Oceana Gold (NZ) Ltd
Macraes Gold Project – Macraes Phase III

Landscape and Visual Assessment

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Executive Summary

This landscape and visual assessment is based on the Macraes Phase III – Project Overview, along with the Macraes Phase III Plan, which shows the location and extent of the individual components of the proposal; this base information is included in the proposal's Assessment of Environmental Effects.

The assessment describes the local landscape context, 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 their likely cumulative effect.

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

- an analysis of the broader Macraes Flat landscape, by taking into consideration the modified Pigeon Bay factors, did not give rise to the area having obvious merit that suggests it is an Outstanding Natural Feature or, in the context of the Waitaki District, that it is an Outstanding Natural Landscape or Outstanding Landscape area;
- with respect to a number of salient and common public viewpoints that have been fully described with photo-simulations that the potential effect of the MPIII proposal on these viewpoints would be nil through to moderate;
- with respect to specific viewpoints that look to several lesser components of the MPIII proposal, the potential effect of these components will be nil to moderate; and
- in terms of the overall cumulative effect of the MPIII proposal, the effect would be slight to moderate.

It is also considered that these potential landscape and visual effects will be mitigated by the following aspects:

- Effective mitigation measures that have been built into the proposal from the outset.
- Any adverse visual effects associated with the construction process of the formation of the proposed tailings storage facility and waste rock stacks will be of short duration and will cease upon completion of the proposal.
- This new mining activity 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.

These proven measures have been effective in mitigating the potential visual effects of the existing tailings storage facility and the waste rock stacks that have so far been constructed as part of the Macraes Gold Project.

1 Introduction

1.1 Purpose of Document

Oceana Gold (NZ) Ltd (OceanaGold) proposes to undertake an expansion of the Macraes Gold Project, Macraes Flat, East Otago. The expansion is called Macraes Phase III (MPIII) and will involve the creation of a new tailings storage facility – Top Tipperary Tailings Storage Facility (TTTSF), expansion of the Back Road Waste Rock Stack (BRWRS), Frasers East[1] Waste Rock Stack (FEWRS) and Frasers West Waste Rock Stack (FWWRS), reclamation of tailings within the Southern Pit 11 Tailings Impoundment and placement in the form of a reclaimed tailings stack on the Mixed Tailings Impoundment, expansion of the Frasers, Innes Mills, Southern and Round Hill Pits and various other related infrastructure.

The purpose of this report is to identify the landscape and visual amenity values of the site and identify the potential effects of the construction and operation of the proposed mine expansion on those values.

Landscape effects are relevant to Sections 6(a) and 6(b) of the Resource Management Act 1991 (RMA). Such effects can be regarded as the consequence of changes in the natural and physical landscape.

Visual effects 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 as a result of changes to the landscape and with people's responses to those changes. People's responses to changes are intrinsically linked to visual amenity.

This landscape and visual assessment considers the existing landscape context and character as a baseline for assessing the landscape and visual effects of the proposal, likely landscape and visual effects, appropriate mitigation measures and makes a conclusion about the visual acceptability of the proposal, as well as considering the cumulative effects of the proposed expansion of mine elements in combination with the existing mine. The assessment also takes consideration of the expectations of the Waitaki District Plan; in particular, the objective, policies and implementation methods relating to mineral extraction and the Macraes Mining Zone.

1.2 Background Information

Between 2002 and 2006 OceanaGold have advanced a number of projects within the overall Macraes Gold Project that have required landscape and visual assessments and in some cases, preparation of landscape evidence for numerous resource consent applications and variations. The various inputs included:

- Golden Bar new mine consent application
- Deepdell mine rehabilitation consent variation
- Expansion of the Frasers West Waste Stack consent variation, and

[1] As all plans generated for the Macraes Gold Project have MGP Local Grid as their datum and are orientated to Macraes North, which is approximately 45° west of Magnetic North, this same orientation is used in the text.

- Frasers East Waste Stack consent application.

Landscape advice has also been provided to the ongoing development of the Macraes Art Park, the most publicly visible aspect of the Macraes Gold Project's current mitigation process.

1.3 Outline of Macraes Gold Project Phase III

1.3.1 Site Location

The active Frasers Pit and its current Frasers West Waste Rock Stack are located to the east and south of the Macraes Flat village. Up until earlier this year, Frasers Pit was the most obvious component of the Macraes Gold Project to be seen when arriving at "Macraes" from the northeast on the Macraes-Dunback Road. Now the first component that is visible when arriving from the east is the developing Frasers East Waste Rock Stack that was consented in 2006. The current extent of the Back Road Waste Rock Stack is also visible to the north as the local road rises up past Frasers Pit. The overall Macraes Gold Project is located approximately 30km inland from Palmerston, East Otago.

The overall site of the mining project is owned by OceanaGold and is within the Waitaki District Council Macraes Mining Zone.

1.3.2 The Proposal

The MPIII – Project Overview provides a detailed outline of the various aspects of the proposal. The full text of the MPIII – Project Overview, along with the Macraes Phase III Plan, which shows the location and extent of the individual components of the proposal, is included in the proposal's Assessment of Environmental Effects. As noted in the overview, the main features of the Project are:

- *A new tailings storage facility (called Top Tipperary Tailings Storage Facility) will be constructed in the upper Tipperary catchment basin. It will result in an increase of 51Mt of total consented tailings storage capacity (from 81Mt currently to 132Mt);*

- *Reclamation of tailings from within the current SP11 tailings storage facility. The tailings will be relocated to stacks within the footprint of the existing Mixed Tailings Impoundment with any residual tails being stored within the new Top Tipperary Tailings Storage Facility;*

- *New waste rock stacks and extensions to existing rock stacks will be constructed, increasing the total consented tonnage from 850Mt to 1,180Mt. The existing Back Road Waste Rock Stack will be substantially expanded to the east of the Round Hill/Southern Pit locations. Frasers East and Frasers West Waste Rock Stacks will be linked by a new waste rock stack called Frasers South Waste Rock Stack and an extension added to the north of Frasers East Waste Rock Stack called Frasers North Waste Rock Stack;*

- *Macraes-Dunback Road will be realigned from near Hocking Road following the legal (but unformed) Macraes-Dunback Road alignment north before turning west to run along the divide between the Deepdell and Tipperary catchments and rejoining the current alignment adjacent to Innes Mills Pit, (near the old Golden Bar haul road traffic lights);*

- *Golden Bar Road will be realigned for the last 2.5km before rejoining Macraes-Dunback Road;*

- *Expansion of existing pits to include the following; Frasers Stage VI, Round Hill Southern Pit Extension, and Innes Mills Stage V;*

- *Continued down dip (North Easterly) development of Frasers Underground mine;*

- *A new fresh water storage dam in Camp Creek (a tributary of Deepdell Creek) that will be filled from flood flows. The dam will result in a permanent residual flow in Deepdell Creek;*

- *Surface water on the expanded mining infrastructure will be managed with diversions and new silt control dams;*

- *The processing rate will be similar to current operations and the intensity of operations on site will be similar to that currently; and*

- *A revised closure strategy[2], which will comprise: 2 lakes formed from the pit excavations; maintenance of the current artworks and infrastructure; a renovated Stanley's hotel; and bicycle trails connecting artworks and the hotel, and a fund to support community initiatives and encourage business development.*

Landscape mitigation measures in terms of addressing the shape, scale and form of the rock stacks and tailings storage facility embankments, and establishment of vegetation on the final outer surfaces of these mine features will be progressed in the same manner as has been consented and implemented for the existing rock stacks.

This report will address those aspects of MPIII that have a landscape and visual effect.

[2] *The revised closure strategy covers, in landscape terms, the process of waste rock stack and earthworks rehabilitation that OceanaGold has carried out over the past 20 years of the Macraes Gold Project operation so as to meet the Waitaki District Council's expectations that are encapsulated in Condition 14, which is described at section 4.4.1 Previous Consent Conditions for Waste Rock Stacks of this assessment. A previous component of the mine closure process has been the Macraes Art Park concept. While aspects of the art park concept have been implemented i.e. installation of the Haast Eagle sculpture on FWWRS and the creation of the heritage and wetland walkway on the low flats between Macraes township and the FWWRS, OceanaGold now intend to focus on a closure strategy that more directly benefits the local community post mine closure.* ***The community is yet to define exactly what they want in this regard****.*

2 Site Context and Landscape Description

2.1 Landscape Context

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.

Prominent regional landscape features include the Nenthorn Valley, Taieri Ridge, Taieri Valley and the Rock and Pillar Range to the southwest and west, the Shag Valley and Horse Range to the northeast and the coastal hills and extinct volcanic cones of Palmerston and Waikouaiti to the east.

Pastoral farming is the broad 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 and on the eastern edge of the schist country and the broader historic goldfields of Central Otago. The presence of the relatively large scale Macraes Gold Project is a noticeable and culturally interesting element in the current landscape. The Macraes Gold Project is the modern 'face' of open pit gold mining and its presence and effect relative to landscape change is now a major feature contributing to the local landscape context.

The long term, focal, cultural landscape feature of Macraes Flat is the township itself with its hotel, school, churches and small clusters of houses and various outbuildings and shelterbelts. The township sits in splendid isolation within '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 to the Maniototo and beyond.

The Waitaki Landscape Study[3] provides further information on the landscape context of Macraes Flat under its description of the 'Macraes Land Unit (P2)'; the Macraes Gold Project lies within this landscape unit. The full text of this landscape unit description is attached at **Appendix 1**. **Photo 1** provides an overview of the broader Macraes Flat area.

Photo 1 - View of the broader Macraes Flat area as seen from Golden Bar Road looking west

[3] Graham Densem, Landscape Architect (2004). *Waitaki Landscape Study.* Prepared for Waitaki District Council

2.2 Site Landscape

Many of the various aspects of MPIII will be located to the east and south of the current Frasers Pit which is currently the central and most publicly visible feature of the Macraes Gold Project. The proposed TTTSF will occupy much of the uppermost catchment of Tipperary Creek and 'sit' to the immediate southeast of the existing BRWRS. The BRWRS will be extended the northeast and east and occupy the upper extent of three to four small gullies that drain to Deepdell Creek.

The consented Frasers East Waste Rock Stack is located on the southeast side of Macraes-Dunback Road, opposite Glendale homestead and towards Frasers Pit. This waste rock stack is now being formed. This waste rock stack will be extended north – the Frasers North Waste Rock Stack (FNWRS) extension - over the adjoining section of the Macraes-Dunback Road and will also be extended south – the Frasers South Waste rock Stack (FSWRS) – to join with the existing Frasers West Waste Rock Stack. **Photo 2** shows the Frasers Pit and surrounding mine area relative to Macraes Flat township.

Photo 2 – View of the Macraes Flat and much of the current Macraes Gold Project area looking northeast

Following are descriptions of the landform and drainage, landcover and landuse history of the area of the proposed site.

2.2.1 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 or plateau is defined in the Waitaki Landscape Study as having the 'Macraes Ridge[4]' to the east and south, the eastern extent of the 'Taieri Ridge[5]' to the north with Highlay Hill as the local high point. The plateau 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.

Three named waterways have their sources and/or upper tributaries within the MPIII site – 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 township and the Frasers East Rock Stack; 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. This incised catchment pattern that drains the plateau is an important feature of the natural character of Macraes Flat.

Below and to the east of the site there is further unimproved pasture and this drops away steeply to Deepdell Creek to the north and leads to a broad ridge that then drains to Cranky Jims Creek to the east-northeast. There is a farm dam and a localised swampy area within the flat top of the ridge.

2.2.2 Landcover

From the information provided in the proposal's ecological assessment[6], the past vegetation cover of the Macraes Ecological District (ED) within which the proposal lies *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.

The ecological assessment further notes that the proposal will predominantly affect flat to undulating improved pastureland and already extensively modified mining land. Dominant improved pasture species include: cocksfoot, browntop, perennial ryegrass and various pasture clovers. There are also various colonising weed species common around the Macraes area, such as Californian thistle, Scotch thistle and the like.

[4] 'Macraes Ridge' is not a ridge as such, but a series of upper slopes that form the western skyline when looking up from the Shag Valley and from Palmerston and Goodwood – Flag Swamp area.

[5] This ridge trends west towards Middlemarch and separates Macraes Flat, Moonlight and the Nenthorn Valley from the Taieri Valley; it forms much of the northern skyline when viewed from Macraes Flat.

[6] Ryder Consulting (2011). *Ecological Assessment – Macraes Proposed Phase III Extension.* Prepared for Oceana Gold (NZ) Ltd.

Situated along the ridgeline between the Deepdell and Tipperary Creek catchments are two ridgetop swamps). These unfenced swamps are surrounded by red tussock and are located in improved pastureland.

Various steeper gullies within the open paddocks of improved pasture contain remnant narrow-leaved tussock grassland and low shrubland, along with scattered golden Spaniard, Olearia bullata, porcupine shrub, prickly shield fern, koromiko, little hard fern, mingimingi and weeping mapou. In wetter areas, rush and carex species are common.

One of the more obvious vegetation features of the Macraes area are various pine and macrocarpa shelterbelts, along with some pine forestry plantations. Most of these are in the upper Tipperary Creek catchment and are associated with the Glendale homestead. There are further shelter and ornamental tree plantings around Macraes Flat township.

2.2.3 Landuse History

As noted in the proposal's Archaeological Assessment[7] there is *limited knowledge or understanding of pre-European land use within the Macraes Flat area. The nearest recorded Maori site is approximately 20 km to the south in Nenthorn. This is not to say Maori did not use the area, however extensive 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 has taken place in the Macraes area. 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 Flat township 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. Between the demise of active mining in the 1940s and the start-up of the Macraes Gold Project in the early 1990s, the township was a small, but active, focus of the local farming community consisting of a hotel, a school, two churches and several houses. Not much has changed in more recent years, but through support from OceanaGold, the hotel and school remain viable. In hand with tourism development in the broader region, the future land use of the area will focus on the cultural heritage aspects of gold mining, with continued pastoral farming and gold mining.

[7] Opus International Consultants Ltd (2011). *Archaeological Survey – Macraes Proposed Phase III Extension.* Prepared for Oceana Gold (NZ) Ltd

3 Relevant Statutory and Policy Documents

The Resource Management Act 1991 (RMA) sets out the parameters determining landscape outcomes for MPIII resource consent applications.

Pertinent landscape matters are to be found in Part II of the RMA:

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

The following documents give effect to the RMA within the context of the Otago Region and the Waitaki District of relevance.

- Regional Policy Statement for Otago
- Waitaki District Plan

In essence the above-listed policy statements and plans are required to give effect to the following key provisions of the RMA:

- *Section 6(a) concerning recognition and provision for the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development.*
- *Section 6(b) seeking recognition and provision for the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.*
- *Section 7(c) requiring that particular regard is had to the maintenance and enhancement of amenity values.*

Another provision of the RMA is Section 7(f), which requires that regard is had to the maintenance and enhancement of the quality of the environment. While the concept of the quality of the environment is a broad one, landscape and visual effect matters pertaining to the quality of the environment are, in essence, covered under sections 6(a), 6(b) and 7(c).

3.1 Natural Character of Water Bodies and their Margins

Given that the MPIII proposal is 25-30km from the Otago coast, it is reasonable to say that the site of the proposal is not within the coastal environment. However, as outlined in section 2.2.1 above, three named waterways have their sources and/or upper tributaries with the MPIII site. These waterways have had their surroundings modified by farming practices and past mining activities and their flow in the headwaters is intermittent.

The MPIII proposal will entail the modification of the upper Tipperary Creek catchment and that of a several side tributaries to the Deepdell Creek catchment and thus trigger consideration of section 6(a) of the RMA.

3.2 Outstanding Natural Features and Landscapes

Under Section 6(b) of the RMA it is a matter of national importance to recognise and provide for the protection of outstanding natural features and landscapes from inappropriate subdivision and development. An assessment of landscape and visual effects of the proposed MPIII project therefore needs to consider whether or not the areas proposed for mine expansion have natural features and landscapes which are outstanding and if so in what context they are outstanding.

An interpretation of 'outstanding natural features and landscapes' is not provided in the Act but a useful interpretation is to be found in the Canterbury Regional Landscape Study Review[8].

'Outstanding' has been described as meaning conspicuous, standing out from the group, distinguished. Landscapes can be outstanding within a local, regional or national context. The RMA does not state that 'outstanding natural features and landscapes' need to be of national importance, but rather that it is "a matter of national importance" that such resources should be protected. The construction of Section 6(b) of the RMA indicates that 'natural' applies to both features of landscapes and should be read as 'outstanding natural feature and (outstanding) natural landscapes'[9].

Accepted factors for identifying outstanding natural features and landscapes have been derived from two Environment Court decisions (Pigeon Bay Aquaculture Ltd. v CRC[10] and WESI v QLDC[11]). These factors are:

- natural science factors – the geological, topographical, ecological and dynamic components of the landscape
- aesthetic values including memorability and naturalness
- expressiveness (legibility) – how obviously a landscape demonstrates its formative processes
- transient values – e.g. the occasional presence of wildlife or natural phenomena
- whether the values are shared or recognised
- value to tangata whenua
- historical associations.

[8] Boffa Miskell Ltd (2010). *Canterbury Regional Landscape Study Review*. Prepared for Canterbury Regional Council.
[9] *Ibid.*
[10] Environment Court New Zealand, Decision No. C32/99, *Pigeon Bay Aquaculture Limited v Canterbury Regional Council.*
[11] Environment Court New Zealand, Decision No. C180/99, *Wakatipu Environmental Society Inc. v. The Queenstown – Lakes District Council.*

These factors will be assessed as part of this assessment.

3.3 Outstanding Natural Features and Landscapes on the Site

Waitaki Landscape Study Consideration

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 Proposed District Plan aimed at better identifying and protecting outstanding natural landscapes within Waitaki District.

It is noted in the landscape study that in assessing an area for 'oustandingness' that the previously described Environment Court factors were considered, however it does not appear that these factors have been applied specifically to each of the study's landscape units.

The assessment findings of the Waitaki Landscape Study for the Macraes Land Unit, within which the MPIII site 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 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 assessment found that there are no outstanding natural landscapes within or in close proximity to the MPIII site; the nearest outstanding feature[12] noted in the landscape study are the Moeraki Boulders that are approximately 30km to the east. The 'Macraes Ridge area' referred to is the landform 'edge' to the east of the site that marks the change between the Shag Valley and the Macraes Flat plateau. This landform 'edge' is 6-8km east of the site and will not be impacted upon by the proposal. The 'parts of Taieri Ridge' referred to is the line of hills that the Macraes-Hyde Road traverses as it rises up from the Middlemarch-Hyde area of the Taieri Valley. This 'ridge' is 8-10km northwest of the centre 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 affected by the proposal.

The Waitaki Landscape Study does note at section 4.28 where *some elements by which Waitaki District is known to outsiders* are outlined. Of the 14 'elements' noted, the one relevant to the MPIII proposal is *Gold mining at Macraes – New Zealand's biggest 'holes'*…

[12] The Waitaki Landscape Study and subsequently the Waitaki District Plan confines the outstanding landscapes of the District to the Upper Waitaki catchment only.

Current Consideration

A further level of consideration in regard to whether the MPIII site is an area of outstanding natural feature or within an outstanding natural landscape is to apply the "modified Pigeon Bay" factors specifically to the landscape unit. This consideration is applied to the same Macraes Land Unit, as defined in the Waitaki Landscape Study and within which the MPIII site sits. This landscape is described broadly in sections 2.1 and 2.2.

Natural science factors

The natural science factors in this landscape relate to the Macraes Flat 'plateau' with its fluvially dissected rolling hills of moderate relief and its characteristic broad ridge crests. Much of the vegetation cover of the site is exotic pasture with some plantation forestry and conifer shelterbelts. Patches of native tussock are common to the wetter areas along the broad ridgetops and the steep gully slopes, with the occasional clumps of hardy native shrub and herb species also found in the gully slopes; all of these areas are grazed.

The landform of the upper Tipperary Creek catchment portion of the site shows few signs of modification other than road cuttings and a culvert embankment associated with the Macraes – Dunback Road. Areas immediately adjacent to the proposed new and extended waste rock stacks are extensively modified by current and consenting mining works.

There is little that sets the unmodified portions of the MPIII site apart from the surrounding farmland within the Macraes Flat area. There are no high points or valleys have been given a geographic name, nor any geographic features or characteristics that are considered significant. The proposal's ecological assessment does not identify any vegetation type particular to the site, nor are there any specific areas within the site that have reserve or other protected status.

Aesthetic values

The particular landscape character of the area mainly results from its coherent landform and the fact that this landform is broad and contiguous to the west. Grazed tussock land is also distinctive on the broad ridges and steep gullies of the area. This coherence defines the aesthetic values of the area and these values are common to rolling or steeper farmland on the inland margin of coastal Otago. The obvious exception to this coherence is the open pit mining activities of the existing Macraes Gold Project. The aesthetic values of the farmland within the area are moderate in terms of a rural working landscape, whereas the aesthetic values of the active mine are low.

Expressiveness

As the landform coherence is distinct, expressiveness values are high with the broad ridgetops and the incised gully forms of the plateau highly legible. These values are consistent with other areas of the upland country between Dunback, Hyde and Middlemarch.

Transient values

Key natural and cyclic transient values relevant to this area include the effects of snow cover and the play of light across the ridgetops at sunrise and sunset, along with flush of green in the spring and the 'browning-off' in summer through to autumn. These values are also consistent with the broader, farmed area.

Whether the values are shared and recognised

The MPIII site is predominantly farmland and existing mining area is owned by OceanaGold. The area has not been formally attributed values in the Waitaki District Plan that are shared or recognised, other than being within the Macraes Mining Zone, which has been set aside specifically for mining purposes. This latter aspect defines and implies the economic value of the area. The area does not have any particular features that define a 'sense of place' other than being working farmland and mine.

Value to tangata whenua

The proposals' archaeological assessment notes that there is no record of tangata whenua 'connections' with the MPIII site.

Historical associations

Also noted in the archaeological assessment that *within a landscape such as that in the Macraes district there is considerable information on past land use – predominantly related to different gold mining operations, however there are several sites that represent early farming in the district.* Further, *within all the areas of proposed work there is evidence of archaeological and heritage sites* and that *there are several areas that are identified as being highly significant sand worthy of long term protection.*

Without repeating the specifics of the archaeological assessment, the MPII site is rich in historical associations, particularly those of mining, being the pre-1900s and mid-1900s phases of extraction from and exploitation of the local landscape.

Summary considerations

None of the factors considered, either individually or collectively, give rise to the area being 'outstanding' in the sense of being obviously *conspicuous, eminent, especially because of excellence* or *remarkable in* as defined in Paragraph 82 of the decision re WESI v QLDC[13].

In essence, an evaluation of the Macraes Land Unit in which the MPIII proposal would sit, in terms of the 'modified Pigeon Bay' factors, does not give rise to the area having obvious merit that suggests it is an Outstanding Natural Feature or, in the context of the Waitaki District, that it is an Outstanding Natural Landscape or Outstanding Landscape area. As a consequence, the MPIII proposal is not subject to section 6(b) of the RMA.

[13] Environment Court New Zealand, Decision No. C180/99, *Wakatipu Environmental Society Inc. v. The Queenstown – Lakes District Council.*

3.4 Visual Amenity Values

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 people's 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. This part of this report focuses on visual amenity values. Amenity issues concerning noise and cultural matters are covered in the reports prepared by other relevant specialists.

In the upland area that encompasses the MPIII site 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 the sense of open space, for its lack of buildings and for its degree of 'naturalness[14]'. 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 particular 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 actually come to see the mine and its large earthmoving equipment in operation. In 2010 2,400 domestic, 600 international and 2,000 school pupils undertook the locally operated tour to view the mine and its operation.

The mining activity of Macraes Gold Project is now part of the visual amenity of Macraes Flat.

3.5 Otago Regional Policy Statement

Of relevance to the MPIII proposal, the Land section of the Otago Regional Policy Statement[15] addresses 'outstanding natural features and landscapes' at Issue 5.3.4, Objective 5.4.3 and Policy 5.5.6. The latter states:

To recognise and provide for the protection of Otago's outstanding natural features and landscapes which:

(a) Are unique to or characteristic of the region; or

[14] 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.

[15] Otago Regional Council *Otago Regional Policy Statement*, October 1998

(b) Are representative of a particular landform or land cover occurring in the Otago region or of the collective characteristics which give Otago its particular character; or
(c) Represent areas of cultural or historic significance in Otago; or
(d) Contain visually or scientifically significant geological features; or
(e) Have characteristics of cultural, historical and spiritual value that are regionally significant for Tangata Whenua and have been identified in accordance with Tikanga Maori.

Relative to the findings of the Waitaki Landscape Study and the subsequent consideration at section 3.3 of this assessment on outstanding natural features and landscapes, the landscape of the Macraes Flat area does not warrant particular recognition under the regional policy statement.

3.6 Waitaki District Plan

The operative section of the Waitaki District Plan[16] at Part III: Zone Rules, Section 6 Macraes Mining Project Mineral Zone outlines district-wide rules, activities, site development standards and critical zone standards that relate to the development of the Macraes Gold Project. In terms of landscape-related matters, site rehabilitation expectations are covered under permitted and discretionary activities. Reference is also made to tree planting under 'standards', but this focuses purely on setbacks from the zone boundary, structures and roads.

The MPIII site is within the Macraes Mining Project Mineral Zone. The broader landscape aspects of the district were defined in the Waitaki Landscape Study which through Plan Change 2 has now been contained within the Waitaki District Plan. Those aspects of the Waitaki Landscape Study that relate to the Macraes Flat area have been described at section 3.3 of this assessment.

4 Potential Landscape and Visual Amenity Issues

Gold mining and in particular open pit mining have direct and often irreversible effects on the landscape in which they are located. These result from the stripping of overburden and the extraction of ore from the mine itself, the creation of waste rock stacks to accommodate the overburden, the placement of processing plant to extract the mineral from the ore and the creation of tailings storage facilities to contain the fluid waste from the ore processing process. By necessity, all but the processing phase of open pit gold mining result in large voids, materials stacks and containment areas that have a large physical 'footprint' and are therefore likely to be very visible and bring about a distinct change to the local landscape. However, being highly visible does not, however, necessarily equate to an adverse landscape or visual effect.

[16] Waitaki District Plan, operative in part, July 2004

4.1 Permanent Modifications to the Landscape

Permanent modifications to the landscape result from extending existing mine pits, extending and developing new waste rock stacks, developing a new tailings storage facility and a water storage dam, and realignment of sections of local road.

The potential effects of these modifications, and measures to mitigate any adverse effects, are discussed in the following sections. Each of these points for discussion start with re-stating the brief outline from the MPIII - Project Overview (in italics below) of what is being proposed.

4.1.1 Tailings Storage Facility

A new tailings storage facility (called Top Tipperary Tailings Storage Facility) will be constructed in the upper Tipperary catchment basin. It will result in an increase of 51Mt of total consented tailings storage capacity (from 81Mt currently to 132Mt)

The proposed TTTSF will occupy the entire upper most portion of the Tipperary Creek catchment and in plan view has a mushroom-like shape; it will be approximately 1800m long on both of its main axis. The main east-facing containment embankment will be approximately 70m high from the invert of Tipperary Creek to the embankment crest.

OceanaGold has calculated approximate earthwork quantities for a staged construction based on 1, 3, 5 and 7 years being the periods when the embankment for each stage is increased. Each interim stage of the embankment is based on a 25m minimum crest width and an upstream and downstream shoulder of 1v:1.5h and 1v:2h respectively (i.e. for each stage it would be necessary to extend the downstream toe and build up the downstream shoulder of the embankment from ground level). The final crest width is 9m wide and 5m wide berms are constructed on the final downstream shoulder at elevations 540mRL, 520mRL and 500mRL. The first year of construction will be the most intensive with all the preparatory work and significant embankment foundation and fill volume being placed plus drainage for about 1km of embankment.

During the 'growth' of the TTTSF over a seven year period the containment embankment will rise in three to four 'lifts' and with each increase in height of the embankment, its linear extent will also increase. The result will be a relatively gradual increase in the height and length of the embankment before its outer surface is finally rehabilitated to productive pasture.

Macraes-Dunback Road will be realigned to the north and then west along Macraes Back Road ridge to bypass the TTTSF and various conifer woodlots and shelterbelts removed in preparation for construction the storage facility's containment embankment and placing the tails.

With the tailings storage facility being 'built' in various stages and rising up in a series of 'lifts' its ultimate effect will not be fully obvious or complete until the MPIII expansion is also near complete.

4.1.2 Waste Rock Stacks

New waste rock stacks and extensions to existing rock stacks will be constructed, increasing the total consented tonnage from 850Mt to 1,180Mt. The existing Back Road Waste Rock Stack will be substantially expanded to the east of the Round Hill/Southern Pit locations. Frasers East and Frasers West Waste Rock Stacks will be linked by a new waste rock stack called Frasers South Waste Rock Stack and an extension added to the north of Frasers East Waste Rock Stack called Frasers North Waste Rock Stack

With respect to expanding the existing BRWRS, the proposal is to create a waste rock stack that has a somewhat triangular shaped footprint that is approximately 2300m on its longest axis and 1400m wide at its widest point. In plan view the stack would have a subtle convex curvature on its southern aspect towards the Macraes Back Road ridge and what will be the realigned Macraes-Dunback Road and on its northern aspect, the waste rock will have a series of convex and concave curves facing the Deepdell Creek catchment.

The well-rounded top ridge has an east-west alignment and would rise to 650mRL immediately above an existing ground level of 560mRL resulting in approximately 90m depth of dumped material. The lower slopes of the stack would be graded to 1 in 3 and rise up to approximately 620mRL. The top slopes of the stack would be flattened off to a gradient of 1 in 8 to form the long, rounded crest of the stack. The eastern 'point' of the stack will only rise up to 570mRL forming a long, flat 'toe' that grades into the existing sloping landform.

As shown on the Macraes Phase III Plan, FSWRS and FNWRS will be relatively small additions to the existing FWWRS and the currently being constructed FEWRS, combining to create an overall Frasers Waste Rock Stack. FSWRS in linking the two existing rock stacks will be approximately 1200m long and up to 600m wide. Its side slopes will be graded to match the existing rock stacks and its rounded crest will form a relatively linear ridge between the two existing rock stacks. The eastern face of FSWRS will parallel a short 'corner' section of Golden Bar Road.

FNWRS will add to the northern face of FEWRS and extend approximately 500m towards the Macraes Back Road ridge, infilling the low area between Glendale homestead and Frasers Pit. This waste rock stack extension will have a relatively square footprint and its side slopes and crest will be shaped to integrate with FEWRS. To accommodate the FNWRS, Macraes-Dunback Road will be realigned along the Macraes Back Road ridge and Golden Bar Road will be extended across the lower northeast flanks of FEWRS and FNWRS to rejoin the realigned main road at the ridge.

It is envisaged that it will take approximately seven years to complete the proposed waste rock stacks and extensions, with the additions to the FWWRS and FEWRS completed first. As the stacks are placed the 'lifts' of each stack will be progressively revegetated with about an additional three months required to complete final revegetation and rehabilitation.

Visual mitigation measures in terms of the shape, scale and form of the stack and establishment of vegetation on the final outer and top surfaces will be progressed in the same manner as with FEWRS. This process of placing the waste rock and progressively rehabilitating its outer slopes is clearly visible from the Glendale homestead section of Macraes-Dunback Road with the current placement of the eastern extent of the FEWRS as shown in **Photo 3**.

Photo 3 – View looking west towards FEWRS from Golden Bar Rd intersection

4.1.3 Road Realignment

Macraes-Dunback Road will be realigned from near Hocking Road following the legal (but unformed) road alignment north before turning west to run along the divide between the Deepdell and Tipperary catchments and rejoining the current alignment adjacent to Innes Mills Pit, (near the old Golden Bar haul road traffic lights).

Golden Bar Road will be realigned for the last 2.5km before rejoining Macraes-Dunback Road

The extent and effect of the Macraes-Dunback Road realignment has been described in the landscape and visual assessment[17] that supported the resource consent application to the Waitaki District Council for the earthworks aspect of the road realignment that was lodged in December 2010.

Golden Bar Road will be extended from adjacent to its current intersection with Macraes-Dunback Road across the lower northeast flanks of FEWRS and then FNWRS to rejoin the realigned Macraes-Dunback Road midway along the Macraes Back Road ridge. For the most part this realignment will traverse land that is constructed waste rock stack. Between FNWRS and the ridge, the realigned road will cross grazed farmland bypassing a tussock wetland.

4.1.4 Water Supply Dam

A new fresh water storage dam in Camp Creek (a tributary of Deepdell Creek) that will be filled from flood flows. The dam will result in a permanent residual flow in Deepdell Creek

[17] Opus MPIII Macraes-Dunback Road Realignment Earthworks Landscape and Visual Assessment, December 2010

The proposed fresh water storage dam will be located in the lower reaches of Camp Creek, a tributary of Deepdell Creek that drains the southern slopes of the Sister Peaks area of the 'Taieri Ridge', local range of hills that parallel Horse Flat Road to the north.

4.2 Ancillary Structures and Activities

Surface water on the expanded mining infrastructure will be managed with diversions and new silt control dams

Various appropriate sediment control features will be installed surrounding the proposed waste rock stacks and the tailings storage facility. For the most part, these features will be low weirs or similar that will be physically and visually contained within specific stream channels and gullies.

4.3 Temporary Facilities

The MPIII proposal will entail various temporary facilities such as haul roads and night lights; the location of which will constantly change during the life of the proposal. Longer term, but still temporary facilities such as offices, workshops, explosives magazines and staff facilities are already in place as part of the overall Macraes Gold Project and will be de-commissioned and removed at the end of the project. All of these temporary aspects are likely to have negligible landscape and visual effects in the overall context and scale of the project and its surrounding landscape.

4.4 Mitigation Measures

4.4.1 Previous Consent Conditions for Waste Rock Stacks

Existing resource consents for the expansion of waste rock stacks require compliance with a number of consent conditions including a specific landscape rehabilitation condition. An example of a relevant consent condition is Condition 14(a) of the landuse consent LRC 96/98 for the landscape rehabilitation of waste rock stacks, i.e., that the consent holder *visually integrate finished structures, landforms and vegetation into the surrounding landscape so they appear to be naturally occurring features*. In order to meet this objective, landscape principles are set out in conditions 14 (c) for waste rock stacks as follows:

When constructing waste rock stacks, objective 14 (a) (iv) shall be achieved by applying the following principles:

a) Slopes shall be suitable concave or convex in cross-profile to match nearby natural slopes.
b) Slope gradients shall be no steeper than nearby natural surfaces.
c) Transitions between natural and formed surfaces shall be rounded and naturalised.
d) Contours should be curvilinear in plan/form, in keeping with original natural contours in that area.
e) The skyline shall be variable and curved, according to natural skylines.
f) New landforms shall be aligned and located so they seem to continue not cut across existing landscape patterns.
g) All possible waste rock shall be backfilled into pits in order to minimise the size of waste rock stacks.

Condition 14(a) of the landuse consent LRC 96/98 outlines the expectation in terms of form and shape of the waste rock stacks for the Macraes Gold Project. The objective of the condition is to achieve a completed waste rock stack that will be in context with the natural landform of the surrounding area. Applying the relevant principles of this condition, i.e. principles a, b, c, d and f, to the construction of the proposed tailings storage facility, would achieve a similar result.

It is anticipated that the construction of the waste rock stacks and of the embankment of the tailings storage facility would have to meet these conditions that have been previously applied to the expansion of the Macraes Gold Project. These conditions have been taken into account in the preliminary design of the earthworks shown in the Macraes Phase III Plan and carried through into the photo-simulations referred to in this assessment.

The current, completed Back Road Waste Rock Stack meets these principles as can be seen in the distance in Photopoint 06 – before photo-simulation, and for the Frasers West Waste Rock Stack in Photopoint 05 – before photo-simulation. Implementing these principles is governed by the mechanics and economics of shifting vast quantities of dump material with very large earthmoving equipment. However, in general terms, the final form of the waste rock stack is of a similar character to the existing natural form of the broad local topography, and attempts to closely replicate the surrounding landform. It follows that the final form of the proposed tailings storage embankment will replicate the surrounding landform.

The final vegetation cover is to be a mixture of pasture grass and tussock that also matches the colours and finer grained textures of the surrounding landscape. By following the same processes used to mitigate the landscape and visual effects of the waste rock stack, it will be possible to successfully blend the proposed tailings storage facility into the natural environment as its vegetation cover becomes established.

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

- careful design of the form of the storage facility embankment to integrate it into the existing landform character of the area;
- restoration of the areas disturbed around the margins of the proposal;
- removal and restoration of the haul roads used during construction of the proposal; and
- progressive revegetation of the outer surfaces of the storage facility embankment and the saddle embankment.

4.4.2 Potential Screening of TTTSF

In considering the overall potential landscape and visual effects of the MPIII proposal, particular consideration has been given to whether or not specific visual mitigation measures should be proposed in response to the TTTSF and its visibility from Macraes-Dunback Road. The likely visual effect of this component of the MPIII project is described relative to Photopoints 01, 02 and 03 at Section 5.3.

Consideration has been given to potentially lessening the visual effect of TTTSF by means other than that described in Section 5.3 below. To do this would require some form of screening to be 'placed' between the road and the TTTSF. Given that this is a rural, open landscape, this screening could be either a screen planting or earthen bunding; other types of screening such as concrete walls or timber fences would be totally out of context in this rural area.

Given that it takes a considerable period of time for a shelterbelt, or other plantings that could form a screen, to establish to an effective height and density in the harsh climatic conditions of Macraes Flat i.e. much longer than the ten year project life of MPIII, the use of bunding is likely to have a more immediate result in terms of screening. However, a consideration with placing any potentially large scale screening is the possible negative visual effect of this mitigation measure in itself. A continuous 'belt' of large trees, or various sections of linear bund, say adjacent to the south to west side of the Macraes-Dunback Road, would also effectively block out the broad view to Macraes Flat. It could also give rise to snow drifting issues, though given the orientation of the local sections of road; shading and icing may not be much of an issue over what currently happens.

A possible visual mitigation approach could be the judicious placement of relatively short sections of bunding on local high points within OceanaGold-owned land on the west side of the road between Sailors Cutting and the Shag Valley Back Road intersection.

The effectiveness and practicality of doing this was discussed with OceanaGold MPIII Project Team (who have a broad knowledge of local climatic conditions, implementing large scale earthworks and other local factors). The outcome of this discussion was that:

- There are only two sections of OceanaGold farmland where placing screening might have some effect. The first section is from the OceanaGold boundary with the Heckler property north towards a gully that flows northwest to Tipperary Creek and in this section there are two sections of cultivated pasture that could be utilised for bunding. The changing road alignment and the intervening local ridges then block any view towards the proposed TTTSF until near the Shag Valley Back Road intersection. The second potential screening area would be 'inside' the sweeping curve of Macraes-Dunback Road opposite and north from the Shag Valley Back Road intersection.

- The landscape and visual effect of placing sizable bunds in these paddocks would potentially be a negative effect in itself.

- Bunds or planted screen belts, for that matter, on the west side of the road in these areas may have a negative effect in terms of snow drift building up on the road. Currently when it snows; the wind speed is usually such on these 'tops' that the snow keeps on blowing right across the road.

- The cost of transporting sizeable quantities of waste rock to create the bunds would be high relative to what effective screening might be achieved.

- In both sections of OceanaGold land where potential screening could be placed there are also areas of remnant tussock within the grazed paddocks and/or localised drainage channels/minor gullies that would need to be avoided, which then constrains the 'footprint' available for screening.

- There is likely to be a degree of setback from the road fence for constructing bunds, given that there is a Waitaki District Plan requirement that tree planting be setback 15m from the edge of local roads, presumably as a response to shading and frosting problems. If this were to also apply to 'roadside' bunding, it would mean the top of the bund and its screening potential would be pushed back into the paddock, which would then mean the bund would have to be higher, with a wider footprint to be effective.

This then leads on to the discussion of "is screening necessary?" To date the waste rock stacks have been taken as large naturalised landforms that are in context with the local landscape; the tailings storage facility is similar but it has a flat top that would be the 'unnatural' aspect of this structure. In the Photopoint 01, 'Sailors Cutting', photo-simulation, the flat top of the 'dam' is visible but it is 'backdropped' by the Back Road Waste Rock Stack and more distant natural ridgelines. In the Photopoint 02, 'Macraes-Dunback Road', view, the flat top of the TTTSF is more obvious as it is closer but this 'flatness' is lessened as part of the skyline by the rounded crests/skyline of both Frasers East and Back Road Waste Rock Stacks and the ridge to the right/north that is up behind Deepdell Creek.

Given that the proposed waste rock stacks and the TTTSF will sit as large, naturalised structures within the local landscape, it is considered appropriate that their scale and form 'speak for themselves' as has been the case with previous such mine components. The previous landscape mitigation measure for these components of contouring, topsoiling and grassing has been considered to be appropriate for the Macraes Flat landscape context and will continue to be so for this proposal. Therefore, the need for screening from Macraes-Dunback Road viewpoints has not been considered further.

As noted in section 4.1.1, the tailings storage facility will be 'built' in various stages and rise up in a series of 'lifts' so that its ultimate effect will not be fully obvious or complete until the MPIII expansion is also near completion. This implies that only at or near the end of the process will the TTTSF's containment embankment and the tails it contains actually be near the Macraes Back Road ridge section of the realigned Macraes-Dunback Road and then the tailings storage facility will be full and the tailings surface rehabilitated to pasture.

As the period of time in which the tails will be visible to traffic on Macraes-Dunback Road will be short, and only traffic travelling towards Dunback will glimpse a view of the tailings, it is unlikely that bunding or screen planting will be necessary between the road and northern edge of the TTTSF in the area that forms the right foreground of the Photopoint 03 view.

4.4.3 MPIII Remedial Works

A revised closure strategy, which will comprise: 2 lakes formed from the pit excavations; maintenance of the current artworks and infrastructure; a renovated Stanley's hotel; bicycle trails connecting artworks with the hotel and a fund to support local community initiatives and encourage business development.

A number of the components of the revised closure strategy and rehabilitation process will add to the landscape and visual amenity of the Macraes Flat area. A further amenity enhancement could be the creation of a roadside viewpoint north of Sailors Cutting where the public could stop and gain a view of the broad aspect of the local landscape and of the eastern aspect of the Macraes Gold Project. Interpretative signage would be installed as has been provided at current viewpoints that overlook the operational aspects of the project. This signage would give an introduction to the project and its landscape and indicate what the new features in the distance are, or will be.

A possible roadside location to do this would be at a point that equates to 'down the road and on the left' of the section of foreground road that appears in the Photopoint 001 view; the base photograph and photo-simulation for this view is at **Appendix 2**. There are reasonable traffic sightlines at this point on the roadside; the road margin contains established tussock, which could be enhanced with planting further native shrub and grass species. The foreground to the view 'over-the-fence' contains both pasture and tussock that drops away to a local gully landform that has aesthetic interest in itself.

5 Assessment of Landscape and Visual Effects

The following assessment is based upon observation of the existing waste rock stacks, tailings storage facilities and other operational aspects of the current Macraes Gold Project, what development of these aspects under the current consent conditions implies, an understanding of the likely visual effects of "constructing" the proposed MPIII and from experience in defining and implementing appropriate measures to mitigate these types of effects.

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

5.1 Phase III Visibility

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 and the associated Macraes Gold Project with State Highway 85 (SH85, the Pigroot) to the east and State Highway 87 (SH87, the Middlemarch-Hyde road) to the west. The eastern section of steep, local road, known locally as Macraes-Dunback Road, directly ascends approximately 400m from SH85 and the Shag Valley to a point known as Sailors Cutting and the first broad view of Macraes Flat plateau from the east. The western section of local road, known locally as Hyde-Macraes Road, also ascends quite steeply to a point known as Hyde Hill and the first broad view of the upper Deepdell Creek catchment and the Macraes Flat plateau 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 Road are few in number; all are gravel roads and most are no-exit. The farm homesteads are also very few in number; all are sheltered by conifer shelterbelts and are physically and visually isolated from one another. The township of Macraes Flat is a central feature of the locality and sits on low, sloping land with an outlook to the south and west.

In this context, the visibility of MPIII is defined by and in many ways limited to various points along Macraes-Dunback Road. The predominant 'viewer' will be motorists travelling along this road and the extent, direction and focus of their view will be constantly changing.

The specific discussion regarding the visibility of the various aspects of the proposal is provided in section 6 relative to particular photopoints.

5.2 Visual Simulations

Following an analysis of where the main components of MPIII are likely to be visible from, a number of visual simulations were prepared by Truescape Limited to assist in assessing the potential landscape and visual effects of the MPIII Project. Simulation viewpoints – photopoints - were chosen from a number of public vantage points and were selected to afford a comprehensive and representative range of views of the final expansion of the gold mine activities. These include salient viewpoints where visitors to the area would gain their first view of the Macraes area such as just north of Sailors Cutting on the Macraes-Dunback Road or where people commonly meet such as outside Stanley's Hotel.

The visual simulations that have been prepared are photo-simulations, which involve incorporating, into photographs from the selected photopoints, permanent elements of the proposed mine expansion such as the proposed rock stacks and tailing storage facility as these will be both large and distinctive relative to the scale of the surrounding landscape.

A statement of the methodology used by Truescape Limited to prepare the photo-simulations is contained in **Appendix 2** of this report.

Photo-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.

A series of 'life size', high quality image, photo-simulations, known as "Trueviews" have been prepared by Truescape Limited which, when viewed from a distance of approximately 500 mm, convey the scale of the landscape and the components of MPIII as it would be seen in reality. Ideally, this section - Visual Simulations – of the Landscape and Visual Assessment should be read in conjunction with the full size "Trueviews".

Reduced versions of the "Trueviews" are included for reference purposes in **Appendix 2**. The photopoint images have been formatted in the following order:

- "Before" – This image is the current view from the particular photopoint and is the base photograph from which the following photo-simulation has been generated.
- "After (Textured)" – The photo-simulation includes the particular aspects of MPIII that are expected to be seen from the particular photopoint. The MPIII components, such as the outer slopes of rock stacks, have been coloured and textured to show the components fully revegetated as they would be when the proposed mitigation measures have fully taken effect.
- "After (Colour Coded)" – In a number of the "After (Textured)" images it is difficult to determine the actual components of MPIII that are visible, particularly in the A3 reduced versions of the "Trueviews". Therefore, in these images the components have been colour coded relative to the 'Macraes Phase III Plan' so that the actual parts of the project that are expected to be seen from a particular photopoint are visible.

The fact that aspects of MPIII will be visible and will change aspects of the character of the existing landscape does not necessarily mean that its effects will be inappropriate or unacceptable. Its visibility, the scale, nature and duration of the effect, the visual complexity and scale of the existing landscape, the visual sensitivity of the viewer and the size of the viewing audience influence the significance of the project's potential 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.

The photo-simulations prepared by Truescape Limited have been used to assist in the assessment of the visibility and landscape and visual effects, including cumulative effects, of the proposed gold mine expansion. 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 particular photopoint, rather than whether the change represents an adverse or a positive effect.

The photo-simulations show the degree of mitigation that is expected under the previous WDC consent condition 14, i.e. shaping and grassing of rock stack slopes, as described in section 4.4.1

5.3 Landscape and Visual Effects relative to Specific Photopoints

This assessment is based upon observation of existing rock stacks and existing tailings storage facilities (the Mixed and Southern Pit impoundments) and what the development of further, similar, mine features under the current consent conditions implies, an understanding of the likely landscape and visual effects of constructing the proposed rock stacks and tailings storage facility and experience in defining and implementing appropriate measures to mitigate these types of effects. It also takes into consideration the potential landscape and visual aspects of the proposed realignment of Macraes-Dunback Road and of the Camp Creek water storage dam.

The photopoint locations are shown on the Photopoint Locations aerial photo on page 2 of the Truescape photo-simulations in **Appendix 2** and associated photographs and photo-simulations follow. An oblique view of the main features of Macraes Phase III Plan is also provided at page 3 of the appendix to assist in illustrating the extent and scale of the proposal.

In defining the relative degree of potential landscape and visual effects, as indicated by the following photo-simulations, consideration was given to a number of recent landscape and visual assessments that have been undertaken as part of resource consent applications for large scale wind farms throughout New Zealand. Like the MPIII proposal, many wind farm proposals are located in upland, rural landscapes. Given that wind turbines can be visible over considerable distances and the visible size and the potential visual effect of the turbines will decrease with distance along with their potential visual effect, distance from the proposed wind farm can be readily used as a factor against which the potential effect can be ranked.

While distance is an amelioration factor in regard to the MPIII proposal, using distance alone as a measure against which to rank the effect of the MPIII proposal is not as straight forward. What has been used to define a potential landscape and visual effect ranking is a combination of the extent to which the MPIII proposal is a focus, the extent to which the proposal has changed the landscape and also the effects of distance. **Table 1** outlines these rankings in descending order.

Table 1: Ranking of Effects Table

Comments	Potential for Landscape and Visual Effect
The components of the MPIII proposal can be a very strong visual focus and tend to dominate the landscape	Very substantial
The components of the MPIII proposal can be highly prominent and although the combined components of the proposal may not dominate the landscape, it will be a strong visual focus	Substantial
The components of the MPIII proposal can be prominent and very distinctive features in the landscape	Moderate
The components of the MPIII proposal can be quite noticeable and a somewhat distinctive feature in the landscape, although not prominent	Slight
The components of the MPIII proposal can be noticeable and the combined components of the proposal appear as a minor feature in the wider landscape	Very slight
The components of the MPIII proposal can be discernible and the combined components of the proposal appear as a very minor feature in the wider landscape	Negligible
From some salient viewpoints, the MPIII proposal will not be visible	Nil

5.3.1 Photopoint 01: Sailors Cutting

Approaching Macraes from the east via Macraes-Dunback Road, which is the local main road, there is an elevated viewpoint at Sailors Cutting that is on 'the crest of the hill' when arriving from Dunback. This is a salient view in that it provides that first broad vista of the Macraes area having ascended the steep hill from Dunback.

Photopoint 01 'before' shows the broad view looking from the Macraes-Dunback Road at the west end of Sailors Cutting towards the Macraes Flat area. This photopoint is approximately 2.5km from the nearest edge of the site of the proposal. The various conifer shelterbelts and plantations in the centre left of the photo are those that surround the Glendale homestead area. Glendale farm is owned by OceanaGold. The existing BRWRS can be seen above the pine plantation that is to the immediate west of the homestead. The existing crest of the FWWRS can be seen in the distance through a side gully of Tipperary Creek in the centre left of the photo. On the skyline above this rock stack is the Summit Rock area of the Rock and Pillar Range.

Macraes-Dunback Road can be seen in the right half of the photo continuing north over a local ridge towards its intersection with Shag Valley Back Road. From the intersection the road descends out of sight to cross Tipperary Creek and then runs from behind the pine plantation in the centre right of the photo through the local valley in the centre of the photo that contains many of the shelterbelts. The road can then be seen to the left of the Glendale homestead plantations rising over a local ridge north of Frasers Pit and continues on to Macraes Flat township, which is further to the west.

From this photopoint the area of the MPIII site occupies much of the somewhat distant midground at the far extent of the central, grazed paddocks that form the foreground. Travelling towards Macraes the site area becomes obscured by the intervening gully slopes and low, rolling ridges that drain towards Tipperary Creek. The site does not become visible again until this road's intersection with Shag Valley Back Road, the area of the next photopoint to be described.

Photopoint 01 'after (textured)' shows from left to right, the southern to eastern 'faces' of the proposed FSWRS, the consented FEWRS, the completed extent of the proposed TTTSF and above and behind the latter, the completed extension of the BRWRS. Given the distance from the photopoint and as highlighted by the 'after (colour coded)' image, these new mine features are quite low but are broad in terms of their visible extent. The BRWRS is the only one of these new mine features that meets the existing skyline obscuring a small portion of the ridgeline running west from Highlay Hill above Deepdell Creek and a lesser portion of the very distant Rock and Pillar Range. It is not expected that any aspect of the Macraes-Dunback Road realignment would be visible from this photopoint.

As shown in these photo-simulations, a considerable extent of the MPIII project will be visible to the travelling public when first arriving in the Macraes area from Dunback. However, given that the form and scale of the proposed mine features is in context with that of the adjoining ridges and that the FEWRS that occupies the central portion of this view is already consented, there is a minimal effect on the distant skyline. Due to the combination of the shape, colour and broad profile of the waste rock stacks and the tailings storage

facility and distance and the broad scale of the view, the potential landscape and visual effect of the proposed mine features on this view will be **slight**.

5.3.2 Photopoint 2: Macraes-Dunback Road

Continuing towards Macraes on Macraes-Dunback Road, the next point from which the MPIII project will be directly visible is in the area of the intersection of this main local road with Shag Valley Back Road, a gravel road that descends to the locality of Waihemo in the upper Shag Valley. **Photopoint 02 'before'** shows the broad view looking from the intersection directly west towards the Glendale homestead – Macraes Back Road ridge area. This photopoint is approximately 900m from the nearest edge of the site of the proposal. The crest of FWWRS is on the skyline in the centre left of the photo, the Summit Rock area of the Rock and Pillar Range is the distant skyline above the Glendale homestead plantations and Highlay Hill is the obvious skyline feature in the centre right of the photo.

Macraes-Dunback Road continues directly west and descends to cross Tipperary Creek and is lost from view. From this photopoint the area of the MPIII site occupies much of the midground at the far extent of the grazed paddocks that form the foreground to the left of Macraes-Dunback Road and behind the pine shelterbelt in the distance to the right of the road. Travelling towards Macraes the site area will actually occupy the route of the current road with the Macraes-Dunback Road having to be realigned to the north and east of the pine shelterbelt previously mentioned. The site will be clearly visible from the realigned road as it traverses Macraes Back Road ridge, the area of the next photopoint to be described.

Photopoint 02 'after (textured)' shows from left to right, aspects of the eastern 'faces' of the proposed FSWRS, the consented FEWRS, the completed extent of the proposed TTTSF and above and behind the latter, the completed extension of the BRWRS. As highlighted by the 'after (colour coded)' image, the embankment of the TTTSF will be the dominant and broadest component of these new mine features, though all are quite low in terms of their visible extent. The upper extent of the already consented FEWRS and the proposed BRWRS, and the completed crest of the TTTSF that appears between the two waste rock stacks, meet the existing skyline obscuring FWWRS and the summit area of the distant Rock and Pillar Range. A short section of the Macraes-Dunback Road realignment will be visible from this photopoint where the realignment rises around the northeast corner of the TTTSF and up onto the Macraes Back Road ridge.

As shown in these photo-simulations, the broad extent of the MPIII project will be visible to the travelling public passing this particular photopoint at the intersection of Shag Valley Back Road. Given the extensive nature of the completed south to eastern face of the TTTSF and the relatively unnatural appearance of the flat, linear extent of the crest of the proposed tailings storage facility, the TTTSF will be an obvious feature in this view. However this contrast in form will be ameliorated to some degree by the rounded 'tops' of the two waste rock stacks above and behind the crest of the TTTSF.

In this closer view relative to the previous Photopoint 001, the scale and texture change presented by the proposed mine features presents a contrast to the current view of the local landscape. This contrast results from the introduction of an assemblage of new 'hill slopes' and the removal of the textures that are currently visible such as gullies, plantations and shelterbelts in the Glendale-Tipperary Creek area.

In considering the combination of landscape and visual changes, the rounded forms of the two proposed rock stacks, plus that of the consented FEWWS and the pasture-covered 'faces' of the proposed and consented mine features, will directly assist in integrating the proposed mine features with their surroundings. With this combination of new landforms, changes to the diversity within the view and then the ameliorating effect of shaping the earthworks and establishing a consistent grass cover, the landscape and visual effect relative to this photopoint will be **moderate**.

5.3.3 Photopoint 3: Back Road Track

Continuing towards Macraes on the proposed realignment of Macraes-Dunback Road, the next point from which there is a representative view of the MPIII project is on the current Macraes Back Road track from where the tailings within the TTTFS will be visible in due course. Consequently this photopoint is oriented to the south and not along the general alignment of the local road as with the two previous photopoints.

Photopoints 03a and 3b 'before' show the broad view looking from the existing farm track on the Macraes Back Road ridge directly south towards the Tipperary Creek – Sailors Cutting area. This photopoint is approximately 100m from the nearest edge of the site of the proposal. The pine plantation at Sailors Cutting is on the skyline in the centre right of the photo, the section of Macraes-Dunback Road immediately west of the Shag Valley Back Road intersection is in the centre left of the photo and the southeast extent of Horse Range on the northeast side of Shag Valley forms the skyline of the left half of the photo. Various pine plantations and shelterbelts in the upper Tipperary creek catchment are visible in the midground.

Macraes Back Road farm track continues directly east down the flat, broad, ridge top and descends to the open paddocks east of the long, pine shelterbelt in the left midground of the photo and is lost from view. From this photopoint the area of the MPIII site that will be seen occupies much of the midground beyond the immediate grazed paddock in the right foreground of the view.

Photopoint 03a 'after (textured)' shows the near-completed extent of the northern half of the proposed TTTSF with the outer crest of the tailings storage facility containing dry and west areas of tailings material. **Photopoint 03b 'after (textured)'** shows the same aspect of the TTTSF completed and with the flat extent of tailings topsoiled and grassed. As highlighted by the 'after (colour coded)' image, the crest and tailings aspect of the northern extent of the TTTSF will be the only component of the proposed mine features visible in this view. The new road formation of the Macraes-Dunback Road realignment, while not visible in this set of photopoint images, will be to the immediate left of this view.

As shown in these photo-simulations, there will be a relatively direct view to the north end of the TTTSF once the tailings storage facility embankment has been completed. The area of tailings will then become obvious as the storage facility is progressively filled. As described at Section 6.2 of this report, a period of seven or more years will elapse from the start of the implementation of the MPIII project before the TTTSF embankment is completed to the extent shown in these 'after' images and then another three or more years before the placement of tailings is completed. This implies that there will be a period of five to six years before the earthworks for the completion of the northern extent of the TTTSF are visible from this photopoint. There is then going to be a period of another 5-6 years when the visual extent of the TTTSF will be most obvious from this photopoint before rehabilitation takes place.

The first of the components of the TTTSF that will be obvious is the long, straight 'line' of the embankment crest, which from this back view will be in stark contrast to the natural curved lines and slopes of the locality. The other component that will be obvious, but which will change with time, is the extent and colour of the tailings. As tailings are placed within the storage facility they will initially form a wet ponded area and as deposition continues a tailings beach will form adjacent to the embankment with the decanted water ponding on the upstream site of the storage facility. This is shown in Photopoint 3a 'after (textured)' by the grey coloured tailings beach with blue/green water ponding at the rear of the facility (nearest the photopoint). The ponded water is generally a bluish grey colour, however, under certain conditions this water can turn rust red through to various shades of green to blue. When seen as a large, coloured lake in a landscape that does not have any large, natural water bodies, the fluid tailings are likely to appear to be totally out of context with their surroundings.

Given the unnatural appearance of the long, linear, extent of the crest of the proposed tailings storage facility and of the fluid stage of the contained tailings, the TTTSF will be a very obvious feature in this view. However the contrast that will result from form and colour will be ameliorated by the degree of setback from Macraes-Dunback Road to the TTTSF and also by the relatively short period in which the tailings area is seen when travelling past the site.

A further visual change will be the reduction in texture as seen from this photopoint, given that the visible extent of the TTTSF blocks out the view to the more distant slopes and vegetation towards Sailors Cutting and replaces that view with a flat, planar, surface.

In considering the combination of landscape and visual changes to this particular view, the presence of setback between the local road and TTTSF is the mitigating factor that reduces the potential effect of these changes. This setback distance could be enhanced further in terms of a buffer by screen planting or bunding to further distance the visual effect from the passing viewer. However, relative to the depth of the setback and the short potential viewing period for passing motorists, additional visual mitigation of this particular view is not considered necessary.

At a smaller scale, the tussock vegetation seen in the immediate foreground of the Photopoint 03 images can be retained in the road reserve of the Macraes-Dunback Road realignment. Once protected from grazing this tussock will grow and add a natural diversity to the view. Further to the east where the road will be lower relative to the tailings impoundment, the tussock may grow to a height that the view from the road will actually be screened.

The landscape and visual effect of the TTTSF on this photopoint will be **moderate** relative to the change in landform that the crest of the tailings storage embankment and the flat extent of tailings implies and also relative to the visual colour contrast presented of the fluid tailings. It is considered, however, that appropriate visual mitigation is provided by the ameliorating aspect of the setback from the realigned road and the short period in which this view is likely to be seen by passing motorists.

5.3.4 Photopoint 4: Golden Bar Road

Approaching Macraes from the south via Golden Bar Road, which is a gravel back road that connects through from Palmerston; there is a broad, open viewpoint just prior to a gully that drains to Tipperary Creek in the east and an opposing gully that drains to Murphys Creek in the west. **Photopoint 04 'before'** shows the expansive view looking from the Golden Bar Pit haul road adjacent to Golden Bar Road north towards the Macraes Flat area. This photopoint is approximately 500m from the nearest edge of the site of the proposal. On the extreme left of the photo are the current mine workings of the FWWRS/Frasers Pit area, at the centre of the photo are the formative earthworks of the FEWRS and to the immediate right there are the pine shelterbelts in the Glendale homestead area. In cloud shadow behind this is the Macraes Back Road ridge. The Rock and Pillar Range forms the skyline in the left of the photo with the Hyde Hill area in the distant midground below the range. At the centre of the photo on the skyline is Highlay Hill on the far side of Deepdell Creek. The distant snow capped peaks are on the Hawkdun and Ida Ranges and to the right of the photo are the southern slopes of the Kakanui Mountains and Horse Range.

From this photopoint the area of the MPIII site occupies all of the midground to the left of the centre of the photo, the consented FEWRS will occupy the area to the right of the centre of the photo and the TTTFS will be to the right of the FEWRS. Travelling towards Macraes, Golden Bar Road bypasses FWWRS and Frasers Pit and circumnavigates FEWRS to link to the Macraes-Dunback Road.

Photopoint 04 'after (textured)' shows from left to right, the southern 'faces' of the proposed FSWRS and the consented FEWRS. In the 'after (colour coded)' image it is possible to see a thin aspect of TTTSF to the right of FEWRS and a finer sliver of BRWRS above FEWRS. The proposed FSWRS will 'infill' the gap between the yet-to-be completed FWWRS and the consented FEWRS and obscure the view to Frasers Pit and the distant hills and ranges. The other two components of MPIII that may be visible from this photopoint – TTTSF and BRWRS – will have little to no effect on this view.

As shown in these photo-simulations, FSWRS will have a form and scale that replicates FEWRS, which, in turn, replicates FWWRS. The proposed FSWRS will infill the space between the east and west waste rock stacks, completing one continuous Frasers Waste Rock Stack. Frasers South Waste Rock Stack will be directly visible to the small numbers of the travelling public that use Golden Bar Road, but will be in context with adjoining rock stacks that have been consented for the southern aspect of Macraes Gold Project.

The landscape and visual effect of the FSWRS on this photopoint will be **moderate** relative to the change in landform that infilling the 'gap' between the two existing waste rock stacks will create and due to obscuring the view from this section of Golden Bar Road to the Frasers Pit area and to the more distant hills.

5.3.5 Photopoint 05: Macraes Flat – Stanley's Hotel

The intersection of Macraes-Hyde, Redbank and Macraes-Dunback Roads could be described as the central focus or hub of Macraes Flat and is another salient viewpoint. It is the point at which traffic has 'arrived' in Macraes from the east and west and it is the 'front door' to Stanley's Hotel. Much of the local community goes through this intersection on a daily basis and patrons to the hotel park in this general area. Of the seven photopoints to be discussed, this photopoint is the one where the greatest numbers of the public are likely to be stationary and potentially looking at a current aspect of the Macraes Gold Project and in the direction of the MPIII proposal.

As shown in **Photopoint 05 'before'**, the immediate foreground to this view is a small 'historic park' beyond which is an expansive open wetland and paddocks that have been developed by OceanaGold as a recreational area and wildlife refuge. The central, background feature is FWWRS, a previously consented and now almost completed waste rock stack.

As is indicated in **Photopoint 05 'after'** and more clearly defined in the colour coded image of this photo-simulation, no aspect of MPIII is visible in this view. Consequently the MPIII proposal the potential landscape and visual effect on this salient view will be **nil**.

5.3.6 Photopoint 06: Horse Flat Road

A direct view of the northern aspect of MPIII can be gained from the northern end of Horse Flat Road, a no-exit, gravel road that serves Deepdell, Braeburn and Bellfield homesteads and their associated properties. Intervening vegetation and landform ridge obscures all of MPIII, including the proposed Camp Creek freshwater dam, from the southern and central aspects of this local road. It is only from the Highlay Creek or north end of the road that the proposed MPIII site will be visible. This view is from and across land owned by OceanaGold. At this point the traffic volumes on Horse Flat Road appear to be very low and limited to local farm vehicles and trucks accessing an OceanaGold hard rock quarry that is a short distance to the east.

Photopoint 06 'before' provides a broad view of the lower reaches of Highlay Creek, across a short section of the Deepdell Creek valley to the existing northern faces of the BRWRS and Northern Gully Rock Stacks. This photopoint is approximately 3.3km from the nearest edge of the site of the proposal. The top of a pine plantation immediately behind Glendale homestead is visible on the skyline to the left of centre in the view and a small group of farm buildings, along with shelterbelts, on a farm that is owned by OceanaGold can be seen at the right of the view.

From this photopoint the area of the MPIII site occupies much of the relatively distant background at and below the central skyline on the immediate left of the BRWRS.

Photopoint 06 'after (textured)' shows the northern 'face' of the proposed extension to the BRWRS, which is more clearly defined in the corresponding colour coded image. No other components of MPIII will be visible from this photopoint.

In this view the proposed extension of the rock stack will be visible as a eastern 'extension' of the existing rock stack, but its landscape and visual effect will be limited given that its formation and the revegetation treatment of its slopes will reflect that of the existing BRWRS. This is reinforced by its large scale, relatively steep sides and final grass and tussock cover being in context with the broader local landform.

While this photopoint provides a clear but distant view of the proposed extension to the BRWRS, the isolated nature of the photopoint implies that the **slight** landscape and visual effect of the extended waste rock stack will be potentially seen by very few members of the public.

5.3.7 Photopoint 07: Hyde Hill

Approaching Macraes from the north via Macraes-Hyde Road, which is the northern continuation of the Macraes-Dunback Road, being the main road through Macraes, there is an elevated viewpoint to the south of the crest of Hyde Hill. This is another salient view in that it provides that first broad vista of the Macraes area after having ascended from the Taieri Valley.

Photopoint 07 'before' provides the view from the high point of Hyde-Macraes Road to the OceanaGold processing plant and its surrounding open pit mining related features. The upper Deepdell Valley with Horse Flat Road and Deepdell homestead are in the distant middle ground. The processing plant is in the centre of the photo and can be differentiated at this distance, of approximately 7.5km, by its steam plume. To the right of the process plant is the storage facility embankment of the existing Mixed Tailings Storage Facility. On the immediate skyline above the process plant and the tailings storage facility is BRWRS. On the skyline in the middle left of the view is Station Hill with Horse Range forming the distant skyline in the central left of the view.

From this photopoint the area of the MPIII project occupies separate areas above, in front of and to the right of the process plant.

The components of **Photopoint 07 'after (textured)'** when printed in A3 format are very difficult to discern given their naturalised colours and the distance. Therefore, enlargements have been provided so it is possible to see the proposed components of the MPIII relative to the existing aspects of Macraes Gold project.

As can be seen in the 'after (colour coded) – detail view', various components of the MPIII project and yet-to-be fully implemented, but consented, mine components 'sit' on and around the current mining activities visible in the distance at Macraes. The MPIII components are expansion of the existing Golden Point Pit, Round Hill and Southern Pits (in yellow at the centre left of the view behind the process plant), BRWRS expansion (in light green above the process plant and the existing BRWRS), reclaimed tailings stack located on the existing Mixed Tailings Storage Facility (in pink to the right of the process plant), expansion of the Frasers and Innes Mills Pits (in yellow in the centre right of the view) and FSWRS (in light green above Frasers Pit). The consented rock stacks are currently in development and are shown in dark green.

The enlarged colour coded image shows that when the view is enlarged it will be possible to see various broad aspects of MPIII from this photopoint. These aspects of the proposed mine expansion will be set against the backdrop of the northern slopes of the Macraes Back road ridge and the distant Horse Range and except for the BRWRS expansion will be level with or lower than the consented waste rock stacks. Consequently, the limited part of the proposal that can be seen in this enlarged view is not very obvious.

Using Photopoint 07 'after colour coded –detail view' to 'locate' the proposal relative to this view, it can be seen with the 'naked eye' as shown in Photopoint 07 'after (textured)' photo-simulation, that the components of the proposal that can be seen will be very slight when travelling towards Macraes from Hyde-Middlemarch Valley area. Consequently, the landscape and visual effects of the MPIII proposal relative to this photopoint will be **very slight**, also.

5.4 Landscape and Visual Effects relative to Other Specific MPIII Components

5.4.1 View to Reclaimed Tailings Stack

As described relative to Photopoint 5, no aspect of the MPIII proposal will be visible from outside Stanley's Hotel; the focal and salient viewpoint within Macraes Flat township. Given intervening landform and vegetation, it is unlikely aspects of the proposal will be seen from dwellings in the township that face onto Macraes-Dunback Road.

The component of the MPIII proposal closest to the township is the Reclaimed Tailings Stack that will be located on top of the decommissioned Mixed Tailings Storage Facility, which is immediately east of Golden Point Road and the Macraes Gold Project site office. The Reclaimed Tailings Stack will be approximately 1400m northeast of Stanley's Hotel. Hyde Street is a no-exit road that is approximately 600m long and runs directly north from the hotel and passes the school and the sports/community centre.

Looking to the east from the sports ground, to the end of the street across cultivated and grazed paddocks and passed various schist outcrops, a small part of the upper edge of the Mixed Tailings Storage Facility containment embankment is on the skyline. As is apparent in **Photo 4**, which shows the view to the east from the north end of Hyde Street, the flat top of the embankment is visible to either side of the schist outcrop in the centre of the view.

Photo 4 – View looking east towards Golden Point Road from Hyde Street, Macraes township

The Reclaimed Tailings Stack will add 28m to the existing tailings storage facility and have a north-south running crest at a height that will be approximately level with the roof of the maintenance shed in the right of the photo to the top of the pine shelterbelt to the left of the photo. The elevated crest of the proposed Reclaimed Tailings Stack will increase the height of the skyline to the east when seen from Hyde Street and provide a sense of enclosure that is not currently present. This will have a **slight to moderate** landscape and visual effect on the eastern outlook from Hyde Street.

5.4.2 Views to Camp Creek Freshwater Dam

The section of Camp Creek that would be dammed to form the proposed freshwater reservoir is between Deepdell Creek and the Horse Flat Road. The dam would be approximately 3.3km north of Stanley's Hotel and approximately 1.2km upstream from the confluence with Deepdell Creek. Downstream of Horse Flat Road, Camp Creek runs in a convoluted and deeply incised channel, which means the reservoir will be long and narrow relative to its holding capacity.

Looking downstream from the area of the Camp creek culvert on Horse Flat Road, as shown in **Photo 5**, it is only possible to see a 20-30m section of the creek before disappears from view in the folds of the land. The headwater of the reservoir is approximately 100m downstream from the road culvert and will not be visible from the road nor will the reservoir be visible from any other part of Horse Flat Road. The potential landscape and visual effect of this aspect of the MPIII proposal relative to Horse Flat Road will be **nil**.

Photo 5 – View looking south towards Camp Creek downstream of Horse Flat Road

The Camp Creek area is visible from the section of Golden Point Road 700 to 1200m north of the entrance to the Macraes Gold Project site office. Camp Creek drains from the gully system in the local section of the 'Taieri Ridge' that is below the skyline directly opposite the foreground section of Macraes-Dunback Road on the centre right in **Photo 6**. Camp Creek then flows in an incised course behind the scrub-covered low ridges in the central, midground of the photo with a short section of the upper slopes of its course visible in the midground to the left of the distant, central, pine shelterbelt (as indicated by 'Arrow 1'). The creek then flows directly east, before returning on itself and then flowing south to its confluence with Deepdell Creek (as indicated by 'Arrow 2').

Photo 6 – View looking north towards Camp Creek from Golden Point Road

The proposed dam that would contain the Camp Creek freshwater reservoir would be in the section of the creek indicated by 'Arrow 1'. The creek's course is particularly convoluted downstream of the proposed dam site where it flows around three 'headlands' within a short section of its incised course before flowing east as shown in **Figure 1** making it unlikely that the dam will be visible from Golden Point Road. However, a small portion of the water contained in the reservoir immediately upstream of the dam may be visible.

Given the complex nature of the course of Camp Creek in the area of the proposed dam and reservoir, the undulating landform that contains this section of the creek and its distance from Golden Point Road, the potential landscape and visual effect of this aspect of the MPIII proposal will be **very slight**.

5.4.3 Views to Pit Lakes

As part of the revised closure strategy and rehabilitation process, two freshwater lakes will be formed; the larger of which will be within the residual Frasers Pit mine void and the smaller in the Round Hill–Southern Pit mine void. Given the relatively low annual rainfall of the Macraes Flat area and that no natural streams drain to these pits, it will take a long period of time, say up to 100 years post closure, to what is expected to be their fill state. Even when fill, there will be a considerable extent of the terraced, upper pit walls above lake level.

The final appearance of both lakes will be of body of deep water within a rounded, rectangular to triangular, deep depression; these post-mining features would be the artificial equivalent of a large kettle lake or a crater lake. Given the steepness of the exposed pit walls and that they are terraced rock, it is unlikely that the pit walls will be shaped and rehabilitated to grass or similar, though the terrace surfaces within the walls can be topsoiled and grassed. However, with Frasers South Pit being backfilled, the final southern slope facing into the Frasers Pit lake will be rehabilitated in the same manner as the final waste rock stack slopes are treated. The general extent of Frasers South Pit is shown in **Photo 7**.

Photo 7: View looking southeast from Macraes-Dunback Road over Frasers Pit towards Frasers South Pit

Both proposed pit void lakes are setback from the realigned Macraes-Dunback Road with the Frasers Pit lake being approximately 300m from the road at its nearest point and the Round Hill–Southern Pit lake being approximately 1,500m distant. Given the setback and the entrenched aspect of the lakes, it is likely that only the more distant southern portion of the Frasers Pit lake would be visible for the road, whereas no aspect of the Round Hill–Southern Pit lake would be visible. Given their limited visibility, the semi-natural character of a lake within this mine landscape and the degree of visual diversity that a body of fresh water implies, the landscape and visual effect of proposed mine lakes would be **very slight**.

5.5 Summary of Landscape and Visual Effects

The following summaries the potential landscape and visual effects of the MPIII proposal relative to the:

- specific photopoints;
- drive-thru animation; and
- other specific MPIII components

This assessment relative to the various 'viewpoints' considered endeavours to focus on an objective description of the degree of change to the status quo that a viewer will experience from each particular photopoint or other viewpoint, rather than whether the change represents an adverse or a positive effect.

The fact that the MPIII proposal will be visible and will change aspects of the character of the existing landscape does not necessarily mean that its effects will be adverse, inappropriate or unacceptable. Its visibility, the scale, nature and duration of the effect, the visual complexity and scale of the existing landscape, the visual sensitivity of the viewer and the size of the viewing audience influence the significance of the MPIII 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.

In regard to the seven photopoints discussed at section 5.3, **Table 2** summarises the level of potential landscape and visual effect for each.

Table 2: Ranking of Effect relative to Specific Photopoints

Photopoint	Location	Landscape and Visual Effect
01	Sailors Cutting	Slight
02	Macraes-Dunback Road	Moderate
03	Back Road Track	Moderate
04	Golden Bar Road	Moderate
05	Macraes Flat – Stanley's Hotel	Nil
06	Horse Flat Road	Slight
07	Hyde Hill	Very slight

Once the final shaping and revegetation of the new tailings storage facility and the new and expanded waste stacks that the photo-simulations illustrate has been completed, the shape, slopes and colour of the new earthworks will be in sympathy with the natural slopes of the area. Overall for the photopoints considered, the potential landscape and visual effect does not exceed what is considered to be a moderate effect and where the effect is moderate, the particular features of the MPIII proposal that are an obvious part of the view.

In regard to the other specific MPIII components discussed at section 5.5, the proposed Reclaimed Tailings Stack will have a slight to moderate landscape and visual effect relative to the outer, northern extent of Macraes Flat township. The two sets of potential water bodies that have been considered - Camp Creek Freshwater Dam and more particularly its lake and the two post-closure pit void lakes – will have a **very slight** landscape and visual effect.

6 Cumulative Effects Assessment

Currently the Macraes Gold Project occupies a considerable area within the Macraes Mining Project Mineral Zone at Macraes Flat. The MPIII proposal will increase the area within the Zone that OceanaGold will be utilising. The current footprint of the actively mined and previously rehabilitated part of the Project is 1,265ha; the MPIII proposal will increase the footprint by 425ha. This equates to a 36% increase in utilisation of the overall 7,775ha Mineral Zone. Coupled with this increase in footprint, is the increase in the height or spatial context of the overall Macraes Gold Project that the MPIII proposal implies. This equates to the excavation of open pit voids and placement of large earthworks, i.e. TTTSF and BRWRS; the latter having the more obvious landscape and visual effects as already described.

While calculating the potential increase in effect by the arithmetic of increased horizontal and vertical extent of the additional MPIII components totals the overall dimensions of the Project, this simplifies and over-calculates the potential overall effect. This is because several of the MPIII components overlay and complete an existing component of the Project, i.e. the proposed Reclaimed Tailings Stack 'caps-off' the decommissioned Mixed Tailings Storage Facility, but does not actually increase the footprint of the Project.

In a somewhat different matter the FSWRS and the FNWRS link, and complete FWWRS and the FEWRS, creating the one 'Frasers Waste Rock Stack'. The resultant 'Frasers Stack' will be very large and in the context of the local landscape, a sizable hillock in itself. Coupled with the two other elevated landforms that will result from the MPIII proposal, – BRWRS and the Reclaimed Tailings Stack – there will be three sets of hills that will enclose a linear set of three incised lakes that will form in the decommissioned pit excavations. Again, this relates to 'extent', which is not necessarily the same as effect.

The photo-simulations that have been provided show the potential landscape and visual change that the MPIII proposal implies relative to a number of public or salient viewpoints. In referring back to these, the change that is additional to the existing and consented components of the Project has been assessed to determine the cumulative effect of this proposal.

In Photopoints 01 through to 04 where the views are towards the eastern aspect of the overall project and the two larger components of MPIII – TTTSF and BRWRS; these two components approximately double what is seen of the Project, particularly as seen from Photopoints 01 and 02. However, the cumulative landscape and visual effect of these 'additions' is considered to be slight to moderate. Relative to Photopoint 03 where the effect is considered to be moderate, the view that is focussed on does not add effect relative to the overall Project. In Photopoint 04, FSWRS forms an obvious part of the view with only small parts of BRWRS and TTTSF visible above and to the east of FEWRS. The focus of this view relative to the MPIII proposal is FSWRS and its proximity. Looking from the southern aspect of the overall Project, FSWRS will complete the 'link' between the FWWRS and the FEWRS. This will exclude from the adjoining section of Golden Bar Road north to Frasers Pit and the distant ranges, but the general outlook from this minor, local road will not fundamentally change.

The other three photopoints considered 'look-to' the western and northern aspects of the Project and the MPIII proposal. In Photopoint 05, no aspect of MPIII is visible. In Photopoint 06, a broad extent of the Project is visible as are various components of MPIII, but distance negates the effect of MPIII relative to the overall project. In Photopoint 07, the northern aspect of BRWRS is visible, but very little of the existing Project can be seen. The cumulative landscape and visual effect on these photopoints is **nil to very slight.**

The MPIII proposal does increase the northeast 'edge' of the overall Macraes Gold Project and this would have a moderate cumulative effect through the 'addition' of two new landforms – TTTSF and BRWRS – into the existing landscape and into what is seen of the Project when viewed from the main approach road to Macraes Flat from the east. Relative to the rest of the Project, the remaining MPIII earthwork components infill and complete parts of the overall Project and will be rehabilitated to appear consistent with the existing large, completed earthworks; this would result in a **slight** cumulative effect.

On the basis that the additional and new landforms will complete aspects of the Macraes Gold Project, but also add others, the overall cumulative effect of the MPIII proposal would be **slight to moderate**.

7 Conclusion

The current and recent mining activities of the Macraes Gold Project are a transient element within the Macraes Flat landscape that starts with the raw and large-scale transformation of low 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 would be considered one of the most extreme landscape transitions in New Zealand. However, this process in itself is transient and moves on to the rehabilitation phase of naturalised landforms of shaped and grassed hills and open lakes; the former replicating the scale and shape comprising existing hills on the Macraes 'plateau'.

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

- an analysis of the broader Macraes Flat landscape, by taking into consideration the modified Pigeon Bay factors, did not give rise to the area having obvious merit that suggests it is an Outstanding Natural Feature or, in the context of the Waitaki District, that it is an Outstanding Natural Landscape or Outstanding Landscape area;

- with respect to a number of salient and common public viewpoints that have been fully described with photo-simulations that the potential effect of the MPIII proposal on these viewpoints would be nil through to moderate;

- with respect to specific viewpoints that look to several lesser components of the MPIII proposal, the potential effect of these components will be nil to moderate; and

- in terms of the overall cumulative effect of the MPIII proposal, the effect would be slight to moderate.

It is also considered that these potential landscape and visual effects will be mitigated by the following aspects:

- Effective mitigation measures that have been built into the proposal from the outset.

- Any adverse visual effects associated with the construction process of the formation of the proposed tailings storage facility and waste rock stacks will be of short duration and will cease upon completion of the proposal.

- This new mining activity 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.

These proven measures have been effective in mitigating the potential visual effects of the existing tailings storage facility and the waste rock stacks that have so far been constructed as part of the Macraes Gold Project.

Appendix 1: Waitaki Landscape Study - Macraes Landscape Unit Description

*"**6.20 MACRAES LAND UNIT (P2)***

6.20.1 Values

i) The Macraes Land Unit is a complex and sometimes rugged upland block of land forming the western boundary and visual skyline of the Palmerston group of land units, and part of the boundary of Waitaki District bordering the Dunedin City territory.

ii) 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.

iii) The central and western portion of the Macraes Land Unit consists of a complex pattern of open upland valleys and ridges between 550-650m with rugged upstanding hardrock 'tor' features and tussock grasslands, much of which has now been 'smoothed' into pasturelands. The rugged landscape features make this a visually interesting area, and of landscape value due to its uniqueness within Waitaki District.

iv) Another significant value of the Macraes Land Unit is its northern and eastern margin, which forms a western skyline for the lowlands of the Palmerston Land Unit. The boundary between these two land units is more of a transition than the firm line shown on Map 7, the skyline consisting of a dissected and visually-open rolling edge.

v) The southwestern portion of this land unit consists of the Moonlight valley, a typical farmland landscape, and the more rugged Nenthorn area. These are unique in Waitaki in being raised areas with wide south-facing views, aligned firmly to the Taieri catchment of Dunedin City.

vi) The Waitaki/Dunedin boundary follows a convoluted course along Taieri Ridge and includes within Waitaki District, and therefore the scope of this study, slopes overlooking the Taieri between Middlemarch and Hyde.

6.20.2 Assessment

- *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 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;*

6.20.3 Recommendations:

i) That the above Significant areas be adopted for inclusion in the Plan variation;

ii) That further discussions be held aimed at identifying an area of 'tor and tussock' landscape in the Macraes Flat to Nenthorn area, capable of becoming a 'no change' area that represents this increasingly rare landscape type."

Appendix 2: Photo-simulations

Truescape, Christchurch prepared the photo-simulations that support this landscape and visual assessment. This appendix contains Truescape's 'Trueview' methodology, followed by the photo-simulations.

Appendix 2

TrueView™ 2 Photo simulations

Prepared by Truescape for Oceana Gold (NZ) Ltd, Macraes Phase III Expansion Proposal

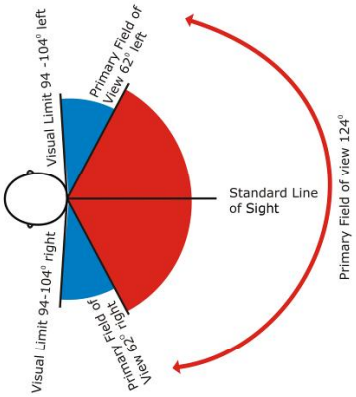
TRUESCAPE

VISUAL REALITY

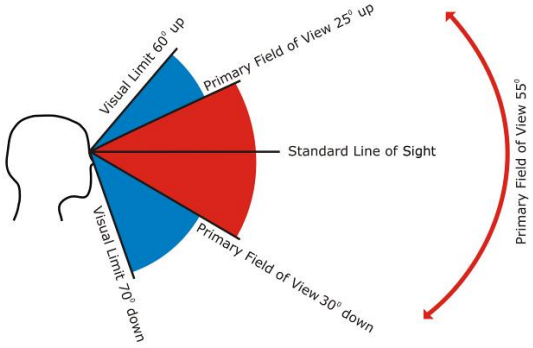
TrueView™2 PHOTO SIMULATIONS

- A TrueView™2 is a high resolution, true scale format photo simulation that represents The Primary Human Field of View that would be seen if standing 50cm back from actual photopoint position at the same time of day and reflecting the same climatic conditions as those experienced on the day the photograph was taken.

PRIMARY HUMAN FIELD OF VIEW



Primary Human Horizontal Field of View



Primary Human Vertical Field of View

Reference: Panero J. and Zelnick M. (1979) *Human dimension and interior space: A source book of design reference standards,* London: The Architectural Press Ltd

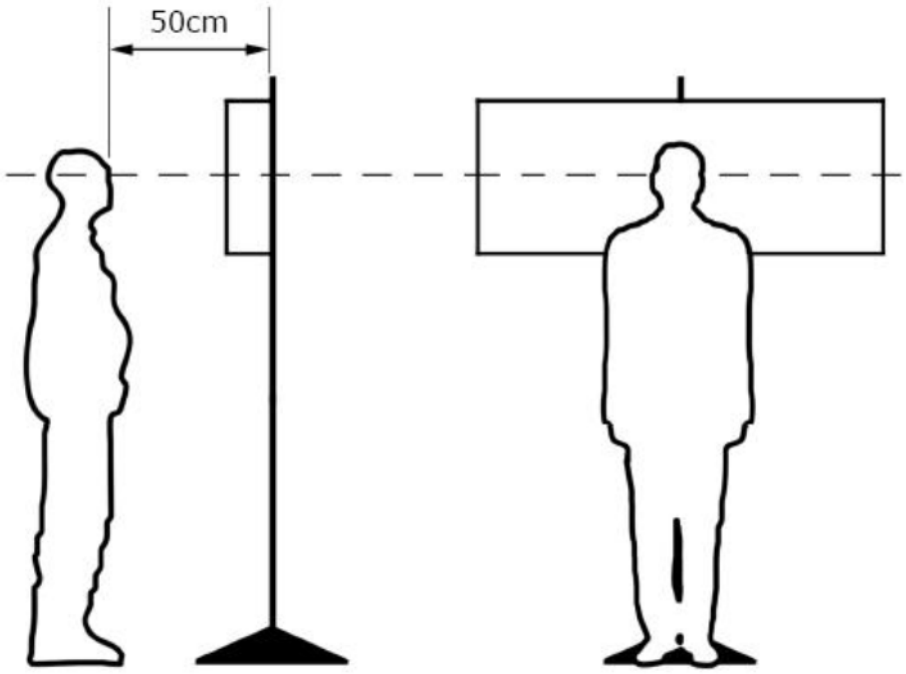
TrueView™2 PHOTO SIMULATIONS

Correct Viewing of TrueView™2 Photo Simulations

- The TrueView™2 simulations when viewed at the correct height and from a distance of 0.5 meters from the centre of the image completely fill your field of view with the same view you would see at the photo point position.

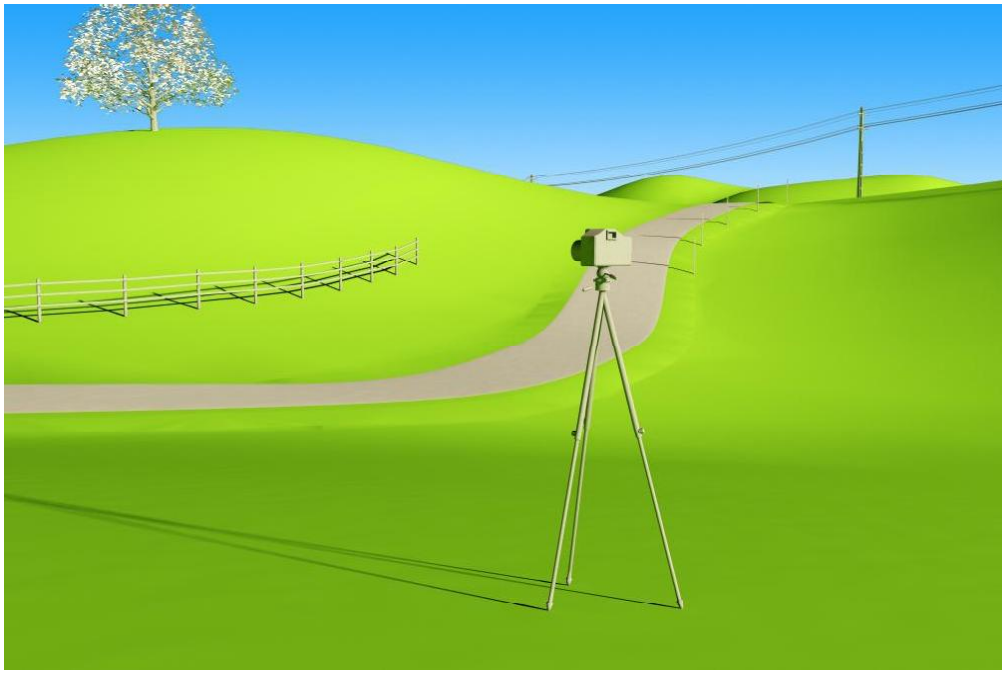
55° VERTICAL FIELD OF VIEW

- The image should be displayed level at such a height to allow the viewer line of sight to be directly at the centre of the image.
- The viewer should be looking forward at the centre of the image at all times to ensure correct viewing as shown below.



METHODOLOGY

THE SITE VISIT

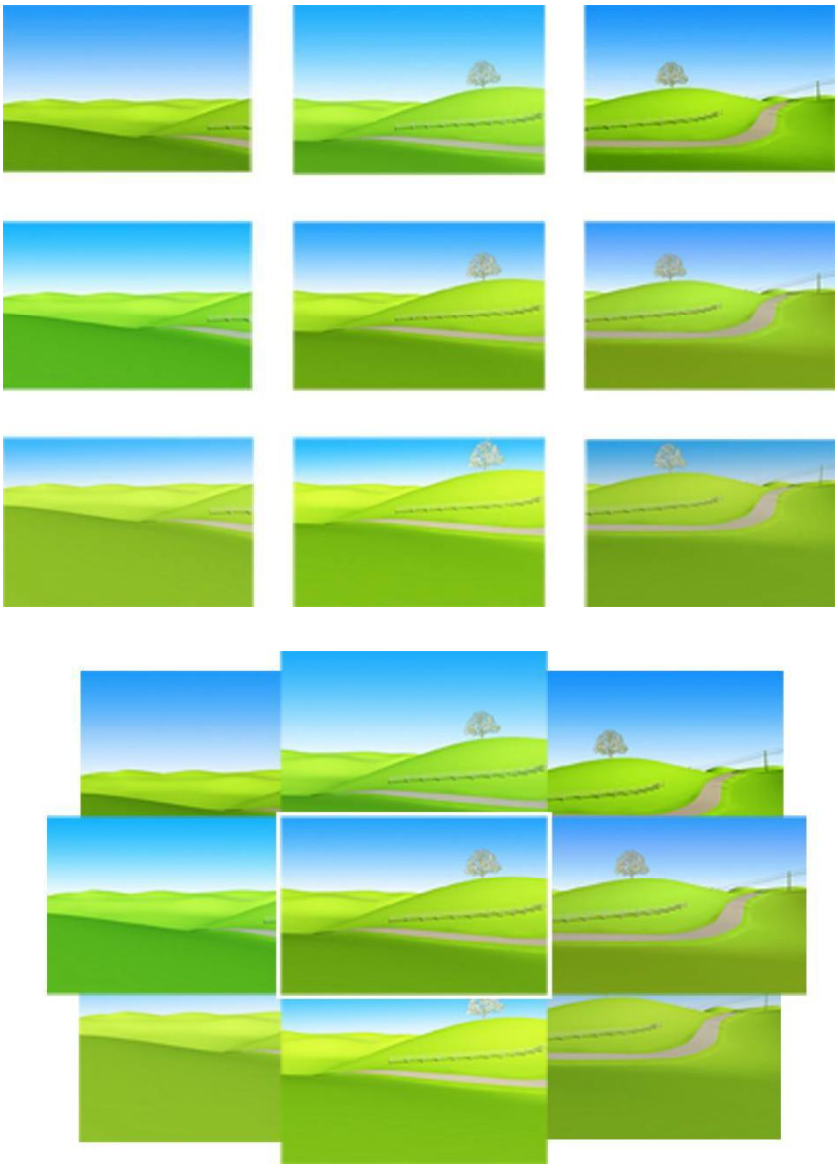


- The site visit is undertaken to take the necessary photographs and ground mark the photo point position and identify additional reference points to enable the surveyor to survey fix the exact location of the camera.

- A digital SLR 1:1 21 mega pixel camera is used to take the photography. This camera produces photographs at a resolution and clarity as good as current technology will allow when generating simulations.

METHODOLOGY

CREATING THE PRIMARY HUMAN FIELD OF VIEW IMAGE



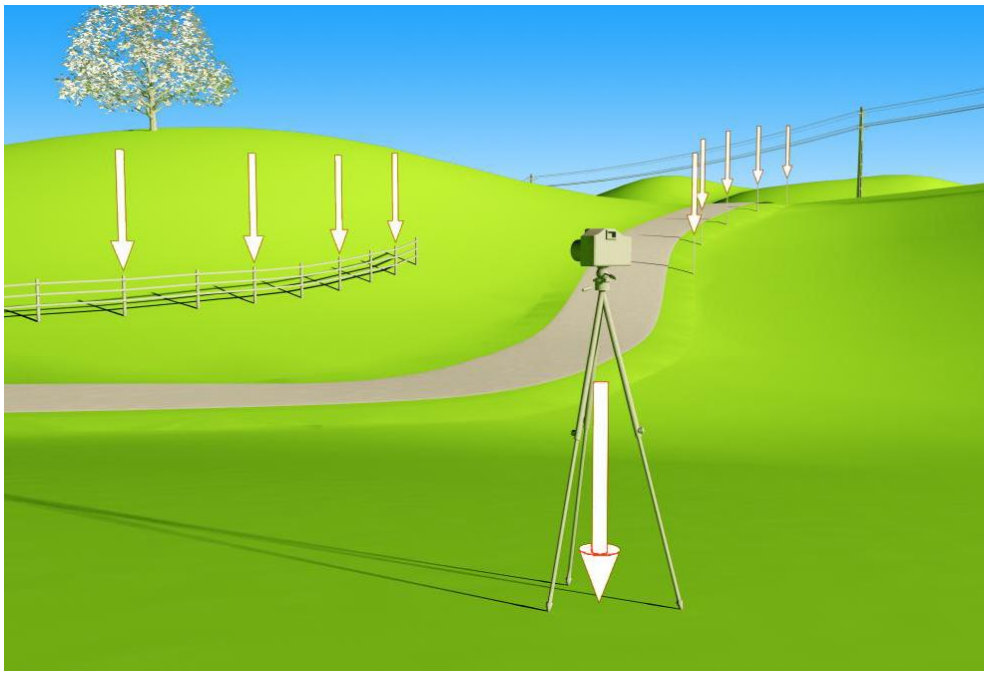
- The photographs are taken so that they overlap precisely to allow both the Primary Human Vertical and Horizontal Field of View to be recreated into a single primary human field of view image.

THE FINAL COLOUR ADJUSTED TrueView™2 PHOTOGRAPHY

- Using the middle photographs as the benchmark, each of the adjoining photographs are colour adjusted to ensure consistency throughout the image. The TrueView™2 photograph is now complete.

METHODOLOGY

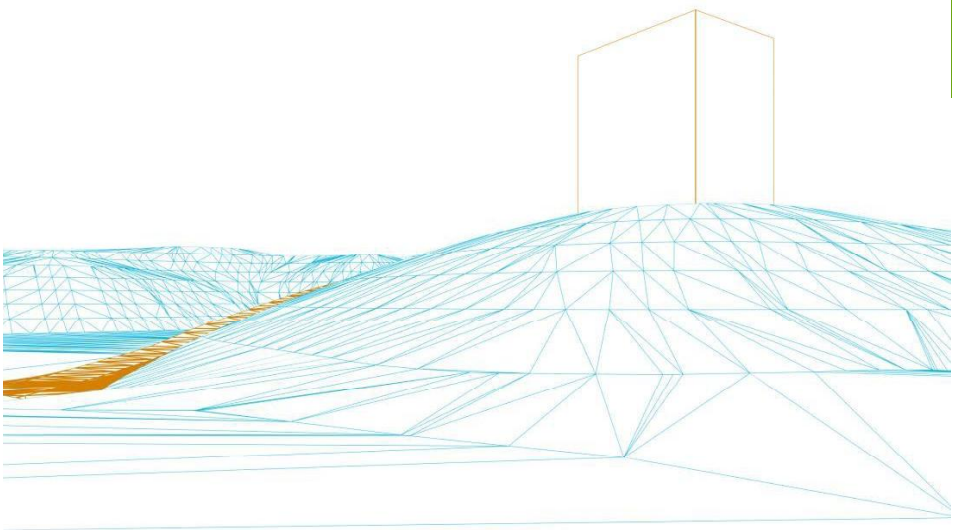
CAPTURING THE SURVEYED REFERENCE POINTS



- To accurately create a TrueView™ 2 photo simulation the exact position of the camera is survey fixed by a surveyor.
- Additional reference points are identified during the site visit so that the 3D model can be accurately placed into the photograph. These reference points include things like fences, vegetation, houses and roads. The surveyor is directed to each of these points.

METHODOLOGY

ALIGNING THE SURVEYED REFERENCE POINTS

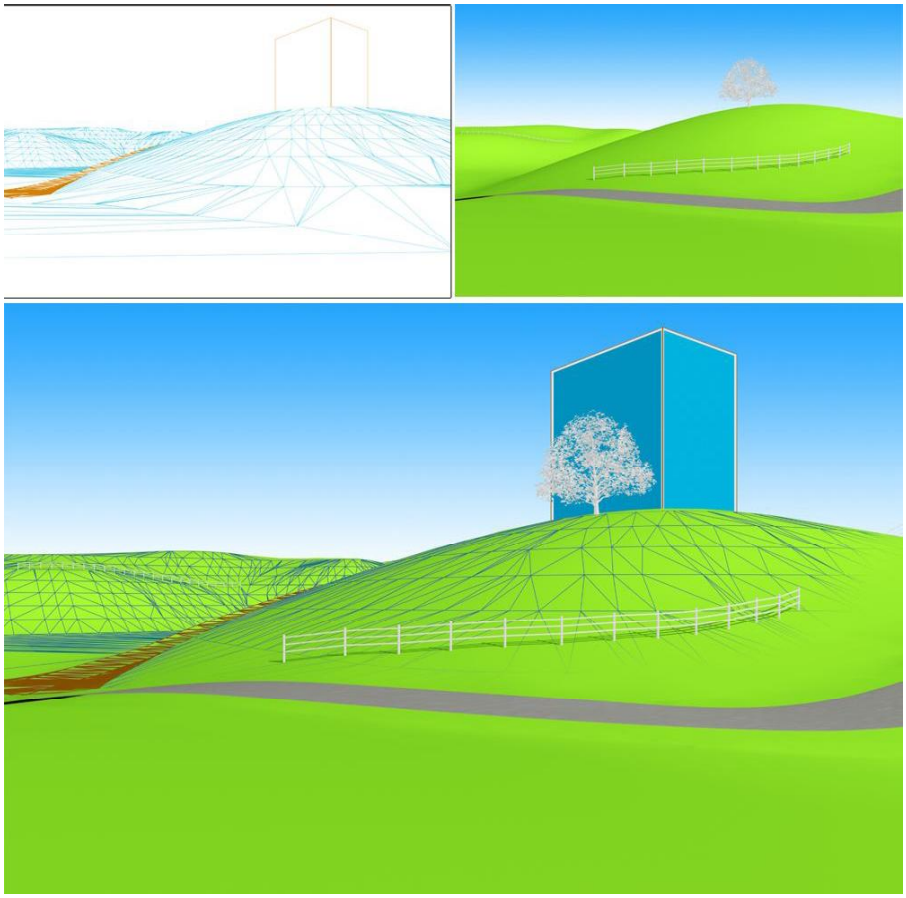


- The next step is to construct the 3D computer model. Using Autodesk® 3ds Max® 3D computer simulation software the survey fixed photo and reference points are imported into the 3D model. A "computer camera" is created to simulate the camera that captured the original photographs, including matching the focal length. The simulated "computer camera" is then positioned at the same survey coordinates as the physical photopoint positions.

- The photographs are then incorporated into the computer model. This is done by correctly aligning the "computer camera" to match the surveyed reference points to the reference objects, and to the terrain if required.

METHODOLOGY

BUILDING THE PROPOSED PROJECT IN 3D



- The proposed development (building blocks) have now been modelled in 3D and are now imported and positioned accurately into the scene.

- The simulation software allows the sun to be simulated at the precise time the original photography was captured. This ensures the lighting of the development as well as the shadows they cast are an accurate depiction of how the project would appear in the photograph at the same time of day and reflecting the same climatic conditions as those experienced at the time the photograph was taken.

METHODOLOGY

THE **FINAL TrueView™2 SIMULATION**

- In order to correctly place existing objects that are in front of the 3D model of the development these foreground objects are overlaid, from the original photograph, onto the computer generated image using photo shop software.

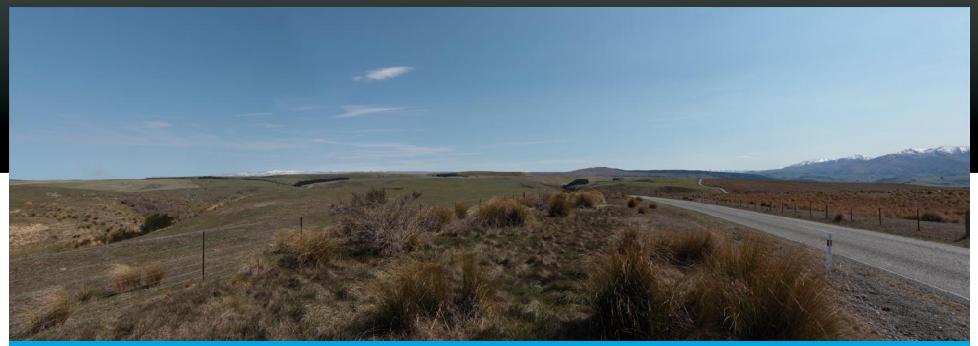
- Our extensive experience in researching how to accurately simulate the "Primary Human Field of View" has determined that the lens type is irrelevant when generating such simulations. The key factors are the aligning of the raw photographs in 3D, the size that the simulations are output at, and the viewing distance.

- The full size TrueView™2 simulations are printed at a size that represents the "Primary Human Field of View", being 124º horizontal field of view and 55º vertical field of view when standing 50cm from the centre of the image.

TRUESCAPE

VISUAL COMMUNICATIONS

Oceana Gold (NZ Limited)



Macraes Phase III - Photosimulations

December 2010

www.truescape.com

Photopoint Locations

PPT01 Sailors Cutting

PPT02 Macraes - Dunback Road

PPT03a Back Road Track
Showing tailings dam at 90% complete

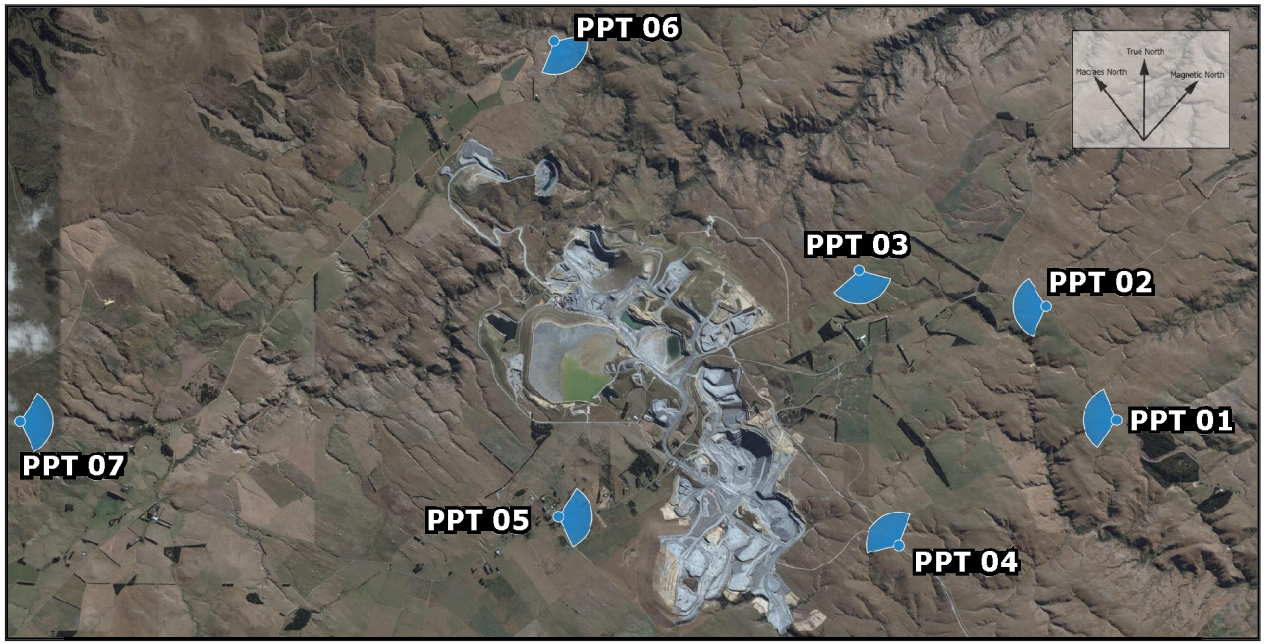
PPT03b Back Road Track
Showing tailings dam at 100% complete

PPT04 Golden Bar Road

PPT05 Macraes Flat - Stanley Hotel

PPT06 Horse Flat Road

PPT07 Hyde Hill



Macraes Phase III Plan

Keys:

Pit - Proposed Expansion

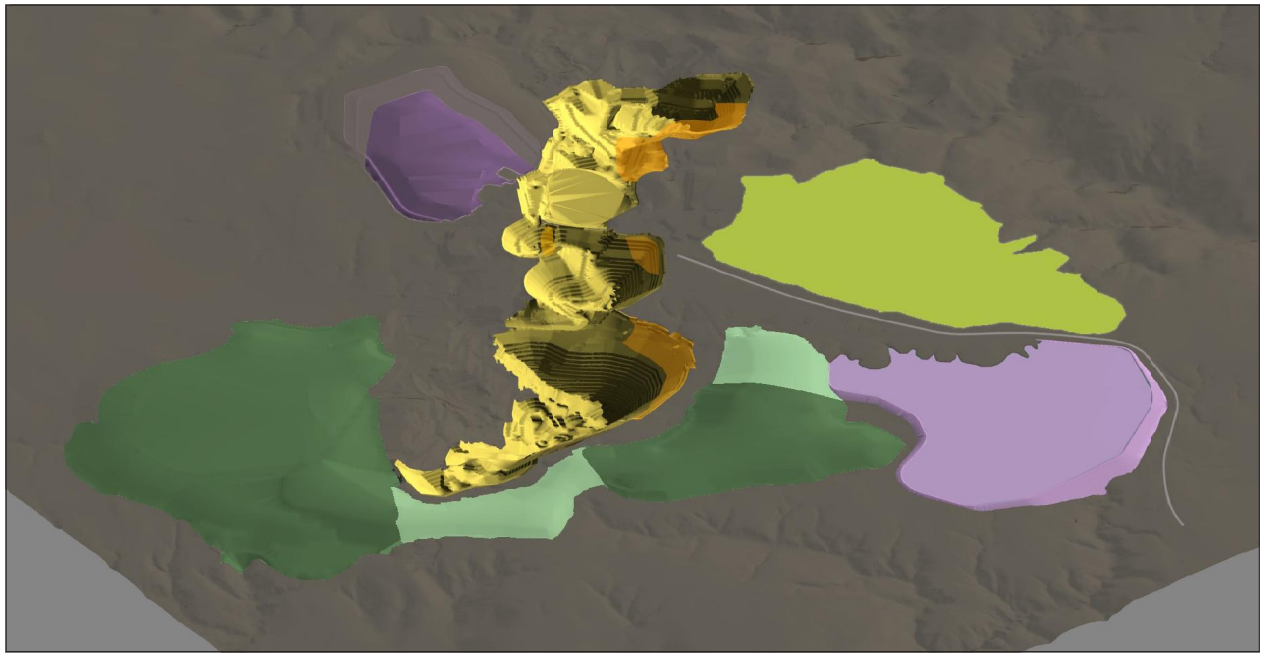
Frasers Rock Stacks - Proposed

Frasers Rock Stacks - Consented

Back Road Rock Stack - Proposed

Reclaimed Tailings Stack - Proposed

Tailings Storage Facility - Proposed



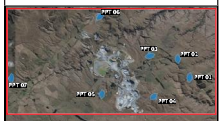
Photopoint 01 - Sailors Cutting - Before

Photopoint 01 - Sailors Cutting - After (Textured)

OCEANAGOLD

Oceana Gold (NZ Limited)
Macraes Mine

Photopoint 01
Sailors Cutting



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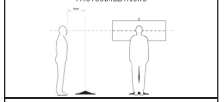
NORTHING POSITION (Local Datum):	9700.9
ELEVATION OF PHOTOPOINT POSITION (m):	553.2
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 12:46 pm
ORIENTATION OF VIEW:	W
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



NOTES:

Photopoint locations have been precision surveyed by

Oceana Gold (New Zealand) Limited
Golden Point Road RD3
Macraes Flat 9483, East Otago

Heights are above mean sea level.

No part of this photosimulation shall be altered in any way.

PHOTOSIMULATION CREATED USING
TrueView™ 2 TECHNOLOGY
PATENT APPLIED FOR.
PROVIDED BY

TRUESCAPE
VISUAL REALITY

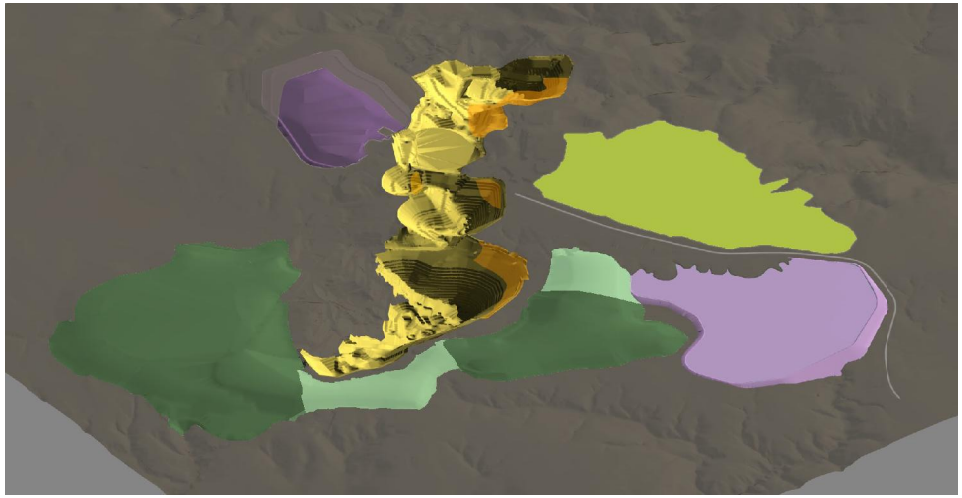
www.truescape.com

DATE PRINTED 10-December-2010

Photopoint 01 - Sailors Cutting - After (Colour Coded)

Keys:

- Pit - Proposed Expansion
- Frasers Rock Stacks - Proposed
- Frasers Rock Stacks - Consented
- Back Road Rock Stack - Proposed
- Reclaimed Tailings Stack - Proposed
- Tailings Storage Facility - Proposed

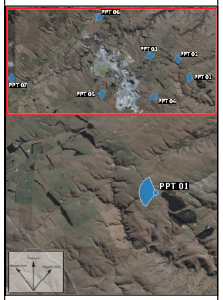


Macraes Phase III Plan

OCEANAGOLD

Oceana Gold (NZ Limited)
Macraes Mine

Photopoint 01
Sailors Cutting



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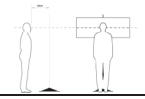
ELEVATION OF PHOTOPOINT POSITION (m):	553.2
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 12:46 pm
ORIENTATION OF VIEW:	W
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



NOTES:

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Oceana Gold (New Zealand) Limited
Golden Point Road RD3
Macraes Flat 9483, East Otago

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No part of this photosimulation shall be altered in any way.

PHOTOSIMULATION CREATED USING TrueView™ 2 TECHNOLOGY
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PROVIDED BY

TRUESCAPE
VISUAL REALITY

www.truescape.com

DATE PRINTED 10-December-2010

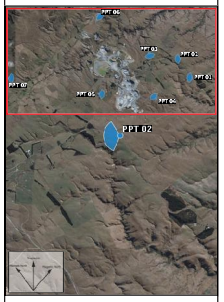
Photopoint 02 - Macraes - Dunback Road - Before

Photopoint 02 - Macraes - Dunback Road - After (Textured)

OCEANAGOLD

Oceana Gold (NZ Limited)
Macraes Mine

Photopoint 02
Macraes - Dunback Road



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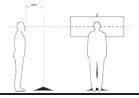
NORTHING POSITION (Local Datum):	11245.3
ELEVATION OF PHOTOPOINT POSITION (m):	553.2
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 13:04 pm
ORIENTATION OF VIEW:	SW
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



NOTES:

Photopoint locations have been precision surveyed by

Oceana Gold (New Zealand) Limited
Golden Point Road RD3
Macraes Flat 9483, East Otago

Heights are above mean sea level.

No part of this photosimulation shall be altered in any way.

PHOTOSIMULATION CREATED USING
TrueView™ 2 TECHNOLOGY
PATENT APPLIED FOR
PROVIDED BY

TRUESCAPE
VISUAL REALITY

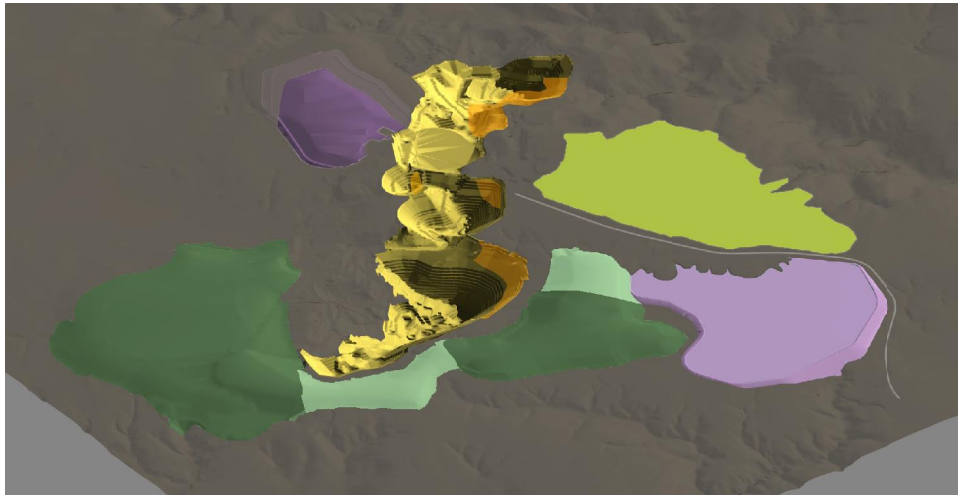
www.truescape.com

DATE PRINTED 10-December-2010

Photopoint 02 - Macraes - Dunback Road - After (Colour Coded)

Keys:

- Pit - Proposed Expansion
- Frasers Rock Stacks - Proposed
- Frasers Rock Stacks - Consented
- Back Road Rock Stack - Proposed
- Reclaimed Tailings Stack - Proposed
- Tailings Storage Facility - Proposed

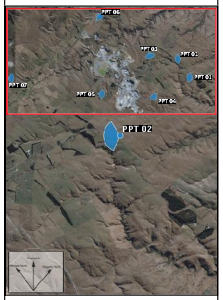


Macraes Phase III Plan

OCEANAGOLD

Oceana Gold (NZ Limited)
Macraes Mine

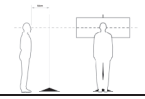
Photopoint 02
Macraes - Dunback Road



EASTING POSITION (Local Datum):	73467.8
NORTHING POSITION (Local Datum):	11245.3
ELEVATION OF PHOTOPOINT POSITION (m):	553.2
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 13:04 pm
ORIENTATION OF VIEW:	SW
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



NOTES:

Photopoint locations have been precision surveyed by

Oceana Gold (New Zealand) Limited
Golden Point Road RD3
Macraes Flat 9483, East Otago

Heights are above mean sea level.

No part of this photosimulation shall be altered in any way.

PHOTOSIMULATION CREATED USING TrueView™ 2 TECHNOLOGY
PATENT APPLIED FOR
PROVIDED BY

TRUESCAPE
VISUAL REALITY

www.truescape.com

DATE PRINTED 10-December-2010

Photopoint 03a - Back Road Track - Before

Photopoint 03a - Back Road Track (Showing tailings dam at 90% complete) - After (Textured)

OCEANAGOLD

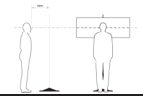
Oceana Gold (NZ Limited)
Macraes Mine

Photopoint 03a
Back Road Track
Looking East

EASTING POSITION (Local Datum):	72154.6
NORTHING POSITION (Local Datum):	13141.2
ELEVATION OF PHOTOPOINT POSITION (m):	568.1
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 13:44 pm
ORIENTATION OF VIEW:	SE
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



NOTES:

Photopoint locations have been precision surveyed by

Oceana Gold (New Zealand) Limited
Golden Point Road RD3
Macraes Flat 9483, East Otago

Heights are above mean sea level.

No part of this photosimulation shall be altered in any way.

PHOTOSIMULATION CREATED USING
TrueView™ 2 TECHNOLOGY
PATENT APPLIED FOR
PROVIDED BY

TRUESCAPE
VISUAL REALITY

www.truescape.com

DATE PRINTED 10-December-2010

Photopoint 03b - Back Road Track - Before

Photopoint 03b - Back Road Track (Showing tailings dam at 100% complete) - After (Textured)

OCEANAGOLD

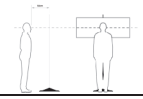
Oceana Gold (NZ Limited)
Macraes Mine

Photopoint 03b
Back Road Track
Looking East

EASTING POSITION (Local Datum):	72154.6
NORTHING POSITION (Local Datum):	13141.2
ELEVATION OF PHOTOPOINT POSITION (m):	568.1
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 13:44 pm
ORIENTATION OF VIEW:	SE
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



NOTES:

Photopoint locations have been precision surveyed by

Oceana Gold (New Zealand) Limited
Golden Point Road RD3
Macraes Flat 9483, East Otago

Heights are above mean sea level.

No part of this photosimulation shall be altered in any way.

PHOTOSIMULATION CREATED USING
TrueView™ 2 TECHNOLOGY
PATENT APPLIED FOR
PROVIDED BY

TRUESCAPE
VISUAL REALITY

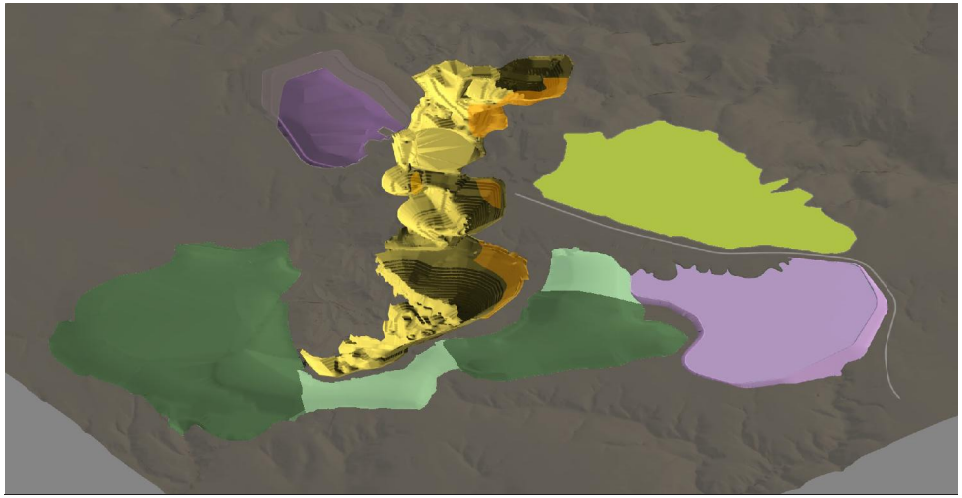
www.truescape.com

DATE PRINTED 10-December-2010

Photopoint 03b - Back Road Track - After (Colour Coded)

Keys:

- Pit - Proposed Expansion
- Frasers Rock Stacks - Proposed
- Frasers Rock Stacks - Consented
- Back Road Rock Stack - Proposed
- Reclaimed Tailings Stack - Proposed
- Tailings Storage Facility - Proposed



Macraes Phase III Plan

OCEANAGOLD

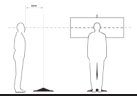
Oceana Gold (NZ Limited)
Macraes Mine

Photopoint 03b
Back Road Track
Looking East

EASTING POSITION (Local Datum):	72154.6
NORTHING POSITION (Local Datum):	13141.2
ELEVATION OF PHOTOPOINT POSITION (m):	568.1
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 13:44 pm
ORIENTATION OF VIEW:	SE
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



NOTES:

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Macraes Flat 9483, East Otago

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PATENT APPLIED FOR
PROVIDED BY

TRUESCAPE
VISUAL REALITY

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DATE PRINTED 10-December-2010

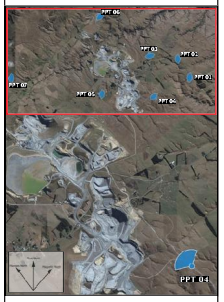
Photopoint 04 - Golden Bar Road - Before

Photopoint 04 - Golden Bar Road - After (Textured)

OCEANAGOLD

Oceana Gold (NZ Limited)
Macraes Mine

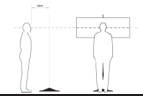
Photopoint 04
Golden Bar Road



EASTING POSITION (Local Datum):	70204.1
NORTHING POSITION (Local Datum):	10484.6
ELEVATION OF PHOTOPOINT POSITION (m):	569.1
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 12:18 pm
ORIENTATION OF VIEW:	NW
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



NOTES:

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Oceana Gold (New Zealand) Limited
Golden Point Road RD3
Macraes Flat 9483, East Otago

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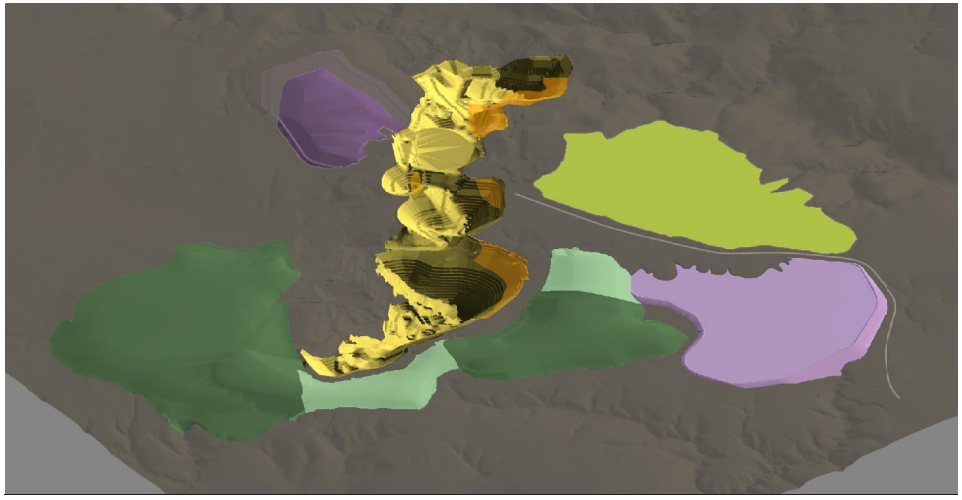
TRUESCAPE
VISUAL REALITY

DATE PRINTED 10-December-2010

Photopoint 04 - Golden Bar Road - After (Colour Coded)

Keys:

- Pit - Proposed Expansion
- Frasers Rock Stacks - Proposed
- Frasers Rock Stacks - Consented
- Back Road Rock Stack - Proposed
- Reclaimed Tailings Stack - Proposed
- Tailings Storage Facility - Proposed



Macraes Phase III Plan

OCEANAGOLD

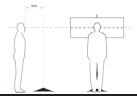
Oceana Gold (NZ Limited)
Macraes Mine

Photopoint 04
Golden Bar Road

EASTING POSITION (Local Datum):	70204.1
NORTHING POSITION (Local Datum):	10484.6
ELEVATION OF PHOTOPOINT POSITION (m):	569.1
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 12:18 pm
ORIENTATION OF VIEW:	NW
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



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Macraes Flat 9483, East Otago

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TRUESCAPE
VISUAL REALITY

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DATE PRINTED 10-December-2010

Photopoint 05 - Macraes Flat - Stanley Hotel - Before

Photopoint 05 - Macraes Flat - Stanley Hotel - After (Textured)

OCEANAGOLD

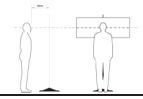
Oceana Gold (NZ Limited)
Macraes Mine

Photopoint 05
Macraes Flat - Stanley Hotel

EASTING POSITION (Local Datum):	67564.1
NORTHING POSITION (Local Datum):	13588.2
ELEVATION OF PHOTOPOINT POSITION (m):	493.9
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 11:51 am
ORIENTATION OF VIEW:	E
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



NOTES:

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Macraes Flat 9483, East Otago

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PROVIDED BY

TRUESCAPE
VISUAL REALITY

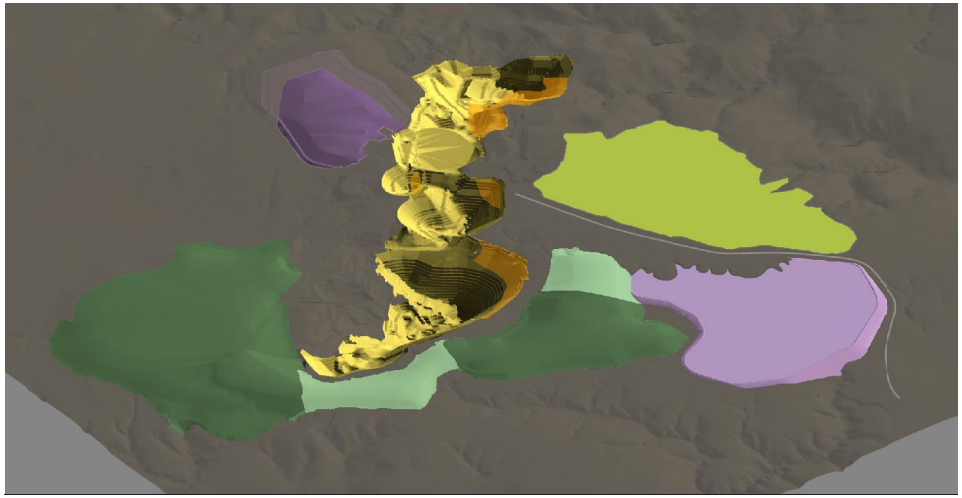
www.truescape.com

DATE PRINTED 10-December-2010

Photopoint 05 - Macraes Flat - Stanley Hotel - After (Colour Coded)

Keys:

- Pit - Proposed Expansion
- Frasers Rock Stacks - Proposed
- Frasers Rock Stacks - Consented
- Back Road Rock Stack - Proposed
- Reclaimed Tailings Stack - Proposed
- Tailings Storage Facility - Proposed



Macraes Phase III Plan

OCEANAGOLD

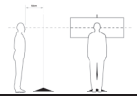
Oceana Gold (NZ Limited)
Macraes Mine

Photopoint 05
Macraes Flat - Stanley Hotel

EASTING POSITION (Local Datum):	67564.1
NORTHING POSITION (Local Datum):	13588.2
ELEVATION OF PHOTOPOINT POSITION (m):	493.9
HEIGHT OF CAMERA ABOVE GROUND (m):	1.85
DATE OF PHOTOGRAPHY:	27-September-2010 at 11:51 am
ORIENTATION OF VIEW:	E
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



NOTES:

Photopoint locations have been precision surveyed by

Oceana Gold (New Zealand) Limited
Golden Point Road RD3
Macraes Flat 9483, East Otago

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VISUAL REALITY

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DATE PRINTED 10-December-2010

Photopoint 06 - Horse Flat Road - Before

Photopoint 06 - Horse Flat Road - After (Textured)

OCEANAGOLD

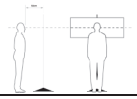
Oceana Gold (NZ Limited)
Macraes Mine

Photopoint 06
Horse Flat Road

EASTING POSITION (Local Datum):	71533.5
NORTHING POSITION (Local Datum):	17652.6
ELEVATION OF PHOTOPOINT POSITION (m):	460.6
HEIGHT OF CAMERA ABOVE GROUND (m):	1.85
DATE OF PHOTOGRAPHY:	27-September-2010 at 11:26 am
ORIENTATION OF VIEW:	5
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



NOTES:

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Golden Point Road RD3
Macraes Flat 9483, East Otago

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VISUAL REALITY

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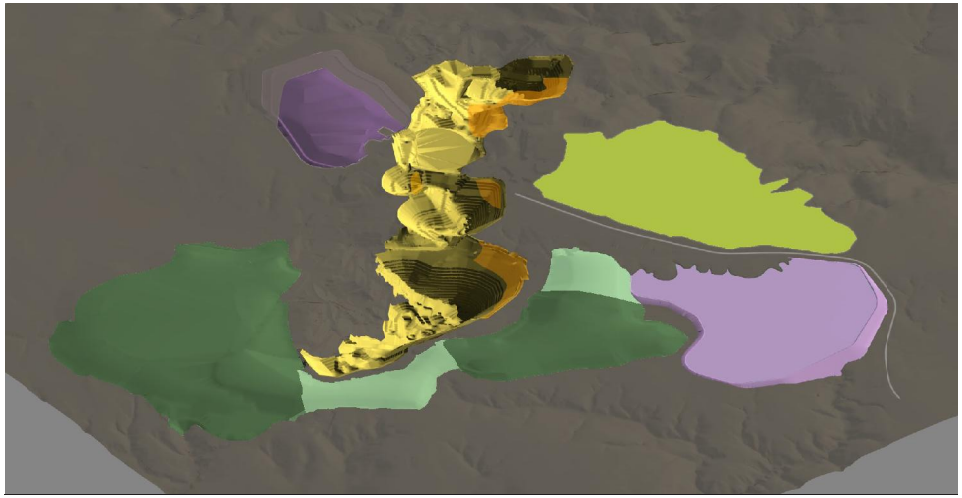
DATE PRINTED 10-December-2010

Photopoint 06 - Horse Flat Road - After (Colour Coded)

Keys:

- Pit - Proposed Expansion
- Frasers Rock Stacks - Proposed
- Frasers Rock Stacks - Consented
- Back Road Rock Stack - Proposed
- Reclaimed Tailings Stack - Proposed
- Tailings Storage Facility - Proposed



Macraes Phase III Plan

OCEANAGOLD

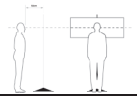
Oceana Gold (NZ Limited)
Macraes Mine

Photopoint 06
Horse Flat Road

EASTING POSITION (Local Datum):	71533.5
NORTHING POSITION (Local Datum):	17652.6
ELEVATION OF PHOTOPOINT POSITION (m):	460.6
HEIGHT OF CAMERA ABOVE GROUND (m):	1.85
DATE OF PHOTOGRAPHY:	27-September-2010 at 11:26 am
ORIENTATION OF VIEW:	S
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



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VISUAL REALITY

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DATE PRINTED 10-December-2010

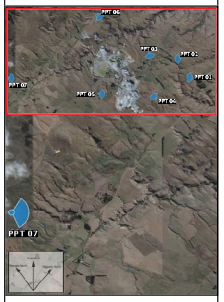
Photopoint 07 - Hyde Hill - Before

Photopoint 07 - Hyde Hill - After (Textured)

OCEANAGOLD

Oceana Gold (NZ Limited)
Macraes Mine

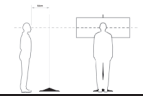
Photopoint 07
Hyde Hill



EASTING POSITION (Local Datum):	63790.6
NORTHING POSITION (Local Datum):	18962.8
ELEVATION OF PHOTOPOINT POSITION (m):	606.3
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 10:47 am
ORIENTATION OF VIEW:	E
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



NOTES:

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Oceana Gold (New Zealand) Limited
Golden Point Road RD3
Macraes Flat 9483, East Otago

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TRUESCAPE
VISUAL REALITY

DATE PRINTED 10-December-2010

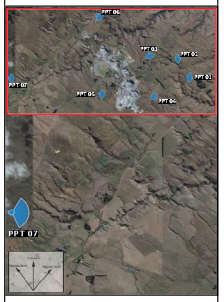
Photopoint 07 - Hyde Hill - After (Textured)

Photopoint 07 - Hyde Hill - After (Textured) - Detail View

OCEANAGOLD

Oceana Gold (NZ Limited)
Macraes Mine

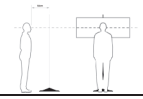
Photopoint 07
Hyde Hill



EASTING POSITION (Local Datum):	63790.6
NORTHING POSITION (Local Datum):	18962.8
ELEVATION OF PHOTOPOINT POSITION (m):	606.3
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 10:47 am
ORIENTATION OF VIEW:	E
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



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Macraes Flat 9483, East Otago

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TRUESCAPE
VISUAL REALITY

DATE PRINTED 10-December-2010

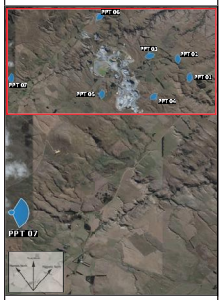
Photopoint 07 - Hyde Hill - After (Colour Coded)

Photopoint 07 - Hyde Hill - After (Colour Coded) - Detail View

OCEANAGOLD

Oceana Gold (NZ Limited)
Macraes Mine

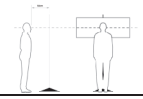
Photopoint 07
Hyde Hill



EASTING POSITION (Local Datum):	63790.6
NORTHING POSITION (Local Datum):	18962.8
ELEVATION OF PHOTOPOINT POSITION (m):	686.3
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 10:47 am
ORIENTATION OF VIEW:	E
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



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TRUESCAPE
VISUAL REALITY

DATE PRINTED 10-December-2010

Photopoint 07 - Hyde Hill - After (Colour Coded)

Keys:

- Pit - Proposed Expansion
- Frasers Rock Stacks - Proposed
- Frasers Rock Stacks - Consented
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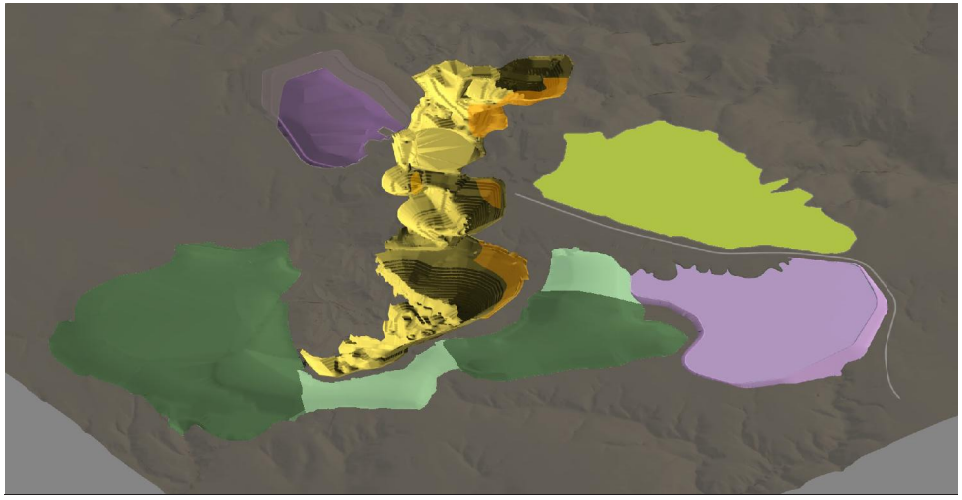
- Tailings Storage Facility - Proposed

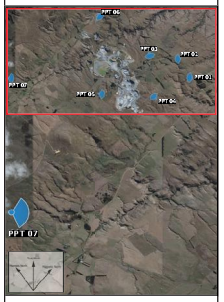


Macraes Phase III Plan

OCEANAGOLD

Oceana Gold (NZ Limited)
Macraes Mine

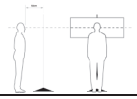
Photopoint 07
Hyde Hill



EASTING POSITION (Local Datum):	63790.6
NORTHING POSITION (Local Datum):	18962.0
ELEVATION OF PHOTOPOINT POSITION (m):	606.3
HEIGHT OF CAMERA ABOVE GROUND (m):	1.65
DATE OF PHOTOGRAPHY:	27-September-2010 at 10:47 am
ORIENTATION OF VIEW:	E
HORIZONTAL FIELD OF VIEW:	124°
VERTICAL FIELD OF VIEW:	55°

3D Model

CORRECT VIEWING OF TRUEVIEW™2 PHOTOSIMULATIONS



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