter Rosen 2018). The area was rediscovered in 1814 by Hamilton Hume and in 1820 Governor Macquarie proclaimed Goulburn, with exploration and settlement fanning out across the surrounding area under official and unofficial guises (Rosen 2018, p.22).

Tarago, the closest village was established in 1827, initially known as Sherwin's Flat after William Sherwin, the original grant owner. When the railway line was opened through the town the name was changed to the present day Tarago (Rosen & Associates 2018, p. 91).

3.3 History

The development footprint falls across two separate historical ownerships (Figure 3.1), which are discussed separately below.

3.3.1 ARC Precinct

The ARC precinct sits within a 640 acre grant to Francis Kenny made on 6 June 1836 (Primary Application 15297). The grant was leased to James Byrnes for seven years, commencing 30 January 1839 (Primary Application 15297). Kenny held further lands in the adjacent Parish of Argyle, on the shore of Lake George. These lands appear to have been the focus of Kenny's operations in the area, although he also had land in the Appin (south-western Sydney) area. Kenny is known to have run sheep for the production of wool as he announced he had "retired from grazing pursuits and sold his Establishments at Lake George" to Burke and Co. in 1837 (Kenny 1837, p.3). On his death in 1839, The Sydney Herald reported "Mr. Kenny was what is generally called a hard drinker" (The Sydney Herald 1839, p.3). The winding up of his affairs included the sale of further farms in the district of Lake George (M. Kenny 1842, p.1) and it is therefore not clear whether the development footprint was part of the 1837 sale or was only disposed of following Kenny's death in order to pay his extensive list of debtors. The Primary Application (formal application to move land titles to the Torrens Title system) was not finalised until 1910 and the land within the ARC precinct was transferred to R.C. Cooper. It is unclear whether Burke and Co ever held the land.

As far as can be ascertained, the land was on the fringes of the Kenny estate, being leased. It is surmised that the land was used for pastoral purposes, most likely the grazing of sheep for wool production. While some infrastructure (house/hut, yards, shearing shed) would have been required to support this use, the location and extent of these structures is unknown. Pastoral activities are thought to have continued through until the late 1970s.

3.3.2 Encapsulation cell

The Encapsulation cell portion of the development footprint covers three historical portions of land; Portions 30 and 31 were granted to Robert Cowley Cooper in 1907, but were probably leased prior to that, while Portion 32 was granted to Cooper and his older brother James Volney Cooper in 1875, but were likely also to have been previously leased (Land Title 1802–232, 239–5, 239–6).

The Coopers were members of a major pastoralist family who were the "first white men on Lake George" (Queanbeyan Age 1914, p.2). Their uncle, Mr. James Cooper, was given a Crown Grant in 1825 known as Willeroo estate that the Cooper Brothers would manage after their uncle's death (Queanbeyan Age 1914, p.2). The estate is one of Goulburn's earliest sheep stations, bounding Lake George and extending towards Lake Bathurst and Collector. Robert Cowley and James Volney also purchased various plots of land on November 27, 1874, adjacent to Willeroo, known as Pylara.

The land would have been managed from the adjacent Pylara and Willeroo estates and no infrastructure associated with the operations has been identified within the encapsulation cell area.

3.3.3 Mining and the Eco Precinct

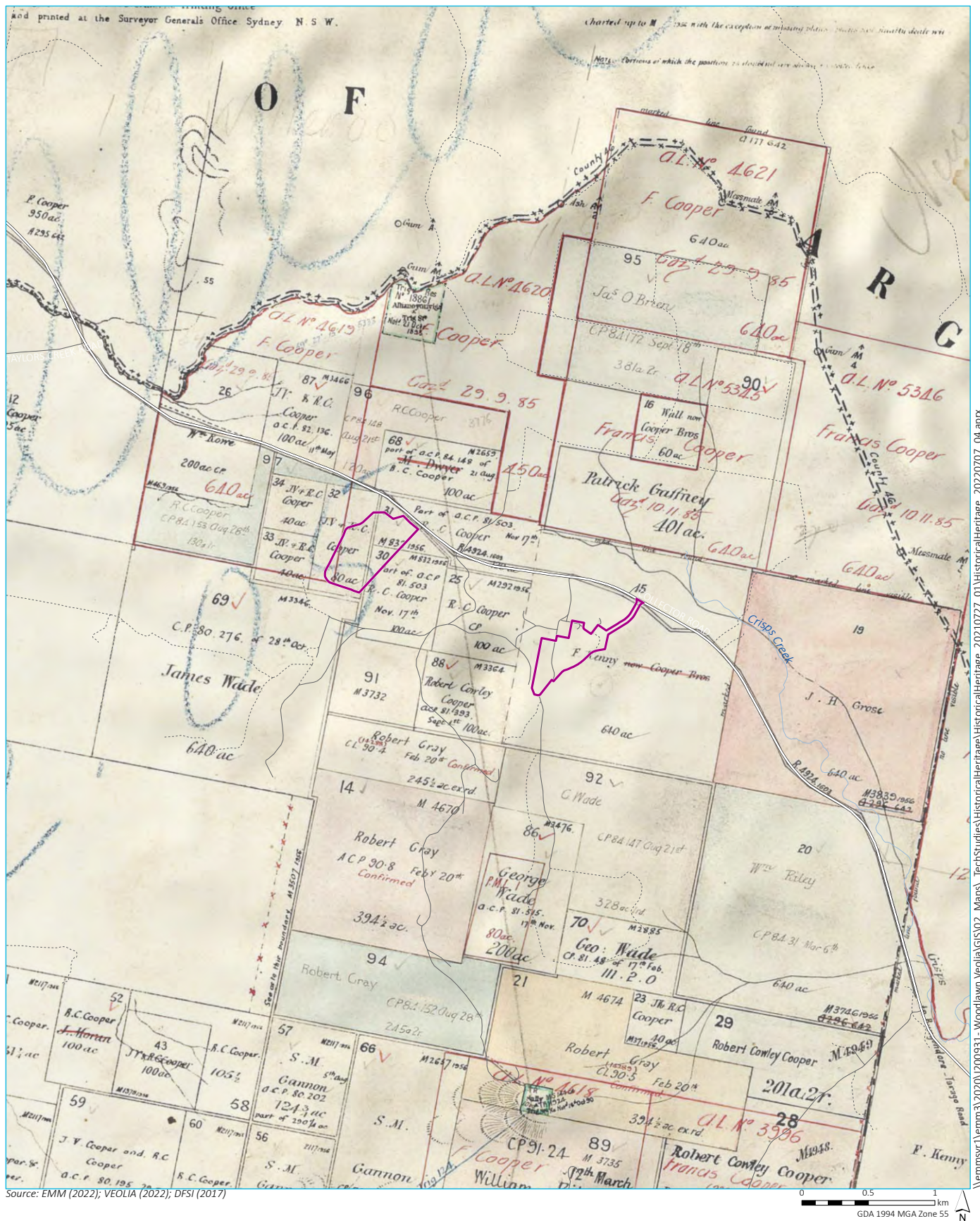
In 1978 a joint venture between St Joseph's International Explorations Ltd, Phelps Dodge Exploration Corp and New Broken Hill Consolidated Ltd (part of a CRA Group, now Rio Tinto Mining Co Ltd) developed an open pit mining operation at the Eco Precinct. In 1987 the mine was purchased by Denehurst Limited, who extended the operations to underground mining and extraction of further metals from the tailings. Operations ceased and Denehurst went into receivership in 1998. Veolia (then Collex) purchased the site of the Eco Precinct in 2001 following the closure of mining operations, with the intention to rehabilitate the degraded mine site and broader mine-related area. Additional land was acquired around the former mine site to provide a buffer to sensitive receptors and incorporate additional agricultural uses. All of these land holdings now comprise the Eco Precinct.

The Eco Precinct has developed over the last 20 years and includes an integrated system of waste management and resource recovery operations. Mining operations have also continued within the Eco Precinct. Tri Origin (now TriAusMin) negotiated the transfer of the mining lease from Denehurst administrators in conjunction with Veolia. Following approval of further mining operations in 2013, mining was undertaken by Heron Resources. Heron Resources went into voluntary administration in July 2021.

The chronology of the study area and broader Eco Precinct is summarised in Table 3.1.

Table 3.1 **Chronology Eco Precinct**

Year	Details
1836	640 acres granted to Francis Kenny.
1837	Kenny's land may have been sold to Burke and Co.
30 January 1839	Kenny's land leased to James Byrnes for a term of seven years.
c. 15 March 1839	Francis Kenny dies. His estate is disputed by the beneficiaries of his will and J.T. Hughes.
1910	Primary Application finalised. Land title issued in name of R. C. Cooper.
1978–1987	Open pit mining for gold, silver, zinc, lead and copper joint venture of St Joseph's International Explorations Ltd, Phelps Dodge Exploration Corp and New Broken Hill Consolidated Ltd (part of a CRA Group, now Rio Tinto Mining Co Ltd).
1987–1998	Denehurst Limited purchased the Woodlawn Site and undertook underground mining operations. Prior to 1990, Denehurst undertook investigations to evaluate the retreatment of the tailings within the tailings dams developed as part of the underground mining operation. Denehurst constructed plant and equipment (in 1990) and undertook mining of the tailings (using a dredging method) in TDN, TDW and TDS. Varying levels of tailings recovery were encountered. The project ceased in January 1996. Although still profitable the mine was closed on March 1998 owing to a combination of low base metal prices and other corporate financial problems encountered by Denehurst.
1998	Denehurst went into receivership.
2001	Collex (now Veolia Environmental Services (Australia) Pty Ltd) purchased the Woodlawn property.
1999	Present Tri Origin (now TriAusMin) began and continued preparation of an agreement with the Denehurst administrators to transfer the rights to SML 20, and an agreement with Veolia to determine responsibilities for the Woodlawn Site management and rehabilitation. TriAusMin continued to undertake investigations regarding the feasibility of mining on the Woodlawn Site during this period.
2000–2021	The Woodlawn Waste Management Facility, incorporating the Woodlawn Bioreactor, designed to treat 500,000 t of waste per annum, and the Crisps Creek Intermodal Facility, were approved, constructed and operated. Veolia have continued to expand its technologies within the Eco Precinct.



KEY

- Development footprint
- Major road
- Minor road
- Vehicular track
- Watercourse

Source for parish plan: COUNTY OF MURRAY PARISH OF WERRIMA, Edition 1 (no date).
NSW Historical Land Records Viewer

Woodlawn Advanced Energy Recovery Centre
Historical archaeological assessment
Figure 3.1

4 Existing environment

4.1 Introduction

The assessment of archaeological potential, or sensitivity, has been achieved through a review of historical plans and aerial photography against the existing environment. Additionally, information about the development footprint gathered from historical research will also inform the archaeological conditions.

4.2 Overview of land use and disturbance

The Eco Precinct was initially used for pastoral purposes. Starting in 1978, the majority of the Eco Precinct, including the development footprint, was heavily disturbed by open cut mining operations, and later the development of the Bioreactor and associated waste management infrastructure. The Eco Precinct has been subject to various levels of activity from the construction of ancillary activities, roads, services, storage areas, multiple reservoirs, buildings, and natural erosion through de-vegetation. The nature and extent of the disturbance is visualised in the historical aerial photographs contained in Appendix A and Plate 4.1 and Plate 4.2.



Plate 4.1 Woodlawn Bioreactor



Plate 4.2 Typical disturbance adjacent to Bioreactor

4.3 Site inspection

The development footprint is heavily disturbed, with evidence of modifications to the ground surface, including the remains of former mining activities, and numerous activities associated with the existing landfill operations. These latter activities include de-vegetation and subsequent erosion, roads, services (both above and underground), buildings, reservoirs and other water storage. The erection of wind turbines in part of the Eco Precinct, and their associated establishment and existing disturbance activities, were also evident, although not in close proximity to the project's activities discussed in this report.

A small area at the northern extent of the encapsulation cell development footprint appears to remain relatively undisturbed. No old growth vegetation was observed, although there are areas of regeneration within previously disturbed areas of the ARC Precinct (Plate 4.7, Plate 4.8).

The project elements are in areas of extensive previous disturbance. Specifically:

- The ARC development footprint – predominantly located within a former mine plant area which comprises earthworks and levelling, fill material, remnant concrete slabs and other defunct plant structures from former mining operations. A range of activities associated with the current operation is also present, including roads, access tracks and a number of overhead transmission lines also present. This area is highly disturbed (Plate 4.3, Plate 4.4).
- Site access road development footprint – connects the ARC to Collector Road. This traverses some areas that may have been disturbed historically, most evident by a number of natural erosion scours (Plate 4.5) and an absence of established topsoil (A1 horizon), but where regeneration of vegetation has occurred. There may be some localised areas in close proximity to Collector Road that are less disturbed from modern activities than elsewhere, but not natural pre or early European landscapes were observed.
- Encapsulation cell development footprint – within an area that is currently an evaporation dam (ED1), which is part of the Eco Precinct water management system. This dam is entirely artificial and required substantial earthworks across the locale. All areas exhibited high ground disturbance.

The balance of the study area (outside the development footprint) includes:

- the area between the ARC and Collector Road, which includes Plant Collection Dam, part of the Eco Precinct's surface water management system, and other areas which may have been subject to previous disturbance, but where regeneration of vegetation has occurred; and
- the area to the north of the encapsulation cell up to Collector Road, which comprises part of the evaporation dam, pasture and landscaped vegetation.



Plate 4.3 Site of proposed ARC precinct. View south



Plate 4.4 Site of proposed ARC precinct. View south west



Plate 4.5 Example of erosion within ARC Precinct



Plate 4.6 Encapsulation cell site. View west



Plate 4.7 Cleared area with some regeneration of native trees within the ARC Precinct. View south



Plate 4.8 Cleared area with some regeneration of native trees within ARC Precinct. View east

4.4 Archaeological sensitivity

A small section at the north of the encapsulation cell development footprint has not previously been disturbed (Plate 4.9). Consideration of the 1960 aerial in Appendix A does not indicate improvements in this area. A site inspection identified what appears to be a survey marker. The object is a concrete pillar, painted white, on an unpainted concrete base. The top of the pillar has a metal plate and pin. The survey marker is not an official NSW Permanent Survey Mark (PSM), not appearing in the Survey Control Information Management System (SCIMS). The materials suggest the potential survey marker dates to the last 60 years (ie post-1960).

Archaeological resources are often protected if the land is covered over; however, the development footprint has been subject to excavation and disturbance that would remove any remnants of relics if any were present. The site has low to no potential for archaeological values.



Plate 4.9 Undisturbed section within encapsulation cell development footprint, view south



Plate 4.10 Potential survey marker within encapsulation cell development footprint, view south



Plate 4.11 Potential survey marker within encapsulation cell development footprint, detail

4.5 Built heritage sensitivity

There is no listed built heritage within the development footprint. Some residual machinery and buildings associated with the mining operations are retained within the development footprint. Two structures are extant that relate to this period of the site's history, a two-storey structure (Plate 4.12) and two single storey sheds (Plate 4.13, Plate 4.14). A large proportion of the mining infrastructure has been removed, leaving the concrete footprints and some demolition rubble (Plate 4.15). These buildings and concrete relate to the 1970s mining operation and the mining operations and machinery from this period are well understood and documented. The machinery is not complete or operable or within its original location. The machinery is therefore not representative and does not hold historical significance. Structures within the area relate to the operations of Veolia and have been constructed within the last 20 years (see for example Plate 4.16, Plate 4.17).



Plate 4.12 Residual mine related structure, possible crusher



Plate 4.13 Residual mine related structure, shed



Plate 4.14 Residual mine related structure, sheds



Plate 4.15 Residual mine related concrete footprints and demolition rubble



Plate 4.16 Mechanical Biological Treatment Facility



Plate 4.17 Small scale development associated with Veolia's operations

5 Assessment of significance

Table 5.1 assesses the archaeological and built heritage significance of the development footprint against the NSW heritage assessment criteria (Table 1.1).

Table 5.1 Assessment of the development footprint against the NSW heritage assessment criteria

Criterion	Explanation
a) An item is important in the course or pattern of NSW's (or the local area's) cultural or natural history (Historical Significance).	The site was a small grant to Francis Kenny, part of his broader landholdings. The grant was leased and then sold and used for pastoral purposes until the opening of the mine in the 1970s. It fits within the narrative of the granting of land in the region but is not a good example.
b) An item has strong or special association with the life or works of a person, or group of persons of importance in NSW's (or the local area's) cultural or natural history (Associative Significance).	Francis Kenny and the Cooper Brothers were locally well-known during his occupation of the area, but their notoriety was short-lived. The site is not associated with a person of note and does not hold significance under this criterion.
c) An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area) (Aesthetic Significance).	The site does not hold aesthetic or technical significance and is not significant under this criterion.
d) An item has a strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons (Social Significance).	The site may hold some significance to the local community as a source of employment by the mine. However, this is not considered to be a historical connection. The site is not significant under this criterion.
e) An item has the potential to yield information that will contribute to an understanding of NSW's (or the local area's) cultural or natural history (Research Significance).	No areas of archaeological potential have been identified on the site. The site is not significant under this criterion.
f) An item possesses uncommon, rare or endangered aspects of NSW's (or the local area's) cultural or natural history (Rarity).	There are other mines regionally and across the state of a similar scale and history. The site is not considered to be rare.
g) An item is important in demonstrating the principal characteristics of a class of NSW's (or the local area's) cultural or natural places or environments (Representativeness).	There are other mines regionally and across the state of a similar scale and history. The site is not considered to be representative.

5.1 Summary Statement of Significance

The site does not hold heritage significance.

5.2 Likelihood of project impacts on archaeological sensitivity

The archaeological sensitivity of the area is low. The project is unlikely to encounter substantial or intact relics.

5.3 Likelihood of project impacts on built heritage sensitivity

No built heritage has been identified on the site. No impacts have therefore been identified.

6 Conclusions and recommendations

The results of this assessment and the impacts of the project indicate that the risk of disturbing relics is low and no built heritage exists within the development footprint. Additional heritage assessment is not required as the area has been assessed to be of low archaeological potential and the works will be carried out on previously disturbed ground. The mining related machinery holds no historical significance and may be removed.

The management and mitigation measures are summarised in Table 6.1.

Table 6.1 Management and mitigations summary table

Impact/risk	ID	Measure	Timing
Unexpected finds and skeletal remains	HER01	The Construction Environmental Management Plan (CEMP) to include an unexpected finds protocol that also addresses skeletal remains.	Construction and Operation
Potential survey marker	HER02	The potential survey marker should be avoided. If impacts cannot be avoided, an archival recording should be undertaken prior to removal. Consultation should be undertaken with the NSW Registrar General to ensure it is not a statutory survey marker.	Construction and Operation

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- Land Title 239-6

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Appendix A

Historical aerial sequence

HISTORIC AERIAL PHOTOGRAPH - 1960

Imagery Insight

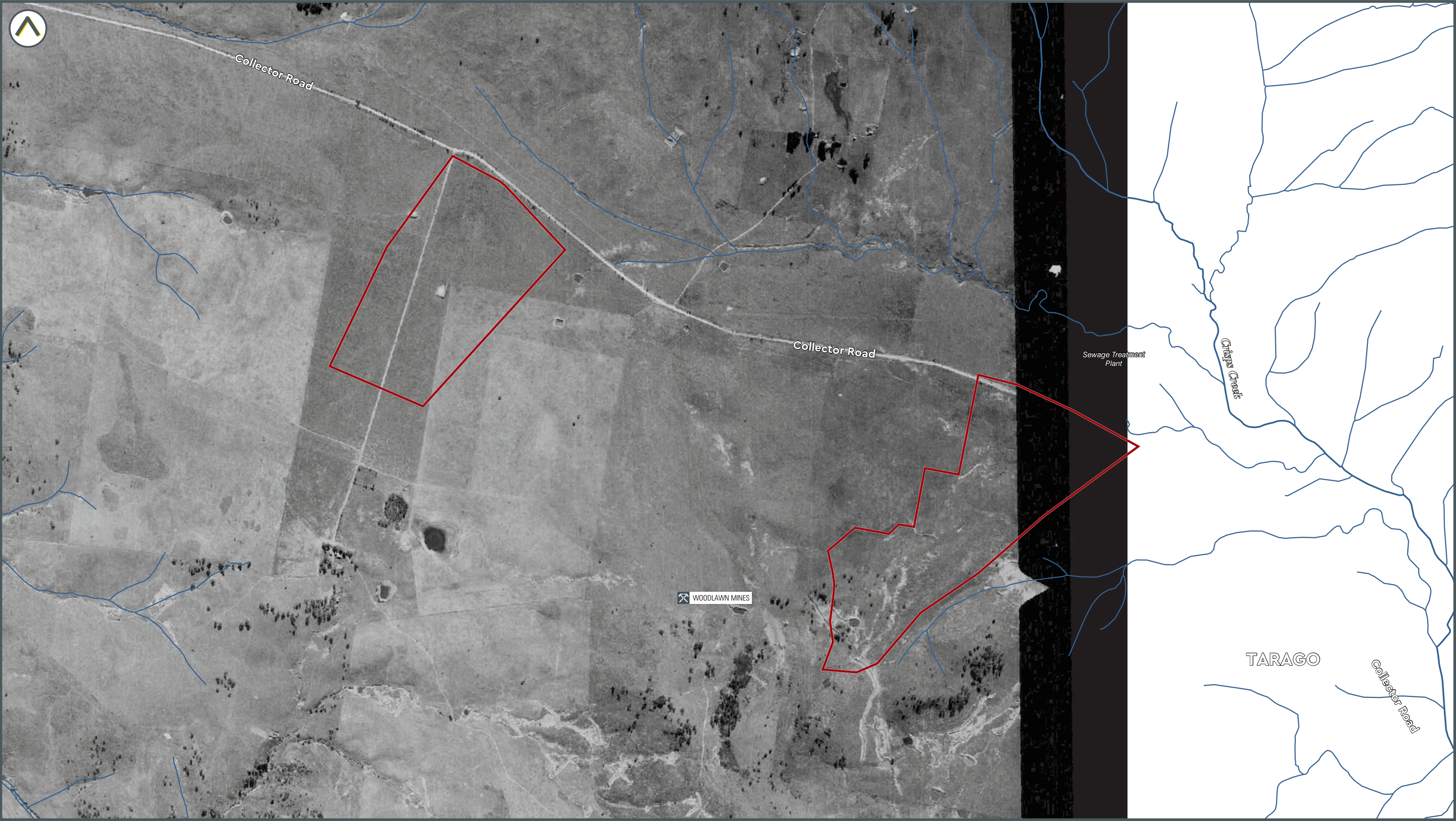


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HISTORIC AERIAL PHOTOGRAPH - 1967

Imagery Insight



Subject area
0 400m



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HISTORIC AERIAL PHOTOGRAPH - 1985

Imagery Insight



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HISTORIC AERIAL PHOTOGRAPH - 1991

Imagery Insight

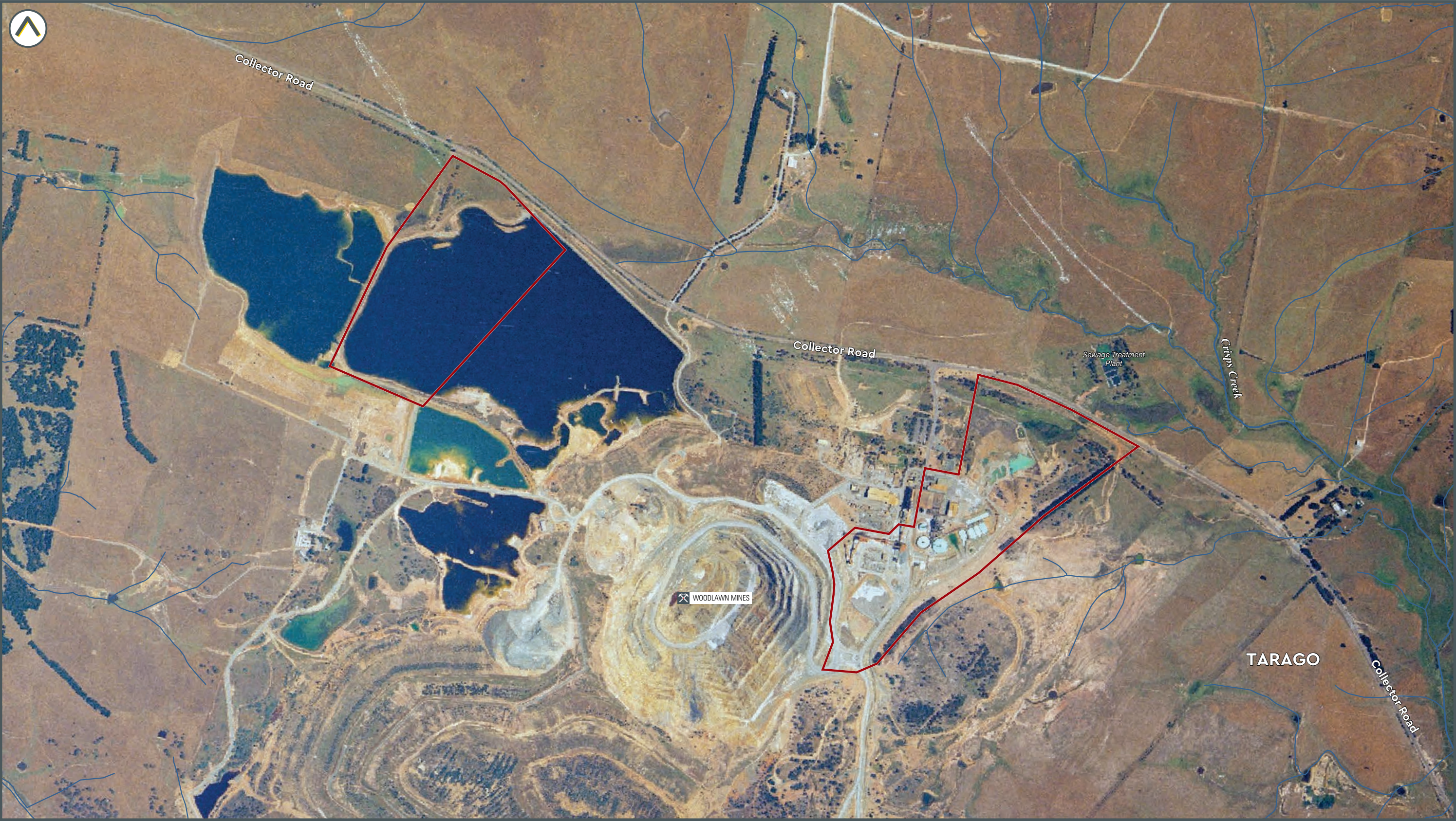


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HISTORIC AERIAL PHOTOGRAPH - 1997

Imagery Insight

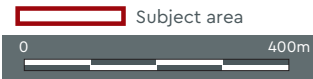


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HISTORIC AERIAL PHOTOGRAPH - 1998

Imagery Insight

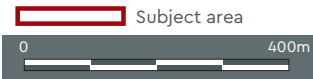


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HISTORIC AERIAL PHOTOGRAPH - 2008

Imagery Insight

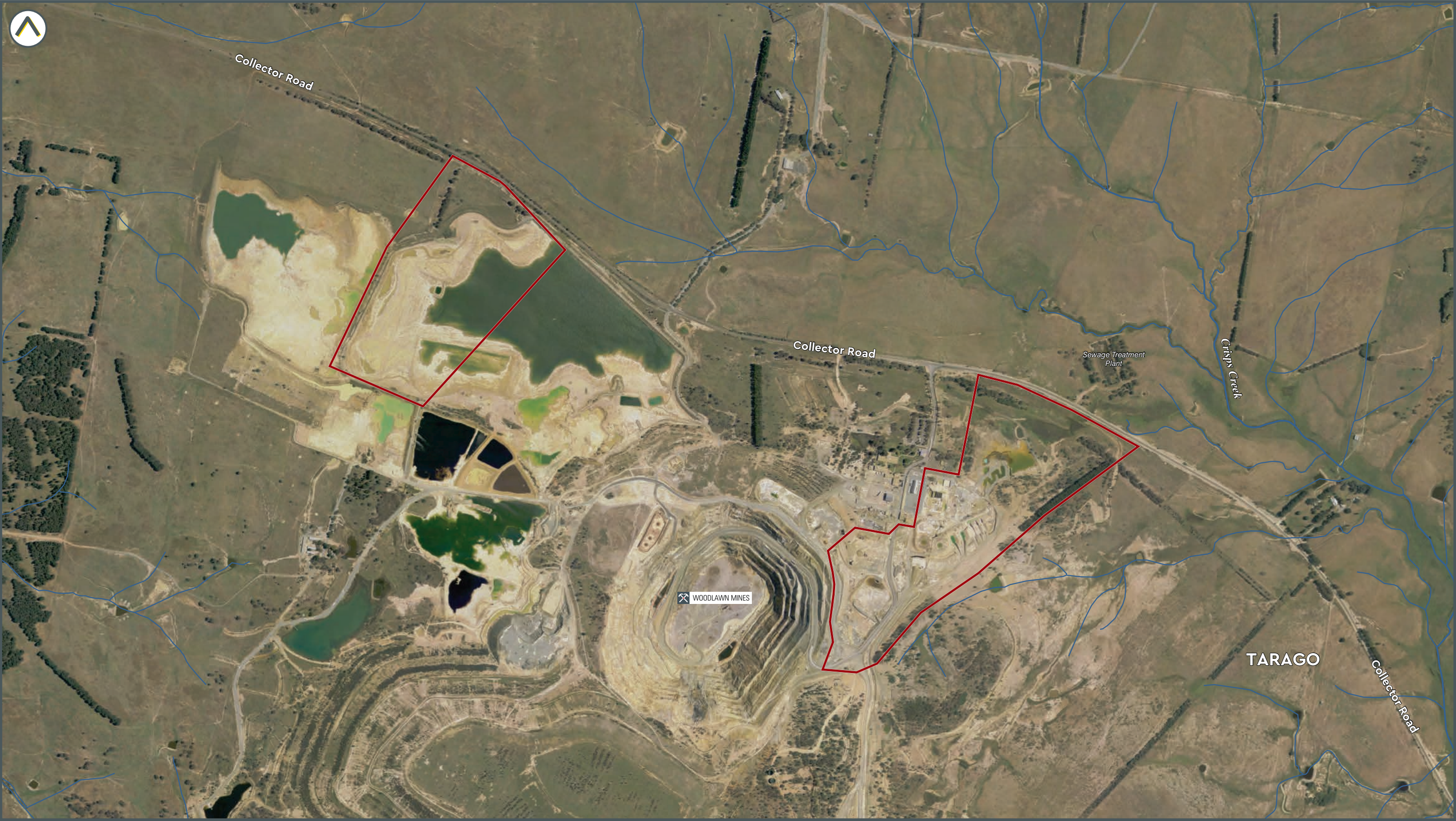


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HISTORIC AERIAL PHOTOGRAPH - 2010

Imagery Insight



0 400m

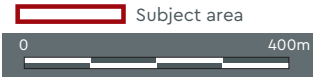


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HISTORIC AERIAL PHOTOGRAPH - 2014

Imagery Insight

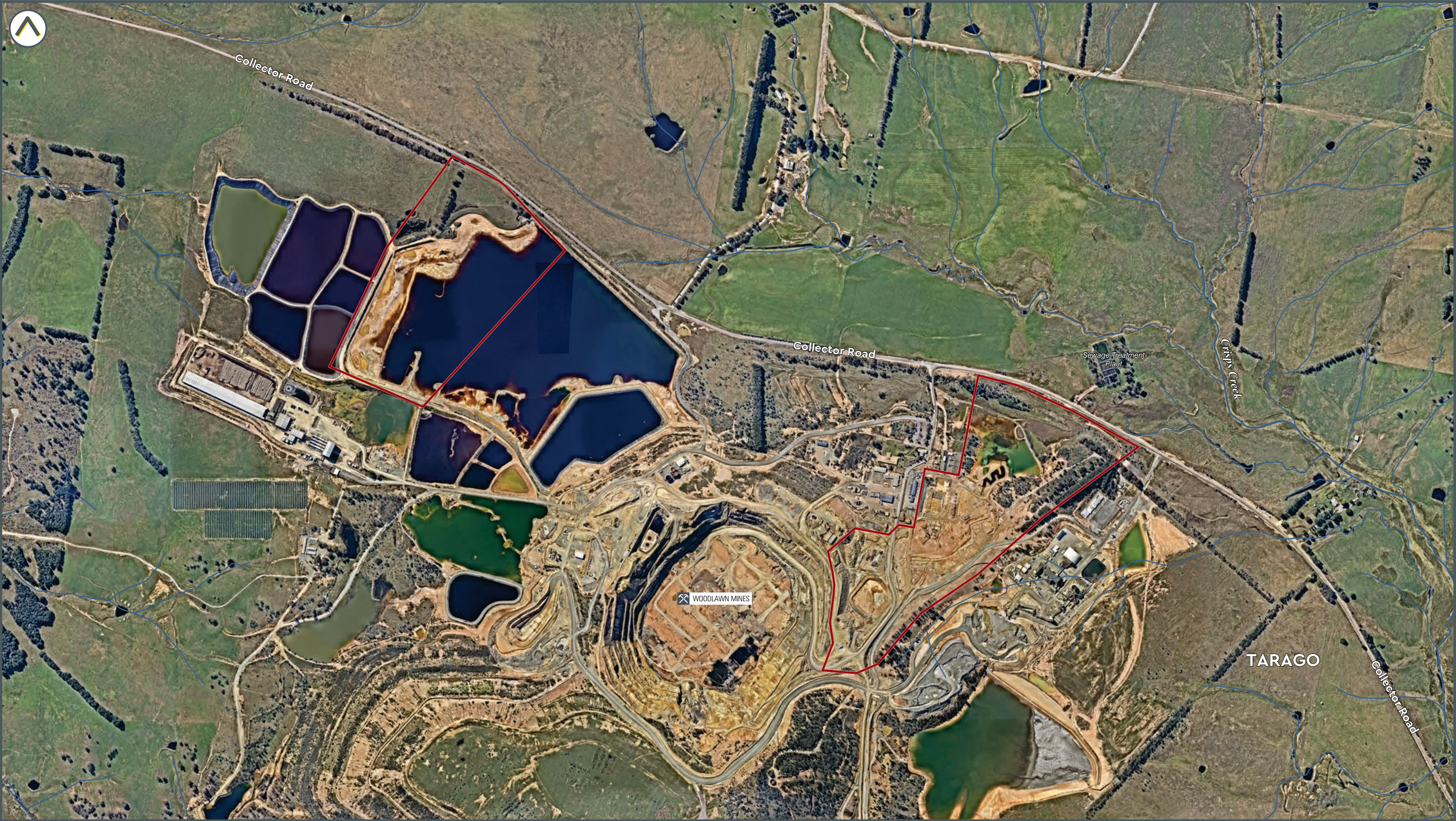


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HISTORIC AERIAL PHOTOGRAPH - 2021

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