Archaeological and Heritage Assessment for OceanaGold MP4

Commissioned by Debbie Clarke and Dean Fergusson on behalf of OceanaGold Holdings (New Zealand) Ltd

Prepared by Jeremy Moyle, Lucy King, and Jaime Grant

Reviewed by Jeremy Moyle

Origin Consultants Ltd

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Front cover: Historic fenceline at Coronation Pit extension, 2022 (Origin Consultants).

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Introduction

OceanaGold (New Zealand) Ltd (OceanaGold) is planning to extend the mine life (LOM) of its Macraes operation to around 2030. As part of the LOM, OceanaGold is lodging consent applications for Macraes Phase 4 (MP4) project elements.

The Macraes Flat area was initially part of large pastoral holdings with a significant European presence arriving in the area in the 1860s, following the discovery of gold at Deepdell Creek. As a result of agitation for land suitable to farm, the large land holdings were broken up into smaller grazing runs in the late 1800s. Since the discovery of gold, the Macraes area has been mined extensively from the 1860s through to the present. As a result, multiple heritage and archaeological features have been recorded in the wider area with many historic mining sites affected by the more recent mining works.

The following proposed MP4 works have been considered as part of this assessment:

- permanent storage of mined tailings in Frasers Pit (FTSF);
- expansion of the existing Coronation Pit (Stage 6);
- expansion of the existing Innes Mills Pit (Stages 8-10), including a minor realignment of Golden Bar Road; and
- expansion of the Golden Bar Pit and associated WRS extension (Stage 2).

The purpose of this assessment is to:

- identify the history of the proposed works sites and consider whether any historic heritage may be affected by the proposals;
- provide appropriate recommendations for the mitigation and management of any potential damage to identified historic heritage features; and
- provide information to support an application for an archaeological authority under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPT Act 2014), where required.

The authors of this report are Jeremy Moyle (Senior Archaeologist), Lucy King (Heritage Consultant/Heritage Planner) and Jaime Grant (Archaeologist) at Origin Consultants Ltd. Jeremy and Jaime are members of the New Zealand Archaeological Association (NZAA).

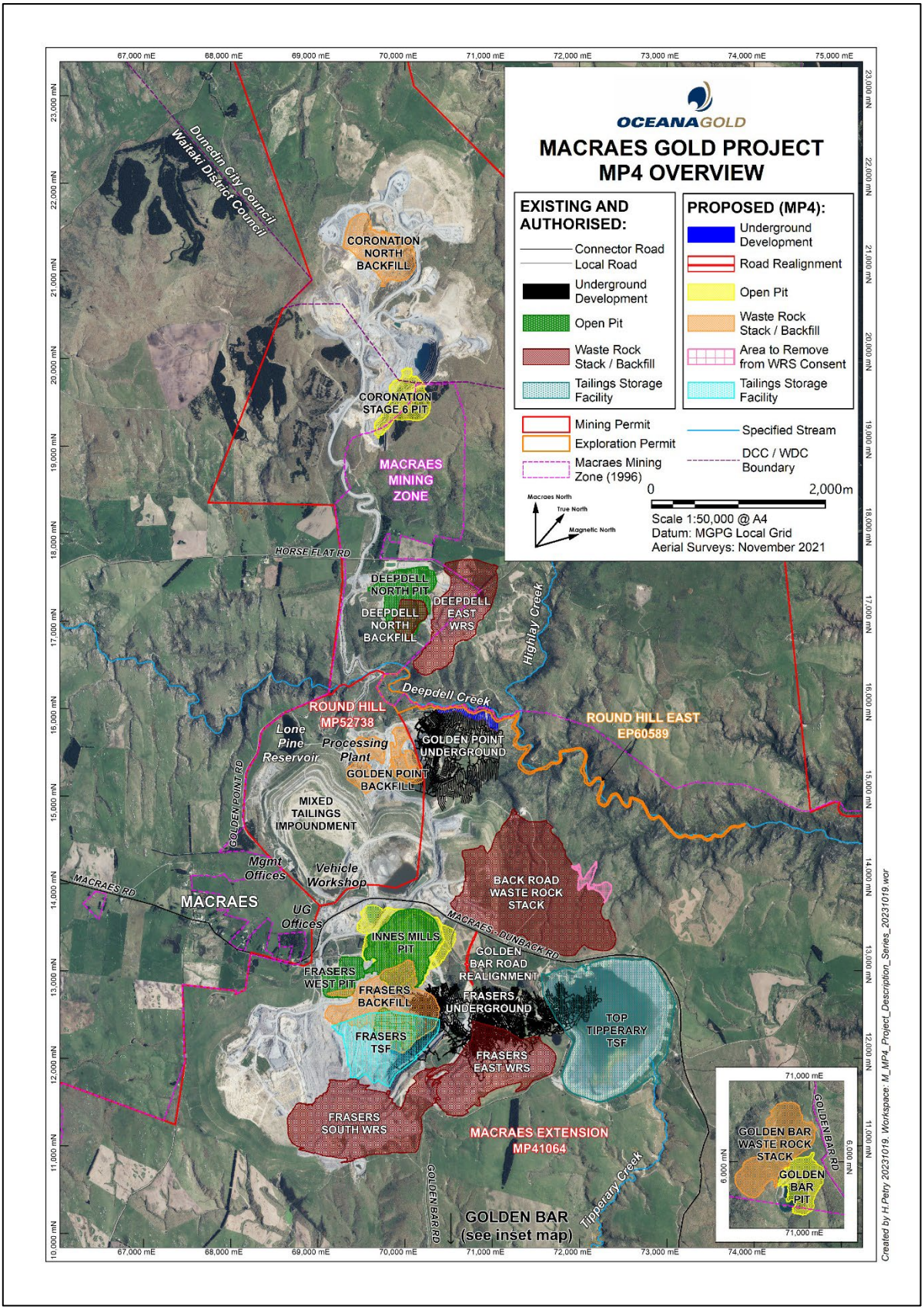

Figure 1. Location of proposed works sites near Macraes.[1]

[1] OceanaGold, 2023.

Regulatory Framework

Resource Management Act 1991

The Resource Management Act 1991 (RMA 1991) requires territorial authorities to manage the use, development, and protection of natural and physical resources in a way that provides for the wellbeing of today's communities while safeguarding the options of future generations. The protection of historic heritage from inappropriate subdivision, use, and development is identified as a matter of national importance (section 6(f)).

'Historic heritage' is defined as those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, derived from archaeological, architectural, cultural, historic, scientific, or technological qualities.

Historic heritage includes:

- historic sites, structures, places, and areas
- archaeological sites;
- sites of significance to Māori, including wāhi tapu;
- surroundings associated with the natural and physical resources (section 2).

These categories are not mutually exclusive; some archaeological sites may include above ground structures or may also be places that are of significance to Māori.

Where resource consent is required for any activity the assessment of environmental effects is required to address cultural and historic heritage matters, and the actual and potential effects on these (schedule 4 of the RMA 1991 and the District Plan assessment criteria).

Chapter 11 of the Waitaki District Council (WDC) District Plan contains rules on activities affecting historic heritage. These rules are triggered where the proposed works affect a heritage building, object, property, or place of special interest included in Appendix B of the District Plan.

Heritage New Zealand Pouhere Taonga Act 2014

The HNZPTA 2014 creates an offence for any person to destroy, damage, or modify the whole or any part of an archaeological site without the prior authority of Heritage New Zealand Pouhere Taonga (HNZPT). An archaeological site is defined as:

Any place in New Zealand, including any building or structure (or part of a building or structure), that –

a. was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and
b. provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; and
c. includes a site for which a declaration is made under section 43(1).

Any person who intends to carry out work that may modify or destroy an archaeological site, must first obtain an authority from HNZPT. This is the case regardless of whether the land on which the site is located is a designated historic place, or the activity is permitted under the District or Regional Plan or a resource or building consent has been granted.

An authority application must be accompanied by:

- A legal description of the land or a description sufficient to identify the land to which the application relates;
- The name of the landowner and proof of consent, if the owner has consented to the proposed activity;

- A description of each archaeological site to which the application relates and the location of each site;
- A description of the activity for which the authority is sought;
- A description of how the proposed activity will modify or destroy each archaeological site; and
- An assessment of:
    - the archaeological, Māori, and other relevant values of the archaeological site in the detail that is appropriate to the scale and significance of the proposed activity and the proposed modification or destruction of the archaeological site; and
    - the effect of the proposed activity on those values; and
    - a statement as to whether consultation with tangata whenua, the owner of the relevant land (if the applicant is not the owner), or any other person likely to be affected has taken place, with details of the consultation, including the names of the parties and the tenor of the views expressed; or has not taken place, with the reasons why consultation has not occurred.

HNZPT must accept or decline the application for an archaeological authority within 20 working days. There is no fee for this application. HNZPT may attach special conditions to a granted authority, which will usually include the need to monitor earthworks or other potential disturbances on the site, the recording of any pre-1900 buildings or structures (if present), and the preparation of an interim and a final report for HNZPT which sets out the findings of the archaeologist on site.

Section 46(5) allows an applicant to provide the same information to HNZPT as that provided for resource consent applications under the RMA 1991, but must ensure that the information required for an authority application is provided.

Methodology

This archaeological and heritage assessment for the OceanaGold MP4 works was carried out using desktop research methods and, where required, included a site visit to assess any current site features.

The desktop assessment largely built on previous assessments carried out by Origin Consultants on the Macraes area. Several historic sources were also consulted to try to establish and clarify the historical development and chronology of the site and to identify heritage features and archaeological sites in the area. These sources included:

- Online and physical archives, including PapersPast for historic newspapers;
- HNZPT List/Rārangi Kōrero and the WDC District Plan, to identify recorded heritage sites and features;
- NZAA site records (via ArchSite), to identify the details of any previously recorded archaeological sites in the vicinity;
- Historic survey plans (via QuickMap) and historic aerial photographs (via Retrolens);
- Modern aerial photographs (via Google Maps, Google Earth and LINZ Data Service); and
- Secondary sources, including publications and reports held by Origin Consultants or supplied by OceanaGold.

A site visit was undertaken on 18 May 2022 by Jeremy Moyle to make a visual assessment of some of the project areas. This visual assessment was supported by digital photographs that recorded features of the site.

The following sections of this report provide an assessment of the four proposed works sites. Each section is structured as follows:

1. A site outline providing the legal description of the affected land and the documents reviewed to determine the extent of the proposed works.
2. The site context, including a brief site history and outline of historic heritage features recorded on ArchSite, in the HNZPT List, and the WDC District Plan within the extent of the proposed works or immediately adjacent to the proposed works.
3. The results of the site visit, if undertaken.
4. An assessment of effects of the proposed works on the identified historic heritage features.
5. Recommendations, if necessary, to mitigate adverse effects on historic heritage and whether an archaeological authority is required for the works.

The size and comprehensiveness of the assessment of effects of each proposed activity is proportional to the potential effects of the proposed activity on historic heritage. For example, where the works are considered to have less than minor effects (for example, infilling FTSF) and there is little evidence of heritage or archaeology, the assessment of effects was dealt with briefly.

The values of heritage and archaeological sites affected by the proposed works have been assessed against six criteria:[2]

- Condition – the physical condition of the site and any associated features.
- Rarity/Uniqueness – the degree of rarity of the site within its immediate and/or wider contexts.
- Contextual – the contribution of the site to its broader contextual situation (e.g., cultural, local, and archaeological contexts).
- Information potential – the potential for additional information to be recovered by archaeological means and its nature.
- Amenity – the potential contribution of the site as a local amenity.
- Cultural associations – the cultural associations of the site.

[2] HNZPT, "Archaeological Guidelines Series No. 2: Writing Archaeological Assessments," August 2019.

Constraints and Limitations

The key constraints and limitations on the archaeological assessment for the OceanaGold MP4 project are considered to be as follows:

- Reasonable time and budget constraints meant that the assessment only involved desk-based research and a visual inspection of the site. No targeted intrusive investigation, such as test pitting, was undertaken.
- The significant degree of land modification due to farming and mining in the area made it challenging to identify any potential archaeological features.
- The archaeological and heritage sites recorded on ArchSite, HNZPT List, and Waitaki District Plan do not represent an exhaustive record of the historic heritage features in the area. In particular, archaeological sites recorded on ArchSite are recorded and updated *ad hoc* as a result of archaeological surveys or development projects.
- Some ArchSite records were also logged prior to GPS technology and were translated from paper records to the online mapping tool. This has meant that the locations of some sites are not accurately recorded. Until recently, ArchSite was also limited to recording an archaeological feature or site at one point. As such, sites that extend over a large area may not be included in this assessment.
- The figures are overlaid over aerials dating from 2021 and may not provide an accurate representation of the existing land disturbance at each works site.

Site Context

Site History (General)

The earliest human occupation of Te Wai Pounamu was around 1280AD. The first people were thought to be Waitaha, who were followed by Ngati Mamoe and then Kāi Tahu from the North Island. The three iwi eventually merged through conflict, marriage, and alliances. The Kāi Tahu Whānui quickly spread across the region, developing different types of settlement sites dependent on the available local resources and environmental conditions.[3] These included settled village sites along the coast adjacent to rich and sustained food resources such as seals and moa; seasonal inland sites for collecting stone resources and hunting; and comparable seasonal coastal sites for "fishing and moa processing."[4]

Gradually, much of the forest along the coastal region reduced in extent due to changes in patterns of hunting and fishing, and the use of smaller, more mobile occupation sites by the 16th and 17th centuries. This was followed by further changes in economy, based on organised food gathering and processing that created settled village communities along the Otago coastline from the mid-18th century onwards.[5]

While the vast majority of permanent settlements in the South Island were on the eastern coast, where the climate was more temperate, Māori also thoroughly explored the interior and established routes and trails inland and across the Southern Alps to the West Coast.[6] The Waitaki District was rich in resources, both food and raw material for the manufacture of tools. Silcrete, a valuable resource for tools, is found in the area. The plateau around Macraes seems to have been used steadily by Māori, but not intensively. This began with early expeditions for resource gathering, and continued into the period of European contact, with adjustments to the resources being targeted. There is archaeological evidence of moa hunter sites, silcrete quarries, ovens, rock shelters and wooden bowls within the Strath Taieri.[7]

These findspots fit with the activities of the Ōtākou hapū hunting parties, which set out into the interior and migrated for seasonal resources, including eeling, catching birds, and cooking cabbage tree stems. Migration in the spring and early summer up the Taieri River is recorded as a traditional activity by the Ōtākou people. Eels and birds, particularly weka, were collected and tikumu (for weaving) and taramea were harvested. Traditional activities in the area appear to have focused along the Taieri and the adjacent wetlands, as opposed to the exposed plateau country. However, silcrete was an important resource from the earliest exploration phase, and the area was likely visited regularly to collect this material, with one large site (I43/23) recorded near Nenthorn.[8]

By the 1850s, the land was being settled by European farmers with pastoral leases and sheep runs.[9] Due to its proximity to Dunedin, the runs in Macraes were taken up and stocked relatively early. By 1871, the largest pastoral holdings were made up of several runs. Three large runs were located near Macraes Flat – Run 109, 210 and 250.

In 1855, JM Saunders applied for Run 109, but the application appears to have lapsed and the run was taken over by Charles Hopkinson.[10] Hopkinson's Station was recorded near the south-eastern border of the run, to

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[3] Janet M Wilmshurst et al., "Dating the Late Prehistoric Dispersal of Polynesians to New Zealand Using the Commensal Pacific Rat.," *Proceedings of the National Academy of Sciences of the United States of America* 105, no. 22 (June 3, 2008): 7676–80.
[4] Jill Hamel, *The Archaeology of Otago* (Wellington, NZ: Department of Conservation, 2001).
[5] Hamel (2001).
[6] WA Taylor, *Lore and History of the South Island Māori* (Christchurch, NZ: Bascands Ltd, 1952),141-148.
[7] Jill Hamel, "East of the Taieri River - The Archaeology of the Macraes Ecological District," 2000.
[8] Hamel (2000).
[9] J Hall-Jones, *Goldfields of Otago - An Illustrated History* (Invercargill, NZ: Craig Printing, 2005), 163.
[10] HM Thompson, *East of the Rock and Pillar: A History of the Strath Taieri and Macraes Districts* (Christchurch, NZ: Caxton Press, 1977).

the northeast of Dunback Hill.[11] Macraes Flat is suggested to have been named after a shepherd working for Hopkinson who lived in the area.[12] Run 109 was later purchased by Francis D Bell and Alfred D Bell, and became part of Coal Creek Station and, later, the Shag Valley Station.[13] When Bell's lease expired in late 1891, the run was divided into smaller grazing runs.[14]

The earliest records show the Highlay Run (Run 250) was initially controlled by Edward Saxton, with control passing to his brother (CS Saxton) after his death. The Deepdell Run (Run 210) was held by Charles Hopkinson.[15] Saxton was declared bankrupt before the middle of the 1860s and both runs were auctioned.[16] Douglas, Alderson & Co purchased both and amalgamated the runs in September 1864.[17] Large station buildings for the Deepdell Station were constructed (near the junction of Macraes and Horse Flat Road) by the early 1860s.[18] Towards the end of the 1800s, the Deepdell Run was divided and offered as a series of smaller grazing runs.[19]

Figure 2. Macraes Township circa 1900.[20]

The first significant European presence in the area was the result of the discovery of gold in May 1862 in Deepdell Creek by James Crombie and his associates. Following this discovery, word spread. As more miners

[11] SO16125.
[12] H Thompson, *East of the Rock and Pillar* (Dunedin: Whitcombe & Tombs Limited, 1949).
[13] *Otago Witness*, "Agricultural and Pastoral News," 21 December 1899.
[14] *Otago Witness*, "Sale of Crown Lands," 3 March 1892, 11.
[15] *Otago Witness,* 6 April 1861, 3.
[16] *Otago Daily Times*, 21 July 1864, 7.
[17] *North Otago Times,* 29 September 1864, 2.
[18] SO16320.
[19] *Otago Witness*, 9 March 1888, 19.
[20] Hocken Snapshop, 19497.

arrived in the area, further gold was found in the surrounding creeks. With the subsequent large influx of miners to the area, the township of Macraes was formed on Macraes Flat, three kilometres south of Deepdell Creek. A topographical sketch of the Highlay District was produced by W. Arthur, the district surveyor, in August 1867.[21] This map shows the main communication routes and geographical points, including Sister Peaks, Highlay Hill, Horse Flat, and Trimbells Gully.

The first hard rock mine was established in the area in 1866. Initially, this mine was called the "Eclipse," before being renamed as the Duke of Edinburgh.[22] Hard rock mining often involved the use of a small stamping battery for crushing stone, a dam, shafts, and areas of prospecting pits and trenching. The mining population declined in the 1870s and, by 1872, the Duke of Edinburgh had ceased operations. There was a period of stagnation through the 1880s, until an increase in the 1890s, both in alluvial and hard rock mining. At the end of the 19th and beginning of the 20th century, a number of hard rock mines were established in the area, including the Golden Bell, Maritana, Deepdell, Golden Point, Mt Highlay, and Round Hill. These mines operated at a significantly larger scale than the earlier alluvial workings and required more machinery and coordinated manpower. As a result, these were often operated as companies, with shareholders subscribing to the operation of the mine.[23]

As a result of agitation for land suitable to farm, part of the runs surrounding Macraes were designated as the Macraes 100 in 1874, which provided smaller blocks of land available to be purchased. An 1874 survey of the area designated the boundaries of these blocks, as well as the auriferous reserves designated for mining operations. Following the decline of mining operations in the area, the land was given over to farming for a significant portion of the 20th century. Relatively small-scale mining prospecting occurred sporadically throughout the century before more substantial mining operations began in 1990.[24]

Archaeological and Heritage Context

Multiple archaeological surveys have been carried out in the Macraes district, largely linked to the impact of modern mining operations and applications for archaeological authorities. The following text provides a summary of key work relevant to the current assessment.

In 1991, Jill Hamel surveyed a broad band south-east from Horse Flat Road, across Deepdell Creek, east of the Round Hill Mine and Macraes Township and down Golden Bar Road.[25] Her report provides an overview of gold mining in the Macraes district from the mid-19th to the early 20th century as well as a brief discussion of 19th century run holding in the area. Hamel recorded several key sites within these boundaries and provides sketch plans, photos, and descriptions of these sites in her report. It is also noted that there were significant sites that were known to exist but were outside of the survey area and therefore not recorded in Hamel's report.

Since the early 1990s, Peter Petchey has carried out a significant amount of work on gold mining in the Otago region with a major focus being at Macraes Flat. The series of reports written by Petchey in 1995, 1996, 1997, and 2004 contain the most comprehensive account of the extent and nature of the archaeological landscape of Macraes. This series of reports details surveys and assessments of sites as well as archaeological investigations undertaken as part of the requirement of archaeological authorities issued by what was then the Historic Places Trust.

In the 2000s, Opus International Consultants Ltd carried out a series of archaeological surveys of areas affected by works associated with the then proposed expansion of the mines at Macraes by OceanaGold. Numerous additional archaeological sites were recorded as part of these assessments.

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[21] SO 4535.
[22] Peter Petchey, "Coronation Macraes Mining Company - Preliminary Archaeological Survey Unpublished Report for Macraes Mining Company Ltd," 1998.
[23] Benjamin Teele, "Coronation North, Macraes: Archaeological Assessment Unpublished Report for OceanaGold," 2016.
[24] Teele.
[25] Jill Hamel, *Changes in Gold Mining at Macraes* (Unpublished report for Macraes Mining Company, 1991).

More recently, Origin Consultants Ltd and Jackie Gillies + Associates (Origin Consultants' predecessor company) have provided a series of targeted archaeological and heritage reports to OceanaGold including reports for:

- the proposed Heckler Dam site, Tipperary Gully in 2013,
- the proposed Coronation Mine in May 2015,
- the Frasers and Innes Mills Pit expansion, Macraes Flat in October 2015,
- the Coronation North Pit expansion, Macraes in November 2016,
- the Frasers West Pit expansion, Macraes Flat in July 2019,
- a heritage inventory of Callery's Battery, Macraes in November 2019, and
- the Golden Point Underground Mine, Macraes in January 2020.

1. Frasers Pit – Frasers Tailings Storage Facility (FTSF)

Legal Description

Section 3 SO 24124; Section 4 SO24124; Section 5 SO 24124; Lot 2 DP 21220; Lot 4 DP 21220; Section 36, Block II, Highlay SD; Part Section 6, Block II, Highlay SD; Part Section 8, Block II, Highlay SD; Section 7, Block II, Highlay SD; Part Section 14, Block II, HIghlay SD; Part Section 15, Block II, Highlay SD; Part Section 16, Block II, Highlay SD; Section 22, Block II, Highlay SD; Section 27, Block II, Highlay SD; Section 28, Block II, Highlay SD; Section 29, Block II, Highlay SD; Section 30, Block II, Highlay SD; Section 35, Block II, Highlay SD; Section 49, Block II, Highlay SD; Part Lot 1 DP21220; Section 10 SO24927; Part Section 1 SO23828; Section 2 SO23828; Section 4 SO331188; Section 5 SO331188; Section 7 SO331188; Section 12 SO331188; Section 15 SO331188; Section 16 SO331188; Section 19 SO331188; Section 19 SO331188; Section 4 SO429137; Section 18 SO459659; Section 19 SO459659; Road Reserve

Documents Reviewed

MP4 Project – Open Pit Extensions & FTSF: Project scope changes, 17 August 2023

Frasers Open Pit TSF – Project Description, Memorandum from Pieter Doelman to Duncan Ross, 11 August 2021

Frasers Open Pit TSF Waste Rock/Dry Tailings Co-Disposal – Project Description, Memorandum from Pieter Doelman to Duncan Ross, 9 November 2021

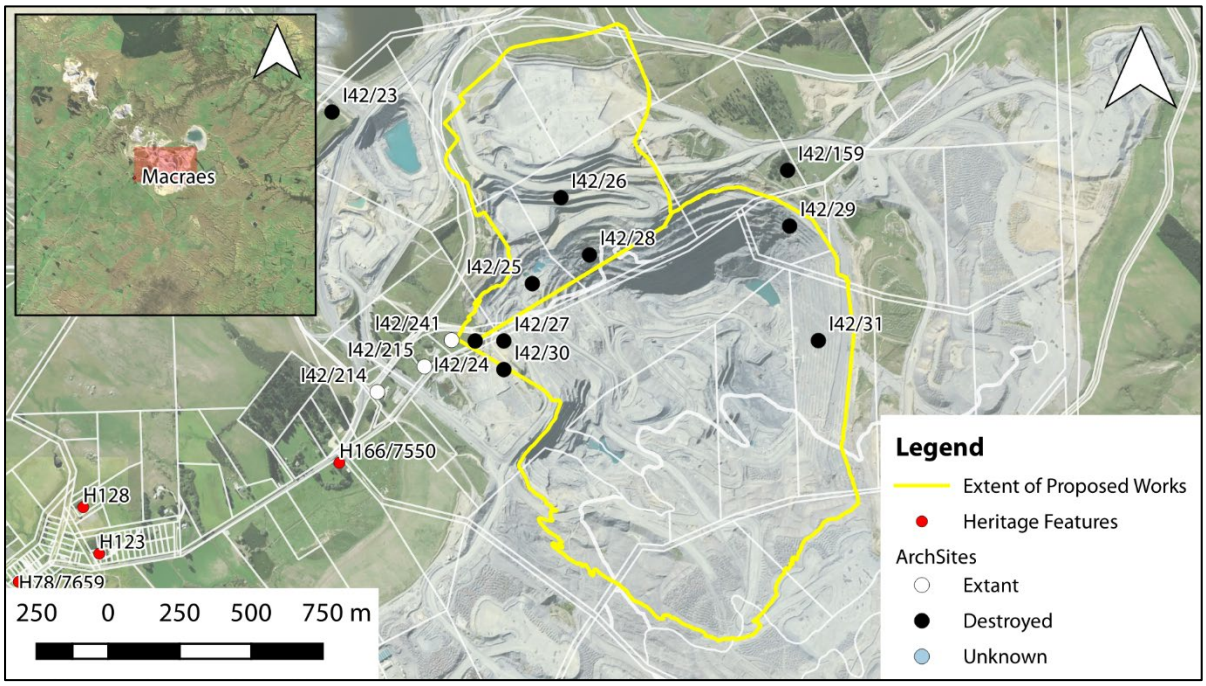

Figure 3. Extent of the proposed FRBF as part of the FTSF and recorded archaeological sites at Frasers Pit.

Site Context

Historical documentation for the Frasers Pit area is reasonably comprehensive and provides good detail on the amount and context of archaeological material that was present. The area has subsequently been subject to intensive pastoral activities and mining works, which have largely obscured or destroyed evidence of earlier mining and occupation.

The earliest evidence of the use of the area is found on an 1874 survey map which shows an auriferous reserve and land boundaries to a high degree of accuracy, but the structure/dwelling locations have probably been

sketched in.[26] There are several structures on this survey on the northern side of the auriferous reserve, including houses and a store. A large dam was present in section 5, with a water race running north-east along the northern edge of the road.

There were two distinct areas of mining around Macraes, which were mostly confined to the narrow stretch of auriferous reserve. Historic accounts also mention the workings being undertaken at the Macraes Flat goldfield, which included a component of Chinese goldminers working earlier claims. The location of the Chinese camp is situated immediately to the east of Gay Tan's House (and is outside the extent of proposed works).

Mining was carried out at the Frasers Pit site intermittently throughout the 20th century and more intensively since the 1990s. Present day mining is planned to be completed in early 2024.

Historic Heritage

The area was originally a site of extensive alluvial workings, which have since been modified or destroyed by decades of intensive farming and mining. There are a large number of recorded archaeological sites that relate to early mining in the area. These sites are composed of residential sites, alluvial workings, and hydraulic landscape features including dams and water races. These historic heritage features are recorded in Table 1.

Chinese miner Gay Tan's Cottage, which is included in the HNZPT List/Rārangi Kōrero (List No. 7550) and scheduled in the Waitaki District Plan (Ref. No. H166), is located to the south-west of Frasers Pit. It is also recorded as an archaeological site (I42/49).

Previous expansion episodes of Frasers Pit have seen several of these sites be recorded and then destroyed.[27] The site of Robinson's Homestead (I42/159) was excavated and recorded under Authority No. 2012/428. A dam and water race (I42/29) were recorded nearby – this race was marked on the 1874 map and ran from a pond on Golden Bar Road to tributaries of Murphys Creek. By the time of its recording, it had been extensively ploughed out, with only a trace remaining around Golden Bar Road.

Three archaeological sites are located to the west of the FTSF site. Innes Farm (I42/215) is represented by a cluster of farm buildings, most appear to date to the 1930s, but some may be pre-1900. A small domestic dwelling possibly built for William Griffin at the end of the 19th century is located at I42/215. The building has been scheduled for demolition due to its condition. An artificial pond, possibly a mining reservoir is located at I42/241.

Four other sites are clustered to the southwest of the FTSF site. These are the remains of an early Chinese camp (I42/49, I42/50, I42/51) and a collection of prospecting pits possibly related to the Chinese camp (I42/64).

Table 1. Archaeological sites as recorded on ArchSite within the extent of the proposed works.

Site No.	Site Name	Site Type	Details	Extant[28]
I42/24	Innes Farmstead workings	Mining – Gold	Dams and amorphous tailings running up a gully from Macraes Road to the Innes Farmstead.	No
I42/25	Macraes Road Quartz Mining	Mining – Gold	Shallow square pits in a gully and a small earth dam.	No

[26] SO625; SO620.
[27] See: Petchey, 1995.
[28] Site status recorded from Origin Consultants, "Archaeological Assessment for Frasers West," July 2019.

Site No.	Site Name	Site Type	Details	Extant[28]
I42/26	Mills workings	Mining – Gold	Wide pits in a gully approx. 400m north of Macraes Road.	No
I42/27	House sites	Historic – Domestic	Foundations of three gold miners' houses (Callery, McGregor, and Mardling).	No
I42/28	Sligo House	Historic – Domestic	Stone walls of a substantial house.	No
I42/29	Innes Dam/Race	Industrial	Water race marked on 1874 maps running from a pond on Golden Bar Road to tributaries of Murphys Creek. Previously extensively ploughed out, with only a trace remaining around Golden Bar Road.	No
I42/30	Elevator Ponds	Mining – Gold	Irregular shaped ponds formed in the 1930s.	No
I42/31	Prospecting Pit	Prospecting pit/trench	Pit visible in paddock south of Golden Bar Road.	No

Site Visit

A site visit was not undertaken as it was clear from the project description and extent of the proposed works that no surface features outside the existing disturbance area of Frasers Pit would be affected by the proposed works.

Assessment of Effects

Proposed Site Works

The disposal and storage of processed ore tailings is proposed at the Frasers Pit site. Waste rock from Innes Mills will be backfilled within the north end of the Frasers Pit footprint. Wet tailings will be disposed within FTSF using water as the transport mechanism throughout the MP4 life. At mine closure, Frasers Pit will form a pit lake.

The location of the proposed works relative to the recorded heritage features and archaeological sites is shown in Figure 3.

Significance & Values

As the historic heritage features located within the site area have been destroyed by past farming and mining, they no longer have significance/value.

Assessment

The proposed works at Frasers Pit are not considered to adversely affect known historic heritage identified in this assessment. All archaeological sites affected by the proposed works have been previously destroyed and identified extant heritage features are situated away from the proposed works.

Recommendations

Based on the proposed works, Origin Consultants make the following recommendations:

- An archaeological authority is not required for the proposed works at Frasers Pit.
- The proposed work is not considered to impact historic heritage. As such, no specific heritage conditions are recommended for this aspect of the project's resource consent.

2. Coronation Pit Extension – Stage 6

Legal Description Part Section 2, Block V, Highlay SD; Part Section 2, Block VII, Highlay SD; Part Section 11, Block VII, Highlay SD; Lot 1 DP 465577; Road Reserve

Documents Reviewed MP4 Project – Openpit Extensions & FTSF: Project scope changes, 17 August 2023

Coronation Stage 6 Open Pit – Project Description, Memorandum from Knowell Madambi to Suzanne Watt, 16 August 2023

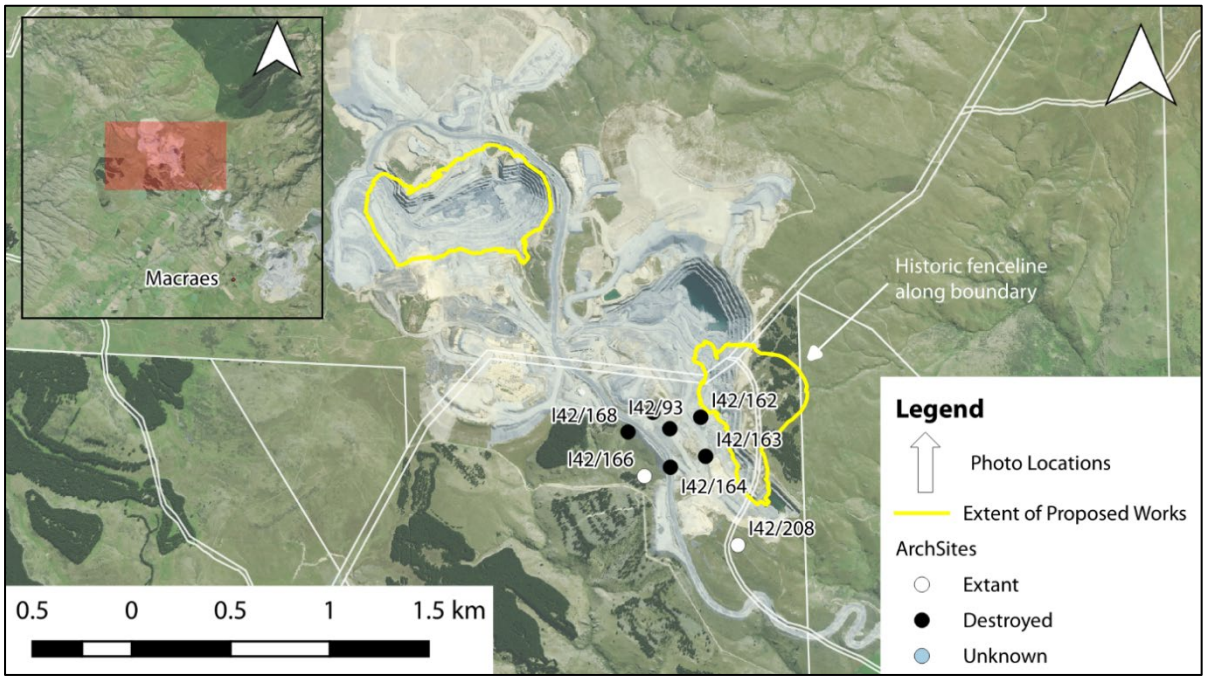

Figure 4. Extent of the proposed Coronation Pit extension and archaeological sites recorded nearby.

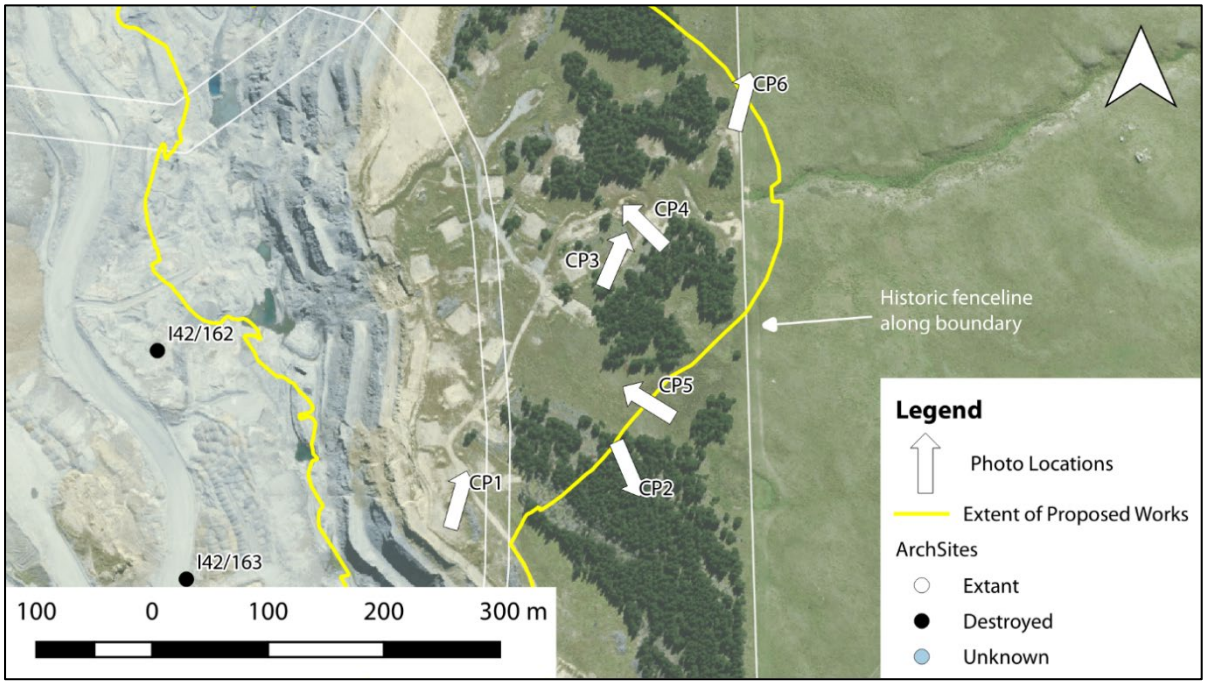

Figure 5. Detail showing site visit photo locations in area of expanded pit.

Site Context

Alluvial mining began to take place in the area at the onset of the gold rushes in the 1860s, with the initial focus on the land between the Mareburn and Mount Highlay (around five kilometres to the north-west of the Coronation Pit). In mid-1862, it was noted in the regional newspapers that a payable gold field had been discovered in the "vicinity of the Highlay diggings."[29] Soon, it was reported that a great number of people were on their way to this new field.[30]

Before this rush, there was only a scattering of tents spread throughout the gullies in the area. The rush was focused around Mount Highlay, and included the numerous small tributaries that fed the Mareburn (alternatively spelled Mare Burn). One of the main upper branches of the Mareburn includes Trimbells Gully. This gully (also spelled Timbrell's or Trimbrell's) is located immediately to the north of the Coronation Pit and was historically described as commencing at the foot of the Highlay Hills, and about five miles in length.[31] Mining at Trimbells Gully was considered "very tortuous… the sinking is very shallow, seldom exceeding five feet, through alluvial black soil, clay, and drift…"[32] Mining operations focused on the beds of gullies and on the hill slopes.[33]

Towards the end of 1862, a publication was run in the Otago newspapers detailing the various gold fields to provide help for prospective miners. This publication outlined details on how to reach the goldfields, provided a description of the terrain, and what operations were being undertaken: "The Mount Highlay diggings are situated in the valley of the Upper Taieri, and the main workings are at Timbrel's Gully, and at Deep Dell and Filly Burn, tributaries of the Taieri River, but several parties of miners are scattered over the surrounding country in every direction… Water is plentiful; and sluicing is in consequence the favorite[sic] mode of mining."[34]

The next year, another rush was recorded at the Fullarton Diggings to the west of the Coronation Pit.[35] This goldfield was located closer to Hyde and was likely a continuation of the gold seams running through the area in a roughly northwest direction. In 1863, it is suggested that around 2,000 miners were working in the Mount Highlay area.[36] Several of the claims turned out to be "duffers", but some produced well-paying claims. A common concern with workings in this area was the lack of water for effectively working claims.[37] The Mareburn race was constructed by May 1866, to provide water to these workings and workings along its length. When the Mareburn race was completed, it was noted that "this place, which has been almost abandoned for the last twelve months on account of the scarcity of water…Many portions of this valley have proved highly auriferous, and nothing but the constant want of water would have caused it to have become deserted."[38] The origin of the race began in the upper tributaries of Trimbells Gully, and was likely used to ground sluice claims, supplementing the more difficult early methods of potholing. Miners working their claims appear to have constructed small mud and stone huts, or adapted rock outcrops into shelters.[39]

Alluvial workings in the area appear to have ceased by the early 1870s as claims which never appeared to have been particularly rich were worked out.[40] Small scale hard-rock mining operations were also undertaken in the

[29] *Lyttelton Times*, 'Commercial,' 28 June 1862, 4.
[30] *Otago Witness*, 'The Highlay Diggings,' 24 May 1862, 5.
[31] *Otago Daily Times*, 'The New Gold Field in the North,' 15 May 1862, 4.
[32] *Otago Daily Times*, 'From Dunedin to Highlay,' 4 June 1862, 5.
[33] *Wellington Independent*, 'The Goldfields,' 20 September 1862, 5.
[34] *Otago Daily Times*, 'The Gold Fields Manual for New Arrivals,' 30 September 1862, 5.
[35] *Otago Daily Times*, 'Fullarton's Rush,' 26 December 1863, 4.
[36] June A Wood, *Gold Trails of Otago* (Wellington: A.H. & A.W. Reed Ltd., 1970).
[37] *Otago Witness*, The Hamilton District, 2 June 1866, 8.
[38] *Otago Witness*, The Hamilton District, 2 June 1866, 8.
[39] Hamel, *The Archaeology of Otago*.
[40] Hamel.

1860s on the southern side of the Mareburn. Several claims were staked out, but these operations appear to have been phased out along a similar time frame to the alluvial workings.

In the late 1880s, there was a resurgence of hard-rock mining operations in the area, with several mines opening. In 1887, Hugh McAuley, James Thomas, Niece McNally, and Nicholas Thomas applied for a licensed holding of 25 acres on the western slopes of Mt Highlay, and it became known as the Mt Highlay Mine. Subsequent hard-rock mines were opened in Coal Creek to the south (New Zealand Gold and Tungsten Mine) and in Māori Hen Creek. The Donaldson brothers, who began operating a battery at Golden Point in 1890, were also involved prospecting Coal Creek in the early 1900s, before the creation of the New Zealand Gold & Tungsten Mine that started work in 1907.[41] They targeted both gold and scheelite, and material was conveyed to the battery using a three-rail inclined tramway, a system that was popular at the time. The Warden's Reports on quartz mining in the Macraes area make frequent mention of hard-rock mining operations in the area in the early 20th century. All the mines eventually closed during the first half of the 20th century, with some small resurgence of depression era, small-scale mining operations. Pastoral farming, present from the earliest settlement of the area by Europeans, became the dominant activity until more modern mining operations began in the 1990s.

In addition to mining operations, large parts of the area had been designated as pastoral runs in the 1850s. The Deepdell Run was the most prominent in the area, and the homestead was situated to the northwest of the Macraes township on Horse Flat Road. As a result of agitation for land suitable to farm, part of this run was designated the Macraes 100 in 1874, which provided smaller blocks of land available to be purchased. The Deepdell Run was divided into considerably smaller parcels in 1888 as part of the government's policy of breaking up large pastoral runs.[42]

Historic Heritage

The area around the Coronation Pit was the site of historic alluvial and hard rock mining. This industry left a variety of archaeological features, including adits and pits associated with the original 1888 and 1911-1912 Coronation Mine. Many of these mining features have been recorded by past archaeological surveys of the area associated with modern mine developments.

There are several archaeological sites within the immediate vicinity of the proposed pit extension, but most of these have been previously destroyed by the creation of the existing Coronation Pit in 2014, as recorded under Archaeological Authority 2014/1150. There are no sites recorded on ArchSite in the area that will be affected by the proposed pit extension.

A historic fence line was identified during the site visit (see below). No other historic heritage sites are recorded nearby.

Table 2. Archaeological sites as recorded on ArchSite in the vicinity of the Coronation Pit Stage 6 extension.

Site No.	Site Name	Site Type	Details	Extant[43]
I42/93	Coronation Mine	Mining – Gold	2 adits, 2 linear trenches, 1 curvilinear trench and 2 infilled pits. Associated with mining of the Coronation reef in 1888, and 1911-1912. Investigations in 2015 identified that only the 2 adits were of historic significance.	No

[41] Appendix to the Journals of the House of Representatives, 1907.
[42] SO 625.
[43] Unless otherwise referenced, site status recorded from Origin Consultants, "Coronation Mine Archaeological Assessment of Effects: Addendum Report," May 2014 and Origin Consultants, "Coronation Mine Archaeological Investigation Report (Authority No 2014/1150)," May 2015.

I42/162	-	Mining – Gold	Three successive dams, scoured hillside and workings, also three adits.	No
I42/163	-	Mining – Gold	In the head of the valley there is a large deep working below which is an adit; a reservoir, possible dam and two prospecting pits were also recorded.	No
I42/164	-	Mining – Gold	Dam associated with goldmining. Not located in 2014.	No
I42/166	-	Mining – Gold	Workings and reservoir.	Yes (2011)[44]
I42/167	-	Mining – Gold	Two dams and workings.	No
I42/168	-	Mining – Gold	Dam. Not located in 2014.	No
I42/208	-	Mining – Gold	Possible gold mining workings in the head of a gully.	Yes (2020)[45]

Site Visit

The area that will be affected by the proposed Coronation Pit Stage 6 extension has been extensively disturbed by previous mining and much of the area was occupied by a pine plantation until recently. Tree felling and the establishment of associated haul roads has created localised areas of disturbance scattered across the area (Figure 6-Figure 7). Alongside this, past exploratory drilling at the site has required the excavation of drill pads, dam/reservoirs, and additional haul roads (Figure 8-Figure 9). Some areas of apparently untouched ground remain in the form of reasonably level land covered with tussock and interspersed with small wetlands (Figure 10). Where exposed, the ground is composed of rock-filled soil at points of high relief grading to soil without rocks in the lower gullies and wetland areas.

No evidence of any mining or historic occupation features was identified during the site visit. The location of the proposed pit extension is one of the higher points around Macraes Flat, and given the location, historic occupation or mining at the site is very unlikely: Historic occupation was typically focused around gullies with access to water for both mining and domestic purposes.

The north-south fence line along the eastern edge of Part Lot 3 DP 8602 is the only notable feature. The location of the fence line has been recorded in Figure 4. This was a six-wire fence composed of what appeared to be No. 8 wire supported by iron standards (Figure 11). The tops of the standards are notched to accommodate barbed wire (though none of the original barbed wire is present). This fence line follows the boundary between two historic land parcels.[46] Waratahs have also been installed next to every fourth standard to accommodate two additional barbed wires and increase the fence height.

[44] Site status recorded from ArchSite Site Record Form: I42/166.
[45] Site status recorded from ArchSite Site Record Form: I42/208.
[46] Sections 2 and 3, Block VII, Highlay District (DP 629).

Figure 6 (CP1). View north-east across the area to be affected by the Coronation Pit extension. A light vehicle access track runs across the foreground.

Figure 7 (CP2). Logging slash and ground disturbance exposing an area of rocky ground.

Figure 8 (CP3). Drilling pads and small embankments of associated ground disturbance, looking north-east towards Highlay Hill.

Figure 9 (CP4). Dams/reservoir associated with recent exploration drilling.

Figure 10 (CP5). Area of unmodified ground withing the area affected by pit extension, looking north-west.

Figure 11 (CP6). Historic fence line running north-south through the affected area, looking north (left). Photograph of detail of original iron standard (right).

Assessment of Effects

Proposed Site Works

The proposed Coronation Stage 6 pit consists of an approximately 250m expansion to the south-east. The expanded footprint is over former pine forest land and tussock pasture. Waste rock will be backfilled into the existing Coronation North (CN5) pit. No additional infrastructure is required to support the expansion.

The location of the proposed works relative to the recorded archaeological sites is shown in Figure 4.

Significance & Values

The historic fence line is the only notable archaeological feature that will be affected by the pit expansion. Circumstantial evidence suggests this fence dates to the 1880s. It is comprised of flat iron standards with six wires and top notch to hold barbed wire. More recently waratahs and barbed wire have been added to increase the fence hight. The fence runs along a boundary that was initially surveyed in the 1880s.[47] The construction of the fence (excluding the modern barbed wire seen in Figure 11) matches the specifications of the Fencing Act 1881.[48] Accordingly, the fence was likely constructed *circa* the 1888 division of the Deepdell Run. The barbed wire is a later addition.

Table 3. Archaeological value of historic fence line affected by the proposed Coronation Pit extension.

Site	Value	Assessment
Historic Fenceline	Condition	The historic lower portion of the fence is intact and still functions as an effective boundary. **Assessment – Good**
	Rarity/ Uniqueness	Historic wire fences are reasonably common in rural Otago. **Assessment – Low**
	Contextual	The fence follows the 1888 boundary line and is part of the historic agricultural landscape of Macraes. **Assessment – Moderate**
	Information potential	The fence is an example of an early technology but can generally be considered to have only a limited information potential. **Assessment – Low**
	Amenity	The fence has some amenity value as a picturesque element of the rural landscape. **Assessment – Moderate**
	Cultural associations	The fence is associated with European agricultural occupation of the landscape. **Assessment – NZ European**

Assessment

The fence line extends approximately 1km along the boundary of the legal parcel, with the expansion of the pit will crossing a small portion of the fence line (approximately 200m). The remainder of the fence line will be restrained and remain intact. Retaining some of the fence line, away from the pit expansion, will mitigate the effect on the heritage values of the fence. With this mitigation measure, the proposed work is expected to have a minor effect on the heritage values of the historic fence line.

[47] SO 629.
[48] See also Jeremy Moyle, *Historic Wire Fences - Proposed Refencing Policy* (Unpublished report for Department of Conservation, 2022).

Waste rock will be backfilled into the existing Coronation North pit. As such, no new disturbance is required for this aspect of the Stage 6 works.

Recommendations

Based on the proposed works, Origin Consultants make the following recommendations:

- As a pre-1900 structure, an archaeological authority should be sought for the partial removal of the fence.
- The extent and features of the fence line should be recorded to a Level III standard.[49]
- The fence should be restrained and preserved beyond 50m either side of the proposed pit extension.

[49] See: HNZPT, "Investigation and Recording of Buildings and Standing Structures" (Archaeological guidelines series no. 1, 2018).

3. Innes Mills Pit Extension – Stages 8-10

Legal Description Section 7, Block II, Highlay SD; Sections 4-8 SO 331188; Section 19 SO 331188; Part Section 6, Block II, Highlay SD; Part Section 8, Block II, Highlay SD; Part Section 10, Block II, Highlay SD; Part Section 13, Block II, Highlay SD; Sections 4 SO 459659; Section 16 SO 459659; Section 18-20 SO 4599659; Part Sections 14-16, Block II, Highlay SD; Road Reserve

Documents Reviewed MP4 Project – Open pit Extensions & FTSF: Project scope changes, 17 August 2023

IM Open Pit – Project Description, Memorandum from Knowell Madambi to Suzanne Watt, 16 August 2023

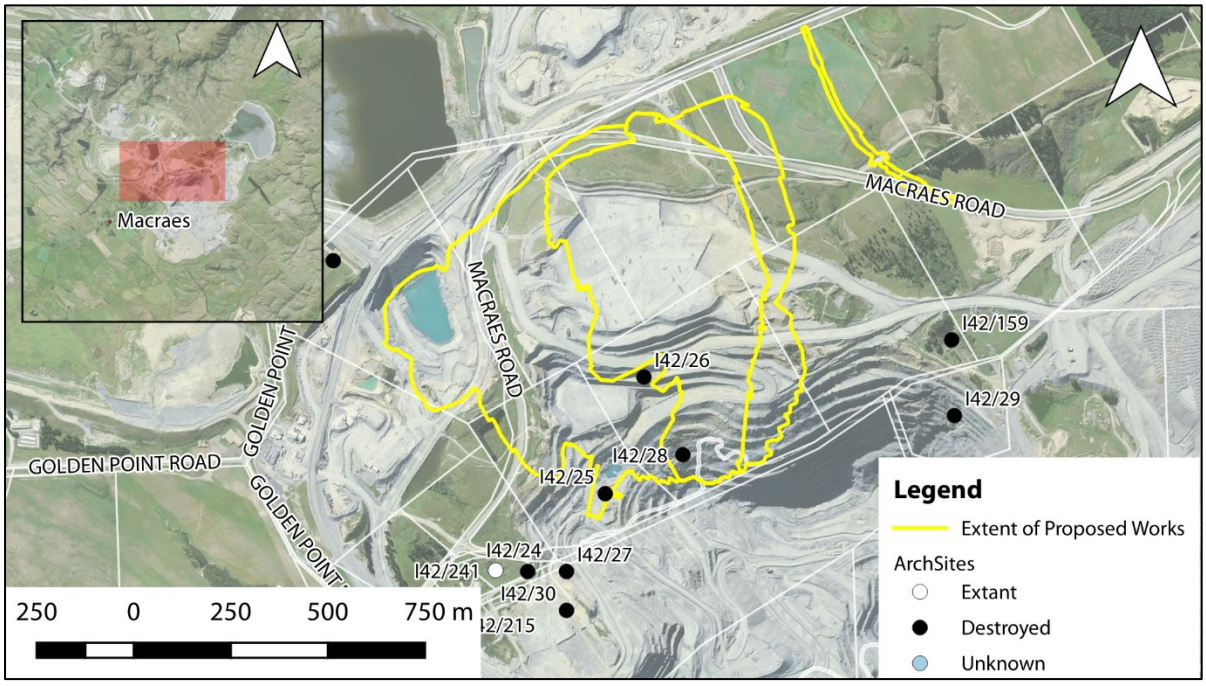

Figure 12. Proposed Innes Mills (IM) Pit extent.

Site Context

The site of the Innes Mills Pit bordered the auriferous reserve marked in the 1874 survey plan.[50] This area north of the auriferous reserve was surveyed into smaller sections. Section 6, Block II was held by Henry Bicknell until 1899 and it is likely he was leasing the land when this initial survey plan was drawn. Section 6 was sold to James Sligo, a sharebroker and mining expert from 1899 to 1923. The Mills family took over the land in 1923 until 1953. A dam was constructed in section 5 and known as 'Tate's Dam.' As such, it appears likely that this dam was constructed by Tate who held an adjacent section.[51]

The earlier alluvial mining was superseded by hard-rock mining for gold and scheelite. Hard-rock mining often involved the use of a small battery for crushing stone, a dam, shafts, and areas of prospecting pits and trenching. The first hard-rock mine was established in the area in 1866 and was originally called the "Eclipse," before being renamed as the Duke of Edinburgh.[52]

[50] SO 635.
[51] Benjamin Teele, "Innes Mills Pit Expansion: Archaeological Assessment," 2015.
[52] Peter Petchey, "Alluvial Gold Workings, 'Innes Dam,' Macraes. Report for Macraes Mining Company," 1994.

The mining population declined into the 1870s, and by 1872 mining at the Duke of Edinburgh had ceased. There was a period of stagnation through the 1880s, until an increase in the 1890s. At the end of the 19th and beginning of the 20th centuries, a number of hard-rock mines were established in the Macraes area, which included the Round Hill mine. These mines operated at a significantly larger scale than the earlier alluvial workings and required more machinery and manpower. As a result, these were often operated as companies, with shareholders subscribing to the operation of the mine.

In addition to mining operations, large parts of the area had been designated as pastoral runs in the 1850s. As a result of miner agitation for land suitable to farm, part of this run was designated the Macraes 100 in 1874, which provided smaller blocks of land available to be purchased.[53] Following the decline of mining operations in the area, the land was given over to farming for a significant portion of the 20th century. Relatively small-scale mining prospecting occurred sporadically throughout the century before more substantial mining operations began in 1990.

Historic Heritage

The area east of Macraes Flat was originally a site of extensive alluvial workings. These have been subsequently modified or destroyed by decades of intensive farming and modern mining.

There are many recorded sites that relate to early mining in the area to the south-east of the existing pit (see Figure 12). These sites are composed of house sites, alluvial workings, and hydraulic landscape features including dams and water races. Expansion episodes of the modern mine pits has seen several of these sites recorded and then destroyed.[54]

The four sites located within the existing pit extent have been destroyed. Nearby, the Robinson homestead (I42/159) and dam and water race (I42/29) have been excavated and recorded.

There are no recorded sites near the proposed location of the relocated portion of Golden Bar Road. No evidence of historic occupation or mining features have been identified on historic aerial photographs of the area from 1947.[55]

Table 4. Archaeological sites as recorded on ArchSite in the proposed pit area.

Site No.	Site Name	Site Type	Details	Extant[56]
I42/25	Macraes Road Quartz Mining	Mining – Gold	Shallow square pits in a gully and a small earth dam.	No
I42/26	Mills workings	Mining – Gold	Wide pits in gully approx. 400m north of Macraes Road.	No
I42/28	Sligo House	Historic – Domestic	Stone walls of a substantial house.	No

Site Visit

Initial plans involved a larger extension than what is currently proposed, and a site visit was made to the expansion areas affecting previously unmodified ground adjacent to a dam to the north-east of Golden Point (around 1.5 km north of the currently proposed Innes Mills pit extension). Since then, the scope of the

[53] SO 625.
[54] Peter Petchey, "Excavation Report - I42/27: House Sites, I42/28: Stone Ruin, Macraes Flat," 1995.
[55] Retrolens, SN501-1333-104 and SN503-1355-2.
[56] Site status recorded from Origin Consultants, "Archaeological Assessment for Frasers West," July 2019.

proposed pit extensions has been reduced to Innes Mills only. Accordingly, the details of the site visit are not discussed here (though it is noted that no archaeological/heritage features were identified).

A site visit to the area close to the proposed road re-alignment was undertaken. This suggested that most of the area between Macraes and Golden Bar Roads was vacant pastureland. A review of current satellite imagery and Google Street View photographs from 2008 and 2012 do not indicate the presence of any historic features in the area to be affected by the proposed re-alignment.

No site visit was made to any other areas affected by the proposed expansion of the Innes Mills pit. It was clear from the project description and the extent of the proposed works that no surface features outside the existing disturbance area of the Innes Mills Pit will be affected.

Assessment of Effects

Proposed Site Works

The Innes Mills (IM) Pit is proposed to expand approximately 200m to the east and approximately 150m to the west beyond the consented IM pit. The expanded footprint is over existing mine haul and access roads, mining disturbed areas and patches of poor pastureland. The expanded pit will be slightly deeper than the existing consented IM pit. As a result of the eastward pit extension, the northern end of Golden Bar Road will be realigned to the east, across grazed pastureland.

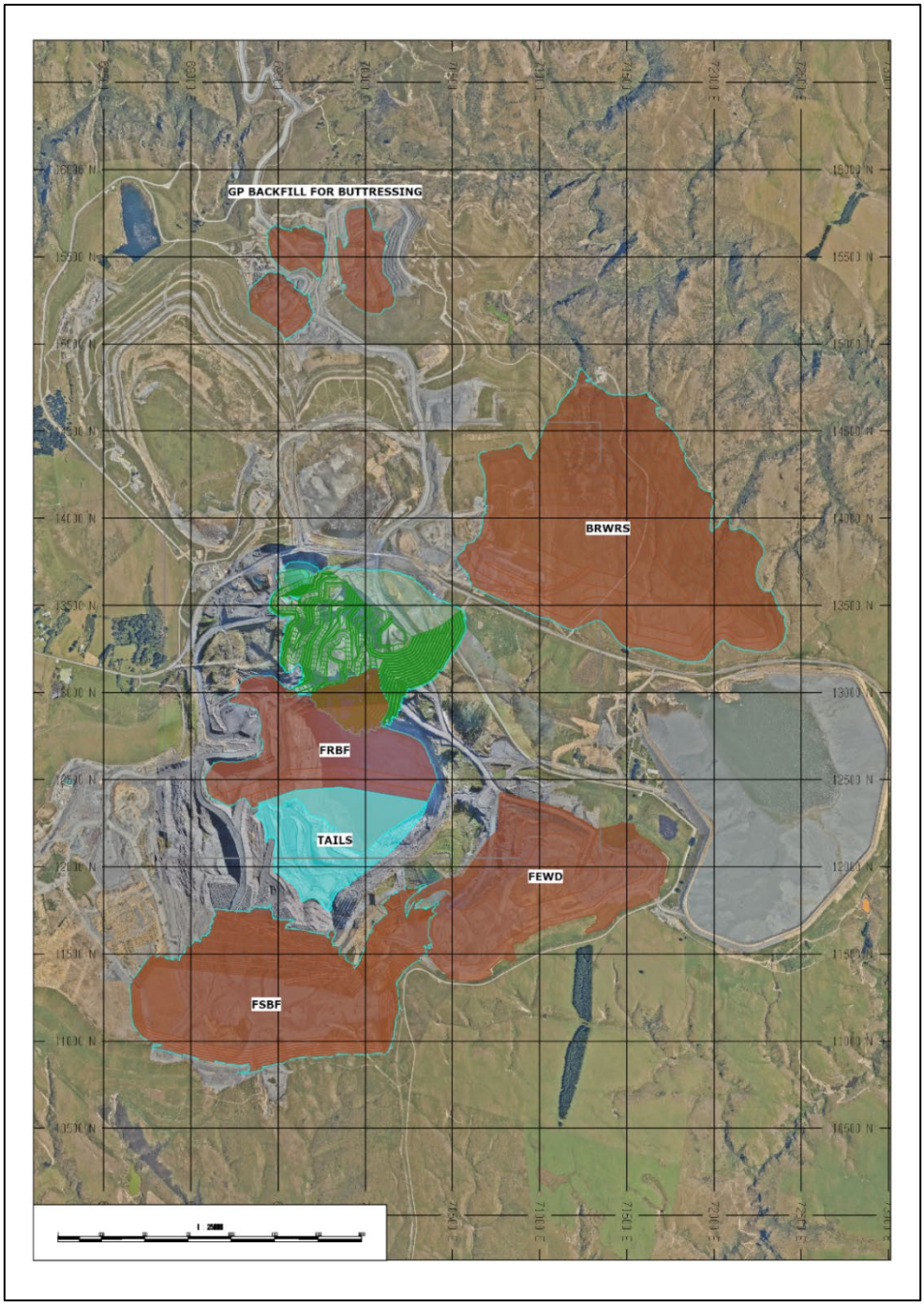

Figure 13. Aerial with overlay showing the full extent of the IM expansion and waste rock stacks and backfills.[57] Nb. The BRWRS marked out on this figure is not formed and will not be required for the MP4 extensions.

Waste rock will be backfilled into the FEWD WRS (already consented), the Frasers Backfill (FRBF), and the Golden Point Pit. A new truck fuel bay will be established to support the operation. At mine closure, the Frasers Pit and Innes Mills Pit lakes will form one continuous water body, as identified in Figure 3.

The location of the proposed works relative to the recorded archaeological sites is shown in Figure 12-Figure 13.

[57] OceanaGold, 2023.

Significance & Values

The significance and values of the nearby recorded features has not been assessed as they will not be affected by the pit extension or realignment of Golden Bar Road. Archaeological sites recorded within the existing pit have been previously destroyed and no heritage or archaeological sites were identified near the proposed alignment of Golden Bar Road.

Assessment

The proposed works at IM Pit and the realignment of Golden Bar Road are not considered to have an adverse effect on historic heritage identified in this assessment. All archaeological sites recorded within the existing pit have been previously destroyed.

Waste rock is to be backfilled into an existing pit. As such, no new disturbance is required for this aspect of the proposed pit extension.

Recommendations

Based on the proposed works, Origin Consultants make the following recommendations:

- An archaeological authority is not required for the proposed works at IM.
- The proposed work is not considered to impact historic heritage. As such, no specific heritage conditions are recommended for this aspect of the project's resource consent.

4. Golden Bar Pit Extension – Stage 2

Legal Description Section 2, Block VIII, Dunback SD; Section 4, Block VIII, Dunback SD; Part Section 7, Block VIII, Dunback SD

Documents Reviewed MP4 Project – Openpit Extensions & FTSF: Project scope changes, 17 August 2023

Golden Bar Stage 2 Open Pit – Project Description, Memorandum from Pieter Doelman to Duncan Ross, 9 March 2022

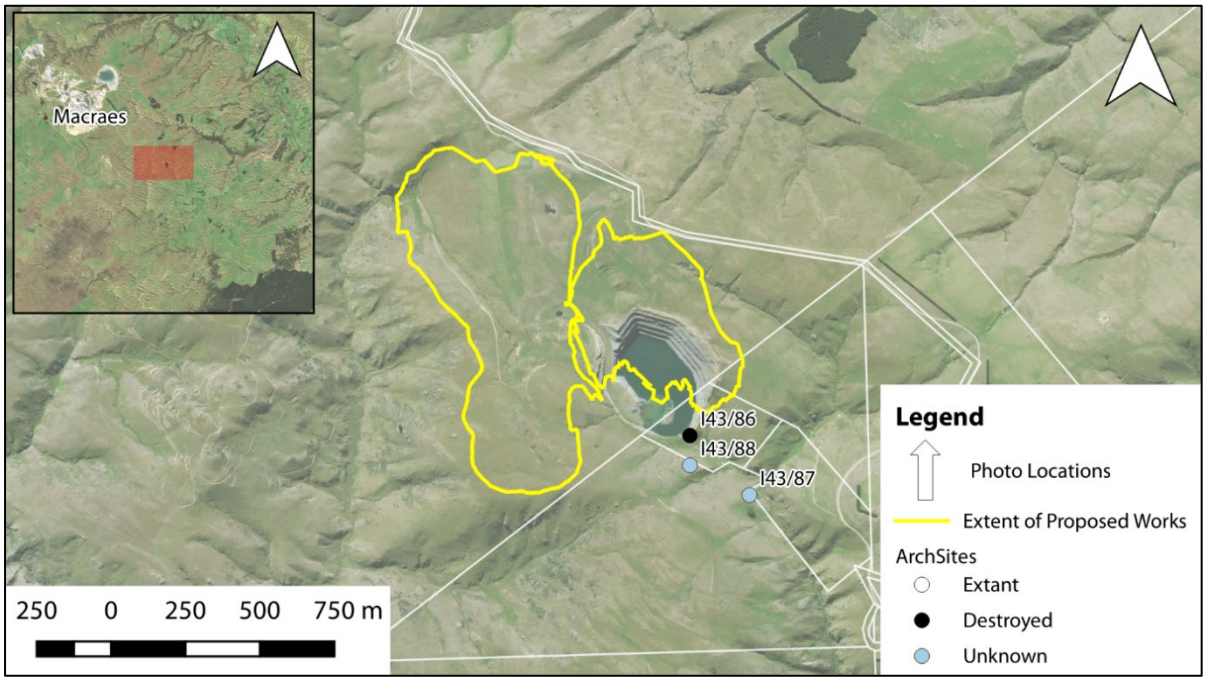

Figure 14. Extent of the proposed pit extension (right) and waste rock stack (left) relative to recorded archaeological sites at Golden Bar.

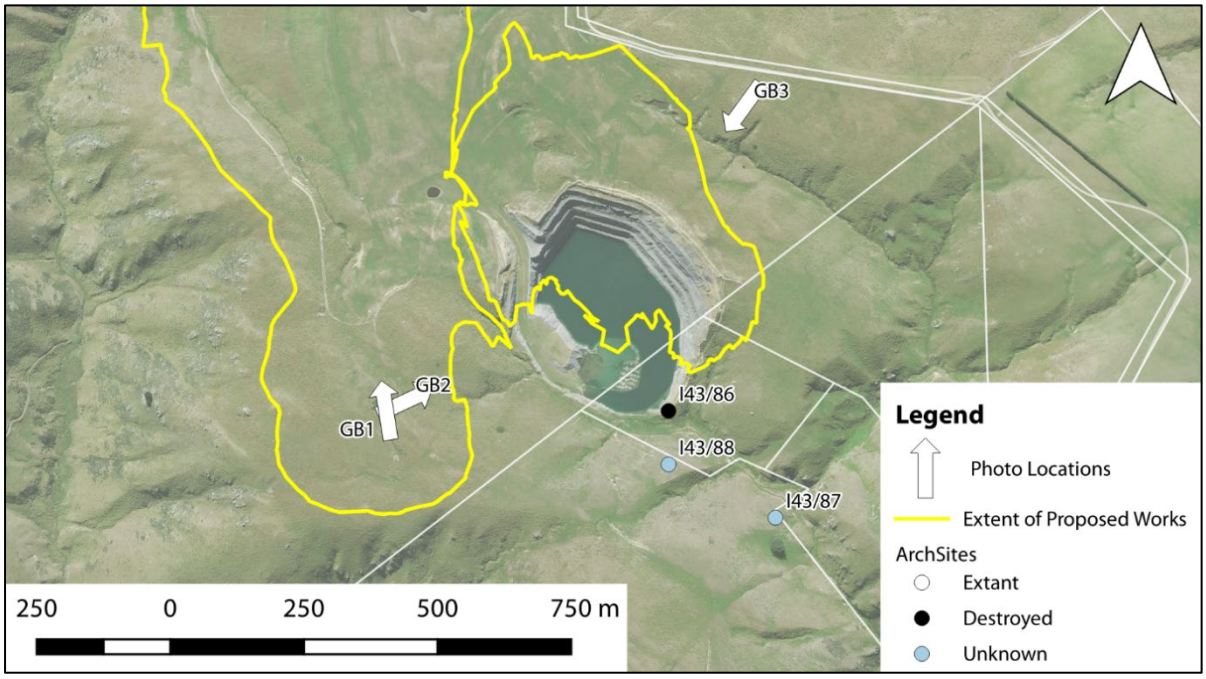

Figure 15. Detail showing site visit photo locations.

Site Context[58]

Mining licenses were approved in October 1889 for a group of companies in the Golden Bar area. By January 1897, the Golden Bar Quartz Mining Co was recorded on a map and, in 1898, Mills & Sons were reported as having erected a five-head battery at the top end of Macraes Flat and crushing stone from the Golden Bar reef.[59] The Golden Bar Mine was first mentioned as a working entity in 1901, where a company was erecting a steam powered ten-head stamper battery. By 1901, the mine was reportedly abandoned as it was not payable.

Despite this report, development continued from 1901 to 1906/1907. The battery initially crushed stone from an easily-mined body of low grade ore. By 1902, the surface stone was worked out and operations were being carried out underground. The reef was averaging 5 feet wide.[60] There were four men working at the battery, which was running sixteen hours a day, and five men were in the mine.[61] Due to the distance of the mine from the Macraes Township, the workers would probably have all lived on site.

Works continued until 1908, when the mine was reported as being idle. Interest in the area was shown again in 1912, when another Golden Bar Co. was granted a special quartz claim.[62] A road was formed and the old battery was remodelled with an oil engine installed. The workings were open cast, with six men employed.[63] The mine soon closed down and the company went into liquidation in about 1916.[64]

In 1921, Charles Moore applied for a special quartz claim licence for an area of the "old Golden Bar Mine."[65] Cecil and Melville Moore, presumably brothers, applied for prospecting licences on adjoining land at the same time. Their applications refer to Charles Moore's area as the "Mount Moore Claim."[66] The Mount Moore Gold-mining Syndicate ceased operations in October 1926.[67] This was likely a business move as the mine was almost immediately reopened by CG Moore. The Deep Dell battery, consisting of a five-headed stamper, gas engine, gas producer plant and battery, and office buildings were moved and re-erected at the Golden Bar.[68] By 1928, the mine was closed down pending the reconstruction of the company – which never eventuated.[69]

Through the 1930s, various companies applied for licences to operate the battery. Little appears to have come from these ventures.[70] The last mention of any activity at the mine is in 1942, with reports of the "main drive being extended 34 ft to 238 ft, good scheelites showing and 3 oz 19 dwt of gold won."[71]

Historic Heritage

There were three main episodes of historic workings at the Golden Bar Mine: 1901 to 1907 by the Golden Bar Gold-mining Company; 1912 to 1913 by the second Golden Bar Gold-mining Company; and 1924 to 1928 by the Mount Moore Gold-Mining Company and the Golden Bar Mining Company. There was also likely some small-scale prospecting occurring over the whole period.

Archaeological sites in the vicinity of the Golden Bar mine extension are recorded in Table 5. There are no other heritage features recorded nearby.

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[58] Peter Petchey, "The Golden Bar Mine, Macraes: Archaeological Survey for the Macraes Mining Company Ltd," 1994.
[59] SO4087 (1897); AJHR 1899, C-3: 33.
[60] AJHR 1903, C-3: 111.
[61] AJHR 1903, C-3: 111.
[62] Application 8/12, Licence No. 3464.
[63] AJHR 1913, C-3: 33.
[64] AJHR 1917, C-3: 35.
[65] Application No. 4/21.
[66] Application No. 5/21 and 6/21.
[67] AJHR 1927, C-2: 27.
[68] AJHR 1928, C-2: 25.
[69] AJHR 1929, C-2: 28.
[70] Petchey, "The Golden Bar Mine, Macraes: Archaeological Survey for the Macraes Mining Company Ltd."
[71] Jeffery, *The History of Quartz Mining at Macraes Flat, East Otago, New Zealand*. Compiled for the Ministry of Energy, Dunedin, 1988.

Table 5. Archaeological sites as recorded on ArchSite in the vicinity of the Golden Bar mine extension.

Site No.	Site Name	Site Type	Details	Extant[72]
I43/86	Golden Bar Mine	Mining – Gold	Intact quartz mining system, worked from the 1890s until the 1940s. Surface evidence includes adit entrances, surface working, roads, water races, hut terraces, and two battery sites.	No (2005)
I43/87	Golden Bar Battery	Mining – Gold	One of two batteries associated with the Golden Bar Mine erected about 1901.	Unknown (2005)
I43/88	Golden Bar Battery	Mining – Gold	Site consists of the foundations and terraces from the battery erected about 1927. It had earlier been located on Horse Flat, processing ore from the Deepdell mine.	Unknown (2005)

Petchey carried out a comprehensive survey of sections 3 and 4, Block VIII, Dunback SD in 1994.[73] Petchey recorded a main area of workings on south-west facing hillside, with evidence of surface working, adit and shaft mouths together with mullock heaps from the underground workings, and a series of tracks cut into the hillside linking various elements (I43/86). Numerous shallow workings were recorded over the survey area. The hillside to the north-east of the early battery site had been thoroughly prospected.

Petchey also recorded two battery sites and a formed road leading to these sites. The earlier battery (c. 1901) was marked by wooden stamper blocks (I43/87). The c. 1901 battery (I43/87) originally had ten heads of stampers, later reduced to five. By 1994, the machinery had been removed. About 80 meters downstream of I43/87, Petchey recorded a series of stacked stone retaining walls. The later (c. 1927) battery site was marked by a series of concrete foundations/platforms running down the hill side (I43/88) with a water race terminating at the top. This battery was reportedly moved in its entirety from the Deep Dell Battery at Horse Flat. An aerial cableway, connecting the main workings and 1927 battery site, was located during Petchey's survey but little surface evidence remained.

Several dams were located during Petchey's survey. The largest was located approximately 100m upstream from the 1901 battery site and presumably supplied water to the 1901 battery or 1904 cyanide plant (located approximately 80 meters downstream of the 1901 battery site).

Petchey also described a number of hut and building terraces scattered across the hill faces and valley floor in front of the mine workings, in four main concentrations – a group directly in front of the mine workings, south of the 1927 battery, along the side of a small gully, and on the hillside south of the 1901 battery site.

In 2003-2004, nine hut/building sites and the 1927 battery site were partially excavated as part of an archaeological authority granted to re-mine the site using open pit mining (Auth. No. 2002/162).[74] The hut/building sites were located near the mine (I43/86) and near the 1927 battery (I43/88). The site of the 1901 battery (I43/87) was not excavated.

The Golden Bar Mine was re-mined using open pit technology between 2004-2006, with waste rock stored to the north-east of the mine pit (Figure 16).

[72] Site status recorded from Peter Petchey, "Golden Bar Mine Macraes: Archaeological Investigations," 2005.
[73] Petchey, "The Golden Bar Mine, Macraes: Archaeological Survey for the Macraes Mining Company Ltd."
[74] See: Peter Petchey, "Golden Bar Mine, Macraes: Archaeological Investigations for Oceana Gold Ltd," 2005.

Figure 16. Golden Bar Mine in 2007 showing disturbed land to the north-east of the pit.[75]

Site Visit

Most of the area around the Golden Bar pit has been modified by either the mine itself or the waste rock stack that covers much of the area to the north-east of the pit. The site visit focused on the areas that have not already been affected by mining. The Stage 2 pit extension and associated waste rock stack will affect the hillsides to the north-east and south-west of the existing pit. This is vacant farmland at present, covered almost entirely with a mixture of tussock and exotic grasses. A small area of gorse is present at the top of a hill to the south-west, which appears to be self-sown. Given the elevated location, historic occupation or mining on these hillsides is unlikely and no evidence was observed during the site visit. No evidence of any mining or historic occupation features was identified during the site visit.

Figure 17 (GB1). Unmodified ground to the west of the existing pit that will be covered by the planned waste rock stack, looking north.

[75] Google Earth.

Figure 18 (GB2). Existing Golden Bar pit.

Figure 19 (GB3). Unmodified ground area (ridge in middle ground) that will be mined out by the pit extension, looking south-west from Golden Bar Road. The existing pit is located behind the ridge in the midground.

Assessment of Effects

Proposed Site Works

It is proposed that the existing pit will be expanded approximately 200m to the north-east. Much of the proposed expansion footprint is rehabilitated (previously disturbed) ground from the first stage of mining at

Golden Bar in 2004-2006. The expanded pit will be approx. 45m deeper than the previous pit. The existing waste rock stack will be added to alongside this pit expansion.

The location of the proposed works relative to the recorded archaeological sites is shown in Figure 14.

Significance & Values

The significance and values of the nearby features has not been assessed as they will not be affected by the proposed pit expansion.

Assessment

The proposed Stage 2 works at the existing Golden Bar pit are not considered to have an adverse effect on known historic heritage identified in this assessment. Recorded archaeological sites at the southern end of the pit have largely been destroyed, were not visible during the recent site visit, or are not located within the proposed pit expansion. No further historic heritage features were identified during the site visit.

Recommendations

Based on the proposed works, Origin Consultants make the following recommendations:

- An archaeological authority is not required for the proposed works at Golden Bar.
- The proposed work is not considered to impact historic heritage. As such, no specific heritage conditions are recommended for this aspect of the project's resource consent.

Summary

This report provides an overview of the historic heritage features in the vicinity of OceanaGold's MP4 project which proposes to extend the LOM of its Macraes operations. We have assessed the impact of the various sites of proposed mining on identified historic heritage and have provided recommendations to mitigate these effects (where relevant).

Historic and contextual research has identified various historic heritage features in the Macraes area linked to an extensive history of pastoral farming and gold mining from the 1860s to the present. These recorded heritage features and archaeological sites are almost entirely unaffected by the proposed works. Recorded sites within the areas affected by the proposed works are no longer extant. Only one historic heritage feature (the historic fenceline) was identified that will be affected by the project, and Origin Consultants recommend that an archaeological authority is sought for the modification of this feature.

Four sites have been considered as part of this assessment:

- Frasers Pit – the proposed disposal and storage of mined tailings is not considered to have an adverse effect on known historic heritage.
- Coronation Pit – the proposed extension of the existing mine pit will affect a small portion of a historic fence line, which has been assessed as having low to moderate archaeological value.
- Innes Mills Pit – the proposed extension of the existing Innes Mills pit and realignment of Golden Bar Road is not considered to have an adverse effect on known historic heritage.
- Golden Bar Pit – the proposed extension of the existing pit is not considered to have an adverse effect on known historic heritage.

Recommendations

Based on the results of this assessment, Origin Consultants recommends:

- An archaeological authority should be sought for the partial removal of part of the historic fenceline affected by the proposed Coronation Pit extension;
- The historic fenceline should be recorded to an AGS-1 Level III standard prior to removal;
- All works should be carried out under an accidental discovery protocol to ensure that historic heritage (including archaeological features) is dealt with appropriately if encountered (see: Appendix A – Accidental Discovery Protocol).
- Contractors should be briefed on the Accidental Discovery Protocol prior to works proceeding.

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Appendix A – Accidental Discovery Protocol