Oceana Gold (NZ) Ltd

Macraes Phase 4 Expansion: Stage 3

Landscape and Visual Assessment

15 December 2023

CONFIDENTIAL

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This report ('Report') has been prepared by WSP exclusively for OceanaGold (NZ) Ltd ('Client'). The Report assesses the potential landscape and visual effects of the 'Proposal'. This report forms a technical input to the resource consent application for the Proposal ('Purpose'). The Report is prepared in accordance with Master Consulting Agreement No. OGN-3272 with the client, dated 19 May 2022. The findings in this Report are based on and are subject to the assumptions specified in the Report and our Offers of Service, dated 17 March 2022 and 23 August 2023. WSP accepts no liability whatsoever for any reliance on or use of this Report, in whole or in part, for any use or purpose other than the Purpose or any use or reliance on the Report by any third party.

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Abbreviation	Full name
OceanaGold	Oceana Gold (New Zealand) Ltd
Macraes Operation	OceanaGold's gold mining operation at Macraes Flat
WDC Macraes Mining Zone	Macraes Mining Project Mineral Zone
Project	Separate part of the Proposal (5 projects)
Site	Separate site for each project (5 sites)
Macraes	The village of Macraes
Macraes Flat	The locality of Macraes Flat
WDC	Waitaki District Council
DCC	Dunedin City Council
ORC	Otago Regional Council
RMA	Resource Management Act 1991
RPS	Regional Policy Statement
ORPS	Operative Otago Regional Policy Statement
OLA	Outstanding Landscape Area
LVA	Landscape and Visual Assessment
ha	hectares
Mt	million tonnes
km	kilometre
m	metre
mRL	metres as a relative level
MP4	Macraes Phase 4 LOM expansion
Coronation Mine	The consented Coronation Mine
CO6	Coronation Open Pit Stage 6
FRBF	Frasers Pit Backfill
FROP	Frasers Open Pit
FTSF	Frasers Tailings Storage Facility
GB2	Golden Bar Pit Stage 2
GPOP	Golden Point Open Pit
IM	Innes Mills Open pit
MTI	Mixed Tailings Impoundment
TTTSF	Top Tipperary Tailings Storage Facility
WRS	Waste rock stack

Executive summary

This landscape and visual assessment is based on the Macraes Phase 4 Proposal ('MP4') project information provided by Oceana Gold (NZ) Ltd (OceanaGold), specifically the 'MP4 Project – Open Pit Extensions & FTSF Project scope changes' PowerPoint presentation, dated 9 August 2023, along with the MP4 Overview plan (Figure 1). The Overview plan shows the location and extent of the individual components of the 'Proposal' which are split across four above-ground 'Project Sites'. These being from north to south; the Coronation Mine Stage 6 extension (CO6), the Innes Mills stage 8-10 pit extension (IM), the Frasers Tailings Storage Facility (FTSF) and the Golden Bar Mine Stage 2 extension (GB2). A detailed description of the project is included in the Assessment of Environmental Effects (Mitchell Daysh, 2023).

The landscape and visual assessment describes the landscape context in terms of the broad Macraes Flat landscape, the Macraes Operation landscape, including the landscape at the four Project Sites. The report also considers the planning context relative to potential landscape and visual effects, defines the visible aspects of the various mine expansion components of the Proposal and then assesses the landscape and visual effects of these components and any cumulative effects if these arise.

In this landscape and visual assessment, it has been found that:

- The effect on landscape character and its inherent values that will arise from the Proposal are assessed relative to those effects already consented for the existing mining activities with the Macraes Operation. In some cases, the effects of the Proposal will be negligible. It is accepted that the effects are consistent with the expectations for the central landscape identity in the Macraes Land Unit included in the Waitaki District Council's district-wide landscape study and with Dunedin City Council.
- Any potentially adverse landscape effects arising from the Proposal at the four Project Sites will be at worst 'Moderate', given the area's already highly modified character. The 'Moderate' adverse landscape effects are confined to the Golden Bar WRS prior to its remediation.
- With respect to the few public viewpoints only, any potentially adverse visual effects of the 'above ground' parts of the Proposal will be nil through to 'Moderate'. The 'Moderate' adverse visual effect is confined to the Golden Bar WRS for 1 – 2 years prior to its remediation, after which any adverse effects will have reduced to 'Low'.
- Parts of the Proposal occur below ground level (the open pit mine extensions) or alterations to existing Waste Rock Stacks, where any adverse visual effects for these parts of the Proposal will be 'negligible'. The changes will be difficult to discern given the levels of modification already present and relatively small scale of the new changes.
- Upon completion of the final shaping and revegetation of the cut and fill earthworks associated with mining, the proposed CO6, IM and GB2, along with that of the redundant haul roads, the general shape, slopes and colour of the completed and revegetated 'hill' landforms will be in sympathy with the natural and modified slopes of the area. In addition, several 'pit lakes' will naturally form in the mined out pits. These water bodies could take several decades to fill to their highest water level but will ultimately contribute positively to landscape character and values to the area, although the pit

lakes themselves will not be publicly accessible for health and safety and, potentially, future ownership reasons.

- Frasers Pit/FTSF will be partially infilled with waste rock (as a backfill embankment – FRBF) and tailings impounded behind the FRBF. In addition to this, a pit lake will eventually form, submerging both the waste and tailings. After approximately 110 years, it is expected that the pit lake surface will overtop the tailings. The final pit lake will further add amenity value to the site.
- The minor realigned Golden Bar Road and its intersection with Macraes Dunback Road will have neutral landscape effects as it replaces one section of road with another.
- Cumulative effects are concerned with the 'tipping point' when the landscape's ability to accommodate further change has been exceeded. Any potentially cumulative effects arising from the Proposal will be short-lived and offset with the restoration of previous areas of mining activity and following remediation of the Proposal.

It is also considered that any potentially adverse landscape and visual effects will be mitigated by the following aspects:

- Design of the form of the waste rock stack to integrate it with the natural landform character of the area.
- Progressive rehabilitation of the waste rock stack.
- Design of the form of the partial to full backfills to integrate the emergent parts with the natural landform character of the area.
- Flooding of the pits to form pit lakes.
- Shaping the upper pit walls of the open cut pits, if required, in response to slope stabilisation works to a naturalised form that enables the establishment of vegetation cover.
- Partial capping of FTSF if required, and flooding to form a shallow pit lake.
- Restoration of the areas disturbed around the margins of the proposed elements.
- Removal and restoration of the haul roads used during closure phase of the Project.
- Pit-related mining infrastructure areas will be rehabilitated using standard site rehabilitation techniques.
- Any adverse visual effects associated with the construction of the waste rock stack and backfills will be of short duration and will cease upon completion of the Proposal (temporary effects).
- Parts of the project area, such as on the north facing sides of WRSs once rehabilitated with soil, will provide for a mix of pastoral grazing, and other rural- based land uses yet to be defined – providing for similar land use practices which currently operate beyond the Macraes Mine area.
- Ultimately, removal of mine infrastructure, hard stands and the like followed by planting.
- Establishment of vegetation cover types suited to the long-term land use and reflecting the optimal use of rehab soil, water drainage paths and access to ecological areas.

During earlier stages of the Macraes Gold Project, mitigation measures have proved effective in reducing the adverse visual effects of the waste rock stacks constructed to date.

Similar mitigation methods are proposed in this case. Waste rock stacks and benched pit walls are

considered to generate the primary adverse and residual visual effects of the mining activity.

The Proposal forms an extension of, or overlays previously consented Macraes Phase 3 ('MP3'), Coronation and Golden Bar mining activity and is therefore not unexpected in this landscape context.

In terms of the overall cumulative landscape and visual effects of the Project, the effects will be at worst 'Low' (i.e., less than minor) relative to the proposed IM pit and Viewpoint 4. Cumulative effects from the other four viewpoints will either be nil or so small as to be indiscernible (i.e., less than minor).

1 Introduction

1.1 Purpose of Document

Oceana Gold (NZ) Ltd (OceanaGold) proposes to undertake expansion of the Macraes Gold Project at Macraes Flat, East Otago, which among other aspects will involve changes to the landscape arising from four different projects at three independent sites, from north to south[1].

The MP4 Proposal includes:

- Expansion of the Coronation open cut mine (CO6) and backfilling of Coronation North pit.
- Expansion of the Innes Mills Pit (IM) and the associated partial backfilling in Golden Point Open Pit (GPOP).
- Frasers Tailings Storage Facility (FTSF) involving partial backfilling of the northern end of Frasers pit with waste rock to impound tailings in the south end.
- Expansion of the Golden Bar open cut mine (GB2).and its associated WRS.

The Proposal will also include additions to or creation of various topsoil stockpiles, low-grade ore stockpiles, silt ponds, areas for pit-related mine infrastructure and access roading. These ancillary features are relatively inconspicuous, short-lived, and as such will have an acceptable level of adverse landscape effects. Site establishment, ancillary mining areas and haul roads will be rehabilitated adopting similar site rehabilitation techniques which have been successfully used in MP3. The final form of the WRSs and possibly also the backfill slopes will include drainage design features to control erosion and sediment runoff.

The Coronation Mine is located approximately 5 km north of the Macraes Gold Processing Plant ('processing plant'). The works at Innes Mills open cut pit are between 3 km and 5 km from the processing plant, with FTSF just to the south of IM. The Golden Bar Mine is located approximately 10 km south of the processing plant. Attachments 1 and 2[2] provide an overview of the Proposal at a relatively broad scale showing the local topography, along with the four Project Sites.

The purpose of the LVA is to identify and articulate the landscape character and landscape values at the four Project Sites for the Proposal and identify any potential adverse visual effects of the construction and operation of the proposed mine expansion and changes to the landscape values.

Landscape effects[3] are relevant to Sections 6(a) and 6(b) of the Resource Management Act 1991 (RMA). Such

1 All plans generated for the Macraes Gold Project have MGP Local Grid as their datum and are orientated to Macraes North, which is approximately 45o west of Magnetic North. This same orientation is used in the text of this report.

2 See separate A3 document.

3 Landscape effects relate to physical changes to the setting or landscape character. These changes may be visible or invisible but are otherwise understood to exist. Also known as 'Landscape Character' effects.

effects can be regarded as the consequence of changes in the natural and physical landscape.

Visual effects[4] relate to Sections 7(c) and 7(f) of the RMA. Such effects are concerned with the changes that arise in the composition of a view because of changes to the landscape intrinsically linked to visual amenity.

This LVA considers the existing landscape context and character as a baseline for assessing the landscape and visual effects of the Proposal across the four separate Project Sites and the likely magnitude of effects. Proposed mitigation measures are discussed. The LVA then makes a conclusion about the overall acceptability of the Proposal from a visual effects perspective, as well as consider the cumulative effects of the four projects in combination with the Macraes Gold Project's existing mining operations and for other consents which have recently been granted for raising Top Tipperary TSF (TTTSF) to 570m RL, and co-disposal of dry tailings into Frasers Backfill tailings.

Given that the Proposal comes within the jurisdictions of WDC, DCC and Otago Regional Council (ORC), the LVA also takes consideration of the expectations of the:

- Waitaki District Plan[5] objectives, policies, implementation methods and rules relating to mineral extraction within the Macraes Mining Project Mineral Zone ('the Macraes Mining Zone') and district wide objectives, policies and rules relating to the Rural sector, in particular the Rural Scenic Zone.
- Dunedin City Council 2GP.
- Partially operative 2019 Otago Regional Policy Statement (RPS)[6] regarding relevant landscape-related issues as identified in Chapter 5, Land.
- The partially operative 2019 Otago Regional Policy Statement regarding Chapter 2 and Schedules 3 and 4.
- Proposed Otago Regional Policy Statement 2021 regarding "NFL – Natural features and landscapes".

1.2 Background

The Macraes Gold Project is located approximately 30 km inland from Palmerston, East Otago and is found approximately 1 km east of the small settlement of Macraes.

Between 2002 and 2021 OceanaGold have advanced several projects within the overall Macraes Operation that have required LVAs and, in some cases, preparation of landscape evidence for various resource consent applications, variations and hearings. The earlier inputs included:

- Golden Bar mine consent application.

4 Visual effects relate to changes in how a landscape appears from specific viewpoints. Visual effects are also known as visual amenity effects and contribute to broader landscape effects.

5 Waitaki District Plan, Waitaki District Council, fully operative 23 August 2010. The District Plan is currently under review.

6 Regional Policy Statement, Otago Regional Council, fully operative 1 October 1998

- Deepdell mine rehabilitation consent variation.
- Expansion of the Frasers West Waste Rock Stack consent variation.
- Frasers East Waste Rock Stack consent application.
- Macraes Phase 3 expansion.
- Coronation Mine Project and extension.
- Coronation North Project.
- Deepdell North Project.
- Golden Point Underground Project.
- Top Tipperary Tailings Storage Facility embankment raise to 570m RL.

The current MP4 Proposal, assessed in this LVA includes further changes to the active Innes Mills, and Frasers Pits and the dormant Coronation and Golden Bar pits. These four sites and the surrounding area are shown in Figure 1 and Attachments 1 and 2.

The wider site for the mining project is owned by OceanaGold. Three of the proposed MP4 sites are fully within the Waitaki District Council Macraes Mining Zone. The southern portion of Coronation Mine is within Waitaki District, with the southeast 'corner' of the mine in the Mining Zone. The remainder of Coronation and Coronation North pit are within Dunedin City District.

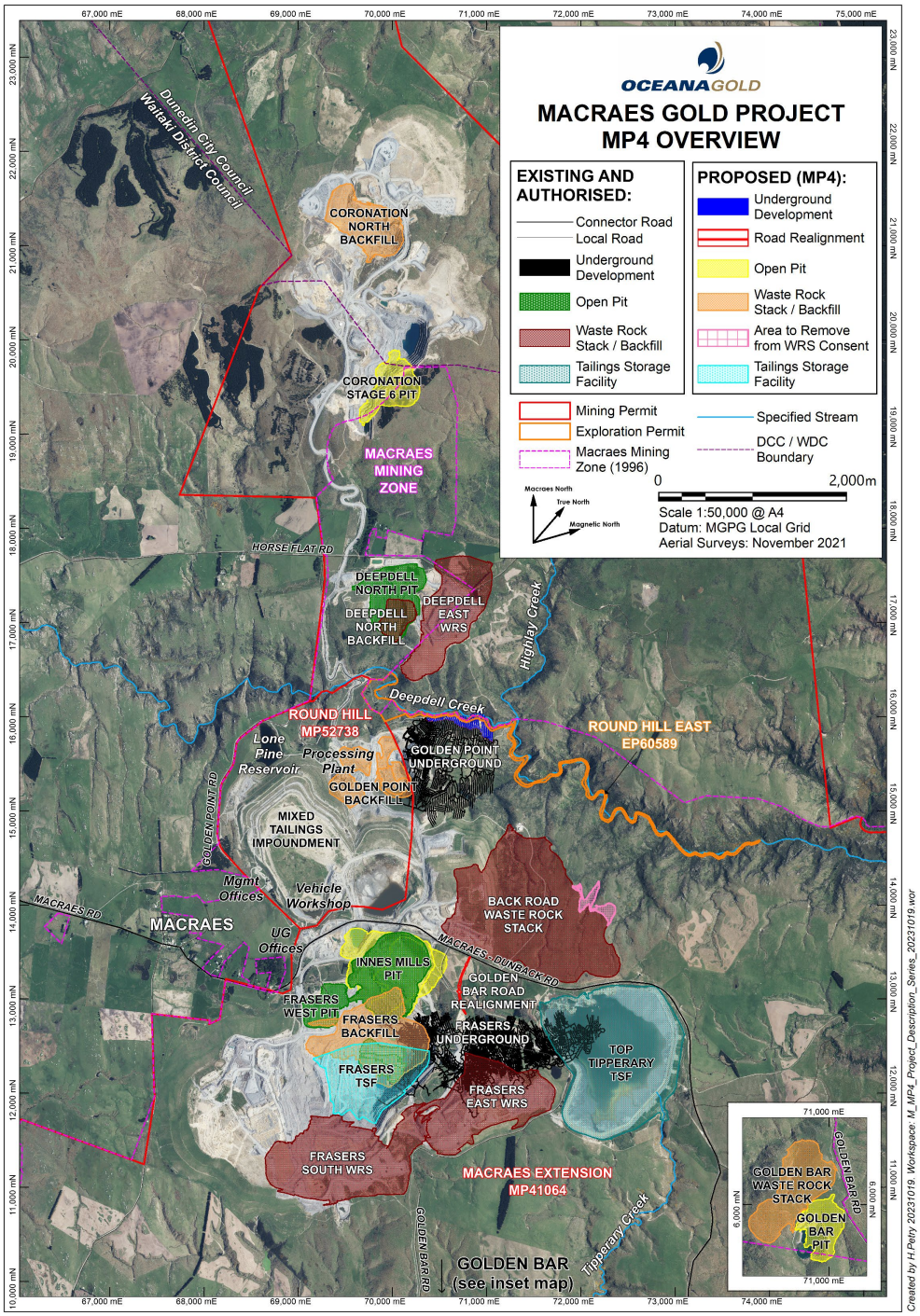

Figure 1 Extent of Macraes Mine/MP4 Overview Plan (map provided by OceanaGold)

2 Proposal Description

The following outlines the landscape aspects of each project i.e. extent of pit, height of WRS and such. A Project Description is included in the MP4 AEE.

2.1 Coronation Mine (CO6)

2.1.1 Project Location

The proposed CO6 pit expansion and associated Coronation North Backfill are located largely within an existing modified / mined landscape between Sister Peaks (elev. 738 m) to the west and Highlay Hill (elev. 820 m) to the east (Attachment 1). Trimbells Gully is located to the east of the site.

The current Coronation Stage 5 pit is located approximately 7 km to the northwest of Macraes village on and to the immediate north of Taieri Ridge. The existing mine is visible from Longdale Road and from 'paddock' locations to the north. The ridgeline aspects of the site are visible from Golden Point Road which provides public access to Golden Point Historic Reserve, although the existing Deepdell and Deepdell North WRSs are more prominent in the foreground north of the local road.

2.1.2 Project Description

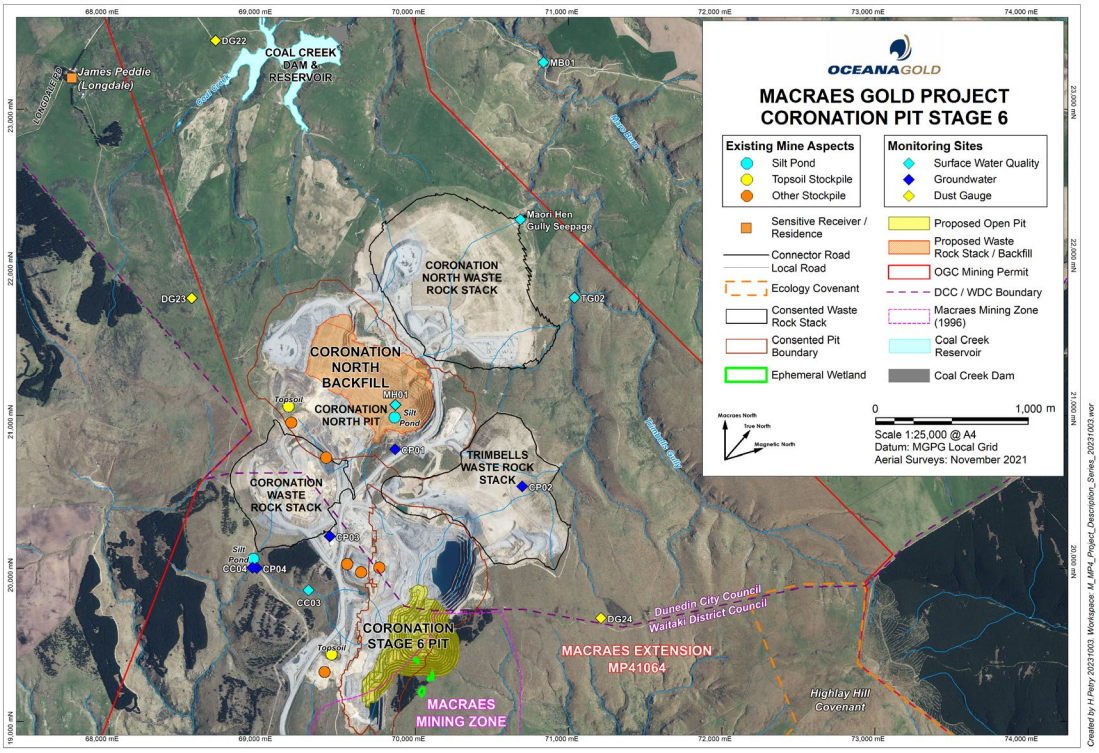

Figure 2: Coronation Pit Stage 6 Plan (map provided by OceanaGold)

The main landscape features[7] of CO6 as shown in Figure 2 are:

Open Pit Excavation

a) CO6 consists of an approximately 250 m expansion to the south-east.
b) The expanded footprint is over an area of slash from harvested pine forest and rank tussock/pasture.
c) The expanded pit is not as deep as the deepest part of the current Coronation 5 pit.
d) CO6 will join with the current Coronation Stage 5 (CO5) pit.
e) CO5 will be dewatered prior to mining CO6.
f) CO6 will involve disturbing 11 ha of previously mined areas plus 14 ha of new disturbance.

Waste Rock Disposal

a) The planned waste disposal consists of backfilling the existing Coronation North pit (CN5).
b) No new disturbance is required for the CN5 rather, infilling with waste rock will create useable land and stabilize the pit margins.
c) The top level of the Coronation North Backfill will be approximately 600 m, approximately same level as the crest of the Coronation North pit.

Pit-Related Mining Infrastructure

a) No new infrastructure will be required as this is all in place currently for Coronation and Coronation North mines.
b) Between the time of writing and commencement of the Proposal, some of this pit-related mining infrastructure (e.g. pit pumps, portable lighting) may be relocated to other parts of the mining operation and will need to be re-established to mine CO6.

Project Closure / Mitigation

a) Pit: Coronation 5 and 6 pits will not be backfilled and will fill to become a pit lake at closure. The pit lake outlet will be lowered slightly to 660 mRL to lower the head of water on the Trimbells backfill.
b) Waste rock: Coronation North backfill will come up to the pit rim. The surface will be shaped to direct run-off into the Coal Creek Catchment to the west and revegetated progressively, using standard site rehab techniques.
c) Site establishment areas and haul roads will be rehabilitated using standard site techniques.

2.2 Innes Mills (IM) Pit

2.2.1 Project Location

The proposed Project Site is to the south of the processing plant and is approximately 3 km east of

7 Coronation Stage 6 Open Pit – Project Description, 9 March 2022, provided by OceanaGold

Macraes village. It sits within a landscape that has already been heavily modified by previous and current mining activity. Macraes Dunback Road and Golden Bar Road adjoin the Project Site to the north and east, respectively (Attachment 1). In this regard the Project Site is visible to traffic passing through the area and is part of the central mining area of the current Macraes Mine.

Existing pit consent at IM has a footprint of 169.5 ha. Pit expansion at IM gives an additional footprint of about 15.1 ha.

2.2.2 Project Description

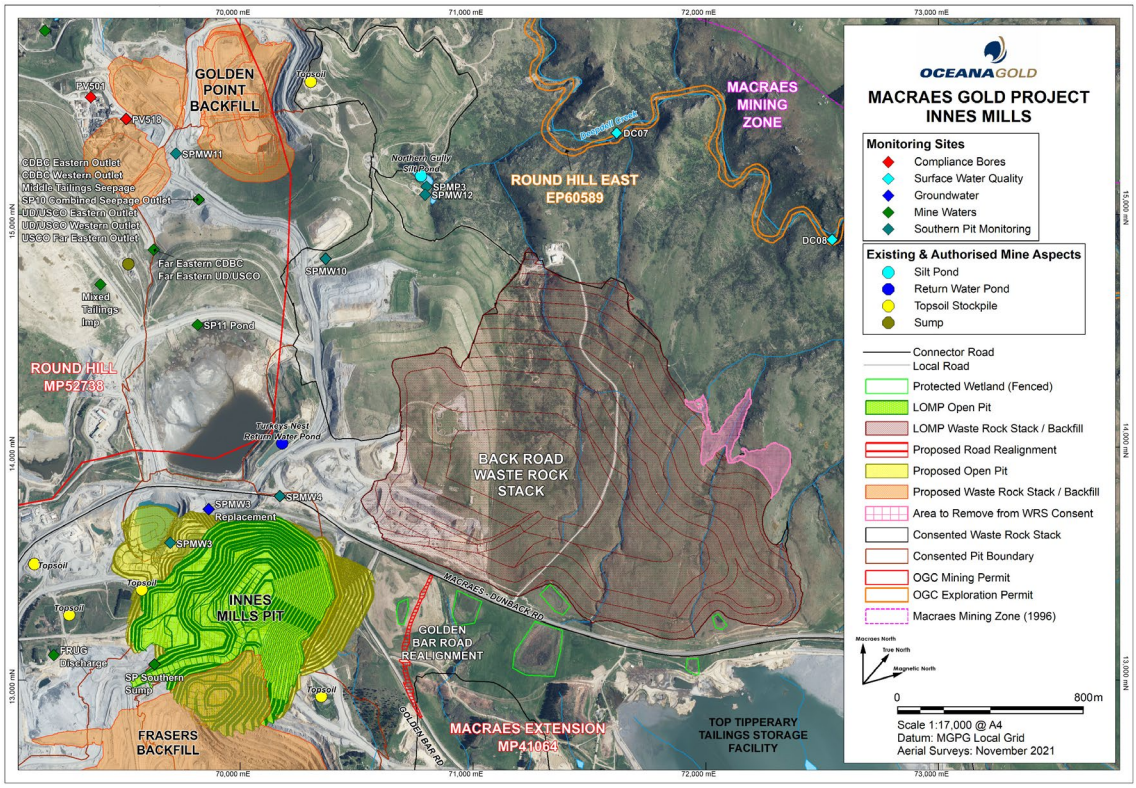

Figure 3: Innes Mills Pit Plan (map provided by OceanaGold)

The main landscape features[8] of IM as shown in Figure 3 are:

Open Pit Excavation

a) The IM expansion is an approximately 200m increase to the east and approximately 150m increase to the west.

b) The expanded footprint is over existing mine haul and access roads, mining disturbed areas and patches of rank pastureland.

c) The expanded pit goes slightly deeper than the deepest part of the currently consented Innes Mills pit.

8 Innes Mills Pit – Project Description, 19 October 2023, provided by OceanaGold

d) Golden Bar Road will need to be realigned to the east as the expanded footprint (IM10) mines part of the current road.

Waste Rock Disposal

a) The planned waste disposal strategy for the Innes Mills Pit will be based on how the mining in each area develops as areas mined out will become available for backfill.
b) During Innes Mills mining, initial waste material will be placed onto the currently consented FEWD WRS.
c) Once mining at Gay Tan Pit (in Frasers Pit) is completed, the Frasers Backfill (FRBF) will be the main destination for the rest of IM pit waste material. FRBF will build up the tailings retention embankment of the Frasers Tails Storage Facility (FTSF).
d) Total storage capacity of FRBF is about 77 Mt of wet tailings. Only 36Mt of this is required for the current life of mine including MP4 mine extensions. Top level of FRBF will be 480 mRL.
e) MTI Buttress backfills in the Golden Point Pit will be built with waste rock from Innes Mills initially (2025) and then will be completed using rehandled waste rock from Northern Gully WRS upon Golden Point Underground completion 2029-30). The backfills west of the pit will buttress the MTI (the size of backfills is being confirmed for geotechnical reasons).

Ore Stockpiling and Transport

a) Ore will be transported directly to the process plant with mine trucks using existing haul and new in-pit and backfill haul roads.

Water Management

a) Water control structures will be planned for each pit as they are mined.
b) During IM mining, two possible locations of a water storage pond were identified:
    - South of the MTI dam
    - East of IM pit
c) Storage capacity of each water pond will be about 19,000 cum. Water from the storage pond will be transferred to the Deepdell pit void by gravity.

2.3 Frasers Tailings Storage Facility (FTSF)

2.3.1 Project Location

The FTSF will be located in the south part of Frasers Open Pit (FROP) partly overlapping Frasers backfill material. The Project Site is approximately 2.5 kms east of Macraes village and will be fully within a landscape that has been heavily modified by previous and current mining activity at FROP. As with IM, Macraes Dunback Road skirts to the north of the Project Site (Attachment 1). The Project will therefore be visible to traffic passing through the area but will be seen as part of the central mining area of the Macraes Mine.

2.3.2 Project Description

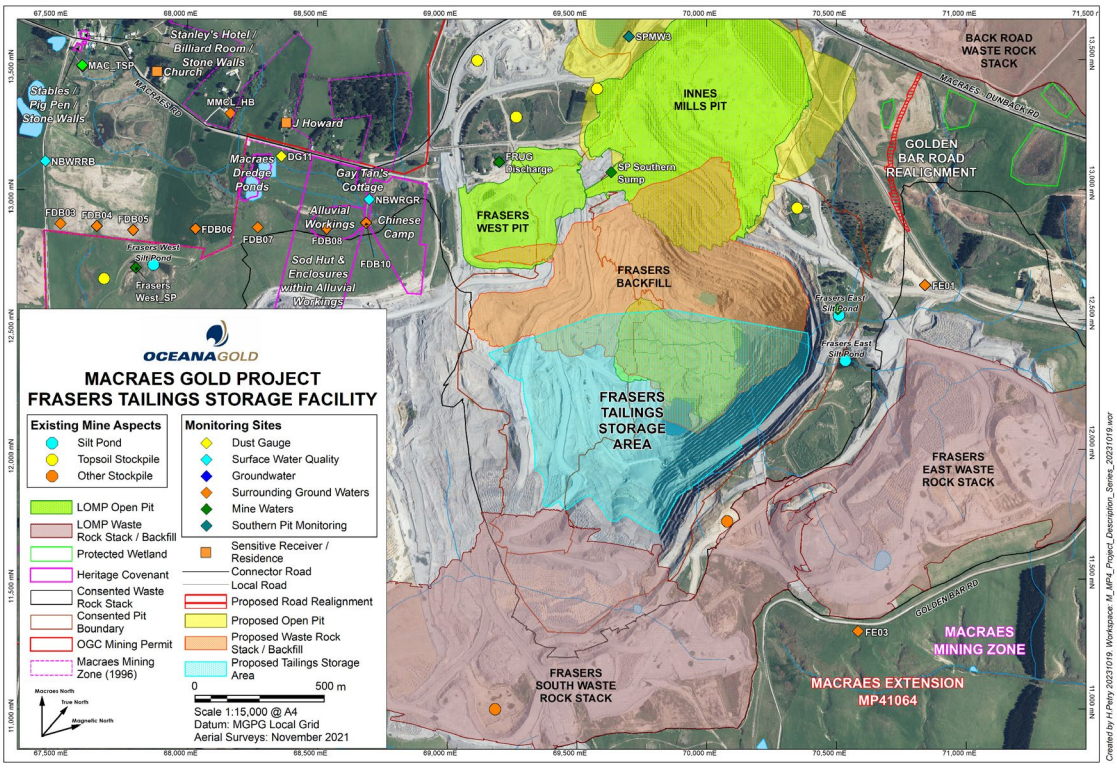

Figure 4: Frasers Tailings Storage Facility Plan (as supplied by OceanaGold)

The main landscape features[9] of FTSF project as shown in Figure 4 are:

Project Components

The plan view above shows the FRBF at full development (crest at 480mRL). Tailings will be stored to a level of ~417 mRL. The Frasers Innes Mills Pit lake is modelled to reach a steady level of 489mRL after 300years. This is well below the current pit crest low point of approx. 514 mRL in the NW of Frasers Pit. Note that tailings are shown as a flat surface but would be placed as a gently sloping beach.

Waste Rock

Pit levels: Waste rock is to be backfilled within the Frasers pit footprint and this practice is planned to continue from the very base of the pit through to the top of the FRBF embankment.

Wet Tailings Disposal

a) Method of filling: Tailings disposal is anticipated to be conventional sub-aerial slurry discharge via spigots from the processing plant.

b) Anticipated filling levels: Freshly milled tails will be stored in FTSF after TTTSF is filled to 570 mRL in Q1 2025.

9 Frasers Open Pit TSF – Project Description, 11 August 2021, provided by Oceana Gold (NZ) Ltd

Project Closure

Final Landform. The proposed final tailings level is 25 m lower than the minimum water discharge height from the Frasers pit. Without rehandling vast quantities of waste rock, it is not possible to completely fill the Frasers void so that it becomes 100% free-draining and hence a wet closure is likely. Depending on the water modelling outcomes, it may be necessary to cap the tailings surface.

a) The final plan on how the margins of the pit lakes are shaped is contingent upon further assessments and recommendations of consultants.
b) Waste slopes are shaped and revegetated progressively, using standard site rehab techniques.

Site establishment areas and haul roads will be rehabilitated using standard site techniques.

2.4 Golden Bar Pit

2.4.1 Project Location

The proposed works are located approximately 8 km to the south of the processing plant, and other than the existing haul road is physically isolated from the main hub of mining activity around the processing plant (Attachment 2). Part of the Project Site will overlap the existing Golden Bar pit and its rehabilitated WRS, with some of the works extending into adjacent land owned by OceanaGold. Golden Bar Road, a gravel rural road passes to the east of the Project Site. This road accesses Macraes Dunback Road from the north and Stoneburn Road approximately 3 km south of the site. While the pit, excavated below ground level will not be visible to traffic passing by on Golden Bar Road, the associated WRS will be visible, located to the northwest of the pit. The total Project Site covers an area approximately 69 ha.

2.4.2 Project Description

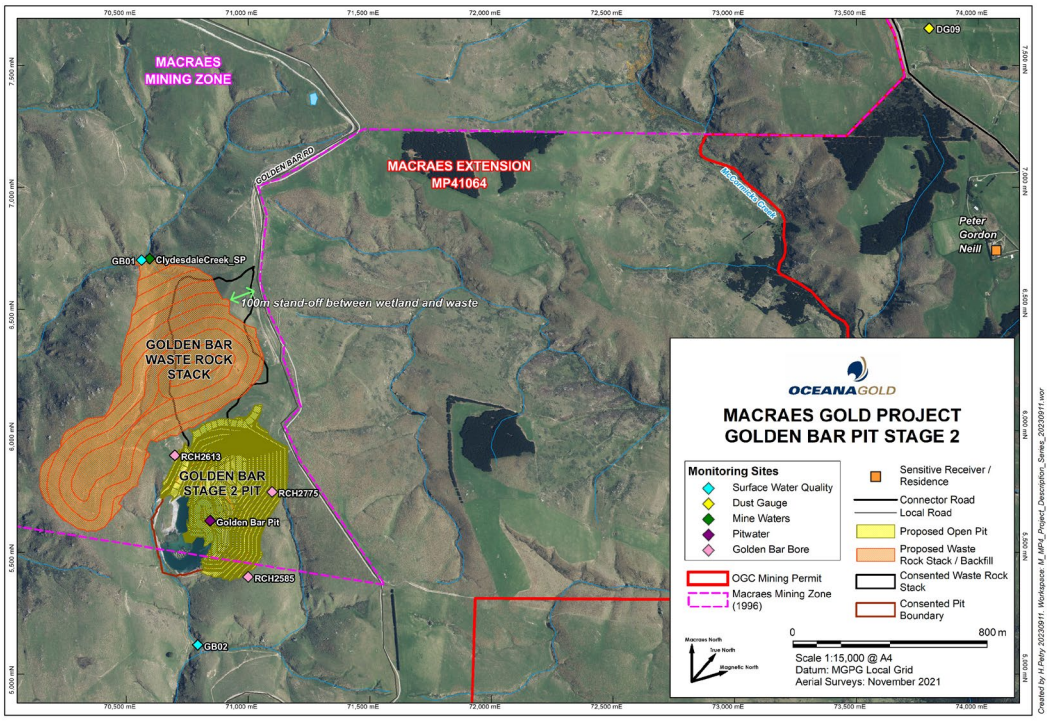

Figure 5: Golden Bar Pit Stage 2 Plan (as supplied by OceanaGold)

The main landscape features[10] of Golden Bar project as shown in Figure 5 are:

Project Components

The image below shows the location of the proposed pit development in context with the rest of the site. The red mining permit boundary is essentially on the boundary of OceanaGold (NZ) Ltd owned land.

Open Pit Excavation

a) The proposed pit consists of an approximately 200 m expansion to the east-northeast.

b) Much of the expanded footprint is on rehabilitated previously disturbed ground from the first stage of mining at Golden Bar in 2004-2006. This land was previously used for equipment park up areas and crib facilities. There is some new disturbance.

c) The highest point of the pit is approximately 580 mRL and the deepest part is at 420 mRL, about 45 m deeper than the previous pit.

d) The proposed pit crest will be close to the current Golden Bar Road. There is no opportunity to realign this road while staying on OGL land. A further iteration of the pit design may be required once the geotechnical assessment has been completed and a safe long term public road standoff distance has been determined.

Waste Rock Disposal

a) The planned WRS will consist of material placed over the existing WRS and an approximately

10 Golden Bar Stage 2 Open Pit - Project Description, 11 September 2023, provided by OceanaGold.

350m south-westward extension of the existing WRS.

b) Most of the footprint is the rehabilitated previous WRS, but there will be new disturbance associated with the southwest extension and along the flanks where the currently rehabilitated faces abut natural ground.

c) The SW extension provides a cap above the gently sloping existing topography and will not extend below the level where the topography gets steeper.

d) The top level of the WRS is 610 mRL, about 60 m above the current WRS.

e) The extra storage capacity of this WRS is just over 30 Mt.

Ore Stockpiling and Transport

a) Ore from the mine trucks will be stockpiled near the pit, then rehandled and hauled to the process plant using smaller equipment.

b) The route to the process plant will be via the previously used private haul road which is adjacent to the public Golden Bar Road until it reaches the Frasers pit area. The haul road then diverts into the mining area and onto the mine haul road system.

Pit-Related Mining Infrastructure

a) A portable smoko room will be required for the operators, located near the ore stockpile.

b) A fuel tank will be required (electric powered, double skinned).

c) A small ablution facility and septic tank will be installed.

d) All maintenance will be performed either in the field or the machines will be transported / driven back to the main workshop. No maintenance facility is proposed at the site.

Project Closure

a) The pit will not be backfilled. Closure looks similar to what currently exists only bigger. The pit void will eventually fill and slowly drain to the south as it does currently.

b) Waste Rock Stack slopes will be contoured and revegetated progressively, using standard site rehab techniques.

c) Site establishment areas and haul roads will be rehabilitated using standard site techniques.

3 Methodology

The methodology for assessment is based on the NZILA Landscape Assessment Guidelines[11] and utilizes information obtained from both desk top study and site / site context investigation through field study. A site visit was carried out on 5 May 2022 prior to the preparation of the LVA.

The desktop study information has been utilized to help describe the Proposal, site, and contextual landscape and evaluate the key issues and potential landscape effects, including positive effects.

Visual simulations have been prepared. The production of these follows best practice set out in the NZILA

11 Te Tangi a te Manu – Aotearoa New Zealand Landscape Assessment Guidelines, NZILA 2022

'Visual Simulations' Practice Note, 2010.

A seven-point scale of effects has been used in this LVA when assessing any potentially adverse landscape effects arising from the Proposal. This effects scale ranges between: 'Very Low' to 'Very High' (Appendix 1).

4 Relevant Statutory and Policy Documents

4.1 Relevant Planning Documents

As noted in the Introduction, all four Project Sites come within the jurisdictions of the WDC and ORC. Coronation Mine also comes within the jurisdiction of DCC (Figure 1). The local and regional planning documents that need to be considered include the following:

- Waitaki District Plan, in particular, the objective, policies and implementation methods relating to mineral extraction and the Macraes Mining Project Mineral Zone ("the Macraes Mining Zone") and district wide objectives and policies relating to Rural Zones, particularly regarding Landscapes at 16.8, Issue 7 and the Rural Scenic Zone and relevant Resource Consent Assessment matters at 18.2 xxiii (a) – (d);
- Dunedin City District Plan, in particular, the objectives, policies and rules defined in Chapter 14, Landscape.
- Proposed Dunedin City District Plan (2GP), in particular objectives and policies defined in Section 16 for the Rural Zone.
- Partially operative 2019 Otago Regional Policy Statement in regard to relevant landscape-related issues as identified in Chapter 5, Land.
- The partially operative 2019 Otago Regional Policy Statement in regard to Chapter 2 and Schedules 3 and 4.
- Proposed Otago Regional Policy Statement 2021 regarding "NFL – Natural features and landscapes".

The RMA sets out the parameters for determining landscape outcomes for the Proposal. Pertinent landscape matters are to be found in Part 2 of the RMA including:

- Section 5: Purpose
- Section 6: Matters of National Importance
- Section 7: Other matters.

This LVA does not cover the statutory matters in detail as this will be covered in the AEE. The below sets out the key expectations relevant to landscape matters in each statutory document.

4.2 Waitaki District Plan

The Sites for the Proposal fall within the Waitaki District Council Area and the underlying zoning of the area is shown on Map 72 of the Waitaki District Plan. It shows the area for the Proposal overlaps two zones - Macraes Mining Zone and the Rural Scenic Zone.

The Waitaki District Plan sets out the issues, objectives and policies for the District's rural landscapes in Part II: District Wide Issues, Objectives and Policies – 16. The matters of most relevance to this assessment of the Proposal are 16.7 (Mineral Extraction) and 16.8 (Landscapes).

Rural Issues – Section 16

Section 16.7 Issue 6 Mineral Extraction discusses the unique amenity of sites like Macraes Flat as well as adverse amenity effects that can arise from mining operations. Section 16.8 Issue 7 - Landscapes discusses the value of the district's landscapes including the schist plateau and hills around Macraes Flat. The District Plan states the need to manage the use and development in the district to protect the characteristics of these landscapes. Both issues are relevant to the Proposal.

District Wide Objectives – Section 16

Objective 16.7.1 seeks to ensure that extractive industries are given the ability to extract minerals in a manner that avoids, remedies or mitigates adverse effects on the environment. Objective 16.8.2 manages the use and development of land so that the overall landscape qualities of the Rural Scenic Zone are retained.

Waitaki Landscape Study

The broader landscape aspects of the district were defined in the Waitaki Landscape Study which, through Plan Change 2, has now been included within the Waitaki District Plan. Those aspects of the Waitaki Landscape Study that relate to the Macraes Operation are described at Section 3.4.2.1 of this assessment.

4.3 Dunedin City District Plan (2GP)

A small part of the proposed Coronation Pit Extension and all the backfilling into the Coronation Stage 5 area will occupy land within the Dunedin City District that has an underlying High Country Rural zoning.

Section 16 - Rural Zone

Section 16 identifies Appendix A7 as providing descriptions and rural character values for each of the Rural Zones including the High Country Rural Zone.

The High Country Rural Zone is described as incorporating the high country, which includes the ridgeline rising above the Strath Taieri plain. The area is considered highly significant and visible. The High Country is also characterized by strongly defined land forms with minimal occurrence of human elements. The landscape is also considered to be highly coherent with rock outcrops creating particular interest with the rugged character and large-scale landscape combining to create an effect which is distinctly 'Central Otago'.

Values include:

- Large scale, open, expansive character. Highly coherent natural landform under an apparently largely unmodified grassland vegetative cover. The zone covers a high country area distinctive for Dunedin.
- Unique landforms, reminiscent of Central Otago. These include the Rock & Pillar Range (Patearoa), the Lammerlaw Range, the Lammermoor Range and elevated sections of the Taieri Ridge. Rock outcrops and tors are distinctive features.
- Predominantly pastoral landuse including intact scrub and snow tussock vegetation sequences progressing to sub-alpine herbfields, as well as some modified grasslands.
- Takata Whenua values. Historic Māori trail across Taieri Ridge.
- Limited visual impact of human imposed elements such as tracks, buildings and exotic tree plantings. The relative visual dominance of the natural landscape elements over these is a fundamental characteristic.
- Human made elements which emphasise local character and contribute to visual quality, e.g. stone buildings, rock fence posts.

4.4 Otago Regional Policy Statement

The Regional Policy Statement for Otago 1998 was revoked, and the partially operative Proposed Otago Regional Policy Statement was declared partially operative on 15 March 2021.

A new Proposed Otago Regional Policy Statement was notified on 26 June 2021 (PORPS 21).

Any Council assessing the resource consent applications for the Proposal will have regard to both the partially operative Otago Regional Policy Statement and the Proposed Otago Regional Policy Statement 2021.

4.5 Resource Management Act

The matters contained in Part 2 of the RMA apply to the assessment of all resource consent applications.

In reaching a decision on a consent application, a consent authority must be satisfied that by granting an application, the purpose of the RMA will be achieved.

Section 5 sets out the purpose of the RMA which is to 'promote the sustainable management of natural and physical resources.' In determining what promotes sustainable management in a particular context, decision makers are guided by the various matters listed in Part 2 of the RMA.

Section 6 of the RMA sets out those matters of national importance that are to be recognised and provided for in achieving the purpose of the RMA including:

- 6(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.

A district-wide landscape study was initiated by Waitaki District Council in July 2002 with the purpose of

advising Council on the nature and extent of any areas of outstanding landscapes in the Rural Scenic Zone of the District. This study was subsequently extended to provide an analysis of the entire District, including the Rural General Zone. The study then formed the basis for a variation to the then Proposed District Plan aimed at better identifying and protecting outstanding natural landscapes within Waitaki District.

The assessment findings of the Waitaki Landscape Study for the Macraes Land Unit, within which the Macraes Operation lies, are as follows:

- This unit contains no landscapes that meet the 'Outstanding' criteria.
- The Macraes Ridge area, which forms the western or southern skyline for much of the Palmerston and Pigroot Land Units, is assessed as a locally 'Significant Landscape', for visual reasons.
- Parts of the Taieri Ridge are assessed as 'Significant' for visual and natural character reasons.
- The reserve containing historic mining activities, and its setting, are assessed as a 'Significant Landscape Feature'.

The landscape study also notes: "The Waitaki/Dunedin boundary follows a convoluted course along the Taieri Ridge and includes within Waitaki District, slopes overlooking the Taieri between Middlemarch and Hyde." None of these slopes within Waitaki District are affected by the Project.

The landscape study found that there are no outstanding natural landscapes (ONLs) within or near the Proposal. The nearest outstanding natural feature (ONF)12 noted in the landscape study are the Moeraki Boulders, which are approximately 30 km to the east. The 'Macraes Ridge area' referred to, is the landform 'edge' to the east of the Macraes Operation site that marks the change between the Shag Valley and the Macraes upland area. This landform 'edge' is 6-8 km east of the site and will not be affected by the Proposal.

The 'reserve containing historic mining activities' is the Golden Point Historic Reserve and will not be directly affected by the Proposal. However, it is relatively close, located approximately 200 m to the north of the proposed Round Hill pit extension.

The 'parts of Taieri Ridge' considered significant for visual and natural character reasons relates to the upper slopes of the ridge. The plateau where the Proposal is located is well below the ridge and, therefore, quite distant from this area of landscape significance.

The Waitaki Landscape Study notes at section 4.28, some 'elements' by which Waitaki District is known to outsiders. Of the 14 'elements' noted. Gold mining at Macraes is included.

In summary, according to the Waitaki Landscape Study, there are no outstanding natural features or landscapes in the Waitaki District that require protection that will be affected by the Proposal.

The findings in the Waitaki Landscape Study accord with observations made during fieldwork. That is, the

12 The Waitaki Landscape Study and subsequently the Waitaki District Plan confines the outstanding landscapes of the District in the Upper Waitaki catchment only. It is also noted that the Waitaki Landscape Study was carried out at least 5 years before the subsequent DCC study that led to OLA status of land north of the Taieri Ridge.

context for the Proposal includes no ONLs or ONFs. As such, further assessment to determine whether the site and site context includes landscapes or features worthy of 'outstanding' status under Section 6(b) is not considered necessary.

Section 7 of the RMA sets out those 'other matters' that a consent authority must have particular regard to in achieving the purpose of the RMA; those matters of relevance to this assessment of the proposal are:

- Section 7(c) the maintenance and enhancement of amenity values.
- Section 7(f), the maintenance and enhancement of the quality of the environment.

The RMA Section 7(c) is concerned with the maintenance and enhancement of amenity values which are defined in the Act as those natural or physical qualities of an area that contribute to peoples appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes. Amenity values encompass a broad range of issues. They are also relevant to Section 7(f) because the Act's definition of 'environment' includes reference to amenity values. Part of this LVA focuses on visual amenity values.

In the upland area that encompasses the Macraes Operation and its general surroundings the environment is both a working resource, in terms of land-based activities such as farming and mining, and a living environment for its residents. Like many rural areas, it is an environment that is appreciated for its sense of open space, its general lack of buildings where open space patterns prevails over built forms and its high degree of 'naturalness[13]'. This appreciation is gained by the users of the local main road from Dunback through to Hyde and its side roads. This rural environment differs from the typical rural scene in the locality, in that large-scale open pit mining activities are a distinct, existing component of this environment.

The Waitaki Landscape Study notes under 'Values' for the Macraes Land Unit that: "*The central identity derives from the settlement of Macraes Flat which is of national significance as the site of New Zealand's largest goldmine. Open cast hard-rock mining is carried out here at a massive scale, involving possibly the largest earthworks ever undertaken in New Zealand. Besides the large-scale modern mine is preserved the historic early workings in this area, providing for a unique comparison of old and new technological development.*"

It is understood that many of the current visitors to Macraes come to see the mine and its large earthmoving equipment in operation within the working mining landscape. These activities are considered by many to be an attraction in their own right.

The mining activity of the Macraes Operation is now a major part of the visual character and amenity of the Macraes Flat landscape.

4.6 Summary Consideration

The previous paragraphs 'set the scene' relative to the broader context for the MP4 Proposal and the baseline

13 Naturalness in this case is a relative term. The broader area of Macraes Flat has been highly modified by pastoral farming and now gold mining, but the broad, simple, open landscape with its scattered schist outcrops and remnant areas of tussock grassland, albeit grazed, provides a more natural character and amenity than, say, the intensively developed farmland of coastal Otago

environment which is largely modified by mining activity. The Proposal will add a relatively small component of additional mining activity and landscape effects to the broader area where large-scale open cut mining is currently present on an extensive scale. Relative to what is anticipated by the Waitaki District Plan, the effect on visual amenity values that will arise from this Proposal are insignificant relative to those effects previously consented and now existing within the Macraes Operation. These activities are accepted as contributing to the central landscape identity for the Macraes Land Unit.

Regarding Dunedin City Council ('DCC'), Coronation partly 'sits' in the DCC area. The scale of works proposed within DCC are relatively small and include backfilling and rehabilitation works, rather than adding a 'new' WRS to the area.

Most visual amenity effects of the Proposal will arise from the formation of the extra Golden Bar WRS. Pit extensions will be largely below ground level and beyond public view and fill largely with water over time. The potential visibility of the proposed IM Pit/FTSF relative to Macraes Dunback Road will be negated by the setback between the road and the northern edge of the proposed pit and the existing bund that parallels the road within the setback.

The waste rock stacks will be appropriately mitigated through slope profiling to form stable, smooth gradients with surfaces restored with pasture or other appropriate vegetation cover. This will be as for various WRSs and their slopes which have been progressively rehabilitated over recent years, and by the completion of the Project's closure plan. Other consented pits will be partially backfilled with excavated material generated by the Proposal, flooded and emergent slopes shaped and vegetated as necessary in accordance with closure requirements.

Broadly speaking, the landscape changes arising from the Proposal are consistent with the local landscape. This will be evident following pit backfilling and the progressive rehabilitation of the final surfaces of backfilled areas and the proposed WRS with vegetation cover or other rural-based activities that reflects the pre-existing landuse and landuse patterns surrounding the site.

Overall, based on the above and the detailed assessment at Section 8, it is considered that the Proposal is consistent with the objectives, and policies of the WDC and DCC District Plans and Operative and Proposed Otago Regional Policy Statements relating to landscape character and visual amenity, noting in particular that:

- The site is not within or close to an Outstanding Natural Feature or Landscape.
- The disturbed areas will be restored and finished to a contour sympathetic to the surrounding physiography and will also be revegetated with a cover appropriate to the site and setting.
- The overall landscape qualities, character and amenity value of the Rural Scenic Zone will be retained.
- There will be a nett overall improvement to the current condition of the existing mined landscape.

5 Landscape Description

5.1 Landscape Context

Macraes[14] sits within a rural upland landscape of fluvially dissected rolling hills of moderate relief and with characteristic broad ridge crests; being the coastal extent of Central Otago' s basin and range topography.

Prominent regional landscape features include the Nenthorn Valley, Taieri Ridge, Taieri Valley and the Rock and Pillar Range, which lie to the south[15] and west, the Shag Valley and Horse Range to the east and the coastal hills and extinct volcanic cones of Palmerston and Waikouaiti to the south.

Pastoral farming is the main land use in the area, followed by gold mining; the latter has a history in this area that goes back to the nineteenth century. Macraes is 'off the beaten track' on the eastern edge of the schist country and the broader historic goldfields of Central Otago. The presence of the relatively large scale Macraes Operation is a noticeable and culturally interesting element in the current landscape. The Macraes Operation is the modern face of open pit gold mining and its presence and effects relative to landscape change is now a major feature contributing to the local landscape character.

The long term, focal and cultural landscape feature of Macraes Flat is the Macraes village with its hotel, school, churches, cemeteries and small clusters of houses and various outbuildings and shelterbelts. Other than its proximity to the Macraes Operation, the village sits in splendid isolation on 'the flat', and various local roads lead to even more isolated farms and homesteads. Scattered and isolated habitation is a feature of the open, rolling, landscape on the edge of basin and range topography that expands through to the upper Taieri and the Maniototo.

The Waitaki Landscape Study[16] provides further information on the landscape context of Macraes under its description of the 'Macraes Land Unit (P2)'. The majority of the Macraes Operation, other than the Coronation mine, lies within this landscape unit.

5.2 Macraes Operation Landscape

The Macraes Operation extends over three distinct locations spanning approximately 17 kms north to south.

14 That is, the village and mine which are close to one another and form a distinct 'settlement'.

15 As noted earlier, the orientation of the geographic features in the broader landscape are given relative to 'Macraes North'

16 Densem, G, Landscape Architect (2004) Waitaki Landscape Study. Prepared for Waitaki District Council.

The Coronation Mine is located on the Taieri Ridge at the northern extent of mine operations. Its haul road, extending from Golden Point Road ascends the front slope of the Taieri Ridge north of Horse Flat Road. Further to the south the main 'Frasers Pit' is located 3 km south of the processing plant. The Golden Bar mine is located at the southern limit of current mining activity beside Golden Bar Road (Attachments 1 & 2).

Following are descriptions of the landform and drainage, landcover and land use history of the area of the Macraes Operation.

Figure 6: Golden Point remediated waste rock stack

Figure 7: Deepdell East remediated waste rock stack

5.2.1 Landform and Drainage

As previously noted, Macraes Flat sits within a rural upland landscape of fluvially dissected rolling hills of moderate relief and with characteristic broad ridge crests; being the coastal extent of Central Otago's basin and range topography. This upland area is defined in the Waitaki Landscape Study as having the 'Macraes

Ridge' to the east and south, the eastern extent of the 'Taieri Ridge' to the north with Highlay Hill as the local high point.

'Macraes Ridge' is not a ridge as such, but a series of upper slopes that form the western to northern skyline when looking up from the Shag Valley and from Palmerston and Goodwood – Flag Swamp area. The Taieri Ridge trends west towards Middlemarch and separates Macraes, Moonlight and the Nenthorn Valley from the Taieri Valley; it forms much of the northern skyline when viewed from Macraes Flat.

The broader, southern extent of Macraes Flat area generally trends or slopes to the west via Moonlight and the Nenthorn Valley to the Middlemarch – Taieri basin. To the south towards the coast are lower hills and then the more distinctive ancient volcanic cones of the Waikouaiti – Palmerston area. The somewhat more contained extent of the Macraes Flat area slopes to the east via Deepdell Creek to the Shag Valley.

Three named waterways have their sources and/or upper tributaries within the Macraes Operation – Murphys Creek to the south, Tipperary Creek to the east and Deepdell Creek to the north. The headwaters of the North Branch of the Waikouaiti River are contained in the low flats between Macraes village and the Frasers East WRS; these flats drain to the west and then south. Numerous small streams drain the various plateau tops and their scattered small wetlands by short and often steep gullies to the larger creeks. One of these is Highlay Creek that has its headwaters between the Coronation haul road and Highlay Peak on the south-facing flank of the Taieri Ridge and drains to Deepdell Creek. Deepdell Creek drains the Horse Flat Road area and the broader and flatter area to the east of the Nenthorn Road section of Macraes Dunback Road east to Shag River. The incised catchment pattern that drains the broader upland area is an important feature of the natural character of Macraes Flat.

5.2.2 Landcover

From the information provided in the earlier MP3 Project's ecological assessment[17], which covered the broader Macraes Flat area, the past vegetation cover of the Macraes Ecological District (ED) within which the Macraes Operation lies was "*...comprised of montane short tussockland grading into subalpine tall tussockland, with areas of hardwood forest (including a podocarp element), kanuka forest and coprosma-flax scrub. Destruction of the forest cover began with natural fires around 2500 years ago and was exacerbated by Polynesian (800 to 400 years ago) and European settlement (1840 AD).*

The present vegetation of the Macraes ED is of a highly modified nature with approximately 50% of the district dominated by improved pastureland. This is because of the long farming history associated within the Macraes ED."

Much of the Macraes Flat close to Macraes village is now flat to undulating improved pastureland which has been largely and extensively modified by mining. Various steeper gullies within the open paddocks of improved pasture contain remnant tussock grassland and low shrubland.

17 Ryder Consulting (2011). Ecological Assessment – Macraes Proposed Phase III Extension. Prepared for Oceana Gold (New Zealand) Ltd.

There are occasional wetter, swampy areas on flat ridges and in gully areas. To the north and east are more deeply incised gullies such as that which contains Deepdell Creek. Numerous, scattered, outcrops of schist are a feature of the Macraes Flat plateau.

One of the more obvious vegetation features of Macraes Flat are various pine and macrocarpa shelterbelts, along with some pine forestry plantations which contrast strongly with the open grassland character. Some shelterbelts along Horse Flat Road have been recently removed. Much of the taller tree cover is associated with local homesteads and their surrounding paddocks.

There are further shelter and ornamental tree plantings around Macraes.

5.2.3 Land Use History

As noted in the MP4 Project's Archaeological Assessment[18] there is limited knowledge or understanding of pre-European land use within the Macraes Flat area. The nearest recorded Māori site is approximately 20 km to the south in Nenthorn. This is not to say Māori did not use the area, however modification of the area by large scale mining in the 19th century has probably resulted in the disturbance or removal of any evidence of such sites. It is possible that evidence of such sites may be found in remote areas. There is also potential for occupation or rock art sites to be present in some of the outcrops.

As further outlined in the Archaeological Assessment, since the 1860s pastoral farming and both alluvial and quartz mining for gold have taken place in Macraes. Alluvial mining continued with varying intensity until the 1930s and 1940s, with quartz mining being at its peak in the late 1800s and early 1900s. The Department of Conservation's Golden Point Historic Reserve next to Deepdell Creek at the end of Golden Point Road contains remnants of the quartz mining period.

The Macraes village was established at the time of the early gold mining when the population of the locality may have peaked at around 380 but fell away to a much smaller number later.

Between the demise of active mining in the 1940s and the start-up of the Macraes Operation in the early 1990s, the village was a small, but active, focus of the local farming community consisting of a hotel, school, two churches and several houses (Figure 8).

18 Origin Consultants Ltd (September 2023). Archaeological and Heritage Assessment for OceanaGold MP4

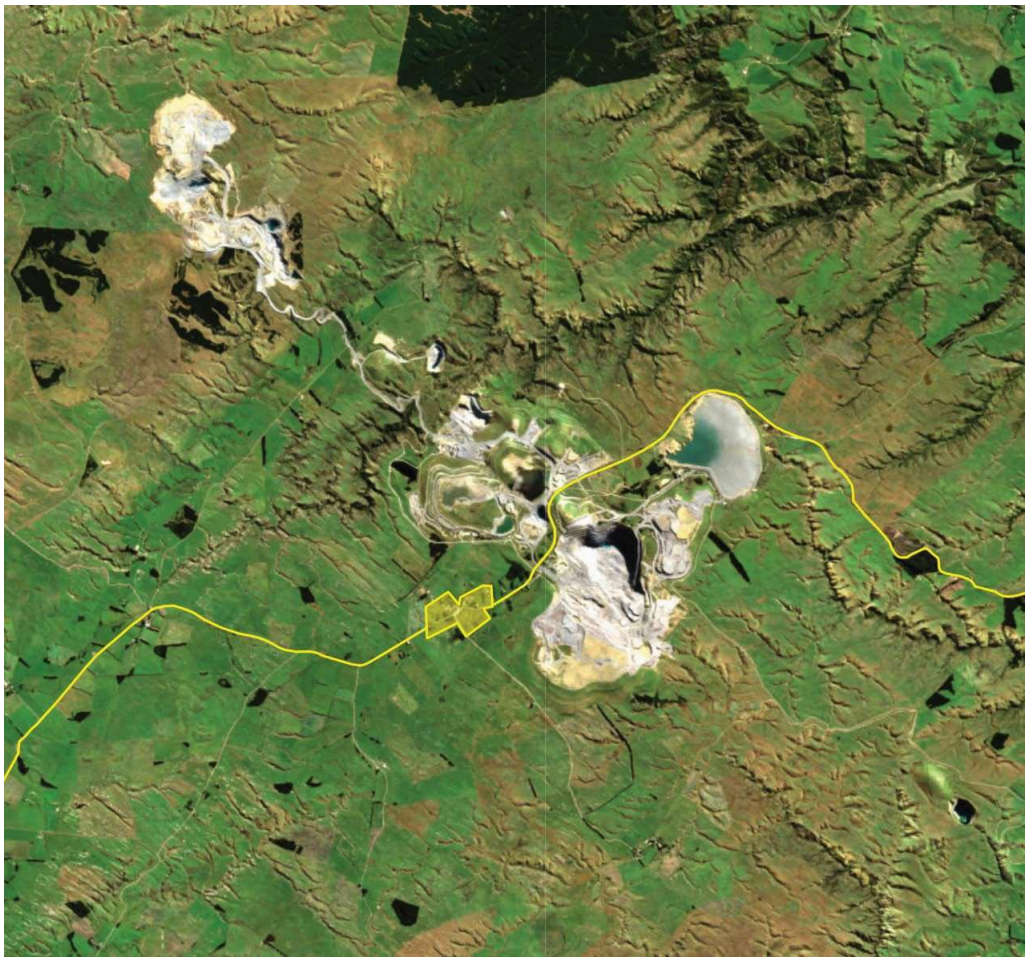

Figure 8 Macraes mine in context. Macraes Dunback Road shown in yellow with Macraes Village shown in yellow hatch.

5.3 Coronation Mine Landscape

The landscape context for the Coronation Mine expansion (CO6) is steep to rolling country, rising steeply from the north side of Horse Flat Road to a relatively flat plateau on the Taieri Ridge where the Coronation Mine is currently located. The residual high point of Sister Peaks is located at the western edge of the mine rising to approximately 740 m in elevation. The southern, 'rounded' flanks below the mine drain to one main north-south oriented gully – Camp Creek - which in turn is fed by numerous other smaller, deeply incised gullies to the east and west. Camp Creek then drains to Deepdell Creek. The northern flank below the mine drains to Māori Hen Creek and Trimbells Gully; both of which drain to the Mare Burn.

The land surrounding the current Coronation Mine is generally grazed, modified tussock grassland. The lower slopes are more intensively grazed, while the steeper side slopes are 'scrubbier' in character. There are areas of pine planation to the west of Camp Creek. This elevated area can be snow-covered for periods of up to a week during the winter.

A now-obvious component of the site is the Coronation Mine, which included a previous expansion to

develop the Coronation North pit; this pit has unstable southern pit margins that will be ameliorated via this current proposal. The sinuous haul road from Horse Flat Road up to the mine has been in place now for approximately eight years. All the currently consented mining at Coronation Mine is complete.

In terms of natural character and visual amenity value, the Taieri Ridge forms a distinct skyline and visual backdrop to the Macraes area to the south and eastern extent of the Middlemarch- Hyde basin to the north. Its block faulted ridgeline with frequent outcrops of schist is distinctive and its various deeply incised gullies that drain to Deepdell Creek to the south and Mare Burn to the north give the landform a rugged character. The visual amenity of the Taieri Ridge is further defined by its predominant vegetation cover of tussock grassland, which has been maintained by extensive pastoral farming practices and by its elevation and isolation.

The section of the Taieri Ridge that contains the Coronation Mine site is defined by the Sister Peaks promontory, the active Coronation Mine, the incised, upper catchment of Camp Creek to the west and south and the gentler slopes of the upper Mare Burn catchment to the north.

A cultural landscape factor of the broader landscape is that the Taieri Ridge is the territorial boundary between Waitaki District and Dunedin City. However, this boundary does not consistently follow a natural line in the landscape such as the crest of the ridge, but zigzags from one side of the ridge to the other. Running west from Highlay Hill, the boundary line is on or close to the crest of the ridge and bisects the Coronation Mine area. From here, the boundary line runs directly northwest and doglegs round the west side of the (former) highest of the Sister Peaks before descending the northern flank of the Taieri Ridge and crossing Longdale Road. From a point approximately 4 km northwest of the crest of the ridge, the boundary line then runs directly southeast to Hyde-Macraes Road and crosses over onto the south flank of the Taieri Ridge, west of Brother Peaks.

The planning status of the land on either side of the territorial boundary differs. However, on the ground, there is no perceivable change in the quality or character of the landscape from one side of the boundary to the other. This was discussed in Section 4 of this assessment.

5.4 Innes Mills Pit and Frasers TSF landscape

These two proposals are co-located and will result in the IM pit linking with the Frasers pit void with partial backfilling in the join area. The immediate landscape where further mining changes are proposed includes substantially modified topography due to previous and current mining activities. Any semblance of the pre-existing natural landscape has been largely extinguished.

The area where the Innes Mills Pit extension and Frasers TSF are proposed is to the south of Macraes Dunback Road which crosses in an east-west direction. Golden Bar Road feeds into Macraes Dunback Road from the south; its intersection with the latter will need to be realigned due to the IM proposal. The landscape in this immediate area is almost fully modified by the open pits and associated WRSs and includes the existing Innes Mills Pit and Frasers Pit; the latter is the widest and deepest excavation at Macraes. Other lesser but nonetheless prominent landform changes due to mining are present. A few

patches of ground that have been unaffected by mining, support pine trees, scrubby vegetation and pockets of rough pasture.

The area where this part of the Proposal is located is dominated visually by past and active mining activity and as such contrasts strongly with the surrounding broader natural landscape patterns, elements and colours. In terms of landscape character, landscape values and visual amenity, this part of the Macraes mining landscape has the least of all three aspects.

5.5 Golden Bar Landscape

The landscape context for the Golden Bar site is gently rolling country, where multiple streams and 'seeps' have incised down into the underlying broad plateau landscape forming a series of 'bevelled' valleys with rounded tops. The skyline is generally flat to gently undulating, interrupted by the occasional rock outcrop. Landcover is predominantly tussock and pastureland. Trees are infrequent and include the occasional pine or macrocarpa, a few conifer shelterbelts and small plantations. Obvious human-induced modifications include the narrow, gravel Golden Bar Road, associated power lines and a small number of farm buildings.

The rehabilitated WRS from earlier mining is barely discernible as an artificial landform to the north of the existing pit; such is the success of the remediation works. Golden Bar Road is publicly accessible and links with Macraes Dunback Road to the north and Stoneburn Road to the south, which then links with Dunback Road / SH85, or Palmerston via Taieri Peak Road. Overall, the landscape character is broad and open, tawny-coloured and visually 'austere'. Landform processes are clearly legible, aided by the topography's low vegetation cover. The site is at a landscape high point around the 560 m – 580 m contours. Dunback Hill is slightly higher than this at 600 m, located approximately 1 km to the east of the Project Site. Northwards views include a similar landscape character as described, but also includes the central Macraes mine area approximately 8 km from the site, notable due to the horizontal 'banding' left in the landscape and the flat stepped tops of the occasionally visible, steeply angled pit faces.

In the other direction, southwards views from the site towards Palmerston overlook a subtly different, 'greener' and more 'settled' landscape including intensively farmed paddocks, coniferous shelterbelts, and broad areas of plantation forestry. The notable 'dome-like' peaks of Taieri Peak (308 m), Middle Mount (474 m), Mount Trotter (587 m) and Mount MacKenzie (527 m) are distinct landmarks rising above the surrounding rolling landscape.

The current Golden Bar mine pit is the obvious feature of the site and visually forms an approximately 20 m stepped eastern and pit wall cut down into the sub-terranean landscape above the pit lake. The pit is roughly circular with a diameter of approximately 450 m and a pit lake has filled to its overflow level. A low rock bund is placed close to the east wall. Golden Bar Road is approximately 280 m to the east of the pit. To this end, the existing Golden Bar mine pit goes largely unnoticed, as most of this landscape change is located below ground level or includes the successfully remediated former WRS.

6 Potential Landscape and Visual Amenity Issues

In general, gold mining, and in particular open pit mining, can have direct and often irreversible effects on the landscape in which the activity is located. These effects result from:

1. The stripping of overburden,
2. The extraction of ore,
3. The creation of backfills and waste rock stacks to accommodate the overburden,
4. The creation of haul roads to transport the material,
5. The (temporary) location of processing plant to extract the mineral from the ore and
6. The creation of tailings storage facilities to contain the particulate waste material from ore processing.

Element 3 above generally has a net benefit to landscape character where the fill replaces a pit void, essentially putting the landscape back to how it once was. Where TSFs and mine voids become flooded, the water surface will cover the tailings surface and partially cover backfill. This will contribute positively to landscape character where previously a 'raw' pit void and tailings existed.

Elements 4 and 5 above are not included in the Proposal as these aspects are already in place, having been constructed following earlier mining consents. By necessity, all but the processing phase of open pit gold mining results in large voids, waste rock stacks and containment areas that have a large physical footprint and are therefore likely to be visible and bring about a distinct change to the local landscape character and its values. Examples of these landscape and visual effects already exist in both an active state and mitigated within the consented Macraes site. However, being highly visible does not necessarily equate to an adverse effect. Or an effect may be deemed to be adverse, although such an effect may not be inappropriate, on balance, in terms of the expectations for the setting.

6.1 Physical Modifications to the Landscape

Physical modifications to the landscape will result from extensions to existing pits, partial to complete pit infilling (with waste rock or tailings) or flooding of mined out pits or adding excavated material to WRSs. New sections of in-pit haul roads will be developed, although existing haul roads will largely be used. Haul roads are largely temporary landscape elements, removed at mine closure. A short section of Golden Bar Road and its intersection with Macraes Dunback Road will be realigned further east. The Proposal also entails the continued use of associated ancillary structures and activities, and several temporary facilities that are commonplace within the existing mining operation. This is particularly relevant at the Golden Bar Project Site which requires temporary facilities, given its a long way from the main operational facilities. As with current mine operations, there will be mitigation measures that focus on the closure plan, and in many cases, these will be progressively implemented through the remaining mine life.

The following discussion relates back to the components of the Project described in the Project Description at Section 2 in terms of what is being proposed.

The location and plan area of the larger components of the Project are shown in the MP4 Overview plan

(Figure 1). The potential effects of CO6, IM/FTSF and GB2 are outlined in their respective Project Descriptions. Measures to mitigate any adverse effects, are described in Section 6 and in the supporting graphic attachments including a Viewpoint Map, Photographs and Visual Simulations.

To varying degrees for all project sites, the activities that will be visible will be the stripping of overburden – topsoil and waste rock and the excavation of the top 'lifts' of the new portions of the pits and the placement of waste rock. The extraction of ore is not likely to be visible as that will take place within the ever-deepening pits. However, one of the more obvious activities will be the movement of dump trucks between the pits, the backfill areas and WRSs and between the pits and the processing plant.

As with the current Macraes Operation surface mining activities, the stripping and dumping of waste rock will continue through the night '24/7' with the excavation and dump sites being floodlit. The actual location of these work sites within the broader mine site will be constantly changing as the mining operation progresses. However, potential night lighting effects will be mitigated by facing the floodlighting inwards, wherever possible. This is standard operational practice at Macraes as per the consent requirements.

6.2 Mitigation Measures

Existing resource consents for the mining activities at Macraes Operation require compliance with several consent conditions including a specific landscape rehabilitation condition. The particular 'landscape' condition 4.4 from the most recent Deepdell North consents that relates to the rehabilitation of WRSs states:

The consent holder shall design and construct the WRS in accordance with the following principles:

- Slopes shall be suitably shaped in cross-profile to match nearby natural slopes.
- Slope gradients shall be no steeper than nearby natural surfaces.
- Transitions between natural and formed surfaces shall be rounded and naturalised.
- Contours should be curvilinear in plan form, in keeping with original natural contours in that area.
- The skyline shall be variable and curved, simulating natural skylines.
- New landforms shall be aligned and located so they seem to continue, not cut across, existing landscape patterns; and
- Silt ponds shall be removed, and the site rehabilitated or be converted to stock water drinking ponds following completion of mining operations and rehabilitation.

The above principles remain valid for the current Proposal and if adhered to, will provide for acceptable landscape outcomes for MP4.

The existing sections of the Coronation North and Northern Gully WRSs are good examples of existing waste rock stacks that successfully meet the requirements of the rehabilitation conditions.

It is anticipated that the backfilling of the various mined out pits and the extension of existing WRSs will meet similar conditions to those that have been applied to the previous expansions of the Macraes Operation. These conditions have been considered in the preliminary design of the earthworks relative to

the Proposal and carried through into the visualisations referred to in this assessment.

Implementing these principles is governed by the mechanics and economics of shifting vast quantities of waste material with very large earthmoving equipment. However, in general terms, the final form of the WRSs will be of a similar character to the existing natural form of the broad local topography and will generally replicate the surrounding landforms.

The final vegetation cover of the WRSs and backfilled areas, as with previous completed landforms, will probably be dominated pasture grass and tussock. Appropriate vegetation cover will be established on the restored haul roads. This aspect of final site rehabilitation will be a key part of detailed closure planning.

Overall, mitigation measures will be built into the Proposal from the outset. These include:

- Careful design of the form of the backfill and WRSs to integrate them with the existing landform character of the area.
- Progressive rehabilitation of backfill and WRSs.
- Shaping the upper pit walls of the open cut pit if required for slope stabilisation or to create a naturalised form that could enable the establishment of vegetation cover.
- Restoration of the areas disturbed around the margins of the Project Sites.
- Removal and restoration of the haul roads used during construction of the Project Sites.
- Integration of erosion and sediment control.
- Formation of pit lakes within the open cut pits.
- Ecological mitigation including wetland and lizard habitat.
- Incorporation of vegetation diversity at a landscape scale.
- Providing for future land uses.

7 Assessment of Landscape and Visual Effects

A seven-point scale of effects has been used in this LVA when assessing the potential adverse landscape effects arising from the Proposal. This effects scale ranges between: 'Very Low' to 'Very High' (Appendix 1).

Levels of effects generally decrease with distance from the Proposal. This is demonstrated in Attachments 4, 6, 7 and 8 and is summarized in Table 1.

Mitigation and remediation measures are discussed in this section.

7.1 Landscape Effects

Landscape effects concern physical changes to the setting which may or may not be seen but are otherwise understood to exist. Effects may be positive or negative (adverse). Landscape effects are also synonymous with effects on character and levels of amenity derived from landscape character or in other words - whether a change to the setting is appropriate or not.

Landscape character results from a combination of landform, land cover and land use (or cultural patterns).

As such, physical changes to the landscape arising from the Proposal will include:

- Vegetation removal including that growing on successfully rehabilitated areas from previous mining operations.
- Excavation / mining including the formation of deep pits, highwalls and benched pit walls.
- Construction of new, or additions and changes to existing waste rock stacks.
- Partial (Frasers/Innes Mills) to complete (Coronation North) Infilling of pit voids with tailings, capping and flooding to form pit lakes.
- Formation of or changes to the alignment of haul roads.
- Realignment of a short section of Golden Bar Road.
- Alteration of natural drainage patterns including the formation of pit lakes and silt dams.
- Mitigation planting including integration with ecological aspects.

The following assessment is based upon observation of the existing open cut pits, waste rock stacks, haul roads and other operational aspects of the current Macraes Operation. This includes an understanding of how the existing consent conditions have been implemented in the development of the various mine components.

A site visit was carried out on 5 May 2022 under clear and sunny weather conditions, visiting the defunct Golden Bar mine via Golden Bar Road and observing the other parts of the Proposal from the few publicly available areas including Macraes Dunback Road, Golden Point Road and Longdale Road. This provided for an understanding of the mining operations as they exist now, and the potential and likely magnitude of landscape effects going forward. Previous viewpoints from earlier consenting phases were re-visited and photos taken.

The description and discussion in previous sections about setting, site, planning context and proposed activities forms the baseline discussion to this assessment.

7.2 Potential Adverse Landscape Effects

Natural landform and landcover patterns have been substantially modified through historic mining where all Project Sites are located. Mining operations at these locations have, over time largely extinguished all the natural landscape characteristics and values that the Project Sites would have once had. Relatively small areas of 'un-mined'[19] landscape are proposed to be changed through this Proposal. Some areas appear natural but are in fact successfully rehabilitated backfill and waste rock stacks. Therefore, any potentially adverse landscape effects of the Proposal need to be considered against the Project Sites' baseline conditions which are all highly or fully modified.

Nonetheless, several changes include increasing the height and footprint of the existing Golden Bar WRS and

19 The Golden Bar Project Site and a small part of the Coronation Project Site partly overlays land that has been historically cleared for grazing

fully backfilling Coronation North Pit. Some changes overlay natural albeit farmed landscapes. For these reasons, there will be both adverse and positive landscape effects generated by the Proposal – primarily arising from landform and vegetation change and the introduction of new, artificial landforms.

It is acknowledged that extensive mining operations have occurred to date at all four Project Sites. As such, the Proposal will have an acceptable level of compatibility with its surrounding environment where the proposed changes will be congruous with the Proposal's mining context. These changes will be less discernible following site rehabilitation works as has proven evident to date from earlier mining projects.

The parts of the Proposal below ground level, being extensions of existing open cut pits, have less effects on landscape character than the WRSs which are generally imposed on the natural ground and visibly alter the topography.

7.3 Positive Landscape Effects

While the Proposal represents further mining-derived landform changes to parts of Macraes Flat, the Proposal includes several broad positive landscape aspects contributed by the following which will go towards balancing out the landscape effects findings:

- The Proposal includes substantial backfilling of, and the subsequent remediation of existing pits formed during earlier consented stages, most notably Coronation North Pit.
- Formation of lakes in pits, including the TSF in Frasers pit, will contribute to amenity values and landscape variety in the area.
- Establishment of ecological areas/covenants.
- Eventual removal of facilities and rehab of hard stand areas and haul roads, leaving land with farming, forestry, tourism, amenity and other land use potential.

7.4 Summary - Landscape Effects

It is concluded that, on balance, any potential adverse landscape effects of the proposed Golden Bar WRS is 'Moderate' as it alters the skyline where it is located. For other aspects of the MP4 Proposal any potentially adverse landscape effects will be 'Low'.

This is due to the following factors:

- The receiving environment includes substantial mine development and is considered to be a highly modified environment. Other than the Golden Bar WRS, the Proposal represents relatively small additional changes to landform.
- The Proposal includes minimal disruption to vegetation patterns, which are largely exotic, as the area has been historically cleared for pastoral farming. Any areas of disturbed indigenous vegetation and wetland will be mitigated by way of a protected ecological area.
- The majority of the Proposal is within the Macraes Mining Zone; therefore, the Proposal is largely consistent with the anticipated land use of the area.

- Most parts of the Proposal include excavation down into the landscape as the extension of existing pits. This has less visible effect on the topography as opposed to creating 'new hills' through the formation of the WRSs.
- Part of the Proposal includes landform remediation from previous consented mining activity. Infilling the Coronation pit to the pit rim level, and contouring followed by vegetation will have a very positive effect of the landscape.

7.5 Visual Effects

Visual effects are a subset of landscape effects and concern the effects on landscape values and amenity experienced through views. Visual sensitivity may be influenced through how visible a proposal is, the nature and extent of the viewing audience, where they are located within the receiving environment, and view time. Other factors include the visual qualities of a proposal and the absorption capability of the setting for a proposal. In general terms, the visibility of a landscape change does not necessarily mean an adverse visual effect is generated.

An assessment of visual effects helps with understanding the levels of landscape effects.

Macraes Flat as a locality is situated on an elevated plateau that is quite isolated from the main highways and towns of northeast Otago. Only one sealed, local authority road – Macraes Dunback Road - connects Macraes Flat and the associated Macraes Operation with State Highway 85 (SH85, the Pigroot) to the east and State Highway 87 (SH87, the Middlemarch Hyde Road) to the west. The eastern hill section of Macraes Dunback Road ascends quite steeply over approximately 8 km from SH85 at Dunback in the Shag Valley to a point known as Sailors Cutting and the first broad view of Macraes Flat upland from the east. The western section of the local road, known locally as Hyde-Macraes Road, also ascends quite steeply from the north to a crest colloquially known as 'Hyde Hill' and the first broad view of the Macraes upland from the west. Due to the elevated nature of the topography, Macraes Flat has low visibility in a district-wide sense.

With its agricultural history of extensive pastoral farming, the smaller local roads running off Macraes Dunback Road are few; all are gravel roads, and most are no-exit. The farm homesteads are also very few; all are sheltered by conifer shelterbelts and are physically and visually isolated from one another. Macraes village is a central feature of the locality and sits on low, sloping land with an outlook to the south and to the west.

In this context, aspects of the Proposal will be visible from various points along Macraes Dunback Road and the other local roads, notably Golden Bar Road. This is on the basis that if the original WRSs and pits are visible, the proposed WRS and pit extension will also be visible. In these instances, the predominant 'viewer' will be motorists travelling along these roads and the extent, direction and focus of their view will be constantly changing, often at open road speeds.

7.6 Zone of Theoretical Visibility Mapping

The Zone of Theoretical Visibility (ZTV) map (Attachment 3) maps the theoretical visibility of landform change – in this case the Golden Bar WRS, from all points in the surrounding landscape within an

approximately 10 km radius. The ZTV mapping is based on a central point, the 'summit' of the proposed WRS, set 70 m above the existing remediated earlier WRS.

The potential visibility of the other aspects of the Proposal have not been mapped via ZTV mapping as these other areas generally include excavations below ground level, or into existing WRSs, or otherwise include minimal visible changes to the landscape where any potentially adverse effects will be acceptable, or positive. ZTV maps are generally better suited to 'above ground' landscape changes, such as wind farms, or in this case WRSs where there will be adverse effects.

When examining ZTV maps in a general sense, it is important to understand that:

- ZTV maps do not show how an element in the landscape will appear or the magnitude of visual effects as they only show an indicative area and the extent of the potential viewshed. For example, colours and vegetation cover on the proposed element are not considered, which typically reduces the visibility of such new elements in the landscape - in some cases, substantially.
- ZTV maps do not take into consideration the potential screening effect of vegetation cover or structures within the viewshed area and are solely based on 'bare' topography providing a 'clear line of sight'. In some instances, there will be buildings and trees that will interrupt or fully screen views of a Proposal. However, in this case, intervening elements are less prevalent as the landscape around the Golden Bar WRS is relatively 'open' and 'uncluttered'.
- The accuracy is limited to the contour information/intervals.
- ZTV's are an assessment tool which produce a baseline for the potential maximum area of visibility of an element. However, ZTV mapping does not consider the effects of distance away from the element relative to the viewer, intervening elements that may visually distract or detract from views as discussed, and atmospheric conditions such as sun/glare or humidity etc. The ZTV assumes an equal baseline condition for all views.
- ZTV's are an effective way to ascertain and/or confirm potential public viewpoint locations.

7.7 Viewpoints

A set of viewpoints were previously chosen for the MP3, Deepdell North and various Coronation Mine LVAs. Several of these same viewpoints are also relevant to this Proposal and were used to help inform this current LVA (Attachments 1 and 2).

These previous viewpoints included points along Golden Bar Road, the Golden Point observation point, and the cattle yards on Longdale Road. From these viewpoints, the Proposal may or may not be visible and this was confirmed from the ground during fieldwork.

From these locations, views were also considered from the point of view of a visitor to the Macraes Flat area travelling from 'Sailors Cutting' in the east along Macraes Dunback Road, south along Golden Bar Road, north along Golden Point Road and east along Longdale Road. The reasoning behind considering a

particular view and the specific discussion regarding the visibility of the various aspects of the Proposal is provided in Section 7.9 relative to the selected viewpoints.

For this MP4 LVA, the viewpoints have been discussed in the same order that proposed sites and their project descriptions have been address – C06, IM/FTSF and GB2.

7.8 Visual Simulations

Following an analysis of where the main components of the Proposal are likely to be visible from, along with site photos from all viewpoints, visual simulations were prepared to assist in assessing the potential visual effects. The visual simulations involve incorporating permanent elements of the proposed mine activities such as the proposed WRSs into photographs from the selected viewpoints as these elements, in particular, will be both large and/or distinctive relative to the scale of the surrounding landscape.

In short, the production of these follows best practice set out in the NZILA 'Visual Simulations' Practice Note, 2010. The Proposal was modelled in 3D by WSP technicians and orientated or 'photo-matched' relative to the LVA author's 50 mm focal length site photographs. To aid this, photographic viewpoint locations and elevations were recorded when the photographs were taken and provided to the WSP modellers. The 3D 'basic' model was overlain onto site photographs in Adobe Photoshop to confirm that the scale and perspective was correct. Adobe Photoshop was used to render the 3D model and to delete and add landscape elements.

However, visual simulations, like photographs, can be somewhat limited in their ability to represent some of the subtle details in a landscape, which may ordinarily be seen with the naked eye. Also, variations in atmospheric conditions and light, which are dependent on prevailing weather conditions and the time of day, can affect the visibility and appearance of a large earthworks-type development such as a gold mine. Notwithstanding such constraints, simulations can represent the layout, positions, design, and extent of the elements of a proposed development including the effects of sun and shade, precisely.

Site photos, along with visual simulations from the selected representative viewpoints are at Attachments 4, 6, 7 and 8. In several cases, the viewpoint images have been formatted in the following order:

- 'Before' – This image is the current panoramic view from the particular viewpoint and is the base photograph from which the subsequent visual simulation has been generated.
- 'Overlay showing extent' – This is an 'intermediate artificial' visual simulation image where the base CAD image of the visible mine elements are shown in a distinctive colour. This has been done so that it is possible to readily see or 'read' the created image of the mine elements within the simulation and therefore, clearly define the visible change at the site.
- 'After' – The visual simulation includes the aspects of the Proposal that are expected to be seen from the viewpoint. The Project's components, such as the outer slopes of waste rock stacks, have been coloured and textured to show these landforms fully revegetated as they will be when the proposed mitigation measures have fully taken effect.

The various local features noted in the description of each view are labelled on the 'Before' photograph of

the view and the primary components of the Proposal are labelled on the relevant 'After' visual simulations.

The visual simulations have been used to assist in the assessment of the visibility and visual effects, including cumulative effects, of the Proposal. The visual simulations also include consented and remediated mining effects. The assessment that follows, endeavours to focus on an objective description of the degree of change to the status quo that a viewer will experience from each viewpoint and will determine whether the change is adverse or positive and to what level of magnitude.

7.9 Visual Effects relative to Specific Viewpoints

This assessment is based upon:

- Observation of existing mining activities.
- What the development of further, similar, mine features under proposed conditions that will mirror the current consent conditions implies.
- An understanding of the likely visual effects of further pit excavation, backfilling and flooding of closed pits, then shaping and vegetating the proposed waste rock stacks.
- Experience in defining and implementing appropriate measures to mitigate these types of effects.

What has been used to define a potential visual effect ranking is a combination of the extent to which the proposed changes are a focus, the extent to which the Proposal has changed the landscape, both relative to the consented mining activities in the broader area and the effects of distance.

Based on the environmental and design information available, the nature of the potential effect is described. It is noted that change is not an effect per se. By way of example, it is not the quantity of the earthworks that is relevant, rather the effect of the earthworks on visual amenity values.

The mitigation component that is factored into the actual effects 'equation' (Figure 9) is a combination of the Proposal's mitigation measures previously outlined and the known effectiveness of previous 'landscape' rehabilitation conditions.

Figure 9: Effects Equation

In this LVA, the focus is on the long-term effects of the Proposal post-closure; being the 'Actual Effect'. Mention is made of several short-term effects that will appear and then disappear during the life of the Project. That is, as the Proposal proceeds, the initial effects; being 'Nature of Effect' and its 'Magnitude' are reduced via the proposed landscape mitigation measures – 'Mitigation', resulting in the 'Actual Effect'.

For example, the bulk and the form of the WRSs will grow within the landscape in that they will start small and then gradually get broader and higher. The working surfaces will be grey waste rock initially, which will then be progressively shaped, topsoiled and vegetated. The various pits will 'sink down' into the landscape and will initially be outwardly invisible, then flood over time to such that the lake surface may potentially

become visible.

7.9.1 Viewpoint 1 – Longdale Road Stock Yards

This viewpoint is located next to the cattle yards along Longdale Road (Attachment 4). This viewpoint is around the 620 m contour, which is at a similar elevation to the Project Site approximately 5 km to the south. From this viewpoint, mixed tussock / pastoral farmland is visible across a gently undulating landscape which extends towards and gradually rises up to the Coronation mine, visible near the skyline, and also well below it.

The 'before' photo shows the sweep of this view from the cattle yards in the foreground to the Sister Peaks (elev 738 m) to the right/west aspect of the image. Highlay Hill (elev 820 m) is visible as the 'high point' on the skyline to the left/east.

The Coronation Mine haul road, Stage 5 pit and several partially rehabilitated and remediated WRSs and backfilled areas, can be seen just below, and, extending up to the skyline. The proposed CO6 pit will coalesce with CO5 pit to create a larger pit lake and its waste which will now go into the Coronation Nth pit and completely fill to pit rim and not above this level apart from providing for closure drainage. The infilled surface will then be transformed into pasture/tussock land/forest subject to the availability of rehabilitated soil. During mine closure, the Coronation Mine haul road will also be removed and remediated.

As indicated in the 'central' visual simulation, Attachment 4, the proposed CO6 pit will extend away from the viewer in the area of the distance skyline. Only the upper aspect of the proposed open cut pit will be visible, as most of the pit will be hidden from view by existing WRSs in the foreground. Waste rock will be backfilled into the Coronation North and will potentially rise up to the crest of the pit. The backfilled surface will be indistinguishable from the adjoining land.

As seen in the 'after' visual simulation, that while both the uppermost part of the CO6 pit void will be just visible from this viewpoint, the duration of this view will be short as it is a glimpsed view when travelling east and west along Longdale Road. The land to the south of the road rises and falls altering the visibility of the Project Site. The visibility of a portion of the pit wall of the cut void will be countered by being contained 'internally' behind a series of modified mine landforms largely screening the Project Site from Longdale Road view.

From a distance, the broad scale of the view, the subtle nature of the visual effects, the relatively low traffic numbers on Longdale Road and the general concealment of CO6 behind existing mining activity and landforms will limit any potentially adverse visual effects to 'Very Low' regardless of the phase of mining operations at CO6. Following remediation, it will be difficult to discern any changes to the landscape. In this regard, any visual effects will be nil.

7.9.2 Viewpoint 2 – Golden Point Road Observation Point

Approximately 3.7 km from the Macraes Dunback Road turn-off north on Golden Point Road and just beyond the turn-off to the processing plant is the 'Observation Point' roadside carpark. A walking track leads

from the carpark to a schist outcrop within the local roadside. From this viewpoint, there is a commanding view of the Taieri Ridge to the north, a section of Coronation Mine haul ascending the south face of the Taieri Ridge, local slopes that fall to Deepdell Creek and artefacts of the current mining period – pit walls, various raw and remediated WRSs, sections of haul road and the adjacent processing plant.

The photograph at Attachment 5 shows the existing skyline to the north towards the Taieri Ridge. The existing Coronation Mine haul road can be seen ascending the south facing slope of the ridge in the upper centre left of the photo. Other than the haul road, all that is visible of the current Coronation Mine workings from this viewpoint is limited to a small section of earthworks at the top of a small gully above the midpoint of the haul road in this view. The previous Coronation Mine and its pits are not visible from this viewpoint.

No aspect of the CO6 proposal will be visible from this viewpoint.

7.9.3 Viewpoint 3 – Macraes Dunback Road – Golden Point Road Intersection

The top photo, Attachment 6 is looking south over Frasers Pit haul road to a closed section of a previous alignment of Macraes Dunback Road and bridge opposite the Macraes Dunback Road – Golden Point Road intersection. Frasers Pit and the proposed FTSF is just beyond the bridge and midground embankment that runs to the left of the disused bridge. The eastern pit wall of Frasers Pit and Frasers East WRS can be seen in the background. Frasers West WRS rises above the embankments in the right of the view. The historic Gay Tan's Cottage is located approximately 150 m to the southwest of the viewpoint.

The main body of proposed IM pit will be to the immediate left from the center left of this view. The disused bridge deck and the defunct sections of public road and haul road beyond and below it, along with the wilding pine trees will be removed, as part of the mine closure process. The fill slopes in the background and on the skyline will be rehabilitated in response to existing consent conditions.

Ultimately Frasers-IM pits flood to form a coalesced pit with the lake flooding over the FRBF that separates them. he 'Frasers' aspect of which will be visible in the middle ground of this view. A potential public viewing platform/car parking area is planned for the embankment just beyond the right end of the disused bridge.

This photographic viewpoint is not in a location where there will typically be a public view as it is a road intersection, but this view will be seen from vehicles turning east onto Macraes Dunback Road and when travelling east on the latter. Due to the depth of the pit void and the long length of time that it will take the pit lake to fill, it is unlikely that the lake surface will be directly visible from this viewpoint in the foreseeable future.

Overall, any potentially adverse visual effects of the Proposal from this viewpoint will be 'Low'. The highly modified landscape will be extended to the north but remain in context with that of the existing pit void. Over time, the amenity of the area will improve as the pit lake gradually fills and the surrounding pit walls and completed WRSs are remediated. Due to the magnitude of the change, the visual effects will remain 'Low'.

7.9.4 Viewpoint 4 – Macraes Dunback Road High Point

Between the intersection with Golden Point Road and with Golden Bar Road, Macraes Dunback Road traverses a local high point from which the proposed IM pit and FTSF beyond may be visible. To consider the potential view from this high point, OceanaGold personnel, via WSP direction, took representative photographs on 27 September 2023 that are the basis of the images at Attachment 7.

It was noted by the OceanaGold personnel that a 3-5 m high bund of waste rock parallels the fence line demarcating the Macraes Dunback Road land on the south side of the road, which blocks potential near and middle-distance views to the south.

In order to obtain an overview of the proposed IM pit and FTSF, photographs were taken from the adjacent small hill on the north side of the road; refer to the top photo at Attachment 7. From this elevated, but not publicly accessible viewpoint, the local road and the bund parallel to the south side of the road are directly visible; both of which can be seen extending east in the middle-left edge of the middle photo. The current IM water storage pond and its containment walls form the central focus of this view. The eastern and southern pit walls of Frasers Pit can be seen in the middle distance immediately above the section of haul road that runs along the top of the pond containment wall. The partially rehabilitated landform FEWRS and Frasers South WRS can be seen on the skyline in the centre and middle left of middle photo, respectively.

The excavation of the proposed IM pit would include the area of worked or disturbed land in the middle left of the middle photo above the storage pond, extending east parallel to the road. The water storage pond will be emptied and backfilled with IM-related haul roads created in this area.

The containment walls to the south and east of the water storage pond will be removed as part of the excavation of the IM pit opening out this view to the new pit and partially to the current Frasers Pit to the south. This would create a view that encompasses one extensive open cut pit, within which the proposed FTSF/FRBF would be placed. Ultimately, following mine closure, the coalesced pits would form a continuous pit lake, as shown in the bottom image at Attachment 7.

The visual effect on this somewhat elevated 'hill top' viewpoint would be High to Very High, due to the extent of landform change and the new, foreground pit opening out into the much larger Frasers Pit. However, much of the pit void that would become visible is preexisting and consented; the proposed IM pit extension would be seen within the context of existing mine landscape and the visible effects of mining will be ameliorated by back filling to create FRBF, then ultimately pit lake filling and rehabilitated pit margins. With the gradual, natural filling of the lake via rainfall and seepage, the visual effect of artificial cut void will become less as it is inundated.

'Stepping back' to road, if the existing bund within the setback between the road and the water storage pond were to be removed, it is expected that neither the base or pit floor of IM pit nor that of Frasers Pit will be visible, due to the immediate setback from the proposed northern edge of the IM pit. However, upper walls of both pits would be visible and in the distant future the surface of the pit lake may become visible. It is expected that in the distant future, when the reaches its ultimate fill level of 489 mRL in possibly 300 years

from now, various sections of elevated pit margin will remain standing above the lake. These pit margins will range up to 60-70 m high on the east side of the lake and up to 40-50 m on the west side of the lake. The pit margins being an assemblage of cut walls with benches, back fills and WRSs will be rehabilited; the steeper faces of the cut walls being the remnant reminder of the past mining activities.

If the intervening bund is retained and shaped and extended, if necessary, it would effectively screen both the proposed and existing pits, their walls and the future lake contained within. The visual effect from this high point of Macraes Dunback Road would then be nil.

7.9.5 Viewpoint 5 – Golden Bar Road

This viewpoint is located along Golden Bar Road looking southwards to the Project Site around the 520 m contour approximately 1 km to the south. The current high point of the Project Site is 580 m. The 'before' photo shows mixed tussock / pastoral farmland extending unbroken across a gently undulating and rising landscape. The successfully remediated earlier Golden Bar WRS is barely discernible by a discrete section of 'flat-top' on the skyline (Attachment 8). The gravel Golden Bar Road, powerlines and parallel retired haul road are visible to the left/east of the Project Site. Dunback Hill (elevation 600 m) is visible as a high point on the skyline rising above and to the left/east of the Project Site. Pine plantations and pine shelterbelts are visible on the skyline, although such tall vegetation cover in the context is sparse.

Figure 10: View from Golden Bar Road to earlier remediated Golden Bar Mine waste rock stack (centre of image).

As shown in the 'central' visual simulation, Attachment 8, the WRS will be visible, extending approximately 60 m higher than the remediated WRS, and will have its summit well above the current, albeit modified skyline. The proposed pit will be hidden from view by the proposed WRS which is in the foreground, relative to this view.

As seen in the 'after' visual simulation the WRS will be visible from this viewpoint. The landform will be contoured in silhouette and shape to emulate the local gently rolling, 'flattish topped' topography as much as possible. Following remediation, which includes smoothing out the WRS faces and planting them in pasture, the landform will appear similar to the existing rolling pastureland. However, there will remain a

distinct change to the skyline. This will be visible when travelling south along Golden Bar Road. As the road approaches the Project Site the visibility of the WRS will increase, until the site is passed. However, Golden Bar Road is not frequently travelled.

Due to the scale of the WRS and changes to the skyline, any potentially adverse visual effects will be 'Moderate', and following remediation, 'Moderate-Low'. The 'Moderate-Low' finding is conservative. It will not be this high for many observers who are unfamiliar with the landscape.

The remediated WRS will be understood by many as a natural landform - evident in the 'after' image in Attachment 8. In this regard, for some, there will be nil adverse visual effects. It is also acknowledged that the approximately 3 km distance from Macraes Dunback Road, the busiest public road in the vicinity, broad scale of the view from Golden Bar Road, and the low general use of Golden Bar Road means the affected party is relatively small.

7.10 Night Visibility

With much of the proposed Coronation and Golden Bar Project Sites being elevated and other than via mine roading, physically separate from the central, current Macraes Operation site, the potential visual effect of night lighting has been considered relative to neighbours and the local community. Lights in isolated and elevated locations have the potential to attract the eye. Operations at all Project Sites will run 24/7 till around 2030.

The current Coronation Mine and Coronation North consent conditions 10.1 Lighting states that:

All flood lighting luminaires that could potentially cause a glare nuisance or a traffic hazard shall be fitted with shields and as far as is practicable, orientated so that the principal output is directed away from residences and traffic.

It is anticipated that the same or a very similar condition will be applied to the current Proposal and therefore mobile flood lights will be positioned to face inward towards the workings with little outward light effect. However, dump truck and other mine traffic movement will result in some headlights shining out from the proposed work areas and parts of the haul roads. This will be particularly prominent along the Golden Bar haul road which runs parallel to Golden Bar Road. However, Golden Bar Road is not frequently travelled.

Obviously, the potential and amount of light visible from the overall Macraes Project has changed and increased over time as the mine has expanded. The Proposal will add to this, and so it is realistic that night lighting effects will increase with the Proposal. However, levels of lighting will vary depending on the phase of the mining operation. For instance, while pits are being excavated and the waste rock is carted out, the excavator will be down in the pit and will likely not be visible. Conversely when the WRS dumping operations are underway above ground, lighting will be visible.

The distance between the elevated portion of the Coronation and Golden Bar Project areas and Macraes Dunback Road, which is the main 'public' viewpoint in the local area, will also limit the potential effect of

night lighting from the Proposal.

7.11 Summary of Visual Effects

The following summarises the potential visual effects of the Proposal relative to the specific viewpoints.

This LVA, relative to the five viewpoints that have been considered, endeavours to focus on an objective description of the degree of change to the status quo that a viewer will experience from each viewpoint, and whether the change represents an adverse, positive or neutral visual effect. The level of change and effect can be inferred from the effects table (Table 2).

The fact that the proposed changes at each Project Site will be visible, altering aspects of the character of the existing landscape does not necessarily mean that the effects will be adverse, inappropriate, or unacceptable. The visibility, scale and nature of the change, duration of the effect, visual complexity and scale of the existing landscape, visual sensitivity of the viewer and the size of the viewing audience influence the significance of the Proposal's effects. Visual sensitivity is a measure of how critically changes to a landscape will be regarded and depends upon a range of viewer and view characteristics.

Regarding the five viewpoints discussed at Table 2 a summary of the level of potential visual effects for each are provided. It is noted, however, that some views are broad and all encompassing, while others are more focused and others, such as from Longdale Road, have been considered to confirm that little or nothing of the Proposal will be seen from the viewpoint.

Once the final shaping and revegetation of the proposed backfilled areas, WRSs and realigned Macraes Dunback Road verges are completed, the visual simulations illustrate that the general shape, slopes and colour of the completed and revegetated landforms will be in sympathy with the natural topography and land cover patterns of the area.

Overall, for most viewpoints considered from which the aspects of the Proposal will be visible, the potential visual effect does not exceed what is at worst, a 'Moderate' adverse effect. The 'Moderate' effect is regarding the viewpoint on Golden Bar Road before the WRS is remediated. However, this viewpoint location is relatively isolated on a local gravel road that is infrequently used. It is also expected that once site rehabilitation has been completed at mine closure and the revegetation of the WRS has become well established any adverse visual effects will reduce to conservatively, 'Low' in the longer term.

Attachments reference	View point	Location	Visual Effect
Attachment 4	1	Longdale Road stock yards re CO6	Very Low to nil

Attachment 5	2	Golden Point Road observation point re CO6	Nil
Attachment 6	3	Macraes Dunback Road – Golden Point Road intersection re IM Pit	Low
Attachment 7	4	Macraes Dunback Road high point re IM Pit	Nil
Attachment 8	5	Golden Bar Road re GB2	Moderate to Moderate-Low or Nil

Table 1: Ranking of Visual Effects relative to specific viewpoints.

There will be night light effects associated with the Proposal. However, compliance with existing night light conditions will adequately mitigate these effects.

The Proposal, spread across four Project Sites will entail the extension of mining activity, both in extent and in time, which includes a public road realignment within three separate areas where mining operations are currently underway, or have been carried out in the recent past. Much of the proposed activity will be within the Macraes Mining Zone, with a smaller portion within the WDC's Rural Scenic Zone and DCC's High Country Rural Zone.

8 Cumulative Effects Assessment

Cumulative effects come into play where a proposal - added to the landscape, triggers a 'tipping point' where the landscape's capacity to absorb further change will be surpassed and where the landscape's character, and values derived from that character, will be permanently compromised.

Cumulative landscape effects are those that affect the physical landscape such as topsoil removal, pit excavations, placement of bunding, backfill and elevated waste rock stacks, longer- term brown rock stockpiles for subsequent use in rehabilitation, roading and general site works.

Cumulative visual effects can affect visual amenity values and it is generally recognised that this can occur in three ways[20]. These are:

- Combined effects – resulting from two or more similar changes, such as where an existing and proposed WRS are close-by and seen together from one viewpoint in the human field of vision (i.e., spanning 124o horizontally).

20 Scottish Natural Heritage (2005). Guidance Note: Cumulative Effects of Windfarms

- Succession effects – resulting from two or more similar changes, such as where an existing and proposed WRS is visible from one viewpoint but not in the human field of vision, i.e., the viewer must turn to see one or other WRSs.
- Sequential effects – resulting from the observer moving to another viewpoint and then seeing one or other similar change such as WRSs. Sequential effects are most experienced along regularly used routes such as roads.

As discussed, relative to the five representative viewpoints considered (Table 1), cumulative effects of the combined, succession and sequential type relate to possible landscape and visual effects arising from the Proposal and the consented aspects of the existing Macraes Operation.

For Viewpoint 1 - Longdale Road stock yards - there will be no noticeable cumulative effect. Despite the proposed works at CO6 being visible, adding to existing changes in the landscape due to mining activity, the changes will be difficult to discern. Infilling Coronation North pit will have significant localized positive visual effects but will not be visible from public viewpoints.

No aspect of the CO6 proposal will be visible from Viewpoint 2 - Golden Point Road observation point.

Viewpoint 3 – Macraes Dunback Road/Golden Point Road intersection - relates to changes associated with the excavation of IM pit. Though not directly visible from this particular viewpoint, these changes, visually, will result in an extension of the existing Frasers pit. It does not add an 'extra' element to the landscape but expands an existing one. As such, there will be no cumulative effects.

As with Viewpoint 3, Viewpoint 4 – Macraes Dunback Road high point - relates to changes associated with the excavation of IM pit. The view from the elevated viewpoint provides an overview of the proposed IM pit and the area of FTSF/FRBF within the existing Frasers Pit beyond. The coalescing of the two pits will be a cumulative landscape effect that given the scale of the combined pits would be High to Very High, but this is moderated by the proposed pit and backfill being within both the site and context of preexisting and consented large scale open cut mining. This will result in a 'Low' cumulative landscape effect. As this is not a publicly accessible viewpoint and the proposed and existing pits are not visible from Macraes Dunback Road below this viewpoint, there will be no cumulative visual effect upon the public relative to this location.

For Viewpoint 5 – Golden Bar Road, there will be no cumulative effect. Despite the proposed WRS being constructed over an existing successfully remediated WRS, this existing WRS is largely unnoticed. The pit and pit wall extensions will not generate a cumulative effect at the Golden Bar Project Site as the pit exists now and is proposed will not be visible, located below ground level, on a landscape high point.

9 Conclusion

The current and recent mining activities of the Macraes Operation are a transient element within the Macraes landscape that starts with the raw and large-scale transformation of low to medium production farmland into the open pits, waste rock stacks and tailings storage facilities. Given the depth of the pits, the

height of the stacks and the length and height of the tailings containment embankments, this degree of change is a large, albeit, localised, landscape transition. However, this process is transient and moves on to the rehabilitation phase of naturalised landforms of shaped and grassed and/or forested slopes and, ultimately, lakes within the pit voids. The former will replicate the scale and shape of the existing hills at Macraes. While the mining activities involve large scale earthworks, they occur within a confined area in a large- scale landscape. It is this scale and the simple forms of the Macraes Flat landscape that means the mining activities are capable of being assimilated into the landscape, once rehabilitation is complete.

The Proposal, located across four separate Project Sites will bring further mining activity to the Macraes Flat area. This will be contained within the broader Macraes Operation sites. Most of the Proposal is within Waitaki District where much of it 'sits' within the MDC Macraes Mining Zone. A small area is within DCC's High Country Rural Zone.

In this landscape and visual assessment, it has been found that:

- The effect on visual amenity values that will arise from most of the Proposal are 'Low', 'Very Low' or nil relative to those effects already consented for the existing mining activities with the Macraes Operation and are therefore accepted as contributing to the central landscape identity for the Macraes Land Unit as noted in the WDC Landscape Study.
- The worst level of effects on visual amenity values are 'Moderate' generated by the proposed Golden Bar WRS while in 'raw' form. However, these effects will fall on a small potential audience.
- Once the final shaping and revegetation of the proposed Golden Bar WRS has been completed, along with that of the redundant haul road, the general shape, slopes, and colour of the completed and revegetated 'hill' landform will be in sympathy with the natural slopes of the area. In time, relative to the most effected viewpoint – Viewpoint 5 - the visual effect of the proposed Golden Bar WRS will reduce from 'Moderate' to 'Low' or nil depending on the viewer's familiarity with the landscape.
- In a much greater length of time, the proposed pits will become lakes, though still confined within the pits.
- In terms of the overall cumulative landscape and visual effect of the Project, in respect to expanding existing effects as opposed to introducing new or additional effects, the most adverse effect will be 'Low'.

Overall, mitigation measures will be built into the Proposal from the outset. These include:

- Progressive rehabilitation of the WRSs.
- Design of the final form of the WRSs to integrate it with the existing landform character of the area using the following principles:

    (i) Slopes shall be suitably shaped in cross-profile to match nearby natural slopes.
    (ii) Slope gradients shall be no steeper than nearby natural surfaces.
    (iii) Transitions between natural and formed surfaces shall be rounded and naturalised.
    (iv) Contours should be curvilinear in plan form, in keeping with original natural contours in that area.
    (v) The skyline shall be variable and curved, simulating natural skylines.

(vi) New landforms shall be aligned and located so they seem to continue, not cut across, existing landscape patterns; and

- Restoration of the areas disturbed around the margins of the Project Sites.
- Removal and restoration of the haul roads during closure phase of the Proposal.
- Ultimately, removal of mine infrastructure, hard stands and the like followed by planting.
- Establishment of vegetation cover types suited to the long-term land use and reflecting the optimal use of rehabilitated soil, water drainage paths and access to ecological areas.

These measures have been proven to be effective in mitigating the potential visual effects of the existing WRSs, which are the most visible, elevated mining elements so far constructed as part of the Macraes Operation.

The MP4 Proposal is an extension of previously consented activity and is not unexpected and will be seen in this landscape context as a continuation of the existing mining operation.

Appendix 1
Scale of Effects

Scale of Effects (7 Point)

From New Zealand Institute of Landscape Architects Te Tangi a te Manu – Aotearoa New Zealand Landscape Assessment Guidelines (2022). The definitions come from NZILA national workshop discussions prior to the publication of the guidelines and are based on the Boffa Miskell effects descriptions.

The below seven-point scale is used to describe effects:

- *Very High:*
  Total loss to the key attributes of the receiving environment and/or visual context amounting to a complete change of landscape character.
- *High:*
  Major change to the characteristics or key attributes of the receiving environment and/or visual context within which it is seen; and/or a major effect on the perceived amenity derived from it.
- *Moderate-High:*
  A moderate to high level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a moderate-high level of effect on the perceived amenity derived from it.
- *Moderate:*
  A moderate level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a moderate level of effect on the perceived amenity derived from it. (Oxford English Dictionary Definition: Moderate: adjective-average in amount, intensity, or degree).
- *Moderate-Low:*
  A moderate to low level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a moderate to low level of effect on the perceived amenity derived from it.
- *Low:*
  A low level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a low level of effect on the perceived amenity derived from it. (Oxford English Dictionary Definition: Low: adjective-below average in amount, extent, or intensity).
- *Very Low:*
  Very low or no modification to key elements/features/characteristics of the baseline or available views, i.e. approximating a 'no-change' situation.