BEFORE THE EXPERT PANEL **FTAA-2507-1089**

I MUA I TE ROOPU TOHUNGA

IN THE MATTER of the Fast-track Approvals Act 2024 (the Act)

AND

IN THE MATTER of an application made under the Fast-Track Approvals Act 2024 by Matakanui Gold Limited (Santana Minerals)

STATEMENT OF EVIDENCE OF EDWARD WELLER ELLISON (KAUMATUA) ON BEHALF OF KĀTI HUIRAPA RŪNAKA KI PUKETERAKI, TE RŪNANGA O MOERAKI, TE RŪNAKA O ŌTĀKOU, AND HOKONUI RŪNANGA (KĀ RŪNAKA)

10 APRIL 2026

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WHAKAARA

Tēnei te ruru te koukou mai nei	*This is the owl that cries out*
Kīhai mārakaraka	*His great head does not toss*
Kīhai māhitihiti	*It does not bob up and down*
Te upokonui o	
te ruru	

TEREKOU	
He pō he pō	*'Tis night, 'tis night*
He ao	*'Tis day, 'tis day*
Ka Awatea!	*Ah, it is the day*

MIHIMIHI

Mātua te Pō, Mātua te Ao
Mātua o Te Tai o Marokura
E Mātua o te Tai o Araiteuru
E tū e Hipo, e
kai o mata
Ki Pukekura
Ki Ōtākou wānaka
Ki Ōtākou takata
E pania nei te kura o maukorua
E pōua mā e tāua mā
TIHEI MAURI ORA!

Ko Te Atua o Taiehu tōku mauka
Ko Kaiwhare te awa
Kāi Te Pahi, rāua ko Moki, ko Te Ruahikihiki ōku hapū
Ko Tamatea te whare rūnaka
Ko Taiaroa rāua ko Karetai ōku tīpuna
Ko Edward Ellison tōku ikoa

Ko tēnēi mihi atu ki ō tātou Mātua nui i te raki
mō ōna manaaki me tiaki e tau ruka i a tātou katoa

Ka tika ka huri ki ā rātou e kā mate huhua o te motu
Kua haere, haere, tarahaua atu rā
Ki a Tahu-kumea
Ki a Tahu-whakaero
Ki te taha o Poutūteraki
Ki te whare o Pōhutakawa
Hai taoka o kā mate
Hoki atu ai!

Ko tēnēi mihi atu ki kā kanohi ora
Tēnā koutou, tēnā koutou, mauri ora tātou katoa
Ki a koutou e te pae whiri
Me ōna mahi whakahirahira
E pā ana ki te tino kaupapa o te rā nei
E tuku ana kā mihi mīharo ki a koutou katoa

INTRODUCTION

Qualifications and experience

1. My full name is Edward Weller Ellison. I was born in 1950 and raised at Ōtākou in our whānau home "Te Waipounamu", on our ancestral lands that abut and overlook Otago Harbour.

2. As my mihi indicates, I am a member of the local hapū. Our lineage connects us to this place; our identity is closely tied to the Otago region, ki uta ki tai - from the mountains to the sea. Our hapū have continuous connection to the land and resources of this area, and we have been fishermen and hunter gatherers for countless generations.

3. In my statement I will use te reo Māori terms throughout. Where I do so, I use the southern Kāi Tahu dialect, which generally replaces the "ng" sound with a "k". An exception to this is when I refer to entities or names such as Te Rūnanga o Ngāi Tahu.

Involvement in project

4. In between my roles with Kāi Tahu, I have been a sheep and beef farmer since a young age. My family farm overlooks the Otago Harbour and is on land passed down from my great-grandmother Nāni Weller.

5. Since 2017, I have been the Upoko for the hapū at Ōtākou. I succeeded Kuao Langsbury, who became Upoko shortly after the previous Upoko, my father George, died. My father had been Upoko since 1967.

6. The takiwā of Te Rūnanga o Ōtākou centres on Ōtākou and extends from Pūrehurehu to Te Matau and inland, sharing an interest in the lakes and mountains to the western coast, with rūnaka to the North and to the South.

7. Ōtākou has always had an Upoko. The Upoko has a spiritual and cultural leadership role, involving listening to and guiding the people of Ōtākou. It is akin to a pastoral care role. I have authority to represent Kāi Tahu as Upoko, in particular in matters relating to Te Rūnanga o Ōtākou and Kāi Tahu tikaka as it is lived and practised in the Ōtākou takiwā.

8. As I will explain further in this statement, there are Upoko responsibilities in relation to freshwater, takiwā, and broad cultural matters.

9. As Upoko, I ensure Ōtākou has processes and structures in place for this mahi, and that these processes and structures are functioning well. An example is Aukaha, which was set up in 1997 to deal with resource consents and to engage with councils on RMA policies and processes.

10. As Upoko I am a repository of the history and traditions of Ōtākou and have expertise in Kāi Tahu tikaka. A primary function of the role of Upoko is to provide an enduring form of customary leadership for the hapū of Ōtākou.

11. Where I comment on matters of tikaka and rakatirataka, and the Treaty Settlement process, documents and application, in my evidence I confirm those matters are within my expertise. I confirm that to the extent relevant to my evidence, I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2023.

Purpose and scope of evidence

12. My evidence in this proceeding will address the following topics:

    (a) Tikaka and rakatirataka principles from the perspective of Kā Rūnaka;

    (b) Kāi Tahu Treaty Settlement documents;

    (c) Kāi Tahu position on freshwater;

    (d) Kāi Tahu position on takiwā;

    (e) Kāi Tahu position on taoka species;

    (f) Kāi Tahu position on rangatirataka; and

    (g) Tikaka requirements.

KĀI TAHU TIKAKA PRINCIPLES

13. I will first describe some tikaka principles that are central to the Kāi Tahu relationship with wai māori and the whenua. Some of these

principles have general application to how Kāi Tahu places itself within Te Ao Māori (the Māori world), and others take on specific significance in relation to wai māori.

Mana

14. Mana has its source with the atua at the point of creation. From creation ultimately all things in the universe are interconnected and they share a single source of spiritual authority. This spiritual force is the origin of mana and tapu. All the elements of te taiao - the mountains, the water, the birds, fish and plants, as well as people - are seen to be vessels of this original power of the atua.

15. In te ao Māori, virtually every activity has a link to maintenance and enhancement of mana. The mana of the people and that of the natural environment in their takiwā are intrinsically linked. Mana whenua have an inherited responsibility to act as a kaitiaki, or guardian, of the whenua, to ensure future prosperity for whānau, hapū, and iwi. Thus, the failure to secure the sustainability of a resource or habitat is linked to a loss of mana.

16. The indigenous authority of mana whenua includes an expectation that the perspectives, values, and practices of mana whenua are recognised and upheld within their takiwā. This includes the authority to make decisions over whenua, wai māori, tai and moana within their takiwā.

Mauri

17. Mauri is the life-affirming quality evident in all things, including living beings, the natural world, and inanimate objects. The creation process is the primordial source of mauri which flows down through whakapapa linking all aspects of our world. The mauri is a protector of the health of a person or place. If a mauri is damaged, then the owner or the seat of that mauri is vulnerable or also damaged.

18. The mauri of water is a life-giving force that connects the environment, from the mountains to the sea. Each water body has its own unique identity or mauri, which reflects the landscape and natural characteristics of the water bodies and catchments of Papatūānuku. Waterbodies with a healthy or strong mauri are characterised by good quality waters that flow with energy and life,

sustain healthy ecosystems, and support mahika kai and other cultural activities.

19. Strong mauri is reflected in the ability of the water body to exhibit its natural behaviour and by water quality throughout its course that is undiminished by unnatural additions to the wai. However, the mauri of a waterbody is unable to protect itself against unnatural actions and interventions such as damming, diversions, altered flow regimes, discharges, and activities that impact on the riverbed. Therefore, the primary resource management principle for Kāi Tahu is the protection of mauri through such concepts as tapu, noa, and rāhui. Traditionally, the significance of mauri was reflected by the invoking of tapu or the use of restrictions in the way wai or particular waterways were categorised or used.

20. The term ki uta ki tai 'mountain to the sea' reflects the total catchment in all its myriad forms, rock, indigenous flora and fauna, and the whenua embody respective forms of mauri that in turn influence the mauri of waterways that stem from and flow through the catchment ki uta ki tai. Anthropogenic influences and introductions of species and activities have an impact on the natural balance and mauri of the whenua and consequentially ngā wai.

21. The whakapapa and shared kinship with the natural world, the importance of mauri and its primeval source, and the presence of tapu in the interrelationship between land and freshwater and people has a mana that invokes a reciprocal duty of respect and care which underpins the exercise of rakatirataka and kaitiakitaka.

Tapu

22. Tapu is the residual impact of mana. Where there is mana, the influence creates an effect that is tapu. Every natural element, including wai māori, possesses a level of tapu derived from its connection to atua and tīpuna, who themselves were imbued with significant levels of tapu. The tapu status of people, places, and resources establishes expectations for the behaviour of whānau, requiring the balancing of rights and responsibilities. Consequently, tapu operated much as any legal system, with prohibitions and

restrictions acting as means of protecting and respecting the tapu of the environment and the people themselves.

23. The obligation to respect and protect the wai is derived from the significant tapu of the natural environment. As I have discussed, the wai came into being at the time of the atua and the creation of the world. As a result, its tapu is heightened, as is the obligation to protect it.

24. As explained in para 26, wai and land are interconnected, whenua from mountain top, to valley and the spread out undulating form are ancestral and connect time immemorial to the time of Raki and Papa. Whenua clothed with ngā hua a Tane, trees, plants and birds, the huarere or weather events influenced by Tawhirimatea, shape and influence the mauri of wai flowing through the whenua. Placenames and pūrakau connect and recall human connection and places of sustenance, the kaitiaki acknowledges past and present, and where the function of tapu or restriction arises.

Whakapapa

25. Kāi Tahu are bound by whakapapa to the land, water and all life supported by them. Water is a central element in our creation traditions and is present very early in the whakapapa of the world, as described in this creation account from Tiramōrehu:

> *Nā te Pō, ko te Ao*
> *Tana ko te Ao-mārama, Tana ko te Aoturoa,*
> *Tana ko Kore-te-whiwhia,*
> *Tana ko Kore-te-rawea,*
> *Tana ko Kore-te-tamaua,*
> *Tana Ko Kore-te-matua,*
> *Tana ko Māku.*
> *Ka noho a Māku i a Mahora-nui-a-tea*
> *Ka puta ko Raki.*
>
> *From the Night comes the Day, the Daylight, the Longstanding Day, the Intangible Voids through to the Parentless Realm who create Moisture. Moisture couples with the Inner Space and gave birth to Raki - the sky.*

26. When Te Māku (moisture) mated with Mahoranuiatea (a cloud that grew from the dawn), Raki was born of that union. Raki coupled with a number of wives, including Papatūānuku. Today, all water is seen to have originated from the separation of Raki and Papatūānuku and their continuing tears for one another. Rain is Raki's tears for his

beloved Papatūānuku, and mist is generally regarded as Papatūānuku's tears for Raki.

27. From Raki's many unions came offspring, who together were responsible for creating the elements that constitute the taiao today, including the mountains, rivers, forests and seas, and all fish, bird and other animal life (including humans). Kāi Tahu claim the same descent from Raki and his wives and are therefore connected to all things by whakapapa.

28. Tribal whakapapa thus links the cosmological world of the atua to the present generation, giving rise to a spiritual relationship and respect for the mauri evident in the taiao, and to the rights inherent in rakatirataka and the associated and fundamental duties of kaitiakitaka. The mana of the wai arises from whakapapa and is inseparable from the mana of mana whenua.

Rakatirataka and kaitiakitaka

29. Rakatirataka is about having the mana or authority to give effect to Kāi Tahu culture and traditions in the management of the natural world. Kaitiakitaka is a term first penned in the RMA. It is based on the traditional concept of "kaitiaki", who were the deities that were responsible for different components of nature, but in the modern world it relates to the exercise of customary authority by mana whenua over the way a resource is used, managed, and protected.

30. Observing tikaka and kawa is part of the ethic and exercise of kaitiakitaka. Tikaka and kawa encompass the beliefs, values, practices, and procedures that guide appropriate codes of conduct, or ways of behaving in the context of natural resource management. Tikaka and kawa are underpinned by mātauraka and incorporate forms of social control, such as rāhui, to manage the relationship of people and the environment.

31. I have inherited my "kaitiaki" responsibility from my father, and from my ancestors. Kaitiakitaka is intergenerational, and in this context, it can be briefly summarised up as having the right and responsibility to care and look after our environment as handed to us by our ancestors, mō tātou, ā, mō kā uri ā muri ake nei, for us and for future generations, our children, and grandchildren.

Whakawhanaukataka / interconnectedness

32. Whanaukataka is expressed in the resource management approach of ki uta ki tai, which emphasises the holistic management of the interrelated elements within the natural environment. Water released by Raki as precipitation makes its way into rivers, which in turn connects the entire landscape ki uta ki tai, from the mountains to the sea. From the sea and other waterbodies, water evaporates, condenses, and falls again on Papatūānuku, an eternal holistic cycle.

33. In Kāi Tahu and wider Māori culture, the reverence for mountains is an important belief. Mountains are our relations through our shared whakapapa to Papatūānuku, and are often personified, representing eponymous figures for hapū and iwi. This is the case for Kā Tiritiri o te Moana, the Southern Alps, the most prestigious of which is Aoraki, named after the god-like figure Aoraki, oldest son of Raki and Pokoharuatepo, he mauka ariki. The rain, hail and snow that falls on Kā Tiritiri o te Moana is of the purest form of moisture. The rivers and streams that descend from the mountains to the great inland lakes are of a wai tapu nature, reflecting the mana of the mountains and carrying an intact mauri that our people identified with and treasured.

34. From the interior mountains, wai māori flows to meet wai tai, the coastal waters. The health of our coastal lagoons, wetlands and harbours are very dependent on the quality and quantity of water that the inland catchment areas generate.

35. The moana and coastal environments are the domain of the atua Takaroa. In our creation histories, Takaroa is understood to be an earlier husband of Papatūānuku, prior to her relationship with Raki. On returning after a long absence, Takaroa was angered to find Raki living with Papatūānuku. Takaroa fought with and wounded Raki, and then left to live in the sea, to become the guardian of all sea creatures.

36. These relationships demonstrate the interconnectedness of environmental systems and form a basic tenet in Kāi Tahu resource management practices and perspectives.

37. The interconnected nature of the whenua, wai māori and the moana mean that the management of land-based activities has direct consequences for rivers, lakes, and the coastal environment. Land must be managed with this in mind. When this interconnectivity is not recognised in resource management, or not managed well, land-based activities can have a direct detrimental effect on freshwater and coastal environments.

38. Key aspects of the relationship of mana whenua with wai māori include:

(a) The relationship is grounded in mana, mauri, tapu and whakapapa;

(b) Wai as an enduring and recognisable part of our wāhi tupuna;

(c) The physical and spiritual experience of interacting with the wai, in all its forms and functions, traversing by waka, mahika kai activity, for use in ceremony, connecting to our whakapapa and for recreation;

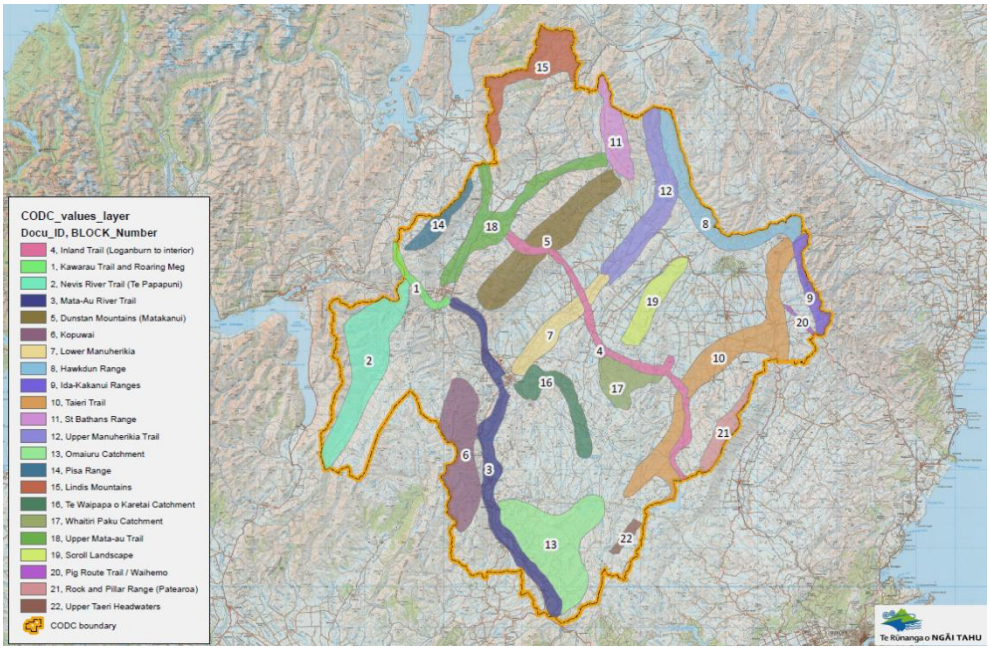
(d) The gathering of mahika kai as part of our cultural identity, to provide for whānau sustenance as an expression of manaakitaka, and as a means of passing on knowledge and cultural traditions from one generation to the next; and

(e) Involvement as kaitiaki and the restoration of awa, wetlands and coastal estuaries to restore mauri and mahika kai.

Wāhi tūpuna

39. Wāhi tūpuna are interconnected ancestral places, landscapes and taoka that link to our creation traditions, reflect our histories and traditions, and also hold contemporary importance for mana whenua. They are characterised not only by natural and physical aspects, but also by the place names and associated traditions and events that bind us to the landscape, just as the landscape itself is a part of us. They underpin our mana whenua status and give body to our mātauraka and tikaka.

40. Below is a draft map of the wāhi tupuna in the area: prepared in advance of the proposed review of the Central Otago District Plan.



41. Wai is an integral and enduring part of our wāhi tūpuna. The lakes, rivers, wetlands, springs and groundwater all have their place in our traditions and history. The creation traditions and history of the water bodies underpin the ongoing relationship. For example:

(a) The Mata-au (Clutha) River takes its name from Kāi Tahu whakapapa that traces the genealogy of water. The names of Whakatipu-wai-māori (Lake Wakatipu) and Wānaka originate from the earliest expedition made by the tūpuna Rakaihautū and his party from the Uruao waka. Rakaihautū is traditionally credited with creating the inland lakes or puna with his digging stick, Tūwhakaroria. The Mata-au is fed by the glacial waters that flow from the inland tūpuna mauka (ancestral mountains). A high value is attached to the intact mauri of these waters, and Kāi Tahu wish to see this mauri protected from degradation along the full length of the awa.

(b) Lake Dunstan sits over where the former pathway of the Mata-au once flowed, a body of water kept still by the Clyde Dam structure. Lake Dunstan is susceptible to

nutrient and silt build up that will impact on its mauri albeit that of an artificial lake, notwithstanding, it is an important part of the ecosystem of the lake and downstream, to the communities reliant and who engage with Lake Dunstan and its environs. Mana whenua connection from mountain to sea is impacted and the mauri should be retained intact.

(c) The Taiari (Taieri) River meanders down through three plains now known as Maniototo (Māniatoto), Strath Taiari, and Taiari, with hills and ranges between. The zig-zag nature of its twists and turns is reputed to be the result of the taniwha Matamata wriggling around looking for its lost master, Kāti Māmoe chief Te Rakitauneke. The taniwha finally reposed where Saddle Hill is now and remains as the peaks Turi Makamaka and Puke Makamaka. The name "Taiari" refers to the way that the tidal changes in the ocean at the river mouth influence the flow of the river as far as the upper reaches. These influences can be seen particularly in Waihora (Lake Waihola) and Waipōuri (Lake Waipori), located at the southern end of the Taiari Plains, and connected to the river by the Waipōuri/Waihola wetlands complex. The twists and turns of the river and the tidal influences have been instrumental in creating a rich wetland environment which previously supported extensive mahika kai activity over the full length of the awa. The degradation and loss of the wetlands through drainage, excessive abstraction, sedimentation and contamination is strongly felt and restoration of the wetlands is an important priority for mana whenua.

42. The rivers, lakes and wetlands, together with the coast, formed important components of the network of ara tawhito that were used by Kāi Tahu to gather resources, establish and maintain ahi kā, for wānaka, and to maintain whanaukataka with our relations. Kāika and nohoaka (permanent and seasonal settlements) were often located near rivers and lakes, near sources of mahika kai and other resources. The Mata-au is a significant ara tawhito, and integral to the network of inland trails that made it possible to transport people, mahika kai and stone resources to the coast. Other commonly used trails included the Waitaki Valley via either the Danseys or Lindis Pass,

the Waihemo and Pig Root, the Waikouaiti catchment, Taiari River catchment, the Mataura River catchments, and other localised routes. Along the coast, the estuaries from the Waitaki River to Chaslands supported various hapū from the times of Waitaha.

43. The relationship of whānau and hapū with wāhi tūpuna is sustained by ongoing access and interaction with these landscapes, and the ability to recognise the landscapes of the tūpuna is important to keep the relationship alive. If the shape and behaviour of an awa or a wetland or a mountain/mauka is changed beyond recognition, then the mātauraka is more likely to be lost. The conditions that our tūpuna experienced, in terms of the behaviour of the whenua and landscape, the quality of the water in it and the mahika kai it supported, are seen as an important baseline against which to measure the current state of the water body and whenua.

44. Thomsons Gorge that tracks across Matakinui (Dunstan Range) from Lake Dunstan to the Manuherekia Valley is an old trail once used by our tupuna when travelling on foot inland. Connecting to trails that led to the coast or further inland. Access to mahika kai at place on route were important feature of the trail, the hills, gullies, riparian areas supporting travellers.

Taoka species

45. Indigenous species are valued as taoka by Kāi Tahu, as are the habitats through which taoka species survive and thrive. Taoka species that rely on wai māori include tuna (eel), kanakana (lamprey), kōura (freshwater crayfish), kākahi (freshwater mussels), whitebait species (migratory galaxiids), a range of other fish, and water birds such as herons, pārera (grey duck), pūtakitaki (paradise shelduck) and pāteke (brown teal).

46. Protecting and maintaining the mauri of species and habitats is a critical function of kaitiakitaka. For Kāi Tahu, protection of taoka species requires a whole-of-system approach to their sustenance that recognises the importance of the interconnection between land, water, and other resources. It requires a focus not just on specific habitat sites, but also on the cumulative effects of activities on the wider system (including terrestrial, freshwater and coastal

marine environments) that supports and sustains the species and their habitats.

47. Failure to recognise or appropriately provide for this connectivity contributes to decreases in the abundance of indigenous species and their habitats. Decline in the abundance of taoka species inhibits our ability to engage in mahika kai practices and to express and pass on cultural practices to future generations. It also impacts on our mana as kaitiaki, as it is our responsibility to look after these taoka so that they endure into the next generation.

48. The taoka species listed in the Ngāi Tahu Settlement Act 1998 is not an exhaustible list, lizards and other taoka enjoy the Central Otago habitat, and are a part of the ecosystems at place.

Mahika kai

49. Mahika kai practices underpin the Kāi Tahu relationship with Otago's rivers, lakes, wetlands, moana and the broader environment. Our cultural identity as whānau and hapū is tied to our resources. Fundamental to our culture is our ability to learn and practise customary gathering of food and other resources, to put kai on the table to provide for whānau sustenance and as an expression of manaakitaka both at the marae and at home, and to ensure that the knowledge of customary practices is passed on from generation to generation.

50. The inland lakes and waterways of the Otago region once supported rich and healthy mahika kai resources. The lakes and their surrounds attracted Kāi Tahu hunter-gatherer parties that would travel inland from the coast to camp at nohoaka often located adjacent to lakes and waterways to engage in mahika kai activities. The great lakes could be navigated by waka while the ready availability of raupō at the Mata-au and in the interior of Otago ensured the return journey down the Mata-au could be made by mōkihi to convey mahika kai and stone resources to the coast. Tauraka waka locations on the seaward journey provided access to other nohoaka and stop off points, and the opportunity to forage and hunt. The lower Mata-au and tributaries were particularly rich in mahika kai resources.

51. Other Otago rivers were similarly used, including the Taiari (Taieri), Waihemo and Waitaki. These rivers were a source of many waterborne mahika kai, including freshwater shellfish, kōura (freshwater crayfish), tuna (eels), kanakana (lamprey), kōkopu, and waterfowl. They also provided harakeke (flax) and raupō (bullrush) as resources for weaving and the construction of mōkihi (rafts).

52. On the Taiari, for example, Ōtākou and Puketeraki hapū would make seasonal visits along the awa to gather resources and strengthen the kūpeka (net) of whakapapa on which their resource rights were based. Whānau groups from Ōtākou commonly migrated through the whole of late spring and summer into the interior. They gathered eels at the lakes on the Taiari Plain, took kanakana (lamprey) in the Whakaehu (Silverstream), and followed the Taiari into the Māniatoto, enjoying eeling and bird-trapping mahika kai activity as they went. Other resources were harvested along the way, including tī kouka, tikumu and taramea.

53. For mahika kai to be sustained, populations of species must be present across all life stages and must be plentiful enough for long term sustainable harvest. Safe access to mahika kai sites must be available, kai must be safe to gather, safe to harvest and safe to eat, and management and harvesting practices must be able to be carried out in accordance with tikaka.

54. If people are unable to learn how to harvest and care for mahika kai because access to resources has been lost through alienation or degradation, then the mātauraka about how to manage resources in accordance with tikaka will also be lost.

55. Mana whenua, as kaitiaki for the waterways and coastal environments of Otago, have a duty to ensure that healthy resources are passed on to future generations, and are involved in monitoring and restoration of awa, wetlands and coastal estuaries as part of fulfilling this duty. The health of mahika kai is an important indicator of the health of the water body as a whole; through practising mahika kai, whānau are also able to monitor the ongoing health of wai māori and the takiwa.

Pūtake-mauka and rakatirataka entitlements

56. The concept of pūtake-mauka describes how Kāi Tahu traces our whakapapa relationship with wai māori back to the mountains (mauka), who are our ancestors.

57. Āraiteuru, a waka Ātua, was a great migration waka that foundered near the mouth of the Waihemo (Shag River). Its many passengers are remembered by the names that are now on the landscape in the form of mountains. Many place names in Otago derive from the waka Āraiteuru. The naming of places is an enduring and physical sign of rakatirataka.

58. When I recite karakia as Upoko, I will almost always refer to particular mauka so that the particular kaupapa or meeting is grounded in the spiritual world. Mauka are elevated in Kāi Tahu karakia.

Waerea te raki e tū ra	*make open the domain of Raki*
Waerea te papa e takoto nei	*make open the domain of Papa*
Waerea te mauka o Te Ātua o Taiehu	*make open the mountain of Taiehu*
Ki kā tipua o te raki e ruka ana	*the lofty domain of the gods*
Ki kā tipua o te tawhito	*the rightful place of the gods*
Waerea tērā oneone tapu	*make open the sacred lands*
Waerea te whenua ra i ahumairaki	*clear this sacred place*
Waerea te awaiti ko Kaiwhare	*make open the waters of Kaiwhare*
Waerea kia puta ki te whaiao	*bring forth the light*
Ki te ao marama	*the world of life, light and water*

59. First there was darkness, then the great void as light emerged, coupled with moisture and then great expanses of water. Into this realm came the celestial waka of Aoraki, carrying him and his younger brothers to visit their siblings from another mother (Papatūānuku). On their return to their celestial homeland their karakia faltered as did their ascent, the waka listed and the brothers

clambered to the high side and were turned to stone. Hence the initial formation of the motu Te Waka a Aoraki.

60. The kōrero of creation, the interconnectedness between the celestial and earthly world, speak of mana and power of the atua, the source of mauri that has a whakapapa in the pūrākau, and a tapu that transcends time and recognises an interconnectedness that requires protocols to whakanoa for we mortal beings to access and use ngā taoka tuku iho.

61. Our mauka are pivotal to our identity, in our connection to the landscape, shaped and hued by our kāhui mauka, holding in their names our past and our future, a source of pristine wai, unfaltering springs, influence on weather, and the characteristics of our landscape.

62. Water is central to Kāi Tahu creation stories and whakapapa, and our past, present and future relationship with te taiao (the natural environment). The rights of rakatirataka and the obligations of kaitiakitaka in relation to the natural environment arise from, and are fundamentally linked to, whakapapa. This connection means the state of health and wellbeing of wai māori and te taiao is seen as a reflection on the mana, health and wellbeing of mana whenua.

63. Our rakatirataka stems from our take or the origin of our customary rights to place, resources and the traditional exercise of authority on matters of kawa and tikaka that perpetuates values, beliefs and te oranga o te taiao.

64. I have also mentioned ki uta ki tai earlier in my statement, which means "from the mountains [above] to the sea [below]". The concept of ki uta ki tai demonstrates how interconnected everything in the natural world is — for example, the mountain and the water are not separable. This term is about the holistic management of interrelated elements within the natural environment. I also refer to ki uta ki tai in karakia.

Our takiwā

65. Having described the tikaka principles relevant to the Kāi Tahu relationship with wai māori, I will now describe my experience of living within the takiwā and the changes to wai māori I have noticed

throughout my life. In doing so I will draw on my knowledge as Upoko of the history of the takiwā.

66. Tikaka traditionally related to observing the seasonal appropriateness of taking resources, observing tapu and noa, and ensuring the sustainable use of resources to allow for the needs of future generations. It also related to the use of karakia and protocols that maintain balance and respect for the interconnectedness of mana whenua with natural resources.

67. Alienation from land and resources, loss of access to taoka and mahika kai, and the destabilising effects of colonialisation pushed to the margins the role and function of rakatirataka in the takiwā.

68. Our Ōtākou hapū have historically been a strong maritime people, gatherers of kaimoana and fishers. However, our people seasonally used all mahika kai resources at their disposal, including the significant wetlands and waterways of the Taiari and inland to the great lakes of Otago. There was a lake that had a landing easement provided to the "Kaik" (papakāika, or village) people at Henley, to enable access to and use of Lake Tatawai for gathering tuna and waterfowl. But that lake was drained dry for agriculture purposes by 1930.

69. The community was decimated by the impact the drainage had on the lake, which was a key mahika kai resource to the Kaik community at that time in our history. Many other mahika kai resources and places were no longer accessible due to privatisation of land and its consequent development. As a result, many of those people were not able to keep up their Kāi Tahutaka (their Kāi Tahu customary practices). They melted into the wider population to survive, and many became disconnected from Kāi Tahu. The Ōtākou people came back to Ōtākou, or they moved elsewhere after that. There is still some whitebaiting going on around the Taiari River, but the former mahika kai opportunities have largely gone.

70. I share this to show the impact of alienation and pollution on the pride, belonging, and connectedness of people.

71. Similar concerns arise in respect of pollution, with the Clutha River/Mata-Au being a particular area of concern. That river is high

volume, but the water quality is suspect at times. It ran like a mud river for about 20 years during the 1800s gold mining era. In more recent times, the general water management for that river has been lacking because its size has fooled people into thinking that it can simply absorb contaminants — solution by dilution. There is a lot of dairy farming along the banks in the catchments feeding into the Mata-Au. The different fingers and tributaries that lead into these rivers are of concern as well for similar reasons.

72. Even in relation to areas owned by Kāi Tahu as a result of our Treaty settlement, degradation has been difficult to reverse. For example, the Sinclair Wetlands / Te Nohoaka o Tukiauau (south of Dunedin) were returned to Kāi Tahu through the settlement process. Te Nohoaka o Tukiauau Trust has completed a lot of restoration work in the wetlands and surrounding islands and whenua. The wetlands, however, suffer from a considerable sedimentation issue. Where once the water was clear and the bed of the Taiari and wetlands had a stable gravelly bottom, now it is centimetres deep in thick sedimentation, and the water there is not drinkable. If you stood in those wetlands now, the mud would come up almost to your knee. It runs right back up the river to Outram and then to Middlemarch. So, as I have said, the Taiari River is a big concern.

73. In my observation, and in particular through my involvement with Aukaha and local government, the decline in water quality has coincided with the increase in agricultural intensification close to major waterways. The RMA and other environmental management tools used by councils to address degradation are, in my view, too little too late: the horse has already bolted.

74. The fragile and unique landscapes subject to the mining proposals will suffer irreversible impacts due to the nature and scale of earth displacement and intergenerational duration of the impacts, and risk from catastrophic failure of storage dam / settling pond facilities required to mitigate effects.

THE KĀI TAHU SETTLEMENT

My role in the settlement

75. I was involved in both the A and C negotiating teams. One of my roles was to go and sit in Parliament through the "rubber door" (the Parliament House's ground floor entrance) and observe the passage of the Bill that became the Ngāi Tahu (Pounamu Vesting) Act 1997, before the Crown and Kāi Tahu went into the final settlement process.

Water in the settlement

76. I was part of a Kāi Tahu water team during the negotiations period. We were dealing with two issues: securing instream mahika kai water allocations and securing economic water rights.

77. The water team was not looking at questions of ownership of water. It was focused on the economy in water. After the mining era, there were mining privileges converted under the RMA that were given 35 years to be converted into resource consents. These privileges were called deemed permits under the RMA. If you held a deemed permit, you could have almost unlimited water takes for mining purposes.

78. Once mining finished, farmers took up the land. But the privileges continued to be used in some circumstances for flood irrigation, stock water irrigation and the like. There was no effort put into finessing irrigation in a way that would look after the streams.

79. Kāi Tahu saw that the economy in the water system was controlling what happened to water, and we were considering how we were going to break into that economy. But the water team's work was not able to be achieved in the settlement. The two issues we were focusing on were ongoing projects sitting adjacent to the settlement.

80. Everyone knew freshwater was a big issue, and there was a sense that we were only at the bottom of the hill. We did not want to extend negotiations out for ten years. We wanted to nail the immediate issues and settle that which needed to be settled at that time.

Mahika kai in the settlement

81. That approach is evident when looking at the terms of the settlement itself. Take mahika kai for example.

82. When negotiations started, the negotiating teams met with the Crown and discussed the parameters and areas we wanted to settle. Kāi Tahu proposed a template and working definition for mahika kai, and a list of settlement proposals and negotiation bottom lines.

83. The mahika kai provisions in the Deed of Settlement relate to and were aimed to enhance traditional Kāi Tahu mahika kai practices.

84. One of the key parameters was that the Crown was to accept responsibility for the environmental restoration of those mahika kai returned to Kāi Tahu in an environmentally degraded condition. On that point, Kāi Tahu received some nohoaka (temporary campsites) located on Crown land as redress. This was in part to reconnect to the whenua and waterways near traditional mahika kai resources.

85. Kāi Tahu negotiated representation on Fish & Game Councils in the tribal takiwā (one person per council), and on conservation boards that were fully in the takiwā (two positions) on each board, and one on the Nelson Marlborough Board (shared takiwā). We did not seek representation on regional, city or district councils, because they are not statutory appointments. The settlement also included a dedicated membership role for Kāi Tahu on the New Zealand Conservation Authority. There was also a requirement for the Crown to annually or biannually check how the RMA was being implemented. It was not a rigorous assessment by the Ministry for the Environment of how our councils were performing in the RMA / Kāi Tahu space. It seemed to be more about councils responding to high-level enquiries. I am not aware of that exercise having persisted beyond the initial years of the Ngāi Tahu Claims Settlement Act 1998. If it did, insofar as freshwater management is concerned, I do not think it was very effective.

86. There were some provisions around taoka species that made it into the Deed of Settlement. But as far as I can recall there was no particular sum earmarked for mahika kai in the settlement. Funding

of our mahika kai initiatives has really been internal. Kāi Tahu were offered a role on an upcoming review of the "heritage protection review" that included the review of the Historic Places Act 1993. I filled that role on the Ministerial Advisory Committee.

87. In my view, the mahika kai aspect of the settlement was not very successful in getting a programme in place that would allow Kāi Tahu to turn a corner. The mechanisms available from the settlement flag our interest, require our engagement, to recognise and protect our values in policy, plan and resource consents. Converting such opportunities to positive outcomes and mahika kai restoration is built on relationships and partnership, that involve successive generations of our people, to rebuild and connect mātauraka to place and taoka.

Rakatirataka

88. The Treaty of Waitangi and its signing confirmed our rakatirataka existed prior and not because of it, the Ngāi Tahu Treaty Settlement addressed the breaches that the Crown inflicted on our rakatirataka, and in many respects were unable to atone for the full loss our iwi suffered. The Apology stood as an important and valued gesture that honours our generations who were subjected to the Crown breaches and who sought to rectify those losses and injury to rakatirataka. It was of great comfort to those of us who were party to the Settlement to have the spoken and written Apology from the Crown, in memory of our respective tupuna who saw no light at the end of the tunnel, who were subjected to the indignity of powerlessness and yet retained their personal mana and composure, whilst their rakatirataka was trampled on, they are still waters that run deep, never to be forgotten.

KĀI TAHU POSITION ON FRESHWATER

89. I have been involved for years in developing Kāi Tahu's position on freshwater, and in engaging with the Crown and other stakeholders on this issue. I will highlight just a few examples of this engagement in my evidence.

90. In February 2005, I attended a consultation hui on freshwater, alongside various officials from the Ministry of Agriculture and

Forestry, Te Puni Kōkiri and the Ministry for the Environment. There, I raised some concerns about the first-in, first-served nature of the RMA.

91. At that hui, I also discussed the dangers of taking water from one catchment and putting it into another. The water in one catchment will have different properties, both tikaka and ecological, to water in a different catchment. Cross-mixing changes the characteristics of the water and alters the mauri of the receiving catchment. That practice was, and remains, a big issue in terms of the ongoing deterioration of our waters.

92. Kāi Tahu ki Otago was at this time completing our Natural Resource Management Plan 2005. The plan gives a comprehensive account of Kāi Tahu ki Otago's views of the water issues in the Otago region, and our objectives and policies for addressing those issues in the various catchments. The only thing I would add to the document is to stress the importance of mātauraka. There is an importance in continuity of access and ability to exercise mahika kai. There were a lot of people involved at that time who are no longer with us, and it is very important that Kāi Tahu ki Otago passes on the practices and traditions.

93. In the years that followed, I continued to articulate Kāi Tahu's values relating to freshwater. In February 2007, I delivered a presentation at the Kāi Tahu Water Forum called "Ngāi Tahu Values in Water Governance — Advocating Customary Rights" concerning the pollution, drainage and damming problems in Te Waipounamu's waterways, and drew on my many years of experience working on Kāi Tahu water issues at the whanau, hapū and iwi levels.

94. Later, in January 2009, Te Rūnanga o Ngāi Tahu made a submission on what would later become the National Policy for Freshwater Management (**NPSFM**) 2011. I thought the NPSFM represented progress in some respects. Before 2017, the concept of Te Mana o Te Wai had limited impact in terms of real outcomes. The 2017 version elevated the concept to something that had to be seriously considered in freshwater management. Things improved again with the NPSFM 2020, which imposed a requirement to "give effect to" Te Mana o Te Wai. But Te Mana o Te Wai is not the end of the game,

and there are still improvements to be made. The concept is only about water; it does not capture all of the ecological considerations. It is limited in what it can do in terms of species. And most importantly, it fails to acknowledge and provide for Kāi Tahu rakatirataka, involvement and authority over freshwater.

95. From 2011 until at least 2015, I was a part of a Kāi Tahu Freshwater Strategy Group. During that same period, I attended meetings of the Otago Mahika Kai Regional Forum.

96. I was also attending various hui on Kāi Tahu rights and interests in freshwater. These would have all been about Kāi Tahu reenergising ourselves and retaining links with iwi leaders.

97. In 2019, I met with some officials from the Ministry of the Environment when they visited the Manuherekia catchment, which was proposed to be selected as an exemplar catchment.

98. Although only a small selection of examples, these examples demonstrate two points to my mind. First, how Kāi Tahu takes seriously its rakatirataka obligations to freshwater in the takiwā. And second, how Kāi Tahu continues to strive to exercise that rakatirataka in the current regulatory environment, even with the constraints that environment presents.

99. That approach exists in this instance.

100. We have a duty when exercising our rakatirataka to provide for future generations in a way that does not encumber kā uri with irreversible environmental damage in the name of short term gain for shareholders whose negative environmental legacy and risks will long outlast the life of the mining activity and accountability of the mining interests involved.

KAI TAHU POSITION ON TAKIWĀ

101. My evidence speaks to the timeless connection our people have with our takiwa, ki uta ki tai, woven as a korowai, enmeshed, interlinked by whakapapa and through the exercise of rakatirataka. Reciprocity or utu influenced such interaction, to maintain a balance, e.g. in resource use, maintenance of relationships or in the exercise of decision making.

102. A function of rakatirataka is the exercise of kaitiakitaka, which utilises information and knowledge framed in traditional or te ao Māori concepts to guide decision making.

103. In the case of the MGL fast track process, the access Kāi Tahu / runaka people have had to critical information has been constrained by the limited timeframes to fully comprehend the potential effects proposed gold mining activity.

104. This practical impediment was compounded by limited, or in some cases no, access for runaka representatives to technical workshops and information shared between the applicants, Otago Regional Council, and Te Papa Atawhai.

105. In addition, on the due date for submissions, 10 April, a number of technical reports prepared by the applicant were not made available to Kā Rūnaka for assessment.

106. The points of concern raised above have made the task difficult for Kā Rūnaka to complete the task of assessing the effects of the proposed mining activity on the lands, waters, habitat of the site and downuction values.

107. What can be stated is that the MGL reports and material that our people have been able to review and assess indicate a lack of attention or awareness to the values and interests of Kāi Tahu, and as a result a reliance on assumptions rather than reflecting an iwi lens.

108. Of significant concern also is the lack of detailed standards based on known data sets to ensure continued mitigation and remediation measures continue post closure of the project. This is an intergenerational risk, that could impact on Kāi Tahu / runaka down the track, well after the proponents have moved on.

109. The project lacks a strategy that enables continued engagement for runaka to exercise their mana whenua responsibilities to maintain connected to their wahi tipuna for the life and beyond of the project.

110. The evidence in our view points strongly to a decline by you, the panel of experts, hearing this Fast-track proposal, on the basis of

incomplete preparation of evidence that addresses fully the multiple issues identified in our respective reports to the deficiencies of this proposed mining activity.

111. The gold would remain in the ground, the landscape, water and habitat, and ecosystems will remain as they are, and any future applications would be on notice to aspire to higher standard of engagement, environmental husbandry and the interest of future generations who will be custodians of the residual effects of any mining activity.

112. Of great concern is the proposal, as it stands at this point, has had a reductive impact on the relationship and functional role of kaitiakitaka as we would normally exercise on a proposed plan, policy or development of any reasonable scale, the magnitude of the MGL proposal has huge significance in that respect.

113. The alienation effect on our connection to whenua, wai, me kā taoka impacts now, but sends a strong signal that this will be characterised during the mine's operation if granted, and post the closure of the mine, an intergenerational harm, an issue that drove the case Kāi Tahu took to the Waitangi Tribunal and resulted in the Ngāi Tahu Claims Settlement Act.

KAI TAHU POSITION ON TAOKA SPECIES

114. The impact on taoka species is an important issue, both for those formally recognised in the Ngāi Tahu Settlement Act, and for lizards not formally listed in the Taoka species schedule. The fact that many species are listed in the Ngāi Tahu Settlement Taoka Species Schedules should not be read to indicate that lizards and other "non-listed species" are not a taoka in their own right. The Ngāi Tahu Claims Settlement Act 1998 elevates the importance of taoka species at a time of general decline of most indigenous species, but it was not an exhaustive list, and species were not "deliberately" excluded as in lizards.

KAI TAHU POSITION ON RAKATIRATAKA

115. If the mine is granted resource consent it will impact negatively on our rakatirataka. Many landscape scale values have been lost or compromised in the Central Otago region, prior to the NTCSAct.

The intent of the NTCSAct was to not only recognise and understand that issue, but to ensure Ngāi Tahu rakatirataka was not ignored or ignored in such future discussions, to give notice to future generations that the Crown honoured their pledge and Apology, and not lumber future generations with the past repeated.

116. I presented to the Environment Select Committee on behalf of Te Rūnaka Otakou Limited. We made points in opposition to the Bill on the following basis:

(a) Weakens involvement of Māori and the treaty partnership by demoting mana whenua engagement and substitutes consultation with inviting written comments from Te Arawhiti and the Minister of Māori Development, the Crown speaking for mana whenua.

(b) Mana whenua hold mātauraka crucial to understanding local ecology and other environmental factors, potential impacts on cultural values and longitudinal placed-based knowledge.

(c) The absence of a treaty clause, the requirement to give effect to Te Tiriti principles and no safe-guards to ensure Māori rights are upheld in decision making.

(d) Will reduce the overall quality and authenticity of information and decision making through compressed timeframes, uniform deadlines disadvantage groups with unequal capacity and fall short of meaningful engagement on complex matters, including cumulative effects on treaty settlement issues.

(e) Perpetuates a lack of transparency, allows order in council amendments, risks being reduced from an independent regulator to an instrument of executive policy.

(f) Compromises both administrative law principles and Te Tiriti partnership, which requires that Māori interest be assessed and protected through impartial evidence-based processes rather than political expedience.

(g) Enabling political considerations to dominate, which will result in Māori cultural and Treaty interests being sub-ordinated.

(h) Introducing Government Policy Statement on 'benefits', a GPS on regional and national benefits would become a relevant consideration for referrals and decisions, including supermarkets. Without clear safeguards, a GPS may be treated as decisive, pushing aside effects-based assessment and general Treaty of Waitangi-related obligations.

117. My concerns remain in respect of the Fast-track Act, and particularly in terms of this application.

BROADER COMMENTS

118. When I read the TTR iron sands mining Fast-track panel draft decision I was heartened by the strong recognition of Treaty settlements, cultural values, and Māori interests, and particularly that the application was turned down on the basis that it breached s7 for inconsistency with Treaty settlements.

119. Also, I would like to emphasise the importance of section 4 of the Conservation Act which states "This Act shall so be interpreted and administered as to give effect to the principles of the Treaty of Waitangi."

120. Section 4 principles have been evolving slowly since their introduction in 1987, the Government published in 1989 "Principles for Crown Acting on the Treaty of Waitangi". Case law since then included the Ngāi Tahu Whale Case. More recently the Ngāi Tai case 2018 clarified that the Department of Conservation must actively consider Treaty of Waitangi principles, including potential preferences for iwi, when granting commercial concessions on public conservation land. In addition to the above cases, s.4 has been the source of much growth and understanding between DOC and hapū and iwi, forging new understandings and engagements akin to partnership.

121. Section 4 responsibilities should not be read down, or reduced, but remain an important duty to uphold and give effect to the principles of the Treaty of Waitangi.

CULTURAL IMPACT ASSESSMENT

122. Attached to this evidence is the Cultural Impact Assessment in respect of this application.

TIKAKA REQUIREMENTS

Tēnā koutou koutou katoa, to the Panel, in respect of your important role and expertise, and in order that you receive our submissions in a setting and venue that reflects and amplifies the voice of mana whenua, we invite you to hear our submissions and legal evidence at one of our mana whenua marae. The context of a marae setting and the tikaka that applies to such an occasion we believe is a legitimate part of the process of conveying mana whenua values, beliefs in the exercise of our rakatirataka.

Edward Weller Ellison

10 April 2026

APPENDIX – CULTURAL IMPACT ASSESSMENT

Cultural Impact Assessment
Bendigo Ophir Gold Project
Matakanui Gold Limited



Ka whakawhārikitia e tātou te huarahi mō rātou a muri ake nei,
kia takahia kā tapuwae o kā tīpuna[1]

[1] To set a pathway for our mokopuna so they might walk in the footsteps of our tīpuna.

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- Te Komiti Keritaka
- Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga Ōtākou and Hokonui Rūnanga
- Mary Askey, Environment Manager, Matakanui Gold Limited

Front cover photo: View from Thomsons Saddle over the Rise and Shine Valley

Version (Final with correction in Section 7.2): [29.03.2026]

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Report

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Executive summary

The Bendigo Ophir Gold Project proposes a significant opencast and underground mining operation on Bendigo and Ardgour Stations in the Dunstan Mountains of Central Otago. This will involve significant modifications to the landscape, habitats and waterways of the site and will result in release of a variety of contaminants to groundwater and surface water, including sediment, metals, nitrate, sulphate and cyanide.

The mining operation will permanently alter the landscape of the Shepherds Creek and Rise and Shine catchments on the western side of Thomsons Saddle, creating two large pit lakes and burying Shepherds Creek beneath waste rock. It will lead to disruption or destruction of the habitats of a number of threatened bird, lizard, invertebrate and plant species, with impacts on lizard and invertebrate species, cushionfield plant communities, tussocklands, taramea and wetlands being particularly significant.

A range of measures are proposed to mitigate or offset the adverse impacts of the mine operation, including water quality management, pest management, re-establishment or relocation of species and habitats and landscape rehabilitation. This will include establishment of two sanctuary areas at the lower end of the site, providing pest-excluded habitat for threatened/ at risk lizard, invertebrate and plant species. However there are some information gaps and uncertainties relating to the adequacy and effectiveness of these measures, particularly over the longer term following closure of the mine.

The cultural impacts of the proposal have been assessed with regard to the foundational Kāi Tahu values of mana, mauri, tapu and whakapapa and the intergenerational associations of mana whenua to the area.

The area within which the Project is located is significant wāhi tīpuna (cultural landscape) for Kāi Tahu. Although the site has been modified by the effects of historic gold mining and by pastoral farming, the landscape is still recognisably that which generations of Kāi Tahu forebears traversed and in which they engaged in mahika kai activities.

Modification of waterways and landforms will severely impact on the mana of the whenua and the wai, and the ability to recognise wāhi tīpuna. These impacts cannot be mitigated by the rehabilitation proposed and could contribute to the long term erosion of cultural identity. The anticipated significant loss of mokomoko populations will also impact on the mana of mana whenua.

The mauri of whenua, wai and native species will be degraded by loss of streams, wetlands, springs and habitats and by introduction of noise, disturbance and contaminants. Degradation of mauri will also affect the health and wellbeing of whānau and could also impact on Kāi Tahu businesses relying on cultural tourism and/ or healthy ecosystems.

The impacts of mine operations on water quality and on the life and health of the species naturally present in the area will affect balance between tapu and noa. This will also impact on the health and wellbeing of whānau and on Kāi Tahu businesses relying on a healthy environment.

The absence of consideration of cultural values and associations, and of mātauraka, in mitigation measures and rehabilitation plans does not appropriately recognise mana whenua authority or

provide for the exercise of kaitiakitaka. This could contribute loss of connection with the whenua and erosion of cultural identity.

The approach required to address these impacts includes:

- reconsideration of the technical reports to recognise the ongoing and significant connections of mana whenua to the location of the proposed mine;
- engagement over measures to offset or compensate for loss of wai māori values, wāhi tīpuna values and mokomoko populations in a way that will uphold the mana of mana whenua;
- an assurance that the risks of mine operations to the health and safety of people and the health of te taiao have been appropriately addressed;
- meaningful incorporation of mātauraka Māori through participation in design and oversight of proposed mitigation, monitoring and offsets;
- a requirement that rehabilitation goals are contractualised or embedded in consent conditions with outcomes not subject to compromise;
- dedicated resources and funding for Kāi Tahu involvement in all phases of the offset plan, including participation in monitoring, species protection and pest control programmes that support taoka species recovery;
- provision of intergenerational funding and maintenance arrangements to ensure long-term measures are effective.

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Toitū te Mana, Toitū te Whenua: Kā Rūnaka

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Te Rūnanga o Moeraki

The takiwā of Te Rūnanga o Moeraki centres on Moeraki and extends from the Waitaki to the Waihemo (Shag River), and inland to Kā Tiritiri o te Moana (Main Divide). This includes shared interests with other Papatipu Rūnanga in Te Manahuna (Mackenzie Basin) and Tuawhenua (Queenstown Lakes and Central Otago).



Kāti Huirapa Rūnaka ki Puketeraki

The hapū (subtribes) that have prominence within Kāti Huirapa Rūnaka ki Puketeraki are Kāti Huirapa, Kāi Te Ruahikihiki, Kāi Taoka, and Kāti Moki Tuarua. The takiwā of Kāti Huirapa Rūnaka ki Puketeraki centres on Karitāne and extends from the Waihemo to Purehurehu, north of Heyward Point. Their takiwā extends inland to the Main Divide, sharing interests in the lakes and mountains to Whakatipu-wai-māori.



Te Rūnanga o Ōtākou

The coastal rūnaka of takiwā of Te Rūnanga o Ōtākou centres on Ōtākou on the Otago Peninsula and extends from Purehurehu to Te Mata-au. The inland reaches of their takiwā includes shared interests in the lands and mountains to the western coast with rūnaka to the north and south.



Hokonui Rūnanga

The takiwā of Hokonui Rūnanga centres on the Hokonui region and includes shared interests in the lakes and mountains between Whakatipu-waitai and Tawhititarere with other Murihiku rūnaka, and those located from Waihemo south.



The interests of Kāi Tahu ki Otago in Tuawhenua (Queenstown Lakes and Central Otago) and along the Mata-au are shared with Ngāi Tahu ki Murihiku.

1. He Kupu Arataki: Introduction

Ka ora te wai, ka ora te whenua, ka ora ai te tākata.
When the water is healthy and the land is healthy, then the people are healthy.

This assessment conveys the expectations of Kāi Tahu as mana whenua for Ōmakō,[3] the Bendigo-Tarras Basin, Matakinui (Dunstan Range) and the Manuherekia Valley.[4]



Whakaahua 1: The Kawarau River, Mata-au and Te *Wairere (Lake Dunstan)*

Central Otago was of cultural importance to Waitaha, Kāti Mamoe, and Kāi Tahu as a source of mahika kai, a place of settlement, a burial place, and as a cultural landscape that embodied the ancestral, spiritual, and religious traditions of mana whenua. Central Otago, the Bendigo-Tarras Basin, Matakinui (Dunstan Range), and the Manuherekia Valley are, therefore, an important taoka tuku iho for Kāi Tahu who hold mana whenua status and have interests in the area.

For mana whenua, the land is fundamental to tribal identity. The survival and strength of our tīpuna was derived from the depth of their relationship to, and respect for, te taiao. Through whakapapa connections back to the atua, all natural resources, such as water, air, earth, and landscape features, are recognised as tīpuna and taoka that require the highest level of regard and care.

At the heart of the relationship with te taiao is the knowledge that the longevity and wellbeing of Kāi Tahu lies in protecting our environment for the mokopuna to come. Thus, a clean, healthy, and bountiful environment is a source of mana and pride for the people. Further, the health of our

[3] Ōmakō is one of the Kāi Tahu names for the Lindis Pass area and denotes both the pass and the river.
[4] The exploration permit held by Matakanui Gold Limited extends from Bendigo over Thomsons Saddle into the Manuherekia Valley.

communities reflects the health and vitality of our environment, a principle that mana whenua are duty-bound to uphold under their rakatirataka and kaitiakitaka responsibilities.

Since European contact and settlement, mana whenua have seen a different approach to resource management at play, one that views environmental resources as commodities to be stripped away in service of human consumption and as a means of creating wealth. Alongside this economic model, the wellbeing of our environment has degraded, our waterways have been modified and polluted, and the whenua degraded. Many of the bountiful sources of mahika kai are now gone or are highly depleted. At the root of this behaviour is a fundamental disrespect for te taiao, and an apparent failure to see awa like the Ōmakō, Mata-au, and Manuherekia and their tributaries as entities worthy of our protection and respect.

Kāi Tahu view consultation with resource users as a fundamental means of achieving recognition and protection for cultural values in the management of environmental effects. The practical implementation of kaitiakitaka by Kāi Tahu is dependent upon open and informed discussion with resource users, from which sound judgments can be made on a project's potential impacts on Kāi Tahu cultural values.

The development of the Bendigo Ophir Gold Project (the Project) provides an opportunity for Kāi Tahu, in partnership with Matakanui Gold Limited (**Matakanui**) to review the impacts of the Project on Kāi Tahu cultural values, and to identify opportunities for the recognition and protection of these values going forward.

Matakanui has engaged Aukaha Ltd to prepare a Cultural Impact Assessment that:

- Provides mana whenua with an overview of the project and environmental context.
- Enables Aukaha to assess the key information from the application and the proposed restoration or remediation plans and to provide technical advice to inform assessment of the project by mana whenua.
- Identifies mana whenua associations, history, and values associated with the area.
- Identifies key issues and cultural impacts of the project.
- Provides recommendations to address the effects and cultural impacts of the project, where that is possible. The recommendations will support mana whenua engagement with Matakanui on the project.

This report should not be seen as Kāi Tahu approval of this project, but as a basis for ongoing engagement and discussion between Matakanui and Kāi Tahu in the context of this Project.

2. He Kaikape ā-Mahi: Methodology

The methodology for this report is based on a kaupapa Māori model of research, through which kaimahi at Aukaha developed, drafted, and finalised the report under the mandate and direction of mana whenua representatives. The mahi was undertaken in three poutama:

2.1 Te Poutama Tuatahi: Desktop Review/Review of Literature

A review of literature, available online resources and the application was undertaken by Aukaha kaimahi to build an understanding of the cultural and environmental context for the Project, and the key elements of the Project. This mahi rakahau included consideration of the following key sources:

- Bendigo-Ophir Gold Project Assessment of Environmental Effects and supporting technical reports.
- Kāi Tahu ki Otago Natural Resource Management Plan
- Ngāi Tahu Claims Settlement Act 1998
- Cultural reports and evidence held on file in the Aukaha archives
- Cultural, archaeological, and ecological maps
- Relevant legislation, national and regional policies, and regional and district plans
- Other material identified through the review of literature.

2.2 Te Poutama Tuarua: Cultural Values Assessment

A cultural values assessment identifies key mana whenua values in the area affected by the proposed activity. The assessment for this project was broadly focused on the cultural values and associations with Ōmakō, the Bendigo-Tarras Basin and the Manuherekia Valley.

2.3 Te Poutama Tuatoru: Cultural Impact Statement

A cultural impact statement identifies the impacts of the proposed activities on the cultural values identified, and proposes recommended actions and expectations to protect these values. In the case of this Project, cultural impacts in terms of the following are a focus of this assessment:

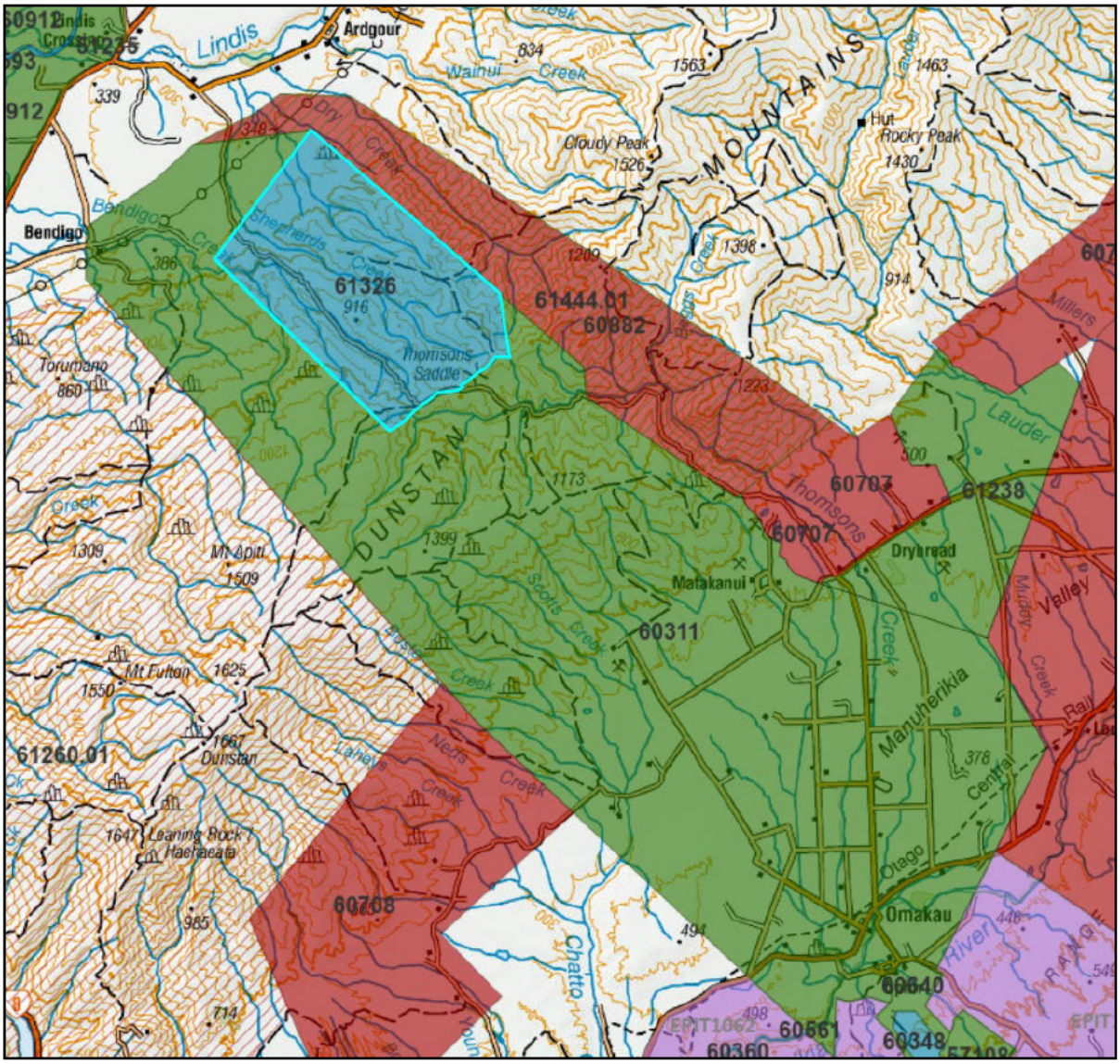
a. Mana
b. Mauri
c. Tapu
d. Whakapapa

The cultural values statement provided below was reviewed by mandated representatives from Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga to ensure that the final statement accurately reflects the position of mana whenua.

3. He Whakamārama: Bendigo-Ophir Gold Project

3.1 Minerals Permits

Matakanui holds an exploration permit that extends from Bendigo across Thomsons Saddle into the Manuherekia Valley. Within this exploration area, Matakanui has been granted a mining permit for a new gold mine within the Rise and Shine and Shepherds Valleys.



Whakaahua 2: Mining Permit 61326 and Mining Exploration Permit 60311 (Source: New Zealand Petroleum and Minerals) [5]

Matakanui has been granted a permit by New Zealand Petroleum and Minerals to mine gold and silver, as shown by Tūtohi 1.

Tūtohi 1: Minerals included in the Matakanui Gold mining permit

Minerals	
Metal	Gold, Silver

[5] Mining permit 61326 was granted on 5th November 2025 and expires on 4 November 2055.

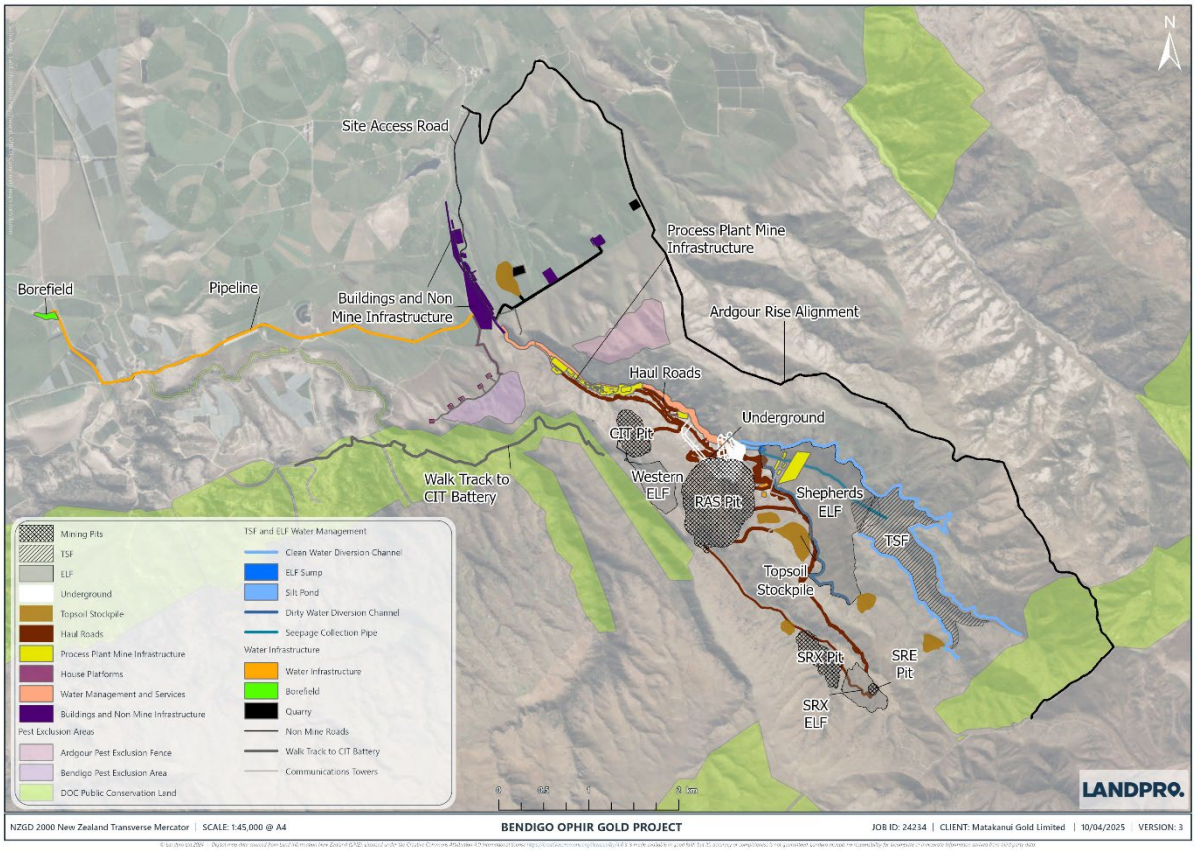
3.2 Overview of the Bendigo-Ophir Gold Project[6]

Matakanui is proposing to establish a new gold mine, ancillary facilities and environmental mitigation on Bendigo and Ardgour Stations in the Dunstan Mountains of Central Otago. The Project site is located approximately 20 km north of Cromwell in the headwater catchments of Shepherds Creek and Rise and Shine Creek, which fall within the wider Mata-au/ Clutha River catchment.

The Project is located within the footprint of Minerals Exploration Permit 60311, which overlays several pastoral stations that have grazed sheep and cattle in the area for over 100 years. Matakanui has land access agreements with Bendigo and Ardgour Stations. The Project is located adjacent to land administered by the Department of Conservation, including the Bendigo Historic Reserve, the Bendigo Conservation Area and the Ardgour Conservation Area. The planned mining operations do not directly impact these areas.

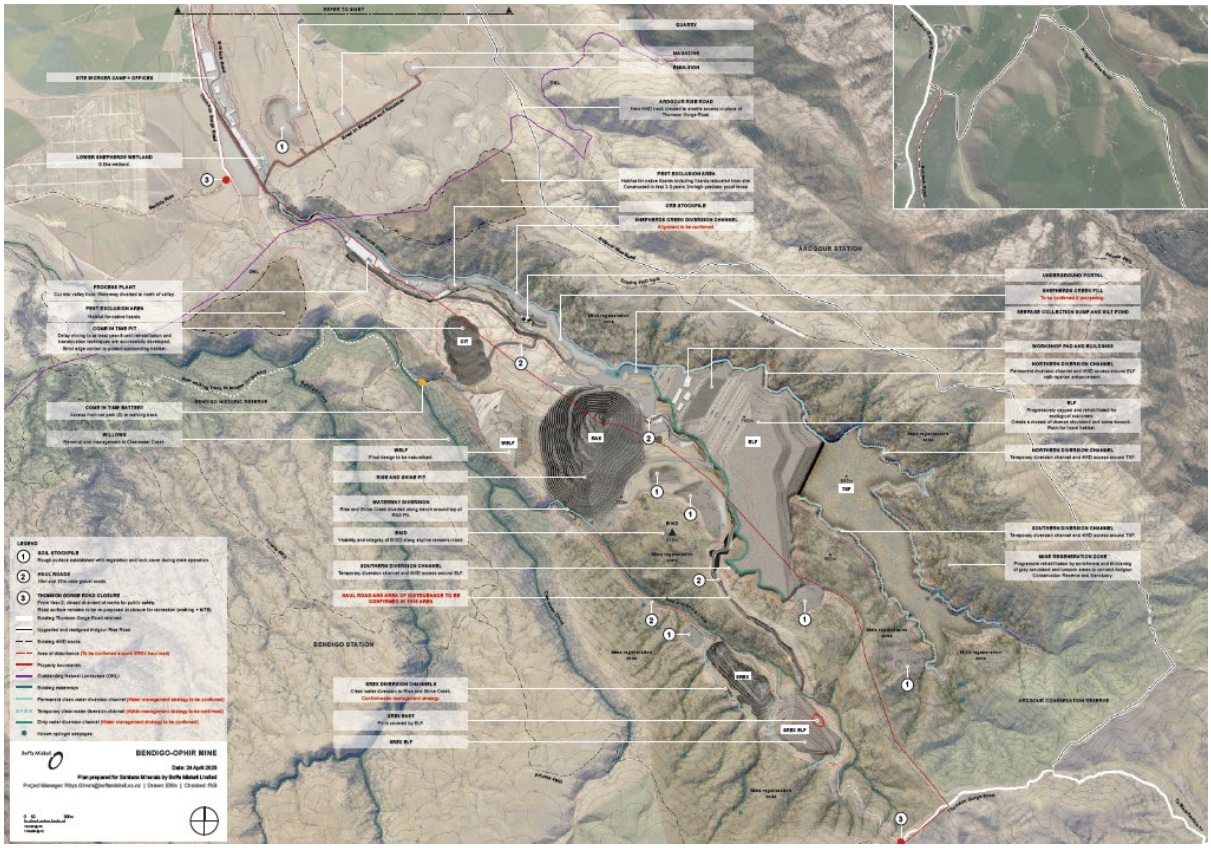
Exploration by Matakanui has defined four (4) gold deposits. The most significant is the Rise and Shine ("**RAS**") discovery. The other discoveries are at Come in Time ("**CIT**"), Srex ("**SRX**") and Srex East ("**SRE**"). The defined orebodies are planned to be mined by open pit methods. Underground mining is planned for the deeper parts of the RAS orebody in the later years of development.

Mining activities, ancillary facilities and associated infrastructure will be located in the Shepherds Valley. Access, and service and administration offices are planned to be located on the adjoining Ardgour Terrace.



Whakaahua 3: Components of Bendigo Ophir Gold Project

[6] Information in this section is from Mitchell Daysh, 2025.



Whakaahua 4: Overview Site Layout of the Bendigo-Ophir Gold Project

Whakaahua 3 and 4 above provide an overview of the footprint associated with the establishment, operation and rehabilitation of the Project. Direct disturbance within the pastoral area will be approximately 380 hectares. A disturbance contingency has been allowed around the mine and infrastructure for footprint adjustments during detailed design. A further 18ha (approximately) of disturbance will be needed to establish the Thomson Gorge Road alternative alignment (Ardgour Rise). The maximum potential disturbance of the Project, including contingency and Ardgour Rise, encompasses an area of 568ha.

Additional disturbance of approximately 52ha will be required in the agricultural area on Ardgour Terrace. This area will be used for offices, security, medical, laboratory, laydown, storage, contractor areas, topsoil storage, emulsion manufacture and magazine facilities plus quarries and roading.

Ecological work will include rehabilitation of directly disturbed areas, ecological uplift activities and pest exclusion area(s) adjacent to the footprint on nearby areas including Ardgour and Bendigo Stations. A full description of the various activities comprising the establishment, operation and rehabilitation of the Project is provided in the Assessment of Environmental Effects prepared by Mitchell Daysh Limited. However, by way of summary, the Project includes the following components:

Mining areas

- The establishment of the 74.2 ha Rise and Shine (**RAS**) Open Pit and the smaller Srex (**SRX**) Open Pit, which are planned to form partial pit lakes at closure. Establishment of the RAS pit will require diversion of a section of Rise and Shine Creek in the Rise and Shine gully;
- The establishment of RAS Underground which is planned to be backfilled with cement paste;

- The establishment of the Come in Time (**CIT**) Open Pit, which is the smallest of footprints and is planned to be progressively backfilled with waste rock from the RAS Open Pit and profiled to integrate with the surrounding terrain. Rehabilitation will enable nearby native herb fields to be re-established at the completion of mining activities;
- The establishment of the small Srex East (SRE) Open Pit, which will be backfilled with waste rock before being covered with overburden to form the engineered landform for the adjoining SRX Open Pit ("**SRX ELF**").

Storage/ disposal of topsoil, vegetation, overburden and tailings

- The establishment of a Tailings Storage Facility ("**TSF**") in the upper reach of Shepherds Valley (including clean water diversion drains), which will utilise waste rock from mining activities within the project site;
- The establishment of permanent engineered landforms in the Shepherds Valley ("**Shepherds ELF**"), an unnamed creek west of RAS pit **("WELF")** and the Srex East pit area;
- Water management measures including clean water diversions around the TSF and ELFs, dirty water diversion channels, seepage drains and silt ponds;
- The establishment of temporary topsoil, vegetation and brown rock stockpiles around the project site. Topsoil will be used for rehabilitation of disturbed areas.

Plant and infrastructure

- A conventional hard rock gold processing plant (1.2 million tonnes per annum expandable to 1.8Mtpa) applying modern Carbon-in-Leach ("CIL") technology will be constructed in the lower reach of Shepherds Valley. The plant will operate in a closed water circuit with the Tailings Storage Facility ("**TSF**"). Residual chemicals in the tailings slurry will be detoxified and/or precipitated with specialist plant;
- The operation of the process plant will be supported by ancillary facilities such as maintenance workshops, raw material and process chemical storage, fuel depot, laboratory and warehousing. Mine offices, carparking and security services will also be established;
- The construction of the plant in the lower reaches of the Shepherds valley will require the realignment of Shepherds Creek;
- The establishment of water storage dams and tankage for use in the process plant, dust suppression and drinking water supply;
- The extraction of groundwater from the Bendigo Aquifer for use in mining-related activities as well as supplying the Project drinking water and replacing small irrigation water takes from Shepherds Creek. This will be taken at a maximum daily rate of 120 l/s, with average consumption estimated at 30-70 l/s).[7] Bore water will be pumped to the processing plant via an approximately 7km pipeline.

[7] Komanawa Solutions Ltd, 2025a, 2025b.

- The establishment of supporting infrastructure / activities for the project, including the upgrade of Ardgour Road and parts of Thomson Gorge Road to provide improved access to the Project, internal mine access and haul roads, water pipelines and underground utilities, and electricity supply to the project site from Lindis Crossing via a new 66kV overhead powerline that will follow the existing road reserve corridor;
- Closure of the part of Thomson Gorge Road that traverses the operational area, and construction of an alternative route via Ardgour Station (Ardgour Rise) to provide public access through to the Manuherikia Valley.
- Main explosives magazines and emulsion mixing facilities (located outside the project site on Ardgour Terrace);
- The establishment of non-operational infrastructure associated with the Project on the Ardgour Terrace, including security, first aid and administrative offices, geology facilities, high voltage substation and temporary construction workers accommodation;
- A water treatment plant in the lower Shepherds valley to be established at closure to treat seepage from Shepherds ELF and TSF.

Ecological enhancement

- The establishment of pest exclusion area(s) for ecological enhancement activities.

3.3 Effects on Wai Māori

3.3.1 Water body characteristics and values

Two creeks, Rise and Shine Creek and Shepherds Creek, cross the Project site. The headwaters of both creeks are in the Dunstan Mountains near Thomsons Saddle. In the upper parts of the creek catchments there is a fractured-rock groundwater system. This is a compartmentalised system with variable hydrological connections to the surface.[8]

Shepherds Creek is a tributary of the Ōmakō/ Lindis River, which only connects directly to the Ōmakō in high flows. In normal flow, Shepherds Creek soaks into gravels 3 kilometres short of the confluence, entering the Ardgour Alluvial Aquifer which then seeps into the Ōmakō.[9] Modelled 7-day mean annual low flow (MALF) of Shepherds Creek at the bottom of the project site is 4.25 l/s, with a modelled mean flow of 18.6 l/s. Most of the flow comes from the upper catchment, which has a high density of contributing springs.[10] Water is currently abstracted for irrigation and stock use and for mining exploration.[11]

Although there are no freshwater fish present in Shepherds Creek, the ecological value of Shepherds Creek has been assessed as moderate to high in the upper reaches down to at least the downstream gorge section, and moderate below this. The ecological value of the upper reaches derives from the

[8] Komanawa Solutions Ltd, 2025b.
[9] Komanawa Solutions Ltd, 2025b.
[10] Komanawa Solutions Ltd, 2025c.
[11] Tarras Farm Limited Partnership holds a consent until 2056 to take up to 27.78 l/s from the lower part of Shepherds Creek.

largely unmodified state of the stream[12] and quality of the habitat for aquatic macroinvertebrate species. Above the main water abstraction point there is a moderately diverse range of invertebrate species present, with an absence of problematic introduced species.[13]

Rise and Shine Creek is a small tributary of Bendigo Creek, with a modelled 7-day MALF of 1.3-5 l/s and mean flow of 7.6 l/s.[14] Further downstream, Bendigo Creek soaks into the Bendigo Aquifer which connects to the Mata-au/ Clutha River near the head of Lake Dunstan. The only abstraction from Rise and Shine Creek is for mining exploration activities. Two consents are held for irrigation, stock water and domestic use in Bendigo Creek further downstream.[15]

Ecological values vary across the length of Rise and Shine Creek. The stream draining Mt Moka in the upper Rise and Shine catchment, aside from the lower 200m, is considered a high-quality habitat area due to the macroinvertebrates present but other parts of the stream system have low to moderate value.

There are no large wetlands in the project area but numerous small swamps, fens and seepages (mostly less than 0.1 ha in area). In the area of direct disturbance these small wetlands total 3.12 ha, primarily comprising swamp/ marsh complexes and fens in valley floors and gullies, particularly the valley floor of Rise and Shine Creek. The wetlands have generally been degraded by the impacts of livestock and fire, but the condition of swamps in the upper Rise and Shine valley is moderately high.[16]

3.3.2 Effects identified in Bendigo-Ophir Gold Project technical reports

Project activities will have a range of actual and potential effects on groundwater and surface water bodies, both during operation and in the post-closure period. These effects include:

- Permanent loss of stream and wetland extent
- Realignment or diversion of streams
- Long term changes to groundwater and stream flow
- Loss or modification of wetland habitat
- Water quality changes.[17]

Effects of the various components of the Project are summarised in Tūtohi 2 below.[18]

Tūtohi 2: Effects on water bodies and aquatic ecosystems identified in technical reports

Open Pits - Rise and Shine (RAS); SRX; Come in Time (CIT)	• The RAS Pit will extend through a short reach of Rise and Shine Creek, so the creek will be diverted via a culvert across the pit wall and back into the course of the creek downstream. High flows will not be carried by the culvert and so will be lost from the creek. Excavation of the RAS Pit will lead to loss of 606 m of the mainstem of Rise and Shine Creek, 410 m of an ephemeral

[12] Modification is limited to livestock impacts.
[13] Water Ways Consulting, 2025.
[14] Komanawa Solutions Ltd, 2025c.
[15] Bendigo Station holds consents to take 50 l/s from Bendigo Creek, and a further 110 l/s at times of high flow.
[16] RMA Ecology Ltd, 2025d.
[17] Water Ways Consulting, 2025.
[18] This information is from Komanawa Solutions Ltd, 2025a, 2025b, 2025c; Mine Waste Management Limited, 2025e; Geocontam Risk Management, 2025; Water Ways Consulting, 2025; RMA Ecology Ltd, 2025d.

RAS Underground Mine	tributary of this creek and 1,054 m of ephemeral streams in the Shepherds Creek catchment. • The SRX pit will lead to loss of 465 m of moderate to low quality stream habitat and 412 m of high-quality stream habitat. • The CIT pit will remove 336 m length of ephemeral stream in the Shepherds Creek catchment. • Dewatering of mine areas to remove inflow from groundwater penetration is expected to lead to depletion of flow in the connected Shepherds Creek and Rise and Shine Creek. For Shepherds Creek, the loss of flow will occur for 11.3 years, with an estimated peak depletion of 5.2 l/s. For Rise and Shine Creek depletion is estimated to peak at 17.3 l/s but the period of depletion will be much shorter (1-1.25 years). • Discharges from dewatering will contain elevated levels of sulphate and other contaminants. These could include metals released from rock material, nitrogen compounds from explosives and petroleum hydrocarbons from use of machinery. [19] • Pit excavations and interception of groundwater and surface water flows will lead to loss of wetland extent and habitat and loss of connectivity between wetlands. • Water quality in wetlands may be affected by sedimentation or contamination from leachates. • At closure, pit lakes will be formed in the RAS Open Pit and Srex Open Pit. Filling of the RAS pit lake will detain water from the Shepherds Creek system (estimated as an average of 6 l/s). Once the lake is full it will reconnect to the creek system, but this will not happen for 50-60 years. • Hydrological buffering within the flooded RAS pit lake and underground workings will alter the hydrological function of the area. This is expected to contribute to overall increases in surface water flows in both Shepherds and Bendigo catchments and more stable flow patterns, with baseflows providing a higher proportion of creek flow at the expense of high flows.[20]
Engineered Landforms (ELF)	• Establishment of the Tailings Storage Facility in the upper reach of Shepherds Valley will include impoundment of the upper part of Shepherds Creek. It will occupy 65.5 ha and lead to a loss of 3,812 m of perennial stream length and a further 248 m of ephemeral streams.

[19] Contaminants of potential concern (COPC) identified include aluminium (Al), antinomy (Sb), arsenic (As), cobalt (Co), copper (Cu), chromium (Cr), iron (Fe), molybdenum (Mo), nickel (Ni), lead (Pb), sulphate (SO_4), strontium (Sr), zinc, (Zn), cyanide (CN), ammoniacal nitrogen (NH_4-N) and nitrate nitrogen (NO_3-N) (Mine Waste Management Limited, 2025d).

[20] Modelling suggests Shepherds Creek 7-day MALF would increase from 2 l/s to 12.5 l/s, and Rise and Shine Creek from 1.3 l/s to 5.5 l/s. Changes in mean flow would be: Shepherds Creek – from 18.3 l/s to 29.1 l/s; Rise and Shine Creek – from 12.1 l/s to 18.6 l/s.

Tailings Storage Facility (TSF)	• The Shepherds ELF will bury a significant section of Shepherds Creek below the TSF impoundment, with a loss of 1,832 m of perennial stream length and 2,813 m of intermittent and ephemeral streams. • A silt collection pond at the toe of the Shepherds ELF will cover a 442 m length of Shepherds Creek and overlay the confluence of two tributaries. • The SRX ELF will bury 357 m of ephemeral streams in the Rise and Shine Creek catchment in addition to the stream length lost through excavation of the SRX pit. • Artificial drainage paths will be created and will remain post-closure. • The ELF and TSF will be formed above the bed of Shepherds Creek and surrounding land. Although flow from springs and tributaries close to the ELF and TSF will be diverted around the margin of the area into lower Shepherds Creek, it is estimated that 20-30% of the upper catchment flow to Shepherds Creek will be lost, leading to a decline in creek flow during the operation of the mine. This decline in flow is expected to be offset by cessation of an existing irrigation permit which takes virtually all of the available water in Shepherds Creek over most of the irrigation season. • Deposition of overburden, waste-rock, and tailings and diversion of water from ephemeral streams will lead to loss of wetland extent and habitat and loss of connectivity between wetlands. • Alterations to land surfaces following rehabilitation, including an increase in absorption of water by soil placed as part of rehabilitation, will alter the hydrological function of the area. This is expected to contribute to overall increases in surface water flows in both Shepherds and Bendigo catchments and more stable flow patterns, with baseflows providing a higher proportion of creek flow at the expense of high flows. • Seepage from ELF will lead to elevated concentrations of sulphate in the Ardgour alluvial aquifer post-closure. These concentrations could potentially be above the aesthetic guidelines for drinking water. Seepage may also contain elevated concentrations of nitrogen compounds and various metals. • Water quality in wetlands may be affected by sedimentation or contamination from leachates. • Post-closure release of water will introduce sulphate and metals into Shepherds Creek and Rise and Shine Creek. A water treatment plant in the lower Shepherds valley is proposed to be established for the “active closure” period to remove contaminants.
Processing Plant and ancillary activities (including	• The construction of the processing plant in the lower reaches of the Shepherds valley will include earthworks in the riparian margins of Shepherds Creek and realignment of 2,960 m of the creek through the gorge section.

fuel/ explosives storage, roading, topsoil storage)	• There is potential for spillage to release contaminants associated with processing (including cyanide, sulphate, arsenic and copper), from fuel storage/ refuelling/ vehicle washdown and from explosives storage. • Drainage of roading and plant areas may lead to loss of wetland extent and habitat. • Some topsoil storage areas will be placed over ephemeral or intermittent streams and one section of Jean Creek, leading to loss of stream extent for the period until the topsoil is used in site rehabilitation.
Water supply	• Water supply will be taken from a bore in the Bendigo Aquifer to the west of the main mine zone. The hydrogeological assessment is that the proposed rate of take can be sustained by the aquifer and the connected Mata-au, with depletion effects on these water bodies being less than minor.

The measures proposed to manage or mitigate these effects on wai māori include:

Water quantity

- Use of water from dewatering to reduce the volumes of bore water needing to be taken.[21]
- Diversion of clean water around the edges of the ELF/TSF area into lower Shepherds Creek.[22]

Water quality

- Management of mine-impacted water within a closed system during mine operations, by reuse as process water and impoundment of any residue together with tailings in the TSF.[23]
- Active water treatment of residual contaminants from ELF seepage in the immediate closure period (from year 11), by way of a treatment plant in the lower Shepherds valley. If all mine-impacted water is not able to be re-used during operation, and there is "unacceptable" risk of spill from the TSF, the water treatment plant may need to be built in the operational phase rather than at closure.[24] Active water treatment would be required for around 50 years and then would be replaced by passive treatment to manage sediment, nitrate, sulphate and remaining metals (such as iron, arsenic and vanadium). This would take the form of retention in a pond or treatment wetland and disposal of sludge.[25]
- Contingencies against elevated concentrations of sulphate in domestic water bores in the Ardgour Alluvial Aquifer could include provision of a protected, alternative water supply or dilution of sulphate concentrations by tailored Managed Aquifer Recharge.[26]

[21] Komanawa Solutions Ltd, 2025b.
[22] Komanawa Solutions Ltd, 2025c.
[23] Mine Waste Management Limited 2025b.
[24] Mine Waste Management Limited, 2025d.
[25] Komanawa Solutions Ltd, 2025b; Mine Waste Management Limited, 2025d.
[26] Komanawa Solutions Ltd, 2025b.

Aquatic ecology and wetlands

- Specific treatment of permanent stream diversions along the margin of Shepherds ELF and SRX-ELF to enhance aquatic invertebrate values. This will include construction of pool and riffle features and establishment of riparian vegetation.[27]
- Establishment of new wetlands to offset those lost, and translocation of wetland vegetation.[28]

Monitoring

- Monitoring of water quality and flow/ level.[29]

3.4 Effects on Terrestrial Ecology

3.4.1 Ecosystem characteristics and values

Ecosystems in the project area have been significantly modified by the history of mining and pastoral farming on the land, with associated earthworks, vegetation clearance, burning, livestock grazing, introduction of exotic pasture species and invasion of weeds and animal pests.

Despite this, a diverse range of native flora and fauna species are present in or near the area, including 176 plant species, 28 bird species, 3 lizard species and 222 invertebrate species. Species present that are nationally or regionally 'Threatened' or 'At Risk' include at least 58 plant species, 10 bird species, 2 lizard species and 18 invertebrate species.

Although the landscape is predominantly in exotic vegetation cover, native grey scrub, kānuka, tussock, taramea, and *Raoulia* (cushionfield) species are characteristic features. In addition to exotic pasture, vegetation communities include herbfield/ cushionfield, tussockland, shrubland and wetlands. Tūtohi 3 shows the relative areas occupied by each community and the ecological value assigned to each. [30]

Tūtohi 3: Vegetation cover in direct disturbance area

Value	Vegetation community	Proportion of direct disturbance area occupied
Very high	mixed depleted herbfield (cushionfield) and grassland	17%
	native dominant scrubland	14%
High	native dominant tussockland	4%
	native taramea herbfield and shrubland	<1%
	swamps/marshes	<1%

[27] Matakanui Gold Limited, 2025a, 2025b.
[28] 7.5 ha of swamps and marshes are proposed to be established to offset the loss of 0.13 ha seepage, 0.48 ha fen and 2.51ha of swamp and marsh. These will include 2 ha of permanent water and 4 ha of ephemeral wetland area in the TSF and 0.5 ha wetlands in each of Ardgour Terrace and Shepherds Gully downstream of the plant, as well as a 0.5 ha wetland in the location of the plant once this is removed at the end of mining (Alliance Ecology, 2025; RMA Ecology Ltd, 2025d; Matakanui Gold Limited, 2025b).
[29] Komanawa Solutions Ltd, 2025b, 2025c; Mine Waste Management Limited, 2025a, 2025d.
[30] Alliance Ecology, 2025.

Moderate	mixed tussock, shrubland and exotic grassland	31%
	mixed scrubland	20%
	seepages and fens	<1%
Low	exotic pasture or herbfield	13%

Several areas of conservation land are located close to the project area. These include:

- Bendigo, Ardgour and Neinei i kura Conservation areas that straddle the Dunstan Mountains to the northeast and southwest of Thomsons Saddle
- Dry Creek Conservation Area on a section of Dry Creek.

3.4.2 Effects identified in Bendigo-Ophir Gold Project technical reports

Effects of the proposed activities on terrestrial ecological values can be summarised as:

- Loss of vegetation and habitats
- Habitat fragmentation and loss of ecological connectivity
- Impacts on adjacent habitats through edge effects (e.g. invasion by weeds)
- Loss of or harm to species or risk of nest destruction associated with vegetation clearance, earthworks activities, blasting, and electrocution from transmission lines
- Disturbance from noise, vibration, dust and lighting
- Spread of exotic/invasive plants or animals.[31]

Specific impacts of the various components of the Project are described in Tūtohi 4.[32]

Tūtohi 4: Effects on terrestrial ecosystems and indigenous species identified in technical reports

Open Pits - Rise and Shine (RAS); SRX; Come in Time (CIT)	• Vegetation clearance and earthworks will lead to fragmentation and loss of vegetation and habitats. There is also potential for destruction of nests and direct loss of eggs and chicks, and for killing or injuring lizards, through clearance activities. • Blasting may kill birds, lizards or invertebrates. For birds, disturbance effects from blasting may also affect breeding success, displace individuals or influence flight habits over or near the site, including through Thomson Gorge saddle. Mine blasting can also create potential disturbance effects on the high avifauna values at the Bendigo wetland and Lake Dunstan. • Other noise, vibration and artificial lighting may also cause disturbance of bird or lizard behaviour. Artificial lighting at night may also affect invertebrates.

[31] Alliance Ecology, 2025.
[32] Alliance Ecology, 2025; RMA Ecology Ltd, 2025a, 2025b, 2025c; Habitat NZ Ltd, 2025c.

Engineered Landforms **Tailings Storage Facility (TSF)**	• Deposition of overburden, waste rock and tailings will lead to fragmentation and loss of vegetation and habitats. • A breeding pair of kārearea are thought to be nesting alongside Shepherds Creek in the vicinity of the ELF and TSF, and there is a risk of destruction of the nest or other disturbance to kārearea breeding activities.
Processing Plant and ancillary activities (including fuel/ explosives storage, roading, topsoil storage)	• Vegetation clearance and earthworks will lead to fragmentation and loss of vegetation and habitats. There is also potential for destruction of nests and direct loss of eggs and chicks, and for killing or injuring lizards, through clearance activities. • There is a risk of electrocution of kārearea from uninsulated power poles/pylons or other uninsulated electrical infrastructure. • Vehicle collision presents a risk for birds, including pipits and kārearea.[33] • There are potential disturbance effects from roading upgrades and lighting.

Measures proposed to avoid, minimise or remedy these effects include:

- Realigning the new road to avoid habitat of a threatened moth species
- Delaying mining of the CIT Pit to allow for research on threatened plant species in that area
- Locating spoil sites and infrastructure to reduce impacts on high value habitats and key ecological features
- Minimising infrastructure footprints
- Measures to minimise electrocution and collision risk
- Establishing buffers around nesting areas for the period until chicks have fledged
- Lighting management protocols to minimise effects on wildlife
- Salvaging and relocating lizards (10-30% of the total population of over 100,000) and some invertebrate species, transplanting some plant species and relocating habitat features
- Constructing and maintaining stockpiles in ways that promote regeneration of native species
- Rehabilitation of ELFs and other disturbed areas (excluding pit lakes, pit walls and permanent infrastructure).

Despite these measures, the project will result in the loss of 610 ha of habitat, with 189.4 ha of this being very high value herbfield (cushionfield)/ grassland and native dominant scrubland and 29.6 ha being high value native dominant tussockland, native taramea herbfield/ shrubland and swamps/ marshes. Residual effects on threatened lizard species and some threatened plant and invertebrate species are also assessed as being likely to be high or very high.[34]

[33] Vehicle movements are expected to be approximately 350 per day during construction and approximately 150 per day during mine operation.
[34] Alliance Ecology, 2025.

The residual effects are proposed to be offset or compensated for by ecological restoration and/or habitat enhancement measures that will provide net gain or positive benefits for biodiversity. The proposed package is based on conversion of exotic habitats to native ecosystems, prioritising reinstatement of species that are rare, under-represented or that have disappeared in the area, as well as native species that will withstand harsh and variable conditions. It will include a combination of planting, natural regeneration, habitat enhancement and control or exclusion of weeds and pests, focused on four areas, as described in Tūtohi 5.

Tūtohi 5: Proposed ecological rehabilitation and offsets

Area	**Size**	**Measures**
Mine regeneration zone (comprising most of the mine site not directly affected by mining activities)	889 ha	• Native regeneration and enrichment/ expansion planting, including snow tussock, taramea, kōwhai, olearia, cushionfield and spring annual species • Stock exclusion or controlled grazing • Weed and competition management
Ardgour restoration area (assumed to be located on Ardgour Station north of the mine site)	1263 ha	• Restoration planting of alluvial podocarp dominated forest (10 ha), enrichment planting of native woody vegetation and establishment of kōwhai groves • Exclusion or controlled grazing of livestock • Eradication of browsing mammals (deer, goats and pigs, but not rabbits) • Control of rabbits to ORC target densities in areas where ongoing browsing is beneficial to cushionfield vegetation, and installation of rabbit-proof fences in other selected areas • Control of predators (possums, rats, mustelids, cats and hedgehogs, but not mice) to target densities • Selective pest plant control
Ardgour Sanctuary (located north of the process plant)	38 ha	• Construction and maintenance of pest exclusion fences • Exclusion of livestock • Eradication of browsing mammals (except rabbits) and mammalian predators • Installation of rock refuges to improve habitat for invertebrates, lizards and plants • Native revegetation focused on restoration of tussock grassland and shrubland
Bendigo Sanctuary (located southwest of the process plant)	29 ha	

		• Translocation of threatened/ at risk flora and fauna species that have disappeared from the local area

3.5 Effects on Landscape and Natural Character

3.5.1 Landscape characteristics

The project area occupies the catchments of Shepherds Creek and Rise and Shine Creek from the base of Matakinui / the Dunstan Mountains to the upper slopes near Thomsons Saddle. Rise and Shine Creek is a prominent feature from Thomsons Gorge Road and the Shepherd Creek valley can also be seen from the road near Thomsons Saddle.

Key features of the landscape are the steep-sided valleys carved by the creeks, the ridges forming the boundary between their catchments, and the patchwork of pasture, shrubland and tussockland vegetation. This is illustrated in Whakaahua 5 below and in the photographic images in Appendix 3.



Whakaahua 5: View into the upper reaches of the Shepherds Creek catchment [Source: Bendigo Ophir Mine - Landscape, Natural Character and Visual Assessment, July 2025]

3.5.2 Effects identified in Bendigo-Ophir Gold Project technical reports

The physical and natural landscape will be significantly altered by mine operations. Key elements of the proposed mine which will alter the landscape include:[35]

- Excavation of the Rise and Shine Pit, Come in Time Pit, and Srex Pit. Although the Come-in-Time Pit will be backfilled, the others will endure, with pit lakes forming in them over time.

[35] Boffa Miskell, 2025.

The Rise and Shine Pit will occupy an estimated 77.4 ha and the Srex Pit will occupy 14.6 ha;[36]

- Construction of permanent landscape features such as the Tailings Storage Area (TSF), Shepherds Engineered Landform (ELF), Western ELF and Srex ELF with associated diversion channels. The TSF and Shepherds ELF will bury the bed of Shepherds Creek and fill in the creek valley, with the ELF having an average height of 76m and a maximum height of 210m at the lower end;[37]
- Realignment of Thomsons Gorge Road.

Additional effects throughout the project include the construction and use of the haul roads, construction of the plant, site workers camp and geology compound.

The natural character of Shepherds Creek and Rise and Shine Creek will also be affected by the modifications to those creeks described in Section 6.3, as follows:

- There will be significant impacts on Shepherds Creek. The geomorphology, flow patterns and hydrological processes will be highly modified by covering and/or realignment of the natural channel for most of the length of the creek through the project area. Riparian vegetation will also be depleted, although some of this will re-establish along the diversion channel following closure;
- A lesser extent of Rise and Shine Creek will be modified by excavation (in proximity to the RAS Pit) and diversion (around the RAS Pit and SRX Pit and ELF). In those areas the geomorphology, flow patterns and hydrological processes will be highly modified, and riparian vegetation will be lost.[38]

Although the Rehabilitation Plan includes measures to soften and naturalise the re-formed landscape, the character of the landscape will be permanently changed:

- The presence of most of Shepherds Creek and the upper valley formed by this creek will be lost, with the valley landform replaced by the flat surface of the TSF and the hill form created by the ELF;
- Part of the ridgeline and slopes dividing Shepherds Creek and Rise and Shine Creek will be transformed into a large, slowly filling pit lake;
- Thomsons Gorge Road will be shifted to the opposite side of the Shepherds Creek catchment.

In addition to the effects on the physical landscape, the introduction of plant, vehicles, machinery and artificial lighting will alter the character of the rural landscape for the operational period of the mine.

[36] Matakanui Gold Limited (2025b).
[37] Mine Waste Management Limited, 2025b.
[38] Boffa Miskell, 2025.

4. Statutory Framework

4.1. Fast-track Approvals Act 2024 (FTAA)

The FTAA requires that functions, powers and duties under the Act are exercised in a way that is consistent with obligations under existing Treaty settlements.[39] Conditions on an approval may be set to recognise or protect a relevant Treaty settlement.[40]

The processes under the FTAA carry obligations for meaningful iwi engagement at all stages, including the following:

- Consultation before lodging a substantive application: Applicants for listed projects are required to consult relevant iwi authorities, hapū and Treaty settlement entities, provide a summary of the consultation and explain how it informed the project.[41] The High Court has confirmed principles that apply to such consultation, including:

  Adequate information about a proposal is to be given in a timely manner so that those consulted know what is proposed.

  Those consulted must be given a reasonable opportunity to state their views.

  While those consulted cannot be forced to state their views they cannot complain, if having had both time and opportunity, they for any reason fail to themselves of the opportunity available

  Consultation is never to be treated perfunctorily or as a mere formality.

  The parties are to approach consultation with an open mind.

  Consultation is an intermediate situation involving meaningful discussions and does not necessarily involve resolution by agreement.

  Neither party is entitled to make demands.

  There is no universal requirement as to form or duration.

  The whole process is to be underlain by fairness.[42]

- Substantive application stage: To assist their consideration of a project, expert panels are strongly encouraged to invite comments on the application and draft conditions, or request further information about the application, from relevant iwi authorities, hapū and Treaty settlement entities and other relevant Māori groups.[43] Guidance from panel convenors suggests panels should invite comments and consider information regarding mātauraka Māori, tikaka, matters of significance to Māori, whether the application aligns with Treaty settlement obligations and recognised customary rights under relevant legislation as well as how iwi feedback could be incorporated into consent conditions and management plans.

- Hearing stage: if a hearing is held, section 58 requires panels to recognise tikaka Māori where appropriate.

[39] FTAA, section 7 and section 82.
[40] FTAA, section 84.
[41] FTAA, sections 29, 43(2)
[42] *Land Air Water Association v Waikato Regional Council* [2001] ELHNZ 428 at [453], cited in *Ngāti Kuku Hapū Trust v Environmental Protection Agency* [2025] NZHC 2046
[43] Fast-track Approvals Act 2024: Panel Conveners Practice and Procedure Guidance (22 July 2025) at page 9.

Under Schedule 5 of the FTAA, applications for activities that would otherwise require approval under the Resource Management Act 1991 (RMA) must include:

- an assessment of the project against sections 5, 6 and 7 of the RMA;[44]
- an assessment against any relevant national policy statement, national environmental standard, regional policy statement or proposed regional policy statement, plan or proposed plan;[45]
- an assessment against any recognised iwi planning document;[46] and
- identification of relevant Treaty settlement provisions and a summary of any redress provisions affecting natural and physical resources relevant to the project or area.[47]

Schedule 7 sets out the information required in relation to a wildlife approval. This includes assessment of the impacts of the activity on protected wildlife and methods to be used to avoid, minimise, offset or compensate for adverse effects.

Under Schedule 5 (RMA) and Schedule 11 (Crown Minerals Act), an application must also include details of iwi consultation undertaken.

4.2 Ngāi Tahu Claims Settlement Act 1998 (NTCSA)

The NTCSA was enacted to settle the historical Ngāi Tahu claims against the Crown and provides redress under Te Tiriti o Waitangi. The Crown apology in sections 4-6 explicitly recognises the rakatirataka of Kāi Tahu within its takiwā as follows:

> *The Crown apologises to Ngāi Tahu for its past failures to acknowledge Ngāi Tahu rangatiratanga and mana over the South Island lands within its boundaries, and, in fulfilment of its Treaty obligations, the Crown recognises Ngāi Tahu as the tāngata whenua of, and as holding rangatiratanga within, the Takiwā of Ngāi Tahu Whānui.*[48]

Rakatirataka is expressed in how we live and identify as Kāi Tahu. Rakatirataka is sourced from our tūpuna from which stems our inherent authority over our takiwā. Kā Rūnaka protect and enhance rakatiratak for our tamariki and mokopuna: '*mō tātou ā mō ngā uri ā muri ake nei*'.

The Crown recognised Ngāi Tahu rakatirataka under Article Two of Te Tiriti o Waitangi and the Ngāi Tahu Treaty Settlement Deed (1997) and legislation (1998). However, the rakatirataka of Kā Rūnaka is not derived from, nor can it be granted by the Crown or the courts. The Crown's actions can have the effect of limiting rakatirataka in practice, but the Crown cannot remove rakatirataka so long as it continues to be exercised by Ngāi Tahu.

These aspects of rakatirataka were well expressed by the Ngāi Tahu Māori Trust Board submission on the Rūnanga Iwi Bill in 1990:

> *Ngāi Tahu say that our tribal Tino Rangatiratanga is inherent in us from time immemorial, it is un-interrupted and continuing to the present day and into the future.*

[44] Provisions of particular relevance to this CIA are highlighted in section 4.3 below.
[45] Provisions of particular relevance to this CIA are identified in Sections 4.4 to 4.8 below.
[46] Relevant provisions are identified in Section 4.9 below.
[47] Relevant provisions are discussed in Section 4.2 and in Section 8 below.
[48] NTCSA, section 6.

Our tribal Rangatiratanga does not derive from proceedings of Parliament, nor does it depend upon any grant of the Crown which introduced Parliament to this land.

In sum, rakatirataka is about upholding our rights and obligations to generations past, present and future. This includes te taiao, the mauka, awa and other landscapes of Kā Rūnaka and the ability to sustain our people in the future: rakatirataka therefore concerns the interrelationship between our people and the natural environment.

There is no prescription of what rakatirataka looks like in practice. Rakatirataka is contextual and will develop in line with our aspirations and changing societal needs. What remains constant is our commitment to our values and people.

The NTCSA includes specific mechanisms that provide for the exercise of rakatirataka and kaitiakitaka by mana whenua in relation to mahika kai, taoka species, and other resource management matters. These include rights in relation to the management of listed taoka species and specified significant areas including statutory acknowledgement areas.

Statutory acknowledgements are a mechanism to highlight the interest of Kāī Tahu in resource management processes affecting the areas covered by the acknowledgement. The Statutory Acknowledgements for Mata-au (Clutha River) and Te Wairere (Lake Dunstan) are set out in Appendix 4.

Schedule 97 of the NTCSA details species the Crown recognises as taoka species.

4.3. Resource Management Act 1991 (RMA)

All decision-making under the RMA is subject to the provisions of Part 2, which describes the purpose and principles of the RMA. Sections 5, 6 and 7 in Part 2 must be considered under the FTAA. These provisions recognise and provide for Kāi Tahu values and interests in the Mata-au, the Bendigo-Tarras Basin, Matakinui and the Manuherekia Valley.

The relationship of Kā Rūnaka with the wai, the whenua and taoka species in these areas is a matter of national importance that must be recognised and provided for in managing natural and physical resources.[49] In respect to this requirement, the High Court has stated:

> *"The statutory obligation to recognise and provide for the relationship of Māori and their culture and traditions with their whenua and tāonga, to have to regard to their kaitiakitanga and take into account the principles of the Treaty of Waitangi, does not permit indifference to the tikanga-based claims of iwi to a particular resource management outcome".*[50]

The depth and breadth of the associations of mana whenua with the area affected by the Bendigo Ophir Gold Project is discussed in Section 6.

In achieving the purpose of the Act particular regard is required to kaitiakitaka.[51] Kāi Tahu whānau exercise kaitiakitaka in the areas affected by the project. Maintaining a balance between the right to access and use natural resources, and the responsibility to care for te taiao, with a focus on providing a sustainable base for future generations is implicit in kaitiakitanga. This is also consistent with the purpose of the RMA, which requires that natural resources are managed in a way that enables people and communities to provide for their social, economic and cultural wellbeing and

[49] RMA, section 6(e).
[50] *Ngati Maru Trust v Ngati Whatua Orakei* [2020] NZHC 2768.
[51] RMA, section 7(a).

their health and safety while safeguarding the life-supporting capacity of te taiao and sustaining its potential to meet the needs of future generations.[52]

The Environment Court has found that kaitiaki have a right to protect the history of their cultural and customary associations to an area.[53] In a Kāi Tahu context, the Environment Court in *Aratiatia Livestock Ltd v Southland Regional Council* has commented that it is the responsibility of kaitiaki to ensure that water is available for future generations in as good as, if not better, quality, and tikanga goes beyond any rights or obligations that may attach to the use of water.[54]

4.4 National Policy Statement for Freshwater Management 2020 (NPSFM 2020)

The NPSFM 2020 requires that freshwater is managed in a way that gives effect to Te Mana o te Wai.[55] The concept of Te Mana o te Wai has been part of the NPSFM since 2014 but was brought to the forefront of freshwater management in Aotearoa through the NPSFM 2020 (updated 2024). Te Mana o te Wai recognises that protecting the health of freshwater (te hauora o te wai) protects the health and wellbeing of the wider environment (te hauora o te taiao).

The concept of Te Mana o te Wai represents a significant paradigm shift in freshwater management. The previous focus on the scale and significance of the effects of resource use is now redirected onto the mauri or life-force of water and the enquiry becomes how do users of resources protect the water's health and well-being?[56]

The NPSFM 2020 recognises the relationship of mana whenua with freshwater, requires that Māori freshwater values are provided for, and requires that mana whenua are actively involved in freshwater management processes.[57]

Specific provisions in the NPSFM 2020 relating to protection of the extent and values of natural inland wetlands and of rivers[58] are as follows:

- Policy 6 requires that there is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted. For mineral extraction, the NPSFM 2020 and the related National Environmental Standards for Freshwater 2020 (NESF) provide a consent pathway for some activities in and near wetlands, if the mineral extraction meets tests of significant national or regional benefits and "functional need" to be in that location.[59] Adverse effects on wetland values must be avoided where practicable, or otherwise managed in accordance with an effects management hierarchy.
- Policy 7 requires that the loss of river extent and values is avoided to the extent practicable. A consent pathway, subject to application of an effects management hierarchy, is available if there is a functional need for the activity in that location.[60]

[52] RMA, section 5.
[53] *Ngāi Te Hapū v Bay of Plenty Regional Council* [2017] NZEnvC 73 at [88].
[54] *Aratiatia Livestock Ltd v Southland Regional Council* [2019] NZEnvC 208 at [50].
[55] NPSFM Policy 1.
[56] *Aratiatia Livestock Limited and Ors v Southland Regional Council* [2019] NZEnvC 191.
[57] NPSFM 2020 Clause 1.3(4)(a)-(c), Policy 2, Clause 3.4.
[58] In the RMA and the policy statements and plans that give effect to the RMA, rivers are defined to include streams and modified watercourses.
[59] NPSFM 2020 Clause 3.22(1)(e); NESF Clause 45D. The consent pathway provides for vegetation clearance, earthworks, land disturbance, taking/ use/ damming/ diversion of water and discharge of water as a discretionary activity.
[60] NPSFM 2020 Clause 3.24.

Policy 9 also requires protection of the habitats of indigenous freshwater species.

4.5 National Policy Statement for Indigenous Biodiversity 2023 (NPSIB)

The NPSIB applies to terrestrial indigenous biodiversity. Its objective is to maintain indigenous biodiversity across New Zealand with no overall loss.[61]

Decision-making principles that must be given effect to in implementing the NPSIB prioritise the mauri, intrinsic value and wellbeing of indigenous biodiversity. The principles also recognise the whakapapa relationship of takata whenua with indigenous biodiversity and the associated kaitiakitaka obligation.[62]

4.6 Proposed Otago Regional Policy Statement 2021 (PORPS)[63]

Direction in the PORPS reflects changes in national direction, case law and the understanding of resource management best practice developed since the district plan and regional plan applying to the area of this proposal were made operative. Except where otherwise stated, the PORPS provisions referred to here are beyond challenge and therefore are effectively operative.

The PORPS includes key policies describing how mana whenua interests and values are to be provided for in resource management processes and decision-making.

Policy MW-P2 describes the measures required to ensure that functions and powers under the RMA are exercised in accordance with the principles of the Treaty of Waitangi. While this applies specifically to local authorities, the contents also have relevance to other resource management decision-makers. Relevant requirements include the following:

- recognising the status of Kāi Tahu as mana whenua and facilitating Kāi Tahu involvement in decision-making;
- including Kāi Tahu in resource management processes, implementation and decision-making to the extent desired by mana whenua;
- recognising and providing for Kāi Tahu values and addressing resource management issues of significance to Kāi Tahu, as identified by mana whenua, in resource management decision-making processes;
- recognising and providing for the relationship of Kāi Tahu culture and traditions with their ancestral lands, and waters, encompassing wai māori and wai tai, significant sites, wāhi tūpuna, wāhi tapu and wāhi taoka, and other taoka by ensuring that Kāi Tahu have the ability to identify these relationships and determine how best to express them;
- having particular regard to the responsibility of Kāi Tahu to exercise their role as kaitiaki, as an expression of mana and rakatirataka;
- taking into account iwi management plans when making resource management decisions; and

[61] NPSIB Clause 2.1. See also Clause 1.7 for a description of specific ecosystem attributes that must be maintained.
[62] NPSIB Clause 1.5(1) and (3).
[63] The discussion in this section refers to the PORPS "Appeals version" as at 7 November 2025. This version incorporates amendments made by consent order up to that date.

- recognising and providing for mātauraka and tikaka in environmental and resource management.

Policy MW-P3 recognises and provides for the relationship of Kāi Tahu with whenua and wai māori as follows:

MW–P3 – Supporting Kāi Tahu hauora

The natural environment is managed to support Kāi Tahu hauora by:

(1) recognising that Kāi Tahu hold an ancestral and enduring relationship with all whenua, wai māori and coastal waters within their takiwā,

(2) protecting customary uses, Kāi Tahu values and relationships as identified by Kāi Tahu to resources and areas of significance, and restoring these uses and values where they have been degraded by human activities,

(3) safeguarding the mauri and life-supporting capacity of natural resources, recognising the whakapapa connections of Kāi Tahu with these resources as taoka, and the connections to practices such as mahika kai, and

(4) working with Kāi Tahu to incorporate mātauraka into resource management processes and decision-making.

The relationship of Kāi Tahu with natural resources is also required by Policy IM-P3 to be recognised and provided for by:

- enabling mana whenua to exercise rakatirataka and kaitiakitaka;
- facilitating active participation of mana whenua in processes and decision-making;
- incorporation of mātauraka;
- and providing for connections to wāhi tūpuna, wai māori, mahika kai and habitats of taoka species.

The PORPS incorporates freshwater policies that give effect to the concept of Te Mana o te Wai. The objective and policies relating to Te Mana o te Wai in the PORPS were developed in consultation with mana whenua, as required by the NPSFM, and reflect the Kāi Tahu perspective on wai māori as follows:

LF-WAI-O1 Te Mana o te Wai

Otago's water bodies and their health and well-being are protected, and restored or improved where they are degraded, so that the mauri of those water bodies is protected, and the management of land and water recognises and reflects that:

(1) water is the foundation and source of all life - nā te wai ko te hauora o kā mea katoa

(2) there is an integral kinship relationship between water and Kāi Tahu whānui, and this relationship endures through time, connecting past, present and future,

(3) each water body has a unique whakapapa and characteristics,

(4) fresh water, land and coastal water have a connectedness that supports and perpetuates life,

(4A) protecting the health and well-being of water protects the wider environment, and

(5) Kāi Tahu exercise rakatirataka, manaakitaka and their kaitiakitaka duty of care and attention over wai and all the life it supports.

Te Mana o te Wai policies require that:

- The environmental, social, cultural, and economic relationships of Kāi Tahu with water bodies are sustained and mātauraka is incorporated into freshwater decision-making, management and monitoring processes;[64]
- The natural connections and interactions between water bodies and between land and water are sustained;[65]
- The habitats of mahika kai and taoka species associated with water bodies are sustained and restored.[66]

This policy direction is also reflected in other freshwater objectives and policies. These include a long-term freshwater vision for the region[67] and objectives for subregional Freshwater Management Units (FMU), and an objective and policy for wetland management.[68]

The Project is located in the Dunstan Rohe within the Clutha River / Mata-au FMU. The Dunstan Rohe runs from the outlets of lakes Wānaka, Whakatipu and Hāwea down to the Clyde Dam. It includes the Upper Clutha/Mata-au and its tributaries: the Kawarau, Nevis, Shotover, Hāwea, Cardrona, Arrow and Ōmakō (Lindis) rivers as well as many smaller streams. [69]

The Ecosystems and Indigenous Biodiversity chapter[70] requires that any overall decline in indigenous biodiversity is halted.[71] Objectives and policies:

- recognise the kaitiakitaka role of mana whenua;[72]
- protect ecosystems that are taoka;[73] and
- provide for Kāi Tahu to access and use indigenous biodiversity, including mahika kai, in accordance with tikaka.[74]

The PORPS objectives for wāhi tūpuna are also relevant, requiring protection of the values of wāhi tūpuna and recognition and provision for rakatirataka and kaitiakitaka over these areas. [75]

4.7 Central Otago District Plan (CODP)

The Manawhenua section of the CODP includes objectives and policies to recognise and provide for the relationship of Kāi Tahu to land, water and resources in the Central Otago District. These include requirements to:

[64] PORPS LF-WAI-P2(2) and (4).
[65] PORPS LF-WAI-P3(1)(a) and (b).
[66] PORPS LF-WAI-P3(1)(c).
[67] PORPS LF-FW-O1A.
[68] PORPS LF-FW-O9, LF-FW-P10A.
[69] Specific freshwater objectives for the Clutha Mata-au FMU, in addition to the region-wide vision, are in PORPS LF-VM-02.
[70] The decision on appeals on the ECO chapter has not yet been received.
[71] PORPS ECO-O1.
[72] PORPS ECO-O3, ECO-P1.
[73] PORPS ECO-P3.
[74] PORPS ECO-P1, ECO-P4.
[75] PORPS HCV-WT-O1 and HCV-WT-O2.

- Have particular regard to kaitiakitaka[76]
- Recognise and provide for the significance of wāhi taoka and the protection of wāhi tapu from disturbance and from inappropriate activities[77]
- Recognise and provide for the significance of wai, including through management of the effects of activities in riparian margins and on the surface of water, and in considering applications that may affect water quality [78]
- Recognise and provide for the importance of mahika kai and access to mahika kai.[79]

The CODP was made operative in 2008 and the approach to identification and protection of wāhi tapu and wāhi taoka reflects the age of the plan, with identification of sites reflecting Kāi Tahu history and culture being limited to a small number of recorded archaeological sites. More recently, there has been engagement with the Council on mapping of broader wāhi tūpuna (cultural landscapes) but this has not yet been brought into the district plan process.

4.8 Otago Regional Plan: Water (RPW)

The RPW recognises the relationship of Kāi Tahu to the Mata-au/ Clutha, Manuherekia and Ōmakō (Lindis) rivers, and also specifically to tributaries of the Manuherekia.[80] It requires that the identified values and interests in these water bodies are maintained or enhanced, and that priority is given to avoiding adverse effects on them from activities involving water and the beds and margins of water bodies.[81]

4.9 Kāi Tahu ki Otago Natural Resource Management Plan 2005 (NRMP)

The Kāi Tahu ki Otago Natural Resource Management Plan 2005 is the principal resource management planning document for Kāi Tahu in the Otago region. The kaupapa of the plan is 'Ki Uta ki Tai' (Mountains to the Sea), which reflects the holistic Kāi Tahu philosophy underpinning resource management in Otago.

The plan is an expression of rakatirataka and kaitiakitaka, and expresses local Kāi Tahu values, knowledge, and perspectives on natural resource and environmental management issues. While the plan is first and foremost a planning document to assist Kāi Tahu in Otago in carrying out their kaitiaki roles and responsibilities, the plan is also intended to assist others in understanding Kāi Tahu values and policy.

The 2005 plan (**NRMP**) includes both provisions for the whole Otago area and specific provisions for different catchments. The proposal is located within the Clutha/ Mata-au catchment.

The NRMP seeks:

- Recognition and support of the rakatirataka and kaitiakitaka of Kāi Tahu, and upholding of the mana of Kāi Tahu through the management of natural and physical resources. Measures sought to assist in achieving this include:

[76] CODP Objective 3.3.1
[77] CODP Objective 3.3.2-3.3.3, Policy 3.4.2
[78] CODP Objective 3.3.4, Policy 3.4.4.
[79] CODP Objective 3.3.5, Policy 3.4.5.
[80] RPW Schedule 1D
[81] RPW Objective 5.3.2, Policy 5.4.2

    - involvement of mana whenua in the development of monitoring programmes;
    - participation of Kāi Tahu in the management of mahika kai;
    - empowering mana whenua interpretation of their histories and associations with wāhi tūpuna.
- Recognition of the spiritual and cultural significance of wai māori to Kāi Tahu;
- Restoration of the mauri of wai māori and protection of wetlands;
- Reduction in contaminants (including sediment) being discharged directly or indirectly to water, including requiring land disposal of contaminants and management plans to avoid contamination resulting from spills and extraordinary events;
- Rehabilitation of contaminated environments, including through revegetation of all disturbed areas with locally sourced indigenous plants;
- Healthy and abundant mahika kai resources;
- Protection of the habitats and wider ecosystem needs of mahika kai and taoka species, and restoration and enhancement of indigenous biodiversity;
- Recognition of the relationship of Kāi Tahu with land in Otago, and protection of significant cultural landscapes from inappropriate use and development;
- Culturally appropriate protection of wāhi tapu.

In respect to mining activities, the NRMP specifically seeks to discourage these activities within landscapes of cultural significance or highly visible landscapes, and that mining applications include:

- site rehabilitation plans that include the planting of indigenous species
- measures to contain all waste discharges and to prevent contamination of water and soil.

5. He Manawa Kāi Tahu: Mana Whenua Values

5.1. Values Framework

Mana whenua values provide a cultural framework for whānau to identify and communicate te ao Māori perspectives. Values identified by mana whenua provide a cultural baseline that is derived from the natural state of the environment, which can be used as a tool for assessing the impact of an environmental event or activity.[82] For Kai Tahu, the wellbeing of the people and the wellbeing of the environment are integrally linked. The values framework for this assessment set out in Tūtohi 6 emphasises this interconnectedness and the expression of these values across the environmental, cultural, social, and economic spheres.

[82] Harmsworth, Awatere, & Robb, 2016.

Tūtohi 6: Values framework[83]

	Mana	Mauri	Tapu and Noa	Whakapapa
Value	*Longevity, ongoing influence and leadership in our community*	*Health and wellbeing, not only in people but also in the land and waterways*	*The protection of resources, people and particular areas, enabling us to look forward sustainably*	*Respecting people and whakapapa Taking the past with us; whakapapa is forever generative*
Key Intent	The mana of Kāi Tahu is upheld within their takiwā, including by upholding the mana of te taiao and by upholding and restoring intergenerational connections with wāhi tīpuna.	The mauri of whenua, wai and native species is restored and enhanced including within the site and in the connected Bendigo-Tarras Basin and the Ōmakō and Mata-au Rivers.	Balance is restored, and the future of our people and resources are protected.	The traditional authority of mana whenua is recognised through partnerships based on reciprocity and respect.
Environmental	Kāi Tahu are leaders in the management of our natural resources and built environment.	Mātauraka is incorporated through the co-design and co-management of our environment and resources	The environment is regenerated, and a sustainable future is secured.	Te Ao Māori informs policy, planning and decision-making
Cultural	Kāi Tahu will participate and demonstrate leadership in the community.	Kāi Tahu heritage and culture is visible, celebrated, protected and future proofed.	Communities, resources and customary practices are protected through responsible regulatory measures and processes.	Kāi Tahu values frameworks are embedded within consent conditions, restoration initiatives and mining practice.
Social	Kāi Tahu will have access to opportunities that enable social equity.	Whānau are thriving and connected with the whenua and wai, and with wāhi tūpuna.	Kāi Tahu are guided by tikaka and kawa (protocols) for the wellbeing of our whānau and wider community.	The social impacts of the Project are managed to meet the cultural needs, practices and values of whānau.
Economic	Kāi Tahu are active across all sectors of the economy.	Economic directions consistently enhance outcomes and equality for Kāi Tahu.	The Kāi Tahu economy is recognised as a critical part of our collective wellbeing.	Kāi Tahu networks are well connected and supported to build a prosperous future.

[83] Adapted from Dunedin City Council, 2025.

Mātauraka underpins the definitions of mana whenua values. Every iwi, every hapū, every Rūnaka, has its own understanding of these values and their application, based on the mātauraka handed down to them through whakapapa.

This section provides an explanation of each value, with a summary of how these values are linked to the areas affected by the proposed activity with reference to Kāi Tahu history and associations in the wider cultural landscape.

5.2. Mana

Kāi Tahu do not see their existence as separate from te taiao (the natural world), but as an integral part of it. From creation ultimately all things in the universe are interconnected and they share a single source of spiritual authority. This spiritual force is the origin of mana and tapu. Mana is the word used to describe the authority and prestige that originates from the atua and is passed down through lines of whakapapa that originated with the creation of the world. All the elements of te taiao, the mountains, the water, the birds, fish and plants, as well as people, are seen to hold mana originating from this source.

The phrase 'mana whenua' has two meanings, firstly denoting the people who are recognised as the rightful holders of the authority and prestige passed down through whakapapa and the representatives mandated by them, and secondly to express the exercise of that authority within a defined takiwā. In this context, mana whenua status sits with the whānau and hapū represented by Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga, who share interests in the inland area with whānau and hapū based in Southland.

Mana whenua status is acquired and maintained through actions like mahi taunaha, the process of discovering and naming land and resources, and tūturu te noho, maintaining rights through ongoing occupation and settlement. Tūturu te noho is underpinned by the concept of ahikāroa, referring to the long-burning fires of occupation.

In Te Waipounamu, rights of discovery are generally attributed to Rākaihautū, an early ancestor of Kāi Tahu whānui associated with the Waitaha people and the Uruao waka. Rākaihautū travelled on foot through the hinterland, digging and naming the lakes as he went using his kō named Tūwhakarōria. This process of shaping and naming the land was a means of establishing mana whenua status. Kāi Tahu ancestors subsequently assimilated Waitaha whakapapa and culture into the tribe, thus asserting Kāi Tahu as the mana whenua of much of Te Waipounamu.

Tūturu te noho was one of the primary means by which mana whenua status was maintained by whānau in the days before European settlement. Kāika, pā, and nohoaka were established across the takiwā connected by ara tawhito. Settlement sites were chosen for political, economic, social, and practical reasons, often opting for places that were close to food and natural resources. Heke were undertaken across the year to visit remote areas of the wider estate, enabling seasonal practices to take place such as mahika kai, and trade with other hapū and whānau. Moreover, these practices enabled the reaffirmation of ahikāroa through the warming of hearths across their takiwā.

The exercise of mana gives rise to rights and responsibilities in relation the natural environment, which must be kept in balance. This is expressed through the concepts of rakatirataka and kaitiakitaka, which are the means through which mana is exercised in the natural world.

Rakatirataka refers to the exercise of mana to give effect to Kāi Tahu culture and traditions in accordance with tikaka. The term pūtake-mauka is also used to refer to Kāi Tahu rangatiratanga

entitlements over wai māori. Pūtake-mauka is a unique Kāi Tahu term recorded in whakapapa books, that relates to the ancestral source of rights from the mountains which are tīpuna.[84]



Whakaahua 6: Matakinui/ Dunstan Mountains from Lowburn Sugarloaf

In the management of the natural world, rakatirataka is underpinned by the obligations placed on mana whenua as kaitiaki. The duty of kaitiakitaka is not merely about guarding or caretaking, it involves acting as an agent for environmental protection and decision-making, on behalf of tīpuna and mokopuna. In a modern context, this is also expressed through mana whenua engagement in contemporary leadership structures, aiming to facilitate whānau access to opportunities that will enable social equity and economic development.

Under the Ngāi Tahu Claims Settlement Act 1998, the rakatirataka and mana whenua status and interests of Kāi Tahu are recognised within their takiwā, which encompasses the Project site and the wider area affected by the project activities. The mana and rakatirataka of Kāi Tahu afford them the responsibility to assess the impact of the mining on cultural beliefs, values, practices, and the associated mana whenua access and connection to land and waters in their takiwā.

Mātauraka and maumaharataka handed down confirms that there were strong connections to whenua and wai māori centred on settlement, travel, and mahika kai activities within the Mata-au, Ōmakō, the Bendigo-Tarras Basin, the Dunstan Mountains and the Manuherekia Valley. These connections are described in Section 6.

For Kāi Tahu, the state of the environment and the bounty of resources are significant measures of the mana of the people. Under the tenets of kaitiakitaka, mana whenua consider it their duty to protect and sustain te taiao for future generations. This includes caring for taoka species and their

[84] Pūtake has the meaning of both ‘source’/ ‘ancestor’ and ‘mauka’ (mountains).

habitats and striving for the restoration of wai and whenua. These actions are an expression of their mana and enable the fulfilment of rakatirataka and kaitiakitaka roles handed down from the tīpuna. The mana of the people and that of the natural environment in their takiwā are intrinsically linked. Thus, if the mana of an element of te taiao is diminished, this also affects the mana of the people.

The inability to experience the environment as it was experienced by tīpuna in the past is a source of significant mamae for mana whenua today. The cumulative effects of land use and development have significantly degraded habitats and ecosystems with a resulting loss of cultural values and loss of connection, particularly related to the practice of mahika kai. Kāi Tahu continue to seek opportunities to restore these practices and associations, and to return the habitats and ecosystems of the whenua and wai in their takiwā to their original form.

The impacts on mauri, diminution of mahika kai and loss of connection with the whenua and wai have had impacts on the economic, social, and cultural wellbeing of Kāi Tahu. Kā Rūnaka have a strong focus on increasing opportunities for reconnection with the whenua and wai for whānau.

Kāi Tahu continue to practice mahika kai, despite the history of loss. We have seen a resurgence in our people re-establishing their connections to our whenua and waterways and breathing life into long held cultural practices. It is our aspiration to re-establish habitat for taoka species and to improve water quality to support mahika kai practices. For reconnection to be successful, social and economic sustainability for whānau is also necessary as well as a healthy environment.

5.3 Mauri

Mauri refers to a life force that all things possess. It connects the physical and spiritual aspects of our world and the objects and beings within it and is reflected in abundance, health, and vibrancy. Mauri can be seen and felt, as can the loss of mauri. Mauri is an observable expression of tapu and mana, and protection of mauri is the primary resource management principle for Kāi Tahu. Concepts such as tapu, noa and rāhui are applied by mana whenua to protect the mauri of a resource. An assessment of mauri is a key component of mahika kai practices for whānau and is used as a means of assessing the health of the environment prior to taking resources. In places where mauri is degraded, food is not taken, or the take is restricted to allow the mauri to replenish.

The mauri of the natural environment can be affected and depleted through human activities that do not balance development with the needs of te taiao. This degradation of mauri can be seen in the loss of indigenous biodiversity, changes to the landscape, and impacts on freshwater. Unnatural disturbances to the āhua of the whenua, for example from introduction of noise, blasting and ground vibrations can also impact on mauri.

The mauri of a waterway is unable to protect itself against unnatural actions and interventions such as damming, diversions, altered flow regimes, discharges, and activities that impact on the riverbed. When the mauri of wai is degraded, there are multiple impacts. Physical effects may be noticeable in the environment, through changes in the āhua of the water, such as appearance, smell, colour, or taste. Changes in chemical composition or flow of water may also be present. These physical changes are also likely to affect animal and plant species that live in surrounding ecosystems, including loss of indigenous habitat and creation of conditions that favour non-indigenous species.

Protection of the mauri of wai māori is a significant priority for Kā Rūnaka, due to its life-giving properties and as a vital component of the living world of te taiao. Activities that degrade the natural flow of a waterway and water quality are not appropriate as they damage and degrade the mauri of

the environment. The restoration of mauri requires Matakanui to go beyond managing adverse effects on water quality to actively uplifting the mauri of the Shepherds Creek, Rise and Shine Creek and connected springs and wetlands.

The presence and health of indigenous flora and fauna is an expression of the mauri of the natural environment in an area. The removal of indigenous vegetation degrades the mauri by removing the natural cover from the land that provides important and unique habitats for indigenous species. In 2023, research identified that over 75% of indigenous reptile, bird, bat, and freshwater fish species are threatened with extinction, or are at risk of becoming threatened, including 94% of reptile species, 82% of bird species, and 76% of freshwater fish species.[85]

Degradation of mauri undermines the connection of mana whenua with wai and whenua. As mahika kai uses become unsustainable or as wāhi tīpuna become unrecognisable, a loss of knowledge can occur, as the opportunities to share the associated stories, practices, and histories diminish due to the lack of connection.

Whānau have seen this pattern take place throughout the history of European settlement in Te Waipounamu, with many behaviours and actions that undermine and degrade the mana and the mauri of our waterways, taoka and whenua still in evidence today.

Mana whenua apply the principle of utu,[86] giving back more than is taken as a means of protecting mauri. The right to take kai and extract resources from te taiao is balanced with the kaitiaki duty to care for, and nurture, the environment in return.

Mātauraka passed down through whakapapa provides an evidence base to enable the restoration and protection of the mauri of our environment, which can be actioned through co-management and co-design processes. This ensures that the heritage and culture of Kāi Tahu is visible, vibrant and alive, now and into the future within whakapapa relationships and the landscapes that they inhabit. This will also enable whānau to thrive and feel connected and provide opportunities for enhanced and equitable outcomes for Kāi Tahu.

5.4 Tapu

Tapu is an all-pervading force that has been passed down through whakapapa to the people of today. Every natural element possesses a level of tapu derived from their connection to atua and tīpuna, who were themselves imbued with powerful tapu.

The obligation to respect and protect the environment is derived from the significant tapu of te taiao. Natural elements like water, earth, and air are very early ancestors that came into being at the time of the atua and the creation of the world. As a result, their tapu is heightened, as is the obligation to protect them as taoka handed down from tīpuna and held in trust for mokopuna to come.

The tapu status of people, places, and resources establishes expectations for the behaviour of whānau. Consequently, tapu operates much as any legal system, with prohibitions and restrictions acting as means of protecting and respecting the tapu of the environment, indigenous plants and animals, and the people themselves. Tapu also acts to influence human behaviour and conduct and is a customary form of legal system.

[85] Statistics New Zealand, 2023.
[86] Reciprocity or balance.

The principle of tapu provides a guide for Kā Rūnaka to gauge the appropriateness of actions and behaviours in the context of the existing environment. In some cases, activities are deemed to be unsuitable to the point that they are prohibited. Activities that are inconsistent with life, including those that have the potential to significantly impact, damage or degrade te taiao, and/or the health of people, plants and animals, are considered tapu.

Tapu is balanced by noa, which can be described as an absence of tapu; however, rather than tapu and noa expressing a binary, it is more accurately understood as a continuum. The balance between tapu and noa within our communities and environments is a key element of resource management for mana whenua. This balance enables environmental regeneration and future sustainability. This, in turn, supports the wellbeing and social connection of whānau, supporting cultural needs, practices and values, and economic development.

5.5 Whakapapa

Kāi Tahu are bound to the land, water and all life supported by them by whakapapa. The word whakapapa references the build up of layers, a metaphor for the layering of generations from the past to the present, and into the future.

The following account of Kāi Tahu whakapapa and creation stories is sourced from the words of the famed Kāi Tahu leader, Matiaha Tiramōrehu.[87]

Nā Te Pō, ko Te Ao	*From the night came the day*
Nā Te Ao, ko Te Ao Marama	*From the day, the bright day*
Nā Te Ao Marama, ko Te Ao Tūroa	*From the bright day, the longstanding day*
Nā Te Ao Tūroa, ko Te Koretewhiwhia	*From the longstanding day, the unattainable void*
Nā Te Koretewhiwhia, ko Te Koreterawea	*From the unattainable void, the intangible void*
Nā Te Koreterawea, Ko Te Koretetamaua	*From the intangible void, the unstable void*
Nā Te Koretetamaua, ko Te Korematua	*From the unstable void, the parentless*
E moe ana Te Mākū i Mahoranuiātea	*Te Mākū, the damp, lay with Mahoranuiātea, the great expanse of light*
Ka puta ko Raki	*And the Raki the Sky was born*
Tuatahi e moe ana Raki i Pokoharuatepō	*First, Raki lay with Pokoharuatepō*
Tuarua, e moe ana Papatūānuku.	*Next, he lay with Papatūānuku the earth.*

Wai is a central element in Kāi Tahu creation traditions and is present very early in the whakapapa of the world. In this kōrero, darkness gives rise to the light, and through an abyss of nothingness, moisture materialises as the first iteration of wai. The early emergence of wai in the whakapapa gives it heightened mana and tapu status and it is a highly prized taoka.

The whakapapa continues down to Rakinui and his wives, Pokoharuatepō and Papatūānuku. The children of Rakinui and his wives created the elements of te taiao, including mountains, rivers, forests, and seas, and all living things. Kāi Tahu claim the same descent from Raki and his wives and are therefore connected to the landscapes, wai (waters), coasts and indigenous species of Te

[87] From Tiramōrehu, Van Ballekom, & Harlow, 1987.

Waipounamu by whakapapa. Kāi Tahu tribal whakapapa thus links the cosmological world of the atua to present and future generations, giving rise to a spiritual relationship with te taiao and a respect for the mauri of that environment.

Whakawhanaukataka is concerned with understanding and building relationships and is a practical expression of whakapapa. Whakawhanaukataka is reflected in the resource management approach ki uta ki tai, emphasising the holistic management of the interrelated elements within the natural environment. Water released by Raki makes its way into rivers, which in turn connect the entire landscape from the mountains to the sea. From the sea, water evaporates, condenses, and falls again on Papatūānuku, an eternal holistic cycle. Similarly, all the species that are naturally found in an area are interconnected through whakapapa, with interdependent roles in the wider ecosystem. In this understanding, all parts of the hydrological system, including tributaries, riparian areas, springs, wetlands, lakes, estuaries and groundwater, and the natural characteristics and indigenous biodiversity of the catchment, must be considered as part of an integrated whole.

The Project is situated in the Dunstan ranges east of the Mata-au, south of the Ōmakō, and west of the Manuherekia Valley. Shepherds Creek and Rise and Shine Creek, which run through the permit area, are connected to the Mata-au via the Ardgour Alluvial Aquifer, Ōmakō River (for Shepherds Creek) and Bendigo Creek (for Rise and Shine Creek). Under a ki uta ki tai understanding of environmental management, wai, whenua and other environmental resources are managed holistically, recognising their intrinsic interconnectedness, encompassing people and communities.

In Māori concepts of time, past, present, and future are present in real time, with none taking precedence over the other. Whakapapa links whānau of today with te taiao through the actions of tīpuna in the past. From the stories of the shaping and naming of the land by Rākaihautū, to the mātauraka gained over generations, the connection to the whenua and to the awa of Mata-au, Ōmakō, and Manuherekia continues. The mātauraka and tikaka passed down from tīpuna is carried forward with honour and respect by the kaitiaki of today, for the benefit of future generations.

Decision-making about the environment and environmental management is undertaken by mana whenua with a fundamental awareness of the past and the future, as is expressed in the whakataukī, ‘Ka mua, ka muri.’

It is through whakapapa that mana whenua status is inherited; thus, whakapapa underpins the rights of Kā Rūnaka to provide leadership and inform decision-making about the Project. Under this leadership, mana whenua values will be embedded within the Project’s consent conditions, mining practice, and restoration activities. After generations of loss and disconnection from the whenua, creating opportunities to reconnect with the whenua is now more important than ever. Consequently, it is expected that the Project should support the cultural needs, values and practices of Kā Rūnaka, and provide opportunities for economic development.

6. He Pūkeka Wai: Mana Whenua Associations and Connections

Layers of history, kōrero, mātauraka, and recorded knowledge can be examined to elicit the associations that tīpuna had with te taiao in the past. Mahika kai practices are a crucial component of mana whenua associations and connections with te taiao. Movement and travel through the landscape were key components of Kāi Tahu culture, driven by the practice of mahika kai.

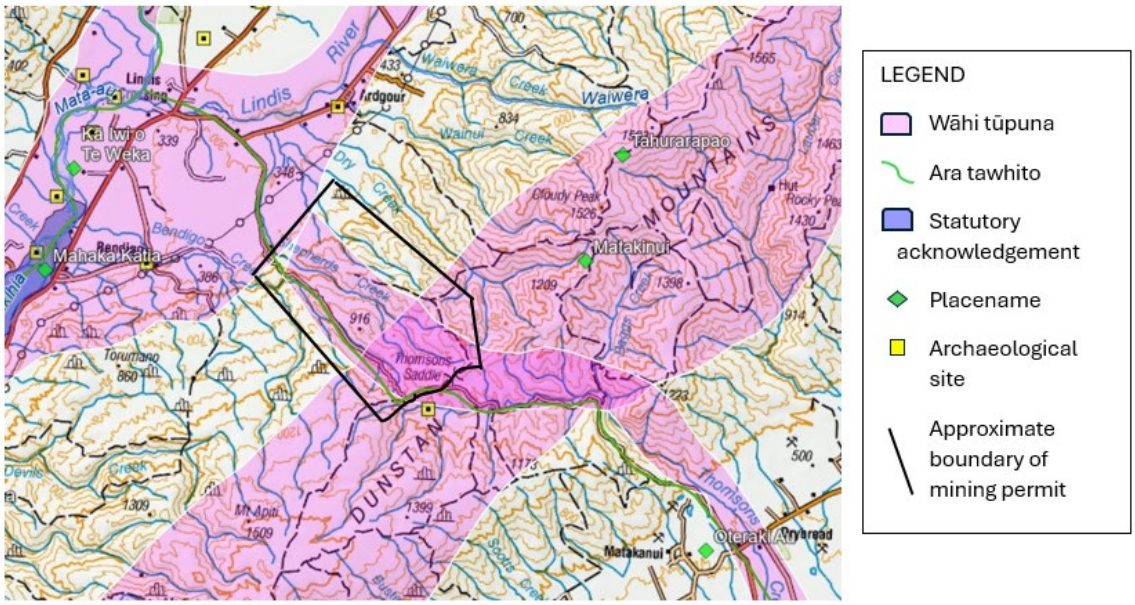
Wāhi tīpuna, ara tawhito, archaeological and ecological evidence in combination illustrate the history and use of the Project site by our tīpuna. By looking at the key activities that whānau are known to value now in the context of the wider landscape, the activity and behaviour of whānau in the past becomes more obvious.

This history of association provides a blueprint for whānau to follow, as a guide for their aspirations and intentions in te taiao, now and into the future.

6.1 Wāhi tīpuna and ara tawhito

Wāhi tīpuna are landscapes and places that embody the relationship between mana whenua, and their culture and traditions with their ancestral whenua, waters, and taoka. Ara tawhito are ancient trails formed by tīpuna that were entrenched through repeated use as trade routes and travel ways. Ara tīpuna connected wāhi tīpuna across the takiwā of Kā Rūnaka, enabling access to gather important resources through mahika kai practices.

Whakaahua 7 shows that the proposal is located in an area of significant wāhi tīpuna values.



Source: *Ngāi Tahu Cultural Heritage webviewer*

Whakaahua 7: Wāhi tīpuna in the area of the Bendigo Ophir Gold Project

The number of wāhi tīpuna and wāhi ikoa[88] nearby is indicative of the depth of association that mana whenua has with this area. Key themes can be elicited from the history of these sites, particularly related to mahika kai and ara tawhito.

Fundamental to the lifeways of whānau is the practice of heke, whereby whānau would travel from the coast to the inland areas. Access to the hinterland was provided by ara tawhito, well-trodden paths created by the feet of generations, enabling access to the hinterland.

Heke enabled mana whenua to reaffirm ahikāroa by visiting the inland areas of their takiwā to 'warm their hearths.' Ahikāroa was the key means through which mana whenua retained the rights of tūturu ki te noho, referring to the rights of settlement. These rights were derived from the whakapapa link to Rākaihautū, an early tīpuna who lit the first fires in Te Waipounamu, naming the

[88] Refer to Appendix 5: Wāhi ikoa in the Mata-au, Bendigo-Tarras Basin and Manuherekia Valley

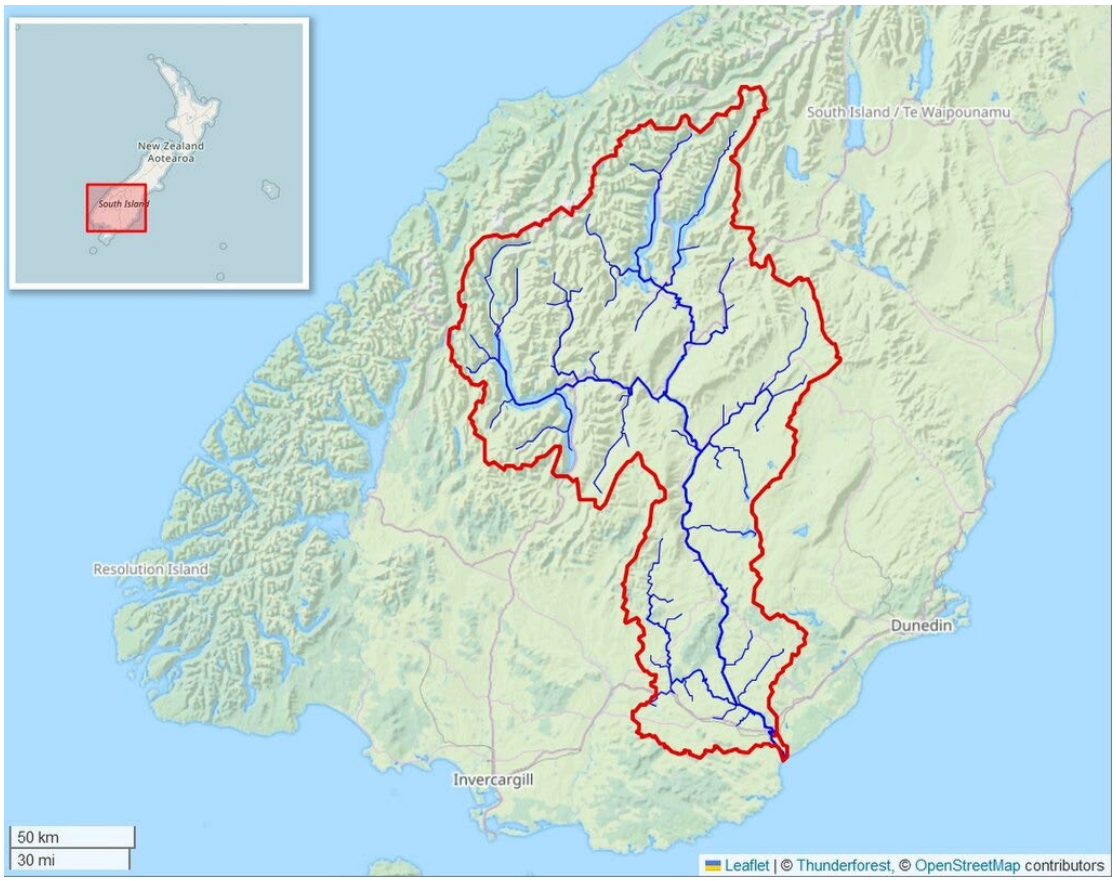
land and digging the many lakes as he travelled. Cultural practices like heke enabled these rights to be maintained across an extensive estate for generations.

The area was at the nexus of several trails used by different whānau and hapū groups as they undertook heke from the coast inland, including the Ōmakō, the Mata-au, and the Manuherekia. Studded along these routes lie a multitude of kāika, nohoaka, caves and rock shelters, evidencing the importance of the area for food, trade, and economic development.

Significant wāhi tūpuna values are associated with an ara tawhito (ancestral trail) that connects the Manuherekia Valley to the Ōmakō by way of Thomsons Saddle. The Thomsons Saddle ara tawhito connected important harvesting areas in the Manuherekia valley and the Taiari and other coastal catchments to the upper Mata-au/Clutha and the inland lakes.

6.1.1 Mata-au

The Mata-au is the largest river in Aotearoa in terms of discharge and catchment size, with the mainstem spanning 338km from Wānaka in the Southern Alps to the Pacific Ocean 75km southwest of Dunedin. It has a total catchment area of 21,400km^2, making it the nation's longest river catchment. It is also one of the most volatile due to variability in rates of discharge and high monthly flow variability. The Mata-au and its major tributaries are fed by headwaters in Ka Tiritiri o te Moana and augmented by outflow from Hāwea, Wānaka, and Whakatipu-wai-māori. Tributaries like the Ōmakō and the Manuherekia add to the river flow as it travels to the coast.[89]



Whakaahua 8: The Mata-au catchment[90]

[89] Taylor & Bardsley, 2019.
[90] Mheberger, 2024.

For manawhenua, this awa holds many layers of significance passed down and reinforced through whakapapa linking back to the earliest tīpuna. The name Mata-au comes from Kāi Tahu genealogical traditions that trace the whakapapa of wai māori. As such the Mata-au is considered a descendant of the Kāi Tahu creation traditions. [91]

Lines of whakapapa flowed through to people and were strengthened through strategic intermarriage, giving descendants rights to travel and use resources along the awa. Kāi Tahu leader Te Hautapunui o Tū identified the awa as the boundary line between Kāi Tahu and Kāti Māmoe, with Kāti Māmoe holding mana south of the Mata-au, and Kāi Tahu holding mana to the north. Eventually, peace was made through unions between the whānau of Te Hautapunui o Tū and Kāti Māmoe. [92]

The Mata-au was a major ara tawhito to the inland areas, acting as trade and supply route for the kāika out at the coast. Consequently, the river's length houses many wāhi tīpuna including kāika, nohoaka, wāhi mahika kai, and tauraka waka, with mātauraka of navigation, routes, safe harbours and landing sites enabling secure travel ki uta ki tai. [93]

Whānau from north and south would follow various tributaries, including the Ōmakō, when travelling from the coast to reach the mainstem of the Mata-au. This network of trails provided a vital supply line to take bountiful mahika kai resources back out to the coast.

Tuna, kanakana and kōkopu were abundant in the wai māori of the Mata-au, providing sustenance as tīpuna travelled inland. Nohoaka and kāika along the way were selected for access to resources, vantage point and shelter. Each stop along the way was an opportunity to share mātauraka, pūrākau and kōrero.[94]

Goods were often transported back out to the coast in mōkihi. These lightweight rafts were easily made with abundant kōrari and raupō resources for a quick trip out to the coast.[95] Whānau from Ōtākou, for example, would transport raw pounamu via the Mata-au, taking it out to their coastal kāika, where they were manufactured for trade.[96]

These patterns of activity and association continue to be important to Kā Rūnaka.[97]

[91] KTKO, 2005; NTCSA 1998, Schedule 40.
[92] KTKO, 2005; NTCSA 1998, Schedule 40.
[93] NTCSA 1998, Schedule 40.
[94] Ngawhika & McKinlay, 2024.
[95] Ngawhika & McKinlay, 2024.
[96] Reid & Rout, 2016.
[97] NTCSA 1998, Schedule 40.



Whakaahua 9: Model mōkihi made by Tieke Pukurākau

6.1.2 Ōmakō[98]

The Project location lies within the Lindis catchment and is located southeast of the confluence of the Ōmakō and Mata-au. The catchment has an area of 1,055km^2 and flows 70km from the headwaters in the Dunstan Ranges to the confluence approximately 6km upstream from the top of Lake Dunstan. It is the largest tributary of the Mata-au.

Ōmakō is a wāhi taoka for Kāi Tahu, with numerous associated place names and traditions passed down through whakapapa as "an expression of the Kāi Tahu historical and contemporary relationship with this landscape."[99]

Kāi Tahu traditions tell of a mischievous tipua called Matau who stopped at the confluence of the Mata-au and Lindis Rivers to sleep. While he was sleeping, another tipua named Kopuwai who often fought with him approached. With the help of his two-headed dogs Kopuwai fought Matau all along the Mata-au until they reached the place known as Kā Iwi o te Weka, so named because weka were plentiful there. The two-headed dogs were distracted by the plenitude of weka, allowing Matau to escape. Thus, the confluence of the Ōmakō and the Mata-au is of special importance to Kā Rūnaka, due to the association with Matau and Kopuwai, and as the place where the mauri of the two awa mix.[100]

The Lindis was located along a major trade and supply route leading from Hāwea and Wānaka over the Lindis Pass to the Waitaki River. As such, it supported a bounty of mahika kai like aruhe, papaī,

[98]Lindis River
[99] Higgins, 2016.
[100] Higgins, 2016.

weka, kiore, and tuna. Wāhi tūpuna along the route demonstrate that mahika kai was a principal activity, with rock art sites providing evidence of the route being followed for generations.[101]

6.1.3 Manuherekia

The Manuherekia catchment was important for mahika kai, with the name of the river itself referring to the area as a place for hunting waterfowl and other birds. Seasonal occupation and mahika kai activity in the catchment was supported by ara tawhito linking the Manuherekia Valley to the west through Thompsons Gorge, to the east over the terrain of the Old Dunstan Road down into the Taiari Scroll Plain and to the north, from the Māniatoto through the Maerewhenua to the Waitaki and Kakaunui valleys and to Te Aomarama over the Ōmārama Saddle.

6.2 Mahika kai

Mahika kai is a central element of mana whenua connections in the Mata-au, Bendigo-Tarras Basin and Manuherekia valley. Mahika kai, a term that literally means 'food workings,' refers to the knowledge, activities, practices, places, and species associated with the gathering of natural resources, including kai, medicines and source materials like fibre and stone. Consequently, the term should be looked at holistically as referencing practices far beyond food gathering.

The practice of mahika kai has formed the basis of Kāi Tahu economic activity for hundreds of years and is still a core component of tribal economic and cultural development today.

Waterways like the Mata-au, Ōmakō and Manuherekia were central to the practice of mahika kai, as sources of water, food, and other materials and as transport routes. These economic activities are linked to the natural patterns of target mahika kai species, and as a result, involved regular and systematic movement from the coast inland and back again. Known as heke, these seasonal migrations were undertaken by following ara tawhito. Trails were established based on accessibility and availability of infrastructure to support the heke, including campsites and settlements, and reliable sources of food, water, and resources.

The Dunstan range, traditionally known as Matakinui, was also important for mahika kai. Species harvested included taramea (Aciphylla spp. / wild Spaniard) which was, and remains today, a cultural and economic taoka harvested for use as a scent. Tikumu (large-leaved mountain daisy) was also harvested from this area for use in clothing.

[101] Te Ana Ngāi Tahu Māori Rock Art Trust, 2025.



Whakaahua 10: Taramea in the Project area

Mahika kai resources provided the building blocks upon which Kāi Tahu life and identity have been built. Mahika kai activities have a dual focus, both as a means of honouring ancestors, both human and non-human, and as a way of ensuring intergenerational sustainability for the uri yet to come. The sustainability of mahika kai is a fundamental priority to Kāi Tahu, and the restoration and sustainability of mahika kai is required to uphold the core values of mana, tapu, whakapapa, and mauri.

Kā Rūnaka as kaitiaki understand that the health of the awa and whenua in the headwaters must be restored to protect and maintain mahika kai in the lower reaches and even at the coast.

6.3 Māori archaeology

Archaeological evidence in and around the Project area provides further information about the activities being undertaken by whānau in the past.[102] The known Māori archaeological sites in the area include two sites in the Thomsons Gorge, one near the Manuherekia adjacent to the ara tawhito as it enters Thomsons Gorge, and several between the Thomsons Gorge and the Mata-au. These sites provide further information about mana whenua associations in the area.

[102] Refer to Appendix 6 for a full list of known Māori archaeological sites in the area.

The sites, including ovens, artefact findspots, a pit and a moa specimen, elicit several key themes:

- The presence of seasonal settlement sites indicating that the area was used as an ara tawhito
- The practice of ahikāroa through identification of a hearth site
- The use of canoes and waterways for transportation
- The use of caves for shelter.

These activities truly express living ki uta ki tai, with indications of a well-travelled path stretching between the coast and the inland areas featuring strongly across the archaeological record. This core theme identifies the Project site as part of an important ara tawhito linking whānau from the length of Araiteuru to the inland areas. These connections were a source of wellbeing, pride, and identity, for the people of that place.

7. He Mahi Kai Hōaka: The Kāi Tahu History of Loss

7.1 Introduction

The colonisation of Te Waipounamu had severe impacts on Kāi Tahu, who incurred a history of loss primarily due to the profound impacts of land alienation and environmental disruption. The Kāi Tahu Deeds saw vast tracts of land transferred under unjust conditions, undermining tribal authority and access to resources. European farming practices and historic gold-mining operations further degraded ecosystems and disrupted traditional land-use. These forces, combined with ongoing land-use change, have had lasting consequences on Kāi Tahu wellbeing, identity, and connection to whenua.

7.2 The Kāi Tahu Deeds

In 1840, Te Tiriti o Waitangi was signed by rakatira of Kāi Tahu hapū when Crown representatives arrived in Te Waipounamu in late May and early June. Subsequently, in 1844 and 1864, Kāi Tahu agreed a series of land sales with the Crown and their representatives. Rather than acting in good faith, the Crown reneged on key elements of the agreements, resulting in widespread land alienation and economic deprivation for mana whenua.

The 1848 Kemp's Deed was the largest of these Crown land purchases, comprising 13,551,400 acres for which £2,000 was paid. Although the deeds promised a tenth of the land would be retained as reserves for Kāi Tahu, less than 6,500 acres were allocated within the footprint of the deed, equating to less than 1%.[103]

European settlement in the area was spurred on by the discovery of gold in the Bendigo Creek in 1862. Initially, miners focused on alluvial gold, which was quickly depleted, but was followed by the discovery of quartz reefs in the area in 1863. The resulting mining industry was present in the area through to the 1940s when the government mining subsidy was withdrawn.[104]

As goldmining activities increased and the resulting settlement ramped up, it became increasingly difficult to follow kā ara tawhito and to access wāhi tūpuna and wāhi mahika kai. Changes in the

[103] Te Rūnanga o Ngāi Tahu, 2017.
[104] Department of Conservation, 2025c.

ancestral landscape and the loss of mahika kai resources impacted on Kāi Tahu communities, contributing to the displacement of whānau, loss of knowledge and identity, and economic hardship.

The loss of connection to the whenua that followed the signing of the Deeds, coupled with the visible deterioration, degradation, and modification of whenua, wai and mahika kai since that time, is a source of great mamae for mana whenua. This is particularly true given the obligations of mana whenua as kaitiaki whenua in their takiwā.



Whakaahua 11: The original Kemp's Deed map, 1848

7.3 Impacts of infrastructure

The first steps towards the European settlement of Central Otago began in 1857-1858 when surveyor John Turnbull Thomson undertook a "marathon reconnaissance survey of Otago" during which he traversed the entire province on horseback riding in wide deliberate sweeps.[105] Thomson's surveying work in the area appears to have been heavily influenced by a chief called Reko from Tuturau, who drew him a map showing several trails including one that followed the Waitaki River to the Lindis Pass giving access to the Mata-au at the confluence with the Ōmakō, which was part of a larger trail from Kaiapoi to Murihiku.[106] In 1857, Thomson followed this trail in his capacity as chief surveyor, naming many landscape features along the way including the Lindis River and the Dunstan Ranges.[107]

[105] Hall-Jones, 1990.
[106] Barton, 1998.
[107] 'Tarras Māori and European history,' n.d.

Roads like the Thompsons Gorge Road from the Manuherekia Valley to Bendigo were built over what were originally Māori trails.[108] The development of roads, towns, and infrastructure caused physical changes to the landscape and adverse impacts on the cultural values of significant landmarks and wāhi tūpuna. Activities that significantly modified whenua and wai proliferated, including mining, irrigation, damming, dredging, sluicing and the draining of wetlands and lakes. These activities had significant impacts on mana whenua values, wāhi tūpuna, biodiversity, and the mauri of landscapes and waterways. This disregard of mana whenua values, and the hauora of te taiao, reflects the pattern of settlement throughout Aotearoa.



Whakaahua 12: Goldmining at Gabriels Gully, c.1875

With the Gold Rush came the widespread establishment of mining infrastructure including water races, dams, mine shafts and tunnels, which caused significant environmental modification. Sluicing and quartz-mining activities required access to vast quantities of water, which set off "the frenzied construction of water races that tapped, re-routed and dammed countless streams".[109] The Mount Ida Water Race, for example, was built in the 1870s to deliver water to gold mining activities in Naseby using the Manuherekia as a water source. The race was designed by Otago Provincial Engineer, D.L. Simpson, and stretches 108km in length.[110]

In the first half of the twentieth century, the government started buying up mining privilege licenses to be repurposed for other economic and social purposes, including large-scale irrigation and dam construction works. This included the construction of Falls Dam and the irrigation network in the

[108] Department of Conservation, 2025c.
[109] Central Otago District Council, 2025.
[110] Hamilton, 2009.

Manuherekia catchment. By the 1980s, most mining privileges were government-owned, with the associated infrastructure supporting infrastructure for drinking water, irrigation, and power generation.

Major infrastructure works for hydroelectric generation has possibly had the biggest impact on mana whenua values. Following on from the damming of Hāwea that raised the lake level by 20m in the 1950s, the Mata-au was dammed at Roxburgh in 1956. Studies on other dam sites for the awa eventually led to the building of the Clyde Dam between 1982 and 1992.[111]

The final filling of the Clyde Dam completed in 1993 formed Lake Dunstan, which saw the inundation of many of the wāhi tīpuna and wāhi mahika kai used by whānau in the past. Moreover, the dam effectively blocked the migratory path of important species like tuna and kanakana. This means that juveniles are unable to travel upstream, and adult tuna and kanakana are unable to complete their migration to the sea.

Advice from fishery managers when the Clyde dam was being built was that no fish passage was needed, in order to protect upper lake fisheries from contamination by eels or salmon.[112] These activities have devastated the mana and mauri of the river, with the build-up of sediment behind the dam being a major contributor to these losses. The reduction of sediment being deposited downstream increases benthic erosion and scouring, and blocks the replenishment of downstream habitats, both of which have significant impact for mahika kai.

7.4 Impacts of mining

Gold mining had a myriad of impacts on the relationship of mana whenua with their ancestral landscapes and mahika kai resources. Initial mining activities were undertaken under the assumption that the Crown has the sovereign right to 'royal metals.'[113]

While gold had been reported in many parts of Otago by the late 1850s, Samuel MacIntyre's find on the Lindis River in March 1861 was the first find of gold in payable quantities.[114] Goodgers Flat in the Lindis Valley was "covered with hundreds of tents with stone or sod walls and sod chimneys."[115]

This rush was short-lived and "within a year only disintegrating walls and irregular mounds and potholes from the diggings remained."[116] Later in 1861, the discovery of gold by Gabriel Read at Lawrence triggered the first major gold rush with a wave of prospectors descending on the gold fields.[117]

Gold was struck in Bendigo Creek in 1862. Between 1862 and 1865, miners worked the creeks in the area for alluvial gold, but as alluvial gold became scarce, quartz reef and hard-rock mining took over.[118] From 1866, mining of gold-bearing quartz reefs sparked another boom, leading to the establishment of small mining settlements near the Project area. Logantown was established by

[111] Stephenson, Bauchop & Petchey, 2004.
[112] Jellyman, 1984
[113] Anderson, 1996.
[114] Heritage New Zealand Pouhere Taonga, Lindis Pass Historic Area, List No.9658.
[115] Hamel 2001. The Archaeology of Otago
[116] Hamel 2001. The Archaeology of Otago
[117] Department of Conservation, 2025d.
[118] Otago Goldfields Heritage Trust, 2017.

1869, followed by Welshtown further east, which had overtaken Logantown as the main population area by 1875.[119]



Whakaahua 13: Dredging in the Mata-au near Cromwell, 1890s [120]

Kāi Tahu whānau saw the benefits to be had from joining the gold rush, as well as engaging in other paid work like shearing and labouring. In 1862, Māori gold miners were recorded as catching weka and whekau.[121] However, the influx of people, and the wealth that the gold rush produced, created a further wedge between Kāi Tahu communities and the hinterland. Kāi Tahu whānau increasingly faced barriers to accessing customary landscapes and resources in Central Otago and the Upper Lakes. When a group of mana whenua from the coast undertook a heke inland in an attempt to retain access to their traditional land and resources, they were unable to progress past Ōmārama. They stayed there until 1879, when they were forcibly ejected. From that point onwards, the primary economic activity available to mana whenua in the Upper Lakes region was as labourers.[122]

Further development and entrenchment of key infrastructure like roads, towns, and services, caused physical changes to the landscape, some impacting significant landmarks and wāhi tūpuna. Activities like sluicing, damming, dredging and digging mineshafts occurred without regard for mana whenua values.

[119] Bristow, 1997.
[120] Otago Witness, 1908.
[121] Beattie, 1945.
[122] Kleinlangevelsloo & Clucas, 2017.



Whakaahua 14: Quartz Reef Point near Cromwell[123]

7.5 Impact of pastoralism and viticulture

Agriculture and pastoralism imposed significant barriers for mana whenua accessing the inland areas of Otago. Access to the sites associated with mahika kai was inhibited, both through fencing by landowners, and by the environmental impacts on the resources themselves.

This area was originally part of a station called Morven Hills established in 1858. In 1910, the property was broken into several smaller stations, including Bendigo and Ardour Stations. The Project area is located in the northeast corner of Bendigo Station.[124] Sheep farming held sway as an important local economic activity for decades, notably through Bendigo Station's production of high-quality merino wool.[125]

The introduction of rabbits to Te Waipounamu for meat and hunting in the 1830s saw the explosion of their population, which had a critical impact on pastoral farming. From the 1870s, rabbit plagues became a concern, as they increasingly competed with livestock for pasture and damaged land and vegetation.[126] Weka and kāhu were their only natural predators, but they were unable to keep up with the spread of rabbit numbers.[127]

Farmers used a variety of methods of control rabbits, with poisons and toxins being employed from the 1880s. Native species like weka became significant victims of poisoning, and rabbit populations

[123] The Kiwi Abroad 2011
[124] Department of Conservation, 2025c.
[125] Mondillo Vineyards, 2025.
[126] Christchurch City Libraries, n.d.
[127] Peden, 2008.

continued to soar. In the same decade, stoats, and other mustelids were released as a further rabbit control measure, but they immediately began to prey on native species.[128] The impact for indigenous biodiversity has been profound and their survival continues to be hampered today due to habitat loss and competition, human activities, and predation by exotic pests.

Historic vegetation was heavily weighted towards native softwoods like rimu, mataī and miro, with pockets of beech and scrub and tussock lands above the snowline. With the introduction of pastoral farming, native flora was increasingly cleared for pasture. Today, vegetation is dominated by depleted grasslands and mixed exotic scrubland. Remnant stands of kānuka and mānuka are still present in pockets are present to the west and north of the site, but little native vegetation remains in the Project area today.[129] Pastoralism has played a key role in the transition of the vegetation from native to predominantly exotic species. Although there is still kānuka growing on nearby reserve land, there are not enough local seeds available for new plants to regenerate naturally.[130]

In the 1990s, land use undertook significant diversification, primarily through the establishment of viticulture, a key focus following the establishment of the Clyde hydro-electric dam. Bendigo has the largest vine plantings of anywhere in Central Otago, with some visible perched on high terraces cut into the hillside.[131]

7.6 Impacts on mahika kai and indigenous biodiversity

The significance of mahika kai as a cornerstone of Kāi Tahu kawa and tikaka cannot be overstated. It was through these practices that knowledge and skills were handed down, and through the seasonal practice of heke that the relationship with whenua and wai māori was sustained. This continued reaffirmation of ahikāroa across the seasons was a significant means of actioning rakatirataka and mana, but also provided opportunities for reconnection with the actions, stories, and knowledge of atua and tūpuna.

Thus, the deprivation suffered by Kāi Tahu over this time encompassed not only the material loss of land as an asset base and seasonal hunting grounds, but the loss of a spiritual connection to te taiao, and the ability to exercise rakatirataka, a fundamental building block of Kāi Tahu life and identity, and the transmission of mātauraka.[132]

Modification and loss of habitat that began in the 19th Century, along with the introduction of freshwater fish species like trout, has impacted significantly on indigenous fisheries in the area. Rare non-migratory galaxiid species like the Central Otago roundhead galaxias are known to inhabit streams in the area; their preferred habitats are shallow gravel- and cobble-lade headwater streams and braided rivers 350-800m above sea level. Central Otago roundhead galaxias are ranked nationally endangered.[133] Their main threats are loss and modification of riparian vegetation, habitat loss due to land development, predation by trout, introduction of exotic weed species, siltation, eutrophication, stock access to waterways, and bank erosion.[134]

The modification of the land and environment and the impacts on mahika kai continues through farming practices and mining activities. For mana whenua, this is a history that replays repeatedly,

[128] Peden, 2008; Brockie, 2007.
[129] Manaaki Whenua, 2025.
[130] Department of Conservation, 2025a.
[131] Altitude Tours, 2025.
[132] Waitangi Tribunal, 1991.
[133] Dunn et al, 2017.
[134] Department of Conservation, 2025b; New Zealand Forest Owners' Association, 2025a, 2025b.

with echoes of the losses of the past reverberating through to the future. The resulting legacy issues and cumulative effects have contributed to significant inequities in environmental outcomes. This includes the continued degradation of waterways and the associated impact on the indigenous species that they support.

8. Cultural Impacts of the Bendigo-Ophir Gold Project

He manawa tahi, he manawa ora, he manawa toa, he manawa Kāi Tahu

A united heart, a vibrant heart, a determined heart, this is the heart of Kāi Tahu.

8.1 Introduction

This assessment leads to a final statement of the Kāi Tahu position on the Project.

Māori concepts of justice are governed under tikaka, encompassing the law and lore of the Māori world. The term 'tikaka' refers to the customs, ethics, and cultural practices of Kāi Tahu, based on the two underpinning principles of tika, that which is correct, and pono, that which is authentically based on mātauranga. The practice of tikanga emphasises the protection and enhancement of wellbeing and is an expression of Kāi Tahu cultural identity.

Whanaukataka is a central component of tikaka Māori, which places obligations on individuals to uphold the collective wellbeing of the community. Kia aroha tētahi ki tētahi is an expression of this ethos, in that it refers to the goodwill that we show to others in our community by showing respect and generosity. Māori culture is strongly premised on interconnections between people and collective rights are considered paramount to the rights of individuals. This is expressed in the whakataukī above, which references the strength and wellbeing that can be derived from a collective and unified identity.

However, these principles extend beyond Kāi Tahu as mana whenua. All New Zealanders are required to comply with environmental and resource management legislation, standards, and policies that place obligations on us as citizens to adhere to certain standards in our interactions with te taiao, for the benefit of everyone in our community. This is expressed through the guiding whakataukī of Kāi Tahu whānui, *Mō tātou, ā, mō kā uri a muri ake nei.* [135]

The use of the word 'tātou' in this whakataukī is key to the way these obligations are seen by mana whenua.[136] This wording emphasises that Kāi Tahu recognise the obligation, and the power that they hold as an entity with significant mana, to pursue environmental aspirations and intentions that benefit all of us. This is a standard that mana whenua hold for themselves, and for everyone in our community. The breaking of this pact that we share with others is a significant affront against that community, which under tikaka Kāi Tahu, would require action to resolve, a process that is governed under the principle of utu.

The term utu is described as "a means of seeking, maintaining, and restoring harmony and balance,"[137] and so encompasses meanings such as reciprocity, reparation, or restitution. Moreover,

[135] For us and for our children after us.

[136] The word 'tātou' means 'all of us' including the person being addressed, as opposed to the word 'mātou' meaning 'us but not you,' which excludes the person being addressed. In this context, the term tātou reflects our obligations as members of the community to look after each other and our environment.

[137] Ministry of Justice, 2001.

utu is closely linked to mana, in that utu may be required to uphold and express mana,[138] and to maintain the balance between tapu and noa.

Kā Rūnaka make the following statements of their position on the proposed Bendigo Ophir Gold Project, based on the four core values of mana, mauri, tapu and whakapapa described in Section 5. The discussion of impacts in this section has been guided by a review of the technical reports by a mana whenua reference group. A general comment made by the group is that there is very little recognition of Kāi Tahu connection, values and mātauraka in the technical reports. There is a concern that the reports underemphasise iwi connection with the area and refer to it only in historical terms.

The failure to recognise cultural values and ongoing associations with the landscape and with the elements of te taiao means there are significant gaps in the assessment of effects. The absence in consideration of mātauraka Māori in plans for ecological rehabilitation and offsets also potentially compromises the proposed offset effectiveness by overlooking cultural management techniques that could enhance restoration success.

The mana whenua reference group has also noted that the constraints of the Fast Track process have meant that the detailed feasibility study normally required for financial closure has not been completed for some key areas of project design. Uncertainties about impacts and the need for further modelling and adaptive management principles to be adopted is referred to in the technical reports in relation to numerous project components. The associated risk to Kā Rūnaka is that some impacts have had to be weighed up with uncertain information and little supporting evidence.

The discussion below describes the key cultural impacts arising in relation to the effects of the proposal on wai māori, ecosystems and indigenous species and the cultural landscapes of the area.[139]

The values framework set out in Section 5 is then used as a reference point for recommending measures and approaches to mitigate, offset or compensate for the cultural impacts.

8.2 Effects on cultural values associated with wai māori

The mana and the mauri of the wetlands and streams in the project area and of their receiving waters in the Ardgour Alluvial Aquifer, the Ōmakō River, Lake Dunstan and the Mata-au will be impacted by human-induced changes that:

- constrain the natural behaviour of the water bodies.
- disrupt the interconnections between wetlands, streams, groundwater and the larger rivers.
- introduce contaminants beyond the concentrations that are naturally present.
- reduce the ability for the water bodies to support the species that depend on it.
- reduce the extent or degrade the quality of aquatic habitats; and
- reduce the availability of clean water for human use.

The extent of stream realignment and stream loss described is summarised in Table 19 of the Aquatic Assessment Report, reproduced as Tūtohi 7 below.[140]

[138] Ibid.
[139] Economic impacts on Kāi Tahu are separately discussed in the Puketeraki Limited economic impact assessment (PWC, 2025).
[140] Water Ways Consulting, 2025.

Tūtohi 7: Extent of stream realignment and stream loss from mine operations

Stream type	Ephemeral	Intermittent	Minor perennial order	Perennial 2nd order +	Watershed
Stream length lost Shepherd Creek	4,474 m	1,631 m	1,236 m	5,903 m	1,438 m
Stream length realigned, Shepherds Creek	0 m	0 m	0 m	2,960 m	0 m
Stream length lost, Rise and Shine Creek	700 m	0 m	305 m	1,092 m	0 m
Non-permanent stream length loss at soil storage sites	672 m	97 m	19 m	0 m	312 m

Shepherds Creek will be either buried or realigned for most of its length through the project area. This loss will have a significant impact on the mana and mauri of the stream which will not be mitigated by the measures proposed. Although flow from the tributaries and springs that contribute to Shepherds Creek will be captured in a diversion channel around the margin of the TSF and ELF during the operation of the mine, this channel will not have the natural characteristics of Shepherds Creek. The diversion channel along the edge of the ELF is proposed to be enhanced to provide habitat for aquatic invertebrates, but no enhancement is proposed for the channel alongside the TSF.

The upper reach of Shepherds Creek will be permanently lost, as the channel alongside the TSF will not be retained at mine closure. Flow will be directed across the TSF to a constructed wetland which will discharge into the ELF diversion channel. There is no detail provided about treatment of the channel below the ELF.[141]

The loss to Rise and Shine Creek will be less than for Shepherds Creek. However, the excavation of this creek in the Rise and Shine Pit and the piping of flow through a culvert across the pit wall will impact on its mana and mauri.

The construction of pit lakes, engineered landforms and tailings storage will generate contaminants that pose risks to the environment, and to the health of aquatic life, and will require significant effort and care to manage and contain potential adverse effects. This risk increases post closure as water management on the site transitions from active management to passive management. It is the position of Kāi Tahu that the Project is significantly tapu in this location, due to the location of the proposed pit lakes, waste rock storage and tailings storage in the tributaries of the Ōmakō and Mata-au.

The introduction of sediment and elevated concentrations of sulphate and metals into Shepherds Creek and Rise and Shine Creek, and of sulphate into the Ardgour Alluvial Aquifer, will impact on the mana and mauri of these water bodies and may affect the ability of the creeks to support healthy stream life and the suitability of groundwater for drinking. Active monitoring and management of

[141] Matakanui Gold Limited, 2025b.

contaminants will be important to avoid or remedy such impacts. There is significant uncertainty about how this will be undertaken (including how it will be funded) in the closure and post-closure periods.

Springs and wetlands are highly valued by mana whenua. Although springs and wetlands across the project area are small, they are an integral part of the freshwater system and the interconnected ecosystems.

Wetland loss through vegetation clearance, earthworks, excavation and infilling will amount to 3.12 ha. It is proposed to offset the loss of wetlands by establishment of 7.5 ha of swamps and marshes. This will result in an overall increase in wetland area, but these will be different in size, location and character from the natural wetlands. A network of numerous small wetlands, distributed across the site, will be replaced by a 6 ha wetland in the TSF and three 0.5 ha wetlands located in the lower Shepherds Valley. The Assessment of Ecological Effects identifies this as achieving a net gain in extent and condition of marsh and swamp habitats. However, the modification to the upper catchment of Shepherds Creek and disruption of the network of springs and wetlands will permanently interrupt the hydrological connections of the upper catchment wetlands and tributaries of Shepherds Creek.

8.3 Effects on cultural values associated with ecosystems and indigenous species

The focus of the ecological assessment undertaken by Matakanui Gold/ Santana Minerals is on the effects on species that are categorised as threatened or at risk, as well as the effects on habitat types of high or very high ecological significance.

The concerns of Kāi Tahu are broader than this. The associations of mana whenua with indigenous species derive from the whakapapa relationship[142] and this gives rise to a strong obligation to protect and sustain all indigenous species, not just those that are currently threatened/ at risk. In accordance with the application of whakawhanaukataka, this requires that all the species that contribute to the functioning of an ecosystem are sustained, including the plants and invertebrates that provide habitat and food for other species.

In addition to the central whakapapa relationship, there are also further layers of association with particular species, which includes the role of species in pūrākau (traditional stories) or as mahika kai.

The Ngāi Tahu Claims Settlement Act 1998 acknowledges the cultural, spiritual, historic, and traditional association with listed taoka species and recognises a role for Kāi Tahu in contributing to decisions of the Crown about management of those species.[143] The species identified in the ecological reports as present in the area of the proposal include 18 bird species and 10 plant species that are listed in the Act as taoka species.[144]. This includes bird species such as pipits and karearea that have been identified as being at particular risk from disturbance.

As indicated above indigenous species other than those listed in the Act are regarded by Kāi Tahu as taoka, and the potential loss of a large proportion of mokomoko (lizard) populations resident in the area would be a particularly significant impact. Although salvage and rehabilitation measures are proposed to mitigate this loss, these will only focus on a small part of the populations. Kā Rūnaka

[142] Described in described in Section 5.5
[143] Ngāi Tahu Claims Settlement Act 1998, ss. 287-296 and Schedule 97.
[144] Refer to Appendix 7

consider there is insufficient detail on how the salvage and rehabilitation measures will be implemented to provide any confidence of success.

The long-term vision set out in the Landscape and Ecological Rehabilitation Plan refers to improving habitat for culturally significant taxa,[145] and the core principles in that plan state that ecosystems with high cultural values will be prioritised for avoidance of mine impacts.[146] Taramea and kōwhai are identified in the rehabilitation plan as having cultural significance and are included as target species in rehabilitation actions. However, there is no identification or discussion of the cultural value of any other species or ecosystems and there is no reference to mātauraka māori in the ecological reports. There is therefore no clear means of achieving this long-term vision.

Many of the indigenous ecosystems in the project area have been degraded by the effects of historic and current land use, and the proposed rehabilitation measures, if effective, will improve the health and resilience of target species and habitats. However, Kā Rūnaka have identified uncertainties and gaps in the assessments and proposed rehabilitation measures. Specific concerns identified from review of the technical reports are set out in Appendix 8 but engagement with mana whenua in development of mitigation, monitoring and offset measures is also needed so that mitigation and rehabilitation plans are able to benefit from incorporation of mātauraka.

Kā Rūnaka possess enduring interests in ecosystem guardianship that transcend typical management cycles, and the long-term success of offset activities will be fundamentally dependent on maintaining cultural relationships to taoka species present within restoration areas. A lack of detail provided about long term management and maintenance of regeneration and sanctuary areas means there is considerable uncertainty about the long-term success of rehabilitation and offset actions.

8.4 Effects on cultural associations with the landscape

The assessment methodology in the landscape assessment does not follow the guidelines for consideration of Te Ao Māori in Te Tangi a Te Manu: Aotearoa New Zealand Landscape Assessment Guidelines. Kāi Tahu values are therefore not effectively considered as part of the assessment. Specifically, the overlapping and interwoven connections between Physical, Associative and Perceptual dimension and the intersection with Whakapapa, Hikoi and Kōrero Tuku Iho are not considered in the assessment.

The assessment of landscape values largely focuses on the physical dimension and the effects on visual amenity. The description of landscape components does not recognise that the cultural landscape interests of mana whenua extend across this landscape. It treats the mana whenua connection to the landscape as purely historical and does not consider the contribution of intangible connections to the distinct character of this place.

Wāhi tīpuna or cultural landscapes embody all the layers of cultural associations with an area, including traditional pūrākau, historical events and the way in which the area and its resources have been used over the generations. The ability to physically recognise and mihi to the landscape experienced by tīpuna is important to sustain the ongoing relationship with the area. Although the landscape of the project area has been modified over time, it is still recognisably the landscape

[145] Matakanui Gold Limited, 2025a.
[146] Ibid.

experienced by tīpuna who used the ara tawhito over Thomsons Saddle and harvested mahika kai resources in the area. The landscape modifications that will result from the proposed mining activities, including the excavation of pits, the infilling of Shepherds Valley and Jeans Creek and the relocation of Thomsons Gorge Road will mean that whānau visiting the area will be experiencing a quite different landscape. During the period of mine operation, the disturbances imposed by the intrusion of noise, artificial light, vibration and dust into the area will also impact on the experience of connecting with the wāhi tīpuna.

The long-term vision set out in the Landscape and Ecological Rehabilitation Plan refers to rehabilitated landforms that respect cultural heritage values,[147] but there are no clear measures to achieve this, apart from a proposal to establish a recreational track along the part of Thomsons Gorge Road which is to be closed. A much broader approach that considers the landscape as a whole would be required to effectively mitigate the impacts on cultural associations with this landscape.

8.5 Approach required to address cultural impacts

The values framework set out in Section 5 reflects an understanding that the foundational cultural values of mana, mauri, tapu/ noa and whakapapa are embedded in all spheres of life for Kāi Tahu, and that these spheres are not separate but integrally interconnected. Therefore, the effects of the proposal on the physical and natural environment also impacts on social, economic and cultural health and wellbeing and all of these aspects need to be considered when determining how the effects of the mining operation might be mitigated, offset or compensated for. Tutohi 8 below summarises the key impacts.

Tūtohi 8: Impacts of Bendigo Ophir Gold Proposal on foundational cultural values

Value	Key intent	Impacts of proposal
Mana	The mana of Kāi Tahu is upheld within their takiwā, including by upholding the mana of te taiao and by upholding and restoring intergenerational connections with wāhi tīpuna.	Modification of waterways and landforms will severely impact on the mana of the whenua and the wai, and the ability to recognise wāhi tīpuna. These impacts cannot be mitigated by the rehabilitation proposed and could contribute to the long term erosion of cultural identity. The anticipated significant loss of mokomoko populations will also impact on the mana of mana whenua.
Mauri	The mauri of whenua, wai and native species is restored and enhanced including within the site and in the connected Bendigo-Tarras Basin and the Ōmakō and Mata-au Rivers.	Mauri will be degraded by: • Stream, wetland and spring loss • Loss of habitat • Introduction of noise, disturbance and contaminants.

[147] Matakanui Gold Limited, 2025a.

		Degradation of mauri will also affect the health and wellbeing of whānau and could also impact on Kāi Tahu businesses relying on cultural tourism and/ or healthy ecosystems.
Tapu and Noa	Balance is restored, and the future of our people and resources are protected.	The impacts of mine operations on water quality and on the life and health of the species naturally present in the area will upset the natural balance. This will also impact on the health and wellbeing of whānau and on Kāi Tahu businesses relying on a healthy environment.
Whakapapa	The traditional authority of mana whenua is recognised through partnerships based on reciprocity and respect.	The absence of consideration of cultural values and associations, and of mātauraka, in mitigation measures and rehabilitation plans does not appropriately recognise mana whenua authority or provide for the exercise of kaitiakitaka. This could contribute loss of connection with the whenua and erosion of cultural identity.

The mana whenua reference group has identified key components of an approach that should form the basis of further discussion between the applicant and Kā Rūnaka in determining appropriate mitigation, offset or other arrangements to address the impacts described above. Technical advice on management of particular risks associated with the mining operation has also been obtained from Beca.[148]

The overall approach is described in Tutohi 9. This should be read together with:

- Appendix 8, which sets out specific concerns and measures requested by the reference group; and
- Appendix 9, which sets out additional actions suggested by Beca to manage risks, and matters identified in the Beca report where further study or clarification is required to understand the risks.

The specific measures in Appendix 8 and Appendix 9 should be regarded as a starting point for further engagement with Matakanui rather than a comprehensive set of measures that would address all the impacts of the Bendigo-Ophir Gold Project.

[148] Beca, 2025.

Tūtohi 9: Recommended approach to address impacts on cultural values

	Approach required	Values
1	Kā Rūnaka require reconsideration of the technical reports to recognise the ongoing and significant connections of mana whenua to the location of the proposed mine, including: ➢ Consideration of mana whenua tangible and intangible connections to landscape as set out in the guidelines for consideration of Te Ao Māori in Te Tangi a Te Manu: Aotearoa New Zealand Landscape Assessment Guidelines ➢ Consideration of the cultural importance of wai māori, including springs, wetlands and streams ➢ Consideration of taoka species and of the kaitiakitaka role of mana whenua for all native species.	Mana Whakapapa
2	Kā Rūnaka require engagement with the applicant over measures to offset or compensate for loss of wai māori values, wāhi tīpuna values and mokomoko populations in a way that will uphold the mana of mana whenua.	Mana
3	Kā Rūnaka require assurance that the risks of mine operations to the health and safety of people and the health of te taiao have been appropriately addressed, including: ➢ Geotechnical risks in siting of the TSF ➢ Risks to groundwater and surface water quality from contaminant transport ➢ Risks to the water treatment plant from flood hazard ➢ Risks to wetlands from adjacent earthworks ➢ Measures to minimise loss of mokomoko.	Tapu and noa Mauri
4	Kā Rūnaka require meaningful incorporation of mātauraka Māori through participation in design and oversight of proposed mitigation, monitoring and offsets, including: ➢ Input into management plans ➢ Involvement in definition and oversight of ongoing baseline water quality monitoring ➢ Input into measures for stream and wetland enhancement and establishment of offsets for wetland loss ➢ Input into lizard management approach ➢ Input into habitat rehabilitation strategy and goals and plans for monitoring biodiversity outcomes	Mana Mauri Tapu and noa Whakapapa

	➢ Input into design of adaptive management frameworks to improve water quality and ecological outcomes if monitoring shows mitigation and offset measures implemented are ineffective in achieving the outcomes intended.	
5	Kā Rūnaka require rehabilitation goals to be contractualised or embedded in consent conditions with outcomes not subject to compromise.	Tapu and noa
6	Kā Rūnaka require dedicated resources and funding for Kāi Tahu involvement in all phases of the offset plan, including participation in monitoring, species protection and pest control programmes that support taoka species recovery in the sanctuary areas.	Mana Mauri Whakapapa
7	Kā Rūnaka require provision of intergenerational funding and maintenance arrangements to ensure long-term measures are effective, including the following: ➢ Water treatment ➢ Wetland maintenance ➢ Habitat/ vegetation regeneration and rehabilitation ➢ Lizard management ➢ Pest management.	Tapu and noa Mauri

9. Conclusion

According to Kāi Tahu cultural values for te taiao, the health of our environment reflects the health of the wider community. For Kāi Tahu this means that the people will not be healed until the land and water are healed. Consequently, Kāi Tahu recognises the significant role that human activity plays in the outcomes we see in our environment, as well as the significant role that we all can play in environmental protection. Through our actions, we can restore the balance between what is taken from our environment, and what is given back. This principle requires that we leave the environment to our descendants in at least as good a state as we inherited it from our ancestors.

Conclusion 1: Kā Rūnaka have identified some uncertainties and inadequacies in the technical reports that will need to be addressed in order to ensure the mine operation does not endanger the quality of the environment or the health of native species and of people.

There is also a need for intergenerational funding and maintenance arrangements to be put in place to ensure that the quality of the environment is maintained beyond the life of the mine.

The Bendigo Ophir Gold Project is located within a significant wāhi tīpuna (cultural landscape). The associations of Kāi Tahu with this area are longstanding and multi-layered, and the modifications to landform, water bodies and habitats that will result from the proposed mine operations will have significant impacts on the connection of mana whenua with the wāhi tīpuna and the intergenerational knowledge associated with this.

Conclusion 2: The technical assessments undertaken by the applicant do not adequately recognise the living associations of Kāi Tahu with the environment of the mine site, and proposed mitigation measures cannot redress the loss of wāhi tīpuna and wai māori values, or the significant loss of mokomoko. Kā Rūnaka seek further engagement with the applicant to determine how this loss can be appropriately offset or compensated.

Through whakapapa, mana whenua have a strong kaitiakitaka obligation to care for the whenua, the wai and the native species in their takiwā, and involvement of mana whenua in decision-making and management of te taiao is crucial to enable exercise of kaitiakitaka and to ensure that mātauraka is kept alive to be passed down to the next generation.

Conclusion 3: Kā Rūnaka seek the opportunity for input into management and monitoring plans and into design of mitigation measures and adaptive management frameworks to ensure rehabilitation goals are achieved.

Kā Rūnaka also seek provision for mana whenua involvement in rehabilitation activities, environmental management and monitoring, including resourcing to enable this involvement.

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Appendix 1: Glossary of Māori words and phrases

āhua	Nature, appearance
āruhe	edible rhizome of bracken fern, fern root
ahikāroa	title to land through longstanding occupation; literally 'the long-burning fires'
ara tawhito	ancestral trails
atua	deity, early ancestor
awa	river
hāpua	lagoon, swamp, wetland
hāpuka	groper
heke	migration, movement
inaka	whitebait
kāeo	freshwater mussel
kāika	settlement(s)
kāika mahika kai	food gathering settlement(s)
kāika nohoaka	settlement(s)
kākihi	limpet
kāuru	edible parts of the cabbage tree
kai	food
kaimahi	colleague
kaimoana	seafood
kaitiaki	trustees, minders, custodians, guardians, stewards
kaitiakitaka	the exercise of guardianship by the mana whenua of an area in accordance with tikaka Māori in relation to natural and physical resources, and including the ethic of stewardship
kanakana	lamprey
kaupapa	principles, values, purpose
ki uta ki tai	from the mountains to the sea; references mana whenua perspectives of the environment as an integrated whole
kōareare	edible rhizome of raupō
kōkopu	cockabully
kōramu	cats' eye
kōrero	conversation
koukoupara	upland bully

kuku	green-lipped mussel
mātauraka	knowledge, wisdom, understanding
mahi	work, activities
mahi taunaha	the process of discovering and naming land and resources
mahika kai	practices, knowledge, and activities related to food gathering
mamae	pain, distress
mana	status, prestige, honour
mana whenua	customary authority exercised by an iwi or hapū in an identified area, and the people mandated to exercise it on their behalf
mauri	life force, life essence
nohoaka	temporary campsites
onewa	basalt
pakohe	argillite
papaī	speargrass
papatipu rūnaka	entities mandated to uphold mana in their takiwā
patete	seven finger plant
pātiki	flounder
pawhaitiri	a small fish
pora	wild turnip
poutama	step, phase
rāhui	temporary ritual/ban
raupō	bulrush
rai	scorpion fish
rakahau	research
rakatirataka	chiefly authority
rūnaka	council, board
takiwā	territory
taoka/taoka tuku iho	treasure
tapu	spiritual restrictions
tauraka waka	mooring site
te taiao	the natural environment
tī kōuka	cabbage tree
tikaka	correct procedure, correct method
tiotio	barnacle

tīpuna/tūpuna	ancestors
tītiko	mudsnail
toheroa	bivalve mollusc
toki	adze
tōpuni	a dog-skin cloak, to lay a cloak over (lit.) prominent landscapes managed under statute that were identified under the NTCSA 1997 as a symbol of the mana and rakatirataka of Kāi Tahu[149]
tuaki	NZ cockle
tūpāpaku	deceased person or people
tuna	eel
tūturu te noho	maintaining rights through ongoing occupation and settlement
umu	oven
umu tī	oven used to preserve kāuru
uri	descendant(s)
wāhi mahika kai	food gathering sites
wāhi tīpuna	ancestral landscapes of significance to iwi
wai	water
waiora	health
wai māori	freshwater
wai tai	coastal waters/saltwater
waka	canoe
whānau	extended family
whakaahua	image
whakapapa	genealogy
whakataukī	proverb
whakawhanaukataka	the process of building relationships
whānui	broad, extensive
whenua	land, lands

[149] Te Rūnanga o Ngāi Tahu, 2024; NTCSA 1997, s12.5.

Appendix 2: He rāraki whakaahua me tūtohi: List of figures and tables

Whakaahua

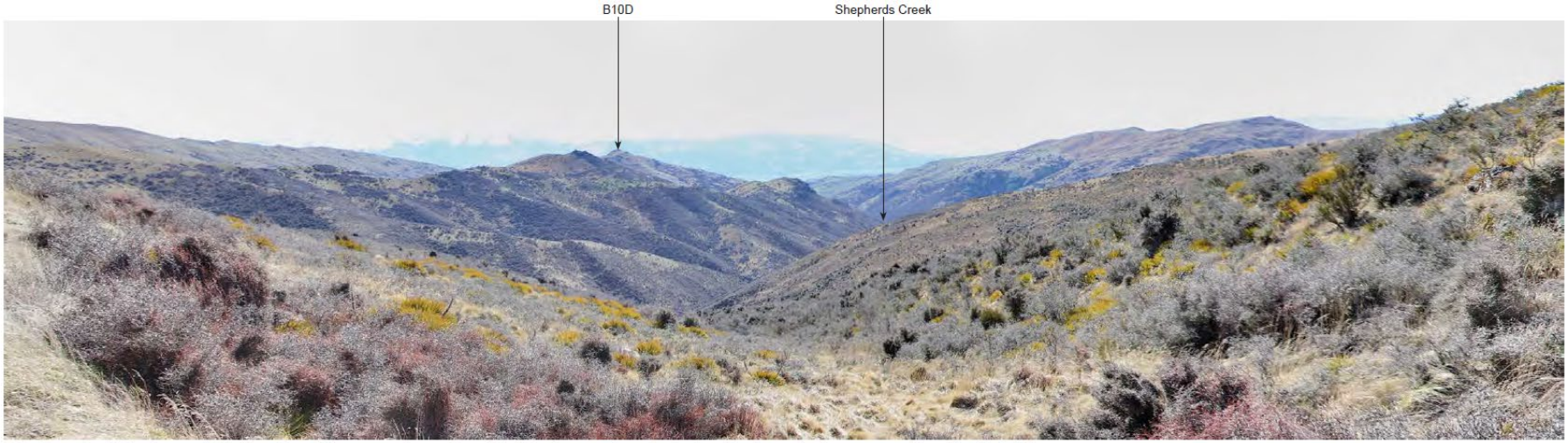
Number	Description	Reference
Front Cover	View from Thomsons Saddle over the Rise and Shine Valley	Aukaha (1997) Ltd, Site visit photograph, 8 April 2024
1	The Kawarau River, Mata-au and Te Wairere (Lake Dunstan)	Aukaha (1997) Ltd
2	Pending Mining Permit 61326.01 and Mining Exploration Permit 60311	New Zealand Petroleum and Minerals
3	Components of Bendigo Ophir Gold Project	Landpro
4	Overview Site Layout of the Bendigo-Ophir Gold Project	Boffa Miskell, 2025
5	View into the upper reaches of the Shepherds Creek catchment	Boffa Miskell, 2025
6	Dunstan Mountains from Lowburn Sugarloaf	The Kiwi Abroad, 2023
7	Wāhi tīpuna in the area of the Bendigo Ophir Gold Project	Ngāi Tahu Cultural Heritage webviewer
8	The Mata-au catchment	Mheberger, 2024
9	Model mōkihi made by Tieke Pukurākau	Toitū Otago Settlers Museum
10	Taramea in the Project area	Matakanui Gold Limited, 2025b
11	The original Kemp's Deed map, 1848	Waikouaiti Coast Heritage Centre, 2024
12	Goldmining at Gabriels Gully, c.1875	Te Papa Tongarewa, Museum of New Zealand
13	Dredging in the Mata-au near Cromwell, 1890s	Otago Witness, 1908, p. 49.
14	Quartz Reef Point near Cromwell	The Kiwi Abroad, 2011

Tūtohi

Number	Description
1	Minerals included in Matakanui Gold mining permit application
2	Effects on water bodies and aquatic ecosystems identified in technical reports
3	Vegetation cover in direct disturbance area
4	Effects on terrestrial ecosystems and indigenous species identified in technical reports
5	Proposed ecological rehabilitation and offsets
6	Values framework
7	Extent of stream realignment and stream loss from mine operations
8	Impacts of Bendigo Ophir Gold Proposal on foundational cultural values
9	Recommended approach to address impacts on cultural values

Appendix 3: Landscape views into the project area

[Source: Boffa Miskell, 2025]



Site Appraisal Photograph M: View from Thompson Gorge Road, looking in a northwesterly direction towards the proposed location for TSF.



Site Appraisal Photograph K: View from existing Site access road, looking in a northeasterly direction towards the proposed location for TSF.



Site Appraisal Photograph J: View from existing Site access road, looking in a northeasterly direction towards the proposed location for ELF.

Site Appraisal Photograph I: View from Thompson Gorge Road, looking in a southeasterly direction into Rise and Shine Creek.

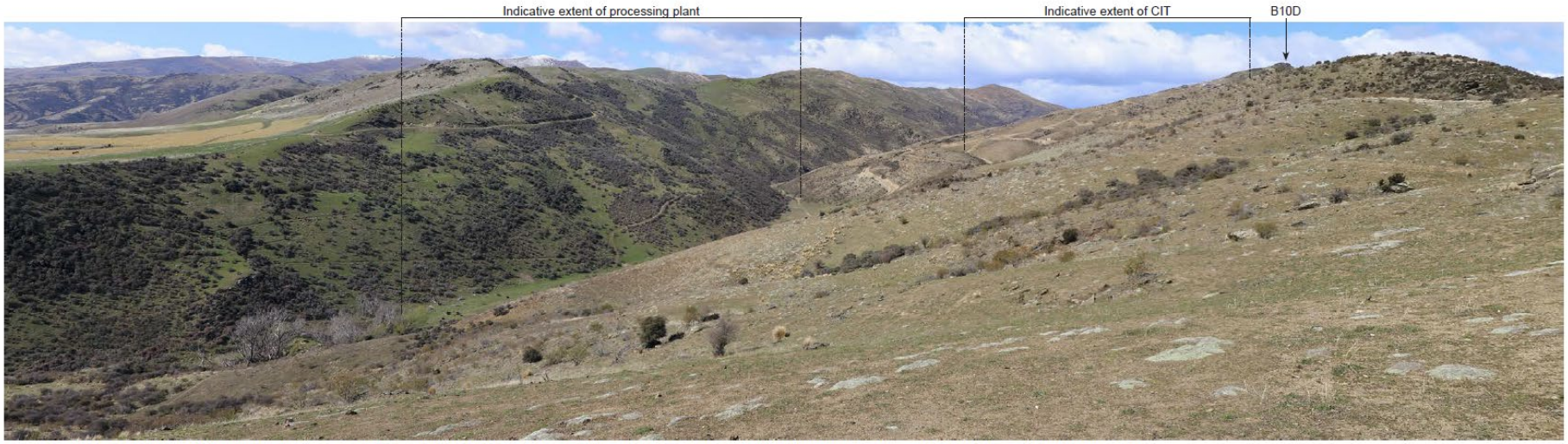
Site Appraisal Photograph H: View from existing Site access road, looking in a southwesterly direction over Rise and Shine Creek.



Site Appraisal Photograph F: View from Thompson Gorge Road, looking in a southeasterly direction towards the proposed location for RAS pit.



Site Appraisal Photograph C: View from existing Thompson Gorge Road, looking in a northwesterly direction over Shepherds Creek.



Site Appraisal Photograph A: View from existing Thompson Gorge Road, looking in an easterly direction towards the proposed CIT pit and procssing plant.

Appendix 4: Statutory acknowledgements for wāhi tīpuna

Ngāi Tahu Claims Settlement Act 1998, Schedule 40: Statutory acknowledgement for Mata-au (Clutha River)

Statutory area

The statutory area to which this statutory acknowledgement applies is the river known as Mata-au (Clutha River), the location of which is shown on Allocation Plan MD 122 (SO 24727).

Preamble

Under section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to the Mata-au, as set out below.

Ngāi Tahu association with the Mata-au

The Mata-au river takes its name from a Ngāi Tahu whakapapa that traces the genealogy of water. On that basis, the Mata-au is seen as a descendant of the creation traditions. For Ngāi Tahu, traditions such as this represent the links between the cosmological world of the gods and present generations, these histories reinforce tribal identity and solidarity, and continuity between generations, and document the events which shaped the environment of Te Wai Pounamu and Ngāi Tahu as an iwi.

On another level, the Mata-au was part of a mahinga kai trail that led inland and was used by Ōtākou hapū including Ngāti Kurī, Ngāti Ruahikihiki, Ngāti Huirapa and Ngāi Tuahuriri. The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka, places for gathering kai and other taonga, ways in which to use the resources of the river, the relationship of people with the river and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

The river was also very important in the transportation of pounamu from inland areas down to settlements on the coast, from where it was traded north and south. Thus there were numerous tauranga waka (landing places) along it. The tūpuna had an intimate knowledge of navigation, river routes, safe harbours and landing places, and the locations of food and other resources on the river. The river was an integral part of a network of trails which were used in order to ensure the safest journey and incorporated locations along the way that were identified for activities including camping overnight and gathering kai. Knowledge of these trails continues to be held by whānau and hapū and is regarded as a taonga. The traditional mobile lifestyle of the people led to their dependence on the resources of the river.

The Mata-au is where Ngāi Tahu's leader, Te Hautapunui o Tū, established the boundary line between Ngāi Tahu and Ngāti Mamoe. Ngāti Mamoe were to hold mana (authority) over the lands south of the river and Ngāi Tahu were to hold mana northwards. Eventually, the unions between the families of Te Hautapunui o Tū and Ngāti Mamoe were to overcome these boundaries. For Ngāi Tahu, histories such as this represent the links and continuity between past and present generations, reinforce tribal identity, and document the events which shaped Ngāi Tahu as an iwi.

Strategic marriages between hapū further strengthened the kupenga (net) of whakapapa, and thus rights to travel on and use the resources of the river. It is because of these patterns of activity that the river continues to be important to rūnanga located in Otago and beyond. These rūnanga carry the responsibilities of kaitiaki in relation to the area, and are represented by the tribal structure, Te Rūnanga o Ngāi Tahu.

Urupā and battlegrounds are located all along this river. One battleground, known as Te Kauae Whakatoro (downstream of Tuapeka), recalls a confrontation between Ngāi Tahu and Ngāti Mamoe that led to the armistice established by Te Hautapunui o Tū. Urupā are the resting places of Ngāi Tahu tūpuna and, as such, are the focus for whānau traditions. These are places holding the memories, traditions, victories and defeats of Ngāi Tahu tūpuna, and are frequently protected by secret locations.

The mauri of Mata-au represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the river.

Purposes of statutory acknowledgement

Pursuant to section 215, and without limiting the rest of this schedule, the only purposes of this statutory acknowledgement are—

(a) to require that consent authorities forward summaries of resource consent applications to Te Rūnanga o Ngāi Tahu as required by regulations made pursuant to section 207 (clause 12.2.3 of the deed of settlement); and

(b) to require that consent authorities, Heritage New Zealand Pouhere Taonga, or the Environment Court, as the case may be, have regard to this statutory acknowledgement in relation to the Mata-au, as provided in sections 208 to 210 (clause 12.2.4 of the deed of settlement); and

(c) to empower the Minister responsible for management of the Mata-au or the Commissioner of Crown Lands, as the case may be, to enter into a Deed of Recognition as provided in section 212 (clause 12.2.6 of the deed of settlement); and

(d) to enable Te Rūnanga o Ngāi Tahu and any member of Ngāi Tahu Whānui to cite this statutory acknowledgement as evidence of the association of Ngāi Tahu to the Mata-au as provided in section 211 (clause 12.2.5 of the deed of settlement).

Limitations on effect of statutory acknowledgement

Except as expressly provided in sections 208 to 211, 213, and 215,—

(a) this statutory acknowledgement does not affect, and is not to be taken into account in, the exercise of any power, duty, or function by any person or entity under any statute, regulation, or bylaw; and

(b) without limiting paragraph (a), no person or entity, in considering any matter or making any decision or recommendation under any statute, regulation, or bylaw, may give any greater or lesser weight to Ngāi Tahu's association to the Mata-au (as described in this statutory acknowledgement) than that person or entity would give under the relevant statute, regulation, or bylaw, if this statutory acknowledgement did not exist in respect of the Mata-au.

Except as expressly provided in this Act, this statutory acknowledgement does not affect the lawful rights or interests of any person who is not a party to the deed of settlement.

Except as expressly provided in this Act, this statutory acknowledgement does not, of itself, have the effect of granting, creating, or providing evidence of any estate or interest in, or any rights of any kind whatsoever relating to, the Mata-au.

Ngāi Tahu Claims Settlement Act 1998, Schedule 61: Statutory acknowledgement for Te Wairere (Lake Dunstan)

Statutory area

The statutory area to which this statutory acknowledgement applies is the lake known as Te Wairere (Lake Dunstan), the location of which is shown on Allocation Plan MD 490 (SO 24729).

Preamble

Under section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to Te Wairere, as set out below.

Ngāi Tahu association with Te Wairere

The name "Te Wairere" refers to the speed with which the river once ran at this point.

The whole of the Mata-au (Clutha River), on which Te Wairere lies, was part of a mahinga kai trail that led inland and was used by Otago hapū including Kāti Kurī, Ngāti Ruahikihiki, Ngāti Huirapa and Ngāi Tuahuriri. The river was used as a highway into the interior, and provided many resources to sustain travellers on that journey. The river was a significant indigenous fishery, providing tuna (eels), kanakana (lamprey) and kōkopu in the area over which Te Wairere now lies. Manu (birds), including moa, were taken from areas adjoining the river, over which the lake now lies.

The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka (landing places), places for gathering kai and other taonga, ways in which to use the resources of the river, the relationship of people with the river and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

The waterway was also very important in the transportation of pounamu from inland areas down to settlements on the coast, from where it was traded north and south. Because of its location at the confluence of Mata-au and Kawarau Rivers, Te Wairere was an important staging post on journeys inland and down-river. A tauranga waka and nohoanga sited at the junction of the two rivers acted as such a staging post. As a result of this history of use and occupation there are a number of wāhi taonga (including rock shelters and archaeological sites) in the area, some of which are now under the waters of the lake. Wāhi tapu are important as places holding the memories and traditions of Ngāi Tahu tūpuna.

The tūpuna had an intimate knowledge of navigation, river routes, safe harbours and landing places, and the locations of food and other resources on the river. The waterway was an integral part of a network of trails which were used in order to ensure the safest journey and incorporated locations along the way that were identified for activities including camping overnight and gathering kai. Knowledge of these trails continues to be held by whānau and hapū and is regarded as a taonga. The traditional mobile lifestyle of the people led to their dependence on the resources of the waterway.

The mauri of Te Wairere represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a

life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the lake.

Purposes of statutory acknowledgement

Pursuant to section 215, and without limiting the rest of this schedule, the only purposes of this statutory acknowledgement are—

(a) to require that consent authorities forward summaries of resource consent applications to Te Rūnanga o Ngāi Tahu as required by regulations made pursuant to section 207 (clause 12.2.3 of the deed of settlement); and

(b) to require that consent authorities, Heritage New Zealand Pouhere Taonga, or the Environment Court, as the case may be, have regard to this statutory acknowledgement in relation to Te Wairere, as provided in sections 208 to 210 (clause 12.2.4 of the deed of settlement); and

(c) to empower the Minister responsible for management of Te Wairere or the Commissioner of Crown Lands, as the case may be, to enter into a Deed of Recognition as provided in section 212 (clause 12.2.6 of the deed of settlement); and

(d) to enable Te Rūnanga o Ngāi Tahu and any member of Ngāi Tahu Whānui to cite this statutory acknowledgement as evidence of the association of Ngāi Tahu to Te Wairere as provided in section 211 (clause 12.2.5 of the deed of settlement).

Limitations on effect of statutory acknowledgement

Except as expressly provided in sections 208 to 211, 213, and 215,—

(a) this statutory acknowledgement does not affect, and is not to be taken into account in, the exercise of any power, duty, or function by any person or entity under any statute, regulation, or bylaw; and

(b) without limiting paragraph (a), no person or entity, in considering any matter or making any decision or recommendation under any statute, regulation, or bylaw, may give any greater or lesser weight to Ngāi Tahu's association to Te Wairere (as described in this statutory acknowledgement) than that person or entity would give under the relevant statute, regulation, or bylaw, if this statutory acknowledgement did not exist in respect of Te Wairere.

Except as expressly provided in this Act, this statutory acknowledgement does not affect the lawful rights or interests of any person who is not a party to the deed of settlement.

Except as expressly provided in this Act, this statutory acknowledgement does not, of itself, have the effect of granting, creating, or providing evidence of any estate or interest in, or any rights of any kind whatsoever relating to, Te Wairere.

Appendix 5: Wāhi ikoa in the Mata-au, Bendigo-Tarras Basin and Manuherekia Valley

General Location	Ikoa Māori	Ikoa Pākehā / Whakaaturaka
Dunstan Ranges	Matakinui	A mahika kai site where it is recorded that tuna and tikumu were gathered.
	Tahurarapao	A mahika kai site located in or near the Dunstan Mountains where it is recorded that weka, kina, kueo and taramea were gathered.
Manuherekia	Oteraki Au	A mahika kai site located near the Manuherekia River where it is recorded that weka, rat, āruhe, tuna, kina, kueo, papaī, taramea and birds were gathered.
	Manuherekia	Manuherekia River
Mata-au	Mata-au	Clutha River
	Otakihia	Stretch of the Mata-au located at the present-day head of Lake Dunstan.
	Kā Iwi o te Weka	A mahika kai site located on the Mata-au where it is recorded that tuna and weka were gathered.
	Mahaki Katia	A mahika kai site located on the Mata-au where it is recorded that tuna and weka were gathered.

Appendix 6: Archaeological sites in the Mata-au, Bendigo-Tarras Basin and Manuherekia Valley[150]

Approximate location	NZAA number	Site type	Details
Thomsons Gorge	G41/632	Pit / Terrace	Pit with raised rim
Manuherekia[151]	G41/52	Unclassified	Moa specimen
Bendigo Creek	G41/53	Artefact find	Hoe (waka paddle)
Mata-au[152]	G41/10	Artefact find	Adze – dark grey with black lines running through
	G41/283	Artefact find	
	G41/298	Midden / Oven	Intact oven
	G41/17	Midden / Oven	Intact oven
	G41/18	Artefact find	

[150] New Zealand Archaeological Association, 2025.
[151] Adjacent to ara tawhito as it enters Thomsons Gorge.
[152] Adjacent to ara tawhito and the Mata-au as it exits Thomsons Gorge

Appendix 7: Species identified in BOGP ecological reports that are recognised by the Ngāi Tahu Claims Settlement Act 1998 as taoka species[153]

Bird species[154]

Species	Conservation status	Information on distribution across area
Birds seen and/or heard in the area		
kārearea (NZ falcon)	Threatened – Nationally Vulnerable	One pair likely nesting at the margin of the direct disturbance area in Shepherds Valley (exhibited behaviour indicative of breeding). Nests in rock outcrops and bluffs. The direct disturbance area is of sufficient size to support up to one pair, and combined with the wider potential disturbance area has the potential to support one to two pairs.
pihoihoi (NZ pipit)	At Risk -Declining	Dispersed throughout the area in exotic grassland, native tussock land and mixed grass/tussock/shrubland. An estimated 5-15 pairs in direct disturbance area.
kōau (black shag)	At Risk	Occasional use of ponds likely.
karoro (black-backed gull)	At Risk - Declining	Likely to visit the cultivated fields on the Ardgour terraces on occasion.
kāhu (Australasian harrier)	Not threatened	
pūtakitaki (paradise shelduck)	Not threatened	Rise and Shine pond
miromiro (tomtit)	Not threatened	Forest and scrub
riroriro (grey warbler)	Not threatened	Forest and scrub
pīwakawaka (fantail)	Not threatened	Forest and scrub
Birds identified from other recent records (last 10 years)		
tara (black-fronted tern)	Threatened – Nationally Endangered	Present on the Clutha River and are likely to visit the cultivated fields on the Ardgour terraces on occasion

[153] Ngāi Tahu Claims Settlement Act 1998, Schedule 97 – Taonga Species
[154] RMA Ecology Ltd, 2025a; Alliance Ecology, 2025.

Mātā (South Island fernbird)	At Risk - Declining	Recorded in desktop assessment only (one record along Rise and Shine stamper battery track). Potentially present on occasion in wetland, scrub and shrubland, but not detected.
kōau (little shag)	At Risk	Occasional use of ponds likely
kōparapara/ korimako (bellbird)	Not threatened	Forest and scrub
kūkupa/ kererū (NZ woodpigeon)	Not threatened	Forest and scrub
poaka (pied stilt)	Not threatened	
pūkeko	Not threatened	
kōtare (kingfisher)	Not threatened	
tete (grey teal)	Not threatened	Rise and Shine pond

Plant species[155]

Species	**Distribution**
taramea (*Aciphylla aurea* - Golden Spaniard)	Present in all vegetation communities except wetlands; abundant in native herbfield/ shrubland, common in native dominant tusssockland
wī (*poa cita* - silver tussock)	Present in all vegetation communities; abundant in native dominant tussockland and mixed tussock shrubland/ exotic grassland
toetoe (*Austroderia richardii*; formerly *Cortaderia richardii* -Richards toetoe)	Present but rare in native dominant scrubland, mixed scrubland and mixed tussock shrubland/ exotic grassland
korokio (*Corokia cotoneaster*)	Rare or occasional in all vegetation communities except wetlands
kānuka (*Kunzea robusta*)	Present but rare in mixed depleted herbfield (cushionfield)/ grassland, native dominant scrubland, wetlands

[155] RMA Ecology Ltd, 2025c; Alliance Ecology, 2025.

kōwahi/ kōhai (*Sophora microphylla* - small-leaved kowhai)	Present but rare in all vegetation communities except native herbfield/ shrubland and wetlands
pātōtara (*Styphelia nesophila*; formerly *Leucopogon fraseri* – dwarf mingimingi)	Present in all vegetation communities except wetlands; common in native herbfield/ shrubland
aruhe (*Pteridium esculentum* – bracken)	Rare or occasional in all vegetation communities except wetlands
wīwī (*Juncus* spp. - *Juncus distegus*, *Juncus edgariae*)	Rare or occasional in exotic pasture/ herbfield, wetlands and mixed tussock shrubland/ exotic grassland

Appendix 8: Specific concerns identified by Kā Rūnaka through review of technical reports

Impact		Concern identified	Measures requested
General	**Recognition of Kāi Tahu values and interests** (ref: Reports generally, including: Alliance Ecology, 2025; RMA Ecology Ltd, 2025d; Boffa Miskell, 2025; Water Ways Consulting, 2025; Geocontam Risk Management, 2025; Matakanui Gold Limited, 2025a, 2025b, 2025c; Mine Closure Management Pty Ltd, 2025-Rev)	There is very little recognition of Kāi Tahu connection, values and mātauraka in the technical reports. The reports typically underemphasise iwi connection with the area and refer to it only in historical terms. The failure to recognise ongoing cultural values and associations with the area and with the elements of te taiao means there are some significant gaps in the assessment of effects. The exclusion of mātauraka Māori potentially compromises the proposed offset effectiveness by overlooking cultural management techniques that could enhance restoration success. Kā rūnaka possess enduring interests in ecosystem guardianship that transcend typical management cycles, and the long-term success of offset activities will be fundamentally dependent on maintaining cultural relationships to taonga species present within in restoration areas.	**Mitigation/ offsets:** ➢ Kā Rūnaka require reconsideration of the technical reports to recognise the ongoing and significant connections of mana whenua to the location of the proposed mine. ➢ Kā Rūnaka require meaningful incorporation of mātauraka Māori and participation in design and oversight of proposed offsets. ➢ Kā Rūnaka require meaningful involvement in development and approval of environmental management documents still to be prepared (such as the detailed Closure Manual referred to in the Mine Closure Pan). ➢ Kā Rūnaka also require dedicated resources and funding for Kā Rūnaka involvement in all phases of the offset plan, such as participation in monitoring, protection, and pest control programmes that support taoka species recovery in the sanctuary areas.

Impact		Concern identified	Measures requested
	Long term maintenance (ref: Alliance Ecology, 2025)	The certain loss at the mine DDF is being offset by the potential gain that will occur as a result of biodiversity offset measures. Effectiveness of the offsets will rely on management over the long term, and failure to undertake maintenance will result in an overall loss over time. A long term commitment to maintenance of pest control measures, the predator fencing and weed control, requiring appropriate funding and management, will be essential to maintain these gains. This will need to extend beyond the 35 year period referred to as the timeframe within which biodiversity outcomes are to be achieved. The rūnaka should be involved in this long term environmental project.	**Mitigation/ offsets:** ➢ **Management:** Kā Rūnaka require provision of intergenerational funding and maintenance arrangements (for example through establishment of an endowment or trust fund) to ensure this management measure is effective.
	Bond requirements (ref: Lane Associates Ltd, 2025)	The bond calculation provided is described as an "example" rather than a definitive analysis. There are some gaps in the matters included in the calculations (for example, long term water treatment is not addressed) and assumptions about time periods used for the calculations do not reflect the uncertainties inherent in dealing with natural systems. Despite the intergenerational interests of Kāi Tahu in respect to the environment of this area, mana whenua are not identified as party to bond arrangements.	**Mitigation:** ➢ Kā Rūnaka require assurance that funding will be provided for all intergenerational monitoring and maintenance needs. ➢ Kā Rūnaka request a condition that includes mana whenua as parties to decisions relating to the setting, use and discharge of the bond.
Technical design	**Geotechnical risk**	No geotechnical ground investigations have been undertaken in the selected site of the TSF. This work should be completed to ensure the proposed TSF site is suitable for the disposal of tailings.	**Investigations and monitoring:** ➢ Kā Rūnaka require assurance that geotechnical risk associated with siting of the TSF has been adequately addressed.

Impact		Concern identified	Measures requested
	(ref: Beca, 2025; Peter O'Bryan & Associates, 2025)	There is a lack of detailed data about the geotechnical risks affecting the proposed underground mining operation (as indicated, for example, by use of the word "expected" in discussion about caving). In light of uncertainty about effects, a condition precluding any measurable impact (or a prescribed limit) on the surface from subsidence activity would be appropriate.	**Mitigation:** ➢ Kā Rūnaka require either: • a condition precluding any measurable impact (or a prescribed limit) on the surface from subsidence activity related to underground mine operations; or • a requirement for further approvals to be sought before the development of any underground workings, to enable separate consideration of the impacts when more data is available.
	Contaminant transport through ELF (ref: Mine Waste Management Limited, 2025c)	Technical advice is that if blast design is such that it optimises particle size to reduce the surface area in order to minimise the surface available for oxidation this contradicts the requirement to construct an ELF with a high level of compaction to avoid advection current in the waste material. There is probably a solution to this apparent contradiction through ensuring sufficient smaller particle size TZ3 material is included with the larger sized TZ4 and RSSZ material to achieve low advection but high compaction.	**Operational design:** ➢ Kā Rūnaka require this feedback to be considered as part of the approach to engineered landform.
	Capping of ELFs (ref: Mine Closure	Any armouring / surface work to ensure no erosion of capping surfaces will require long term maintenance and	**Mitigation/ offsets:** ➢ **Long term maintenance:** Kā Rūnaka require intergenerational assurance around ongoing

Impact		Concern identified	Measures requested
	Management Pty Ltd, 2025-Rev)	should be considered as part of the post closure site management.	maintenance of ELFs and funding for this (for example through establishment of an endowment).
	Stability of open pits (ref: Mine Closure Management Pty Ltd, 2025-Rev)	Open pits are designed to be stable during the life of the mining operations but may not be stable in the long term as materials weather and erode, leading to instability of sections of the pit walls post-closure.	**Mitigation/ offsets:** ➢ Kā Rūnaka require conditions to ensure that the site remains safe or that remedial work can be carried out to make it safe. This will need to include provision for funding in the post-closure period.
	Flood hazard (ref: Mine Waste Management Limited, 2025b)	It is not clear whether the water treatment plant is located where it may be subject to flood hazard.	**Operational design:** ➢ Kā Rūnaka require that the WTP is located above a 1 in 100 year flood event level.
	Formation of RAS pit lake (ref: Matakanui Gold Limited, 2025e)	On the basis of figures on volume of rock to be mined and estimated groundwater inflow provided in the project description, technical advice is that groundwater inflow will only be sufficient to quarter fill the pit lake over a 25 year timeframe, requiring approximately 65Mm^3 from rainfall to fill the lake over this period. This suggests it is unlikely that the lake will be fully formed at 25 years.	**Operational design:** ➢ Kā Rūnaka require further information on the basis for calculation of the timeframe for formation of the RAS pit lake.
	Management plans (ref: Alliance Ecology, 2025,	Much of the success of the project relies on well considered management plans that are well implemented and incorporate sufficient contingency plans. Some of those	**Operational design; mitigation/ offsets:** ➢ Kā Rūnaka require that they have the ability to review and input on the acceptability of

Impact		Concern identified	Measures requested
	RMA Ecology Ltd, 2025b; Mine Closure Management Pty Ltd, 2025-Rev)	referred to in the technical reports have not yet been made available.	management plans and have their feedback taken into consideration as they are developed.
	Rehabilitation process (ref: Matakanui Gold Limited, 2025a)	Little rehabilitation will occur for at least 35 years.	➢ Kā Rūnaka require further engagement on potential for ongoing rehabilitation during the operational mining period.
	(ref: Matakanui Gold Limited, 2025e)	Topsoil is to be stored to a depth of 30m. If this depth of storage persists for extended periods, the topsoil will become anoxic and will lose fertility. This will reduce the likelihood of successful revegetation of rehabilitation areas unless treatment to restore fertility is applied before reuse.	➢ Kā Rūnaka require assurance of measures to be taken to ensure soil fertility for successful revegetation.
	(ref: Mine Waste Management Limited, 2025d-Rev)	Arsenic-rich soils excavated from the Rise and Shine catchment are proposed to be reused in rehabilitation. The report refers to the need for confirmation of a suitable location for re-use and for consideration of how these areas will be managed.	➢ Kā Rūnaka note that there may be an opportunity to achieve net gain through use of biochar technology, rather than just considering management of contaminated materials.
Wai māori	**Water quality** (ref: Mine Waste Management Limited, 2025a, 2025d-Rev; Greg Ryder Consulting,	The Baseline Water Quality Report recommends monitoring of both groundwater and surface water quality to develop a robust data set to support the development of site-specific water quality criteria. While ongoing data collection is	**Investigations and monitoring:** ➢ **Baseline monitoring:** Kā Rūnaka require involvement in the definition of ongoing baseline water quality monitoring and its oversight.

Impact		Concern identified	Measures requested
	2025; Beca, 2025; Mine Waste Management Limited, 2025d-Rev)	important, this recommendation raises questions about the basis for water management recommendations. For groundwater, further samples taken at regular intervals are required to understand baseline water quality and seasonal fluctuations. Some of the measures and standards proposed to minimise or mitigate the effects of contaminants are inadequate. For example, the Recommended Water Quality Compliance Limits report recommends that iron levels are monitored in surface water and if an increase of 20% above baseline levels is noted then a literature review is undertaken to inform the next steps. As iron levels already exceed the ANZG interim guidance levels this seems a very tolerant approach. The Mine Closure Plan identifies that residual release of solutes such as sulphate and total nitrogen could affect downstream water quality and ecological values. The Mine Impacted Water Overview report recommends compliance monitoring for some potential contaminants once passive treatment commences. Passive treatment will extend well into the post closure phase of the project when management of the site will likely have passed to another party. It is not clear how this is anticipated to be managed.	**Operational design; mitigation/ offsets:** ➢ **Sediment:** Include mitigation to further limit sediment discharge to waterways e.g. constructed wetlands with riparian planting to act as filters, pools to act as sediment traps. ➢ **Nitrate-N:** Reconsider permissible groundwater nitrate levels with a view to a including a limit well below the current 11.3mg/l NZ drinking water standard, to address concerns about impacts on health at much lower concentrations. ➢ **Iron:** Reduce permissible Fe levels to no more than 20% above baseline. ➢ **Cyanide:** Kā Rūnaka require adoption of industry best practice (e.g. the *International Cyanide Management Code For the Manufacture, Transport, and Use of Cyanide In the Production of* Gold) in the conditions of consent and as part of any Cultural Impact Agreement a commitment to improvements as industry best practice changes over the life of the mine. ➢ **Arsenic:** Align limits for arsenic with the ANZECC standards. ➢ **Post closure compliance:** Kā Rūnaka require absolute limits for the quality of both surface

Impact		Concern identified	Measures requested
			and underground site discharges to be set, as well as conditions that set out clearly how monitoring and effective treatment of discharge water in the passive management phase will be managed.
	(ref: Matakanui Gold Limited, 2025a, 2025e; Beca, 2025; Mine Waste Management Limited, 2025b, 2025c, 2025d-Rev; Lane Associates Ltd, 2025; Mine Closure Management Pty Ltd, 2025-Rev)	**ELF sediment pond, mine drainage, closure lake, water treatment facilities and any discharges:** One of the mitigations proposed for the management of mine impacted water is to capture and treat. This will be needed once there is surplus water leaving the operational area of the mine. Back-to-back wet years or changes in water balance assumptions could mean treatment needs to be initiated earlier than planned, and monitoring will be important to determine when construction of the treatment plant needs to be triggered. The requirement for active treatment will not expire on the closure of the mine but is expected to be needed for a total of 50 years (and the Mine impacted Water Overview Report indicates that a significantly longer active treatment period could be required if assumptions about net percolation rate are too optimistic or if passive treatment does not achieve compliance with water quality limits). This is a risk to Kā Rūnaka. Long term use of the water treatment plant could also generate sludges, with associated ongoing costs of sludge disposal. The proposal does not include details to provide	**Mitigation/ offsets:** ➢ **Trigger for active water treatment:** Kā Rūnaka suggest that a condition based on site discharge water quality is imposed to trigger the construction of the water treatment plant. ➢ **Long term management agreement:** Kā Rūnaka require an intergenerational solution (including funding and maintenance arrangements) to be established to ensure the ongoing provision of water treatment over >400 years. Sludge disposal should also be included in this.

Impact		Concern identified	Measures requested
		certainty about how sludge will be disposed of, the volumes requiring management, or how provision will be made for the associated costs. The proposal also provides no indication of the likely term required for passive treatment, or of associated costs and how these will be managed. For example, anticipated use of pit lakes and engineered wetlands to remove nitrate and sulphate will have ongoing maintenance requirements beyond mine closure and post-closure phases, with associated costs. The liability associated with both active and passive water treatment post-closure is not referred to in the Bond Introduction. In the event water quality becomes an issue post mining (and probably post the presence of Matakanui Gold) there needs to be provision for its management (including ongoing vehicle access to the site). A logical approach would be for BOGP to develop an agreement with Consent Authorities or other suitable parties to oversee and undertake any work required. Kā Rūnaka must be parties to such an agreement, as they have the long term commitment to the whenua.	
	Springs (ref: Greg Ryder Consulting, 2025)	A map in this report shows the location of a number of springs (waiora) within the Shepherds Creek catchment that will be disturbed through mining. Springs (waiora) are of significant cultural importance to mana whenua.	**Mitigation/ offsets:** ➢ Kā Rūnaka require mitigation of the cultural effects of disturbance/ loss of springs.
	Wetlands	There should be a net gain of wetland area from the current state. Proposed mitigation is establishment of wetlands as	**Operational design:**

Impact		Concern identified	Measures requested
	(ref: Alliance Ecology, 2025; Greg Ryder Consulting, 2025)	part of post-closure remediation, but this would mean there is a significant delay in addressing the proposed wetland loss. Wetland dominated by exotic plants was excluded from assessments. The current state of these areas is a result of historic land use practices and they would return to wetland given the opportunity. These areas can still hold ecological values, providing habitat for native species and potential areas for replanting.	➢ **Buffers:** Buffer zones should be established around any wetlands adjacent to earthworks. ➢ **Nationally or regionally Threatened, At Risk and Data Deficient wetland plant species:** Exclude wetlands containing these species from earthworks where possible. **Mitigation/ offsets:** ➢ **Enhancement of currently degraded wetlands** ➢ **Seed collection:** Provide access for Kā Rūnaka to collect seed of taoka species, regionally threatened species or at-risk species. ➢ **Long term maintenance:** Kā Rūnaka require intergenerational assurance around ongoing maintenance of wetlands. ➢ **Offsets:** Offset any disturbed areas of wetlands by wetland protection and enhancement elsewhere or by constructed wetlands being established in suitable areas. This should include offsets during the mine operation period in addition to the proposed post-closure remediation.
	Stream loss (ref: Water Ways Consulting, 2025;	There will be significant large-scale impact on perennial streams which cannot be mitigated, so offset and other arrangements will be required. The stream loss will also	**Offsets/mitigation:** ➢ **Translocation of non-migratory galaxiids:** In collaboration with Kā Rūnaka, establish a

Impact		Concern identified	Measures requested
	Greg Ryder Consulting, 2025; Boffa Miskell, 2025a)	impact on the mauri of the watercourses, and even though the streams do not have particularly high ecological values with regards to species present, they have an intrinsic value as habitat and as natural features. Willow removal and enhancement of riparian vegetation in Bendigo and Clearwater Creeks is proposed as compensation for stream loss in Shepherds Creek and Rise and Shine Creek. This is inadequate to address the cultural and ecological effects of the destruction of 7,139 m of perennial stream. Further offset and compensation for cultural and ecological impacts is required to enhance and protect aquatic species in line with what has been proposed for terrestrial species (e.g. the fenced sanctuaries).	reserve for threatened non-migratory *Galaxias* spp. in Clearwater Creek and Shepherds Creek (or other nearby catchments if they are deemed more appropriate), with translocation of fish from nearby tributaries of the Lindis River (Cluden Stream, Wainui Creek etc). ➢ ***Galaxias* management plan:** Develop and implement a non-migratory *Galaxias* management plan for the Lindis catchment, including site specific feasibility studies, establishment of new populations, habitat enhancement, barrier enhancement and trout control as required. ➢ **Freshwater sanctuary:** Establish a freshwater sanctuary in a surrounding area with known native fauna (fish and invertebrates) that is greater than the area disturbed. Action to achieve this would include wetland creation/ enhancement, removal of pest plant species (i.e. crack willows), monitoring and protection of native species, planting of native riparian species, protection from grazing, removal of brown trout.
Terrestrial ecology	**Rehabilitation process**	There is mention of rehabilitation "trials" for establishment of habitats and vegetation communities, and the monitoring of these and other plantings to inform and optimise long	**Mitigation/ offsets:**

Impact		Concern identified	Measures requested
	(ref: Matakanui Gold Limited, 2025a)	term rehabilitation strategy. Given the novelty of the project and the environment being disturbed this is a sensible approach but it does call attention to the risk associated with the proposed rehabilitation methodology and potential for the goals to be compromised. Reference to the importance of "collecting, collating, and reporting" due to the limited precedent for rehabilitation in this dryland environment also highlights the risk.	➢ Kā Rūnaka require rehabilitation goals to be contractualised or become a consent condition with outcomes not subject to compromise. ➢ Kā Rūnaka require involvement and oversight of collecting, collating and reporting and co-design role into rehabilitation. ➢ **Long term maintenance:** Kā Rūnaka require intergenerational assurance around ongoing maintenance of regeneration, wetlands and rehabilitation post closure.
	Lizards (ref: Alliance Ecology, 2025; RMA Ecology Ltd, 2025b)	The loss of up to 100,000 mokomoko would be almost unprecedented for a single project in Otago and would be a significant impact on taoka species. Both tussock skink and Kawarau gecko are classified as "At Risk - Declining", indicating documented population reductions and heightened vulnerability to further habitat loss. The proposed mining activities will contribute to this decline. Only a small proportion of the lizard population will be able to be salvaged, and there is no evidence that relocated lizards will survive. In addition, the current rehabilitation plan of the surrounding area will lead to further pressure on remaining lizard populations by:	**Mitigation/ offsets:** ➢ **Provide further detail:** Provide more detail on salvage effort and methods, and what the plan is for the lizards that are not going to be relocated. Kā Rūnaka expect to be given the opportunity to review and provide feedback on this. ➢ **Management of salvage and relocation:** Kā Rūnaka request that a formal partnership structure be set up to ensure mana whenua are appropriately involved in both management and operational aspects of lizard salvage and relocation.

Impact		Concern identified	Measures requested
		• increasing woodier vegetation is likely to reduce the carrying capacity for lizards by creating more shaded habitat; • excluding mice from pest control programmes; • and potentially increasing mouse numbers further (including in fenced sanctuaries) by supressing their predators and improving their habitat through grazing reduction. There is no mention of involvement of mana whenua in salvage efforts. This would increase the capacity for this work.	➢ **Salvage training:** Fund and organise training of mana whenua representatives in lizard handling and salvage techniques. ➢ **Translocation of rarer species:** Commit to translocation of grand and Otago skinks, as well as Jewelled geckos (subject to appropriate permitting processes) once pests have been eradicated. (This is currently just identified as a potential option.) ➢ **Adaptive management framework:** Develop an adaptive management framework, with mana whenua, to ensure populations of translocated species are maintained beyond the life of the mine. ➢ **Monitoring plan:** Kā Rūnaka require the opportunity to review and provide input into the Biodiversity Outcome Monitoring Plan. ➢ **Long term management:** Kā Rūnaka require intergenerational assurance around ongoing resourcing and management beyond the life of the mine. ➢ **Research/ conservation funding:** Provide financial contribution for research/ conservation of the Tussock skink and Kawarau gecko.

Impact		Concern identified	Measures requested
	Mammalian pests (ref: Matakanui Gold Limited, 2025d)	**Weasels:** Weasels are too light to trigger DOC 250 traps.	**Mitigation/ offsets:** ➢ Kā Rūnaka recommend that DOC 150 traps are also used in areas where weasels need to be targeted.
	(ref: Habitat NZ Ltd, 2025a, 2025c; Matakanui Gold Limited, 2025d)	**Mice:** Absence of lizards in guts of captured mice is surprising and possibly the result of a small sample size (6 mice) and sampling occurring during the warmer months (Nov – May) when lizards are not dormant and less vulnerable to predation. With the densities of mice described in the report and the prevalence of lizards at the site it is expected that lizards would be predated often by mice. Permanent mouse control is important to protect invertebrates and lizards.	**Mitigation/ offsets:** ➢ Manage the risk of mice predation in line with current literature (i.e significant impact). ➢ Develop a detailed pest management plan addressing mice control for sanctuary areas, including specification around control techniques (toxins, bait stations, etc) appropriate for sanctuary environments that have minimised risks to non-target species.
	(ref: Mine Closure Management Pty Ltd, 2025-Rev)	**Pest Exclusion Zone:** Maintenance of a fenced exclusion zone in perpetuity will require management with associated funding.	**Mitigation/ offsets:** ➢ **Long term maintenance:** Kā Rūnaka require further engagement and assurance around intergenerational funding and management of the Pest Exclusion Zone.
	Plants (ref: Matakanui Gold Limited, 2025a)	The management of browsing animals (including rabbits) is critical to the success of the reestablishment of cushionfields and other native vegetation. This will be required to be maintained post closure and rehabilitation.	**Mitigation/ offsets:** ➢ **Long term maintenance:** Kā Rūnaka require intergenerational assurance around ongoing maintenance of regeneration.

Impact		Concern identified	Measures requested
	(ref: Mine Closure Management Pty Ltd, 2025-Rev)	The proposed approach to revegetation is to create 'islands' of planting, covering 20% of benches across the site. This will leave large areas that require weed management.	**Mitigation/ offsets:** ➢ Kā rūnaka request consideration of the merits of high density planting over a larger area to provide for more efficient and effective weed control.
	(ref: Alliance Ecology, 2025; RMA Ecology Ltd, 2025b)	Some native plants are not being targeted for rehabilitation as it is assumed they will naturally regenerate in the absence of grazing (e.g. tussock communities, *Geranium aff. Microphyllum*). The validity of this assumption will need to be checked, as there is a risk that domination by woodier species in the absence of grazing may hinder self-establishment.	**Investigations and monitoring:** ➢ **Monitoring:** Develop a vegetation monitoring plan, with input from Kā Rūnaka. **Mitigation/ offsets:** ➢ **Adaptive management framework:** Identify procedures (to be developed with input from Kā Rūnaka) for propagation and planting if species fail to self-establish within a certain timeframe. ➢ **Sanctuaries:** Include a diverse range of habitats in sanctuary areas, with specific actions in place to maintain and enhance tussockland (in particular to provide lizard habitat that is not too shady).
	Sanctuary management (ref: Habitat NZ Ltd, 2025d)	The management timeframe for the proposed sanctuary areas does not appear to extend beyond the 35 year life of the mine. This does not provide for the "enduring stewardship" described in the purpose of the Matakanui Sanctuary Management Plan.	**Mitigation/ offsets:** ➢ Kā Rūnaka request that an entity be established in partnership with mana whenua to maintain and support the sanctuaries in perpetuity, as well as wider ecological management projects that extend beyond the life of the mine.

Impact		Concern identified	Measures requested
Landscape	**Cultural landscape** (ref: Boffa Miskell, 2025)	The assessment methodology does not follow the guidelines for consideration of Te Ao Māori in Te Tangi a Te Manu: Aotearoa New Zealand Landscape Assessment Guidelines. Rūnaka values are therefore not effectively considered as part of the Assessment - specifically the overlapping and interwoven connections between Physical, Associative and Perceptual dimension and the intersection with Whakapapa, Hikoi and Kōrero Tuku Iho. The assessment of landscape values largely focuses only on the physical dimension. The assessment treats the mana whenua connection to the landscape as purely historical and does not consider the contribution of intangible connections to the distinct character of this place. The project description does not identify landscape modifications that are of interest to mana whenua, and the description of landscape components only considers rūnaka values in two of the 14 effect areas described. This does not recognise that the cultural landscape interests of mana whenua extend across this landscape and cannot be separated into only two components or sites. Without recognition of these interests, the cultural impacts of landscape modifications may be overlooked or assumed to be minor. The landscape assessment fails to identify forms of social, economic or cultural mitigation, offsets or solutions to be explored. There is currently no opening to further a	**Investigations and monitoring:** ➢ Undertake the assessment again with methodology that truly incorporates the NZ Guideline's consideration of Te Ao Māori, with specific consideration of: ▪ intersection with Whakapapa, Hikoi and Kōrero Tuku Iho ▪ both Physical and Perceptual dimensions for mana whenua interests, including the criticality of acknowledging intangible connections as being legitimate and as equal significance to tangible connections. ▪ the living connections of mana whenua to this landscape and the desire for Kā Rūnaka to maintain access to ara tawhito ➢ Ensure the modifications of interest to mana whenua are included in the list of elements that will give rise to effects (Section 6.5, p. 25) and include more thorough consideration of rūnaka values/mana whenua connection to the Dunstan Mountains and surrounding area across all the effect areas identified. **Mitigation/ offsets:**

Impact		Concern identified	Measures requested
		conversation between the applicant and kā rūnaka to address impacts on mana whenua association with this landscape.	➢ Kā Rūnaka require a more technically robust series of mitigation measures and request the Assessor stretches into the Te Tangi a Te Manu guideline to explore other non-environmental forms of mitigation as conversation-starters for the applicant.

Appendix 9: Beca review – suggested actions and further clarifications for risk management[156]

Suggested actions

A. Leveraging industry frameworks that can be applied to understand the risks:

1. Request compliance/assurance in following the RGMP and ICMC for cyanide safety. This could be extended further to request they be a signatory of the cyanide code – noting this will likely have economic impacts on the project.
2. Request compliance/assurance in following ICMM (and RGMP) and GISTM for tailings management and water management.
3. Request compliance/assurance in following INAP and GARDE guide compliance/assurance for acid mine/rock drainage – noting the project already seems to be utilising these standards and guides in the work so may already be the intent.
4. Establishing international guidelines for acceptable arsenic level in discharge and agreement with stakeholders based on allowable arsenic release under standard ground conditions (similar to how INAP/GARD is applied).

B. Physical Process or Site Layout changes:

1. Confirm if there has been allowances (or consideration of) for a secondary/tertiary containment for process area stormwater run off/collection – this would act to capture any run off from the processing area so it can be monitored or treated (or recycled) before release to the environment. *(Noting that given the proximity of the plant to sensitive/wetland area, if an alternative position would mitigate the risk of these releases?)*
2. Confirm if the CIL circuit bunding (and all other chemical tanks/reactors) will meet the crest-locus requirements of the NZ Health and Safety at Work (Hazardous Substances) regulations.
3. Clarify if a grind thickening circuit has been considered to reduce water usage and improve CIL density control.

Clarifications

There are a number of exercises planned for subsequent stages of the project that are necessary to understand the projects potential effects on the environment (the next phase is the definitive feasibility study):

- Validation of cyanide destruction pathway achieves required WAD cyanide target (consistently).
- Validation of Arsenic Fixation pathway achieves required arsenic levels.

[156] The content of this appendix has been extracted from Beca, 2025.

- Geotechnical factors that influence stability of ELF/TSF.
- Geological/geotechnical investigations on permeability and seepage around the TSF and ELF.

Additional study or clarification is required to respond appropriately to the following matters prior to commencement of mine process construction:

1. Has the project considered use of alternative lixiviant (e.g. thiosulphate) or supplemented Lixiviant pathways (e.g. GlyCat) that could reduce cyanide consumption onsite? If yes, what were the outcomes, if no, why not and will they be?
2. Has the project considered use of alternative Cyanide destruction pathway and Arsenic fixiation/removal (e.g. Ozone or Oxygen vs Air and Ion Exchange)? If yes, what were the outcomes, if no, why not and will they be?
3. Has the project considered use of alternative Arsenic removal technology (e.g. ion exchange) as opposed to fixation? If yes, what were the outcomes, if No, why not and will they be? Noting that the removal of arsenic from water discharge isn't allowed for until closure, and that this might be required should water discharge be required before closure, requiring a clear risk management strategy and plan.
4. Have any alternative tailings management strategies (e.g. DST) been considered? If yes, what were the outcomes, if no, why not and will they be?

Appendix 8 BOGP Consent Application Review by Kā Rūnaka

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
Landscape and Ecological Rehabilitation Management Plan – Boffa Miskell / Landcare – Aug 2025			
Introduction p.11 para 2 ln 7 para 2 ln 9 para 3 ln 9	There is mention of rehabilitation "trials" and the monitoring of these and other plantings to inform and optimise long term rehabilitation strategy	Given the novelty of the project and the environment being disturbed this is a sensible approach but it does call attention to the risk associated with the proposed rehabilitation methodology and potential for the goals to be compromised.	Kā Rūnaka require rehabilitation goals to be contractualised or become a consent condition with outcomes not subject to reasonable endeavours.
p.12 para 1 Phase Three (Yrs 15-35) Final Closure	Majority of rehabilitation will occur during this phase which might extend beyond this timeframe due to the future economic viability of underground extension.	Extended period of site disturbance with little rehabilitation occurring for at least 35 years but maybe more.	Kā Rūnaka require input into decision making on rehabilitation and offsetting noting the balance to be struck between timely provision of offsetting and strategic, holistic planning of offsetting and rehabilitation.
Sec 8.2 Sec 10.1.3 Sec 10.3.3	Pest plant and animal control identified as a critical implementation requirement	The management of browsing animals is critical to the success of the reestablishment of the native vegetation. This will be required to be maintained post closure and rehabilitation. Who is going to be doing this, potentially in perpetuity?	Kā Rūnaka require intergenerational assurance around ongoing maintenance of regeneration, wetlands and rehabilitation post closure.
Sec 10.2	Vehicle access will be required to be maintained for a significant period (decades?) for the implementation and management of water treatment facilities.	Rehabilitation of these disturbed areas will need occur at a time post mine closure and probably post the presence of Matakanui.	Kā Rūnaka require intergenerational assurance around maintenance of water treatment facilities post closure.
Sec 10.3.5	Cushion field rehabilitation is dependant on the managed browsing (by rabbits) of the herb fields.	For this rehabilitation to succeed there will need be management post mine closure. By whom and at whose cost?	Kā Rūnaka require intergenerational assurance around ongoing maintenance of regeneration, wetlands and rehabilitation post closure.

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
Sec 12.1	"Collecting, collating, and reporting" is fundamental for Boffa Miskell as there is limited precedent for rehabilitation in this dryland environment.	Further example of the uncertainty (increased risk) associated with proposed rehabilitation plans. Contingency provisions should be included.	Kā Rūnaka require involvement and oversight of collecting, collating and reporting and co-design role into rehabilitation.
Landscape, Natural Character and Visual Effects Assessment, 11 July 2025			
Sec 2.1 Pg 4	The Assessment approach states that it *"follows the concepts and principles outlined in Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines"*	This is an incorrect statement relative to the methodology that has been adopted, which is void of most central aspects of the Guideline relative to Te Ao Māori. Assessment should be re-written to give specific effect to the following sections of Te Tangi a Te Manu: • 03 – Te Ao Māori (Māori World View) • 04 – He aha te Whenua? (What is Landscape?) 05 – Whenua Aromatawai (Assessing Landscapes)	Kā Rūnaka require the assessment to be undertaken again with a methodology that truly consider the NZ Guideline's consideration of Te Ao Māori
Sec 3.4 Pg 7	The Assessment approach for addressing Landscape Character states that it *"follows the concepts and principles outlined in Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines"*	The Assessment does not sufficiently give consideration landscape character as required by the Guideline. Assessment should be re-written to give specific effect to the following sections of Te Tangi a Te Manu: • 4.10 – 4.15 • 5.04 • 5.05	Kā Rūnaka require the assessment to be undertaken again with a methodology that truly consider the NZ Guideline's consideration of Te Ao Māori, with specific consideration of intersection with Whakapapa, Hikoi and Kōrero Tuku Iho.
Sec 3.4 Pg 7	Assessment outlines Mana Whenua connection to place as one which is historic – "was once part of a network of traditional travel route"	This 'historic mindset' fails to acknowledge the living connection that Kāi Tahu as Mana Whenua have to this landscape and these routes.	Kā Rūnaka require the assessment to be undertaken again with a methodology that acknowledges Kā Rūnaka living connections to this landscape and the desire for Kā Rūnaka to maintain access to ara tawhito.

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
Sec 3.4.2 Pg 9	The Assessment approach for addressing Landscape Character states that it *"follows the concepts and principles outlined in Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines"*	The Assessment does not sufficiently give consideration landscape character as required by the Guideline. Assessment should be re-written to give specific effect to the following sections of Te Tangi a Te Manu: • 4.10 – 4.15 • 5.04 • 5.05	Kā Rūnaka require the assessment to be undertaken again with a methodology that truly consider the NZ Guideline's consideration of Te Ao Māori, with specific consideration of intersection with Whakapapa, Hikoi and Kōrero Tuku Iho. Request specific inclusion of both Physical and Perceptual dimensions for Mana Whenua interests. Request that intangible factors be considered as all elements are currently tangible.
Sec 3.5 Pg 10	The Assessment approach for addressing Landscape Character states that it *"follows the concepts and principles outlined in Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines"*	The Assessment does not contain references to intangible connections and how they contribute to the distinct character of this place.	Kā Rūnaka require a specific section to be prepared that speaks to the criticality of acknowledging intangible connections as being legitimate and as equal significance to tangible connections.
Sec 4.1 Pg 14	The Assessment defines the Fast Track Approvals Act	The definition fails to outline that the Fast-track Approvals Act 2024 addresses Māori needs by requiring culturally appropriate, accessible information and genuine engagement with iwi and hapū, respecting Te Tiriti o Waitangi and rakatirataka, particularly through initiatives like Te Poka Pū Māori, which supports	Kā Rūnaka require a re-write of this section to include Māori aspects required by the Act/Policy/Legislation

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
		Māori participation in decisions affecting their whenua, rohe, and cultural values.	
Sec 4.2 Pg 14	The Assessment defines RMA 1991	The definition fails to outline the significant emphasis placed on Crown and Iwi relationships.	Kā Rūnaka require a re-write of this section to include Māori aspects required by the Act/Policy/Legislation
Sec 4.3 Pg 16	The Assessment defines the National Policy Statement for Freshwater Management	The definition fails to outline that the National Policy Statement for Freshwater Management addresses Māori society by embedding Te Mana o te Wai, which prioritises the health of water bodies and requires active involvement of takata whenua in freshwater governance, planning, and decision-making.	Kā Rūnaka require a re-write of this section to include Māori aspects required by the Act/Policy/Legislation
Sec 4.4 Pg 16	The Assessment defines the (Operative) Otago Regional Policy Statement 2019	The definition fails to outline that the The Otago Regional Policy Statement 2019 addresses Māori needs by recognising Kāi Tahu as Treaty partners, embedding Te Tiriti o Waitangi principles into resource management, and requiring the protection and expression of Kāi Tahu values, interests, and kaitiakitaka across planning and decision-making processes.	Kā Rūnaka require a re-write of this section to include Māori aspects required by the Act/Policy/Legislation
Sec 4.5 Pg 17	The Assessment defines the Proposed Otago Regional Policy Statement, 2021	The definition fails to outline that the Proposed Otago Regional Policy Statement 2021 addresses Māori needs by embedding mana whenua values and kaitiakitaka throughout its framework, requiring councils to actively partner with Kāi Tahu in resource management, and giving effect to Te Tiriti o Waitangi and Te Mana o te Wai in all planning and decision-making processes.	Kā Rūnaka require a re-write of this section to include Māori aspects required by the Act/Policy/Legislation
Sec 4.6 Pg 17	The Assessment defines the Regional Plan: Water for Otago	The definition fails to outline that the Regional Plan: Water for Otago addresses Māori needs by acknowledging Kāi Tahu as mana whenua,	Kā Rūnaka require a re-write of this section to include Māori aspects

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
		incorporating their values and concerns into water management, and promoting kaitiakitaka and partnership in decision-making to ensure the sustainable use and protection of freshwater resources.	required by the Act/Policy/Legislation
Sec 4.7 Pg 17	The Assessment defines the Central Otago District Plan	The definition fails to outline that the Central Otago District Plan addresses Māori needs by recognising Kāi Tahu ki Otago as mana whenua, embedding principles of kaitiakitaka, protecting wahi tapu and mahika kai, and requiring engagement with iwi on resource management decisions that affect their cultural, spiritual, and environmental values.	Kā Rūnaka require a re-write of this section to include Māori aspects required by the Act/Policy/Legislation
Sec 5.0 Pg 21	The Assessment provides a Project Description and Landscape Strategy	The Project description fails to list components of significant interest to Mana Whenua, including those elements currently listed under 6.5.2 pertaining to landscape modification.	Kā Rūnaka require a fuller list of project components within the Project Description, so to specifically provide descriptions of the changes that will occur to those places/spaces that have been noted as of interest to Mana Whenua.
Sec 6.5 Pg 25	The Assessment provides an approach for addressing landscape effects and lists 'principal elements of the Proposal that will give rise to effects'	The approach states that it considers physical, perceptual and associative landscape dimensions, yet the principal elements listed are limited in comparison to section 6.5.2 which has a fuller array of elements that are associated with perceptual and associative dimensions of interest to Mana Whenua.	Kā Rūnaka require a fuller list of principle elements and the re-writing of Section 5.0 to give consideration to these across all six dimensions.
Sec 6.5.1 Pg 26	The Assessment describes the existing characteristics and values of the Dunstan Mountains ONL	The description is limited the physical dimension only, ignoring five remaining dimensions that capture rūnaka values.	Kā Rūnaka require a re-write of this section to include all five dimensions.

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Sec 6.5.1.2 Pg 27	The Assessment describes the site landscape values	Whilst noting that the Dunstan Mountain contains 'several associative values', the description is limited the physical dimension only, ignoring five remaining dimensions that capture rūnaka values – including associative.	Kā Rūnaka require a re-write of this section to include all five dimensions.
Sec 6.5.2 Pg 28	The Assessment describes landscape modification	This is a critical section of the assessment and requires greater prominence to be able to be considered relative to the vales derived from the six landscape dimensions.	Kā Rūnaka require that the assessment, as a matter of priority, builds a broader understanding the six dimensions and their relative impacts as a result of the proposal.
Sec 6.5.3 Pg 31 – 37	The Assessment describes effects within the site	Whilst there are 14 effect areas outlined, only two of these (6.5.3.1 and 6.5.3.1.4) give consideration to rūnaka values yet the cultural landscape interests of rūnaka as Mana Whenua extend across this landscape and cannot be separated into only two components or site.	Kā Rūnaka require that their interests are considered across all 14 of the areas identified.
Sec 6.5.4 Pg 38	The Assessment describes the overall effects within the site on the broader Dunstan Mountains ONL	The description makes mention of Mana Whenua associations to this landscape but fails to provide any detail of these, despite the available information.	Kā Rūnaka require more thorough consideration of rūnaka values/mana whenua connection to the Dunstan Mountains
Sec 6.5.5 Pg 38	The Assessment describes the summary of landscape effects	The description makes mention of Mana Whenua/rūnaka dimensions, connections, values or the effects on these	Kā Rūnaka require the Assessment be rewritten.
Sec 6.7 Pg 52	The Assessment suggests Recommended Mitigation Measures	This section is short and limited. It fails to identify forms of social, economic or cultural mitigation, offsets or solutions to be explored by the applicant.	Kā Rūnaka require a more technically robust series of mitigation measures and request the Assessor stretches into the Te Tangi a Te Manu guideline to explore other non-environmental forms of mitigation as conversation-starters for the applicant.

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Baseline Water Quality Report- Mine Waste Management – Aug 2025			
Executive Summary p. iii	Baseline Studies: Ongoing baseline water quality monitoring is recommended to develop a robust data set to support the development of site-specific water quality criteria for the BOGP.	Certainly, ongoing WQ data should be gathered but it does call into question the level of confidence in the recommendations made in relation to water management if the data set used is not comprehensive.	Kā Rūnaka require involvement in the definition of ongoing baseline water quality monitoring and its oversight.
p. vii	Ground water quality data sets are limited at this early stage of the BOGP as monitoring requirements have only recently been identified. Further samples taken at regular intervals are required to understand baseline water quality and seasonal fluctuations.	See above	As above
Recommended water quality compliance limits for the Bendigo-Ophir Gold Project – G Ryder Consulting – Jul 25			
p. 13	Map showing the location of a number of springs (waiora) within the Shepherds Creek catchment that will be disturbed through mining	Springs are of significant cultural importance to Tangata Whenua/Kā Rūnaka.	Kā Rūnaka require mitigation of these cultural effects.
p. 23	The 2022 NZ drinking water standard for nitrate-N is 11.3mg/lt and is the recommended compliance limit for groundwater monitoring site associated with the BOGP	There is significant debate in NZ over the permitted levels of nitrate-N in groundwater with advocates campaigning for much lower levels to be permitted. It is worth considering whether a case should be made for a lower level than the recommendation.	Kā Rūnaka require reconsideration of permissible nitrate levels with a view to a reduction in the consent conditions.
p. 34	The recommendation is the iron levels are monitored in surface water and if an increase of 20% above baseline levels is noted then a literature review is undertaken to inform the next steps.	As iron levels already exceed the ANZG interim guidance levels it seems a very tolerant approach. Perhaps the compliance levels should be set at 20% above baseline.	Kā Rūnaka require a reduction in the permissible Iron levels to no more than 20% above baseline.

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CIA Assessment Support – BECA – Apr 25			
p.9	Additional controls for the use of cyanide. BECA identify the *International Cyanide Management Code For the Manufacture, Transport, and Use of Cyanide In the Production of Gold* as a potential further control that could be implemented.	Adoption of industry best practice should be mandatory and enshrined in conditions of consent.	Kā Rūnaka require adoption of industry best practice in the conditions of consent and as part of any Cultural Impact Agreement a commitment to improvements as industry best practice changes over the life of the mine.
p.10	Increased levels of arsenic likely to be leached into solution during the gold extraction process	BOGP acknowledge further work is required to resolve the management of increased concentrations of arsenic in solution. The compliance levels should be conservative and lean on the ANZECC standards.	Kā Rūnaka require that the concentrations of arsenic be aligned with the ANZECC standards.
p.13 Sec 3.1.2	Water quality of closure lake and any discharges. Water quality of mine drainage during operations and post closure	These are the long-term residual issues for which there is no apparent solution at this state. However, in the event water quality becomes an issue post mining there needs to be provision for its management. It is logical that an agreement is reached with Consent Authorities or other suitable parties to oversee and undertake any work required. Kā Rūnaka must be counter parties to any such agreement with BOGP in this matter as they have the long-term commitment to the land.	Kā Rūnaka must be counter parties to any such agreement with BOGP in this matter as they have the long-term commitment to the whenua.
p.23 Sec 4.1.4	*It is noted in the PFS risk register than no geotechnical ground investigations have been undertaken in the selected site of the TSF (Risk number 18) and as such further work will be needed to confirm the site's suitability.*	I have seen no evidence of this matter having been addressed but this work should be completed to ensure the proposed TSF site is suitable for the disposal of tailings.	Kā Rūnaka require assurance that this risk has been adequately addressed.

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p.25 Sec 4.2.3 b.p. 2.4	*Capturing and treating any water impacted by the BOGP activities (MIW water) before release to the environment (as these are expected to be elevated in suspended solids, sulfates and COPCs (As & FE primarily) versus the baseline*	One of the mitigations proposed for the management of mine impacted water is to capture and treat. This requirement will not expire on the closure of the mine and will require a long-term management approach until closure criteria are met. This is a risk to Kā Rūnaka which may be addressed by the establishment of a fund available for this long term management commitment.	Kā Rūnaka require an intergenerational solution to be established to ensure the ongoing provision of water treatment over >400 years.
ELF and Water Treatment Options Assessment – Mine Waste Management – Jun 2025			
p.8 Sec 3.11	With all waste rock and tailings within the Shepherds Creek catchment the most logical place for the WTP is adjacent to the mine/plant infrastructure area where: •Seepage water from the ELF, TSF, and the underground operation will drain by gravity to the water treatment plant (WTP). •Power will be available.	The proposed site for the WTP is located in the area adjacent to the mine plant / infrastructure. The exact location should be chosen to place the WTP above a credible flood event level, eg the 100yr return.	Kā Rūnaka require that the WTP is located above a 1 in 100 year flood event level.
p.8	Sludge disposal after the active closure phase may require the development of a sludge disposal cell (ideally an area within the TSF footprint or off site). This may require mechanical dewatering.	This point refers to the disposal of sludge post closure. This activity is in addition to any long term mine impacted water discharge and should be provided for in the long-term funding proposed above. Kā Runaka should be parties to these long term funding agreements.	Kā Rūnaka must be counter parties to any such agreement for funding with BOGP in this matter as they have the long-term commitment to the whenua.
Engineered Landform Design Philosophy – Mine Waste Management – Jun 2025			
p.2	Maximise blasting opportunities to maximise grainsize of waste rock e.g., reduce reactive surface area of	A technical point, if blast design is such that it optimises particle size to reduce the surface area in order to minimise the surface available for	Kā Rūnaka require this feedback to be considered as part of the approach to engineered landform.

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	higher risk materials (e.g., TZ4 / RSSZ)	oxidation this contradicts the requirement to construct an ELF with a high level of compaction to avoid advection current in the waste material. There is probably a solution to this apparent contradiction through ensuring sufficient smaller particle size TZ3 material is included with the larger sized TZ4 and RSSZ material to achieve low advection but high compaction.	
p.14	An ELF Sediment Pond should be constructed at the base of the starter lift to capture seepage from the ELF. The design of the ELF Sediment Pond should consider repurposing as a passive treatment system for ELF seepage at mine closure. This should include suitable maintenance access for removing sediment accumulation and potentially decant structures.	Reference is made here to the post closure management of the ELF sediment pond as a passive water treatment system. This will require long term maintenance the cost and management of which is not specified. To be included in any post closure long term funding solution.	Kā Rūnaka require provision of intergenerational funding and maintenance arrangements to ensure this management measure is effective.
Assessment of Ecological Effects – Alliance Ecology – Jul 2025			
p.14	*After measures to avoid or minimise adverse effects, the BOGP is expected to result in the direct loss and associated effects of up to 607 ha of terrestrial habitat and approximately 3.1 ha of wetland habitat that includes:* (10 categories of habitat ranging from low to very high value)	This emphasises the certain loss of a significant area of natural (although modified) habitat as a result of the BOGP. This is proposed to be compensated for by way of a combination of rehabilitation of the mine footprint (DDF) (889ha), the planting, stock management and pest control over Ardgour Station (1263ha) and the establishment of predator proof areas within the Bendigo and Ardgour areas (67ha). The certain loss at the mine DDF is being offset by the potential gain that will occur as a result of these proposed activities. It is assumed the offsets will be effective	Kā Rūnaka require provision of intergenerational funding and maintenance arrangements to ensure this management measure is effective.

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		if managed over the long term. Failure to undertake maintenance will result in an overall loss over time. The maintenance of pest control measures, the predator fencing and weed control will be essential to maintain these gains. This long term commitment will require appropriate finding and management. The runaka should be involved in this long term environmental project.	
BOGP Assessment of Ecological Effects - Terrestrial ecology			
S 7.3.2.2.1 P92	*"Details on effects avoidance and minimisation methodologies will primarily be set out in the following management plans:* • *Habitat Impact Management Plan* • *Avifauna Management Plan* • *Lizard Management Plan* • *Terrestrial Invertebrate Management Plan* • *Landscape and Ecological Rehabilitation Management Plan (LERMP)* • *Biosecurity and Ecological Weed Management Plan* • *Matakanui Sanctuary Management Plan* • *Mammalian Pest Control Management Plan* • *Erosion and Sediment Control Management Plan* • *Mine Impacted Water Management Plan*	We do not currently have access to these reports. Much of the success of the project relies on well considered management plans that are well implemented and incorporate sufficient contingency plans. It is difficult to provide comprehensive feedback without having sighted these plans.	Kā Rūnaka require that they have the ability to review and input on the acceptability of management plans and have their feedback taken into consideration as they are developed.

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	• *Biodiversity Outcome Monitoring Plan* • *The Applied Research Programme for Cushionfield and Spring Annuals"*		
S 7.3.2.2.4 Table 7-4 P99	*Geranium aff. microphyllum* Not targeted in rehabilitation. Small herb, likely to self establish as it is in all 7 terrestrial vegetation associations including pasture.	Some native plants are not being targeted for rehabilitation as it is assumed they will naturally regenerate. Suggest that this assumption is followed up with monitoring to ensure that each species does in fact establish naturally and have procedures in place for propagation and planting if it fails to establish within a certain timeframe. Recommend having a list of all native species present in DDF and MRZ areas at beginning of project and have procedures in place to ensure all plant species are present at the end of the project.	Kā Rūnaka require a vegetation monitoring plan and adaptive management framework is developed with input from Kā Rūnaka to ensure these outcomes are met.
S 8.4 Table 8-4 P143 & 146	Significant net loss of all three lizard species, with an estimated population within the DDF of over 100,000 individual lizards.	More needs to be done to mitigate/offset this loss. It is indicated that only 2-5% are proposed at this to be salvaged. In addition, the current rehabilitation plan of the surrounding area will lead to further pressure on remaining lizard populations by • Increasing woodier vegetation is likely to reduce the carrying capacity for lizards by creating more shaded habitat • Excluding mice from pest control programmes • Increasing mouse numbers further by supressing their predators and improving their habitat through grazing reduction.	**Ecology:** It would be incredibly difficult to translocate 100K lizards in the context of this project, therefore mitigation will be difficult to achieve. There is potential to offset impacts by including the following steps. 1. Committing to permanent pest control (including mice) in designated sanctuaries 2. Monitor pest numbers and commit to translocation of grand and Otago skinks, as well as

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		Controlling mice populations will be a critical component of pest management plans, particularly given the proposed translocation of vulnerable lizard species into sanctuary areas and the documented impacts mice are known to have on native lizard populations. Fenced sanctuary areas may also concentrate mouse populations if other predators are removed without addressing mouse control (for example feral cats and other pest species may be controlling the population to an extent, etc). Both tussock skink and Kawarau gecko are classified as "At Risk - Declining", indicating documented population reductions and heightened vulnerability to further habitat loss. The proposed mining activities will contribute to this decline. While habitat improvements and proposed translocation of rarer species (Otago skink, etc) represent positive conservation outcomes, the specific ecological debt created by removing breeding populations of declining species is not addressed.	Jewelled geckos (subject to appropriate permitting processes) once pests have been eradicated. 3. Maintain these populations beyond the life of the mine. 4. The development of an adaptive management framework, alongside mana whenua, that incorporates the aspects above. All of the above will require a commitment to resourcing the appropriate entities well beyond the life of the mine. Implement targeted compensation measures specifically addressing the impacted At Risk - Declining species: Kā Rūnaka require that Matakanui Gold Provide financial contribution for research/conservation of the species directly impacted under the at risk – declining category that will overall have a net loss (ie) the Tussock skink and Kawarau gecko. **<u>Cultural:</u>** There is a fundamental question as to if mana whenua are prepared to accept the death of up to 100k

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			mokomoko, which goes beyond any ecological offsets that may be offered.
S 7.3.3.4 Table 7-8 P118	A potential reduction in the severity of effects on lizards through salvage and relocation, however, it is assumed there will be no reduction. This is primarily because there is no evidence that relocation lizards will survive and because only a small proportion of lizards that are assumed to be present will be relocated (2 – 5%).	Much more detail is needed on salvage effort and methods. In particular it is necessary to know what the plan is for the 95 – 98% of resident lizards that are not going to be relocated.	Kā Rūnaka expect to be provided with the opportunity to review and provide feedback on the lizard management plan.
S 8.3.4 P134	Control of mammalian browsers and predators (except rabbits and mice) to low levels via trapping, shooting or baiting. This includes maintaining ungulates (deer, goats, and pigs) at zero densities, and possums, rats, mustelids, cats and hedgehogs at target densities in woody restoration areas.	Mice are already at high densities (see note below from Mammalian Pest Survey) and stock exclusion from the surrounding area is likely to increase habitat for mice. They will need to be directly targeted with appropriate levels of predator control to alleviate the risk of lizard and invertebrate predation, particularly within dedicated sanctuaries. Until the Mammalian Pest Control Management Plan is seen it is difficult to comment further at this stage.	Kā Rūnaka require that Matakanui Gold develop a detailed pest management plan addressing mice control within proposed sanctuary areas. This should include specification around control techniques (toxins, bait stations, etc) appropriate for sanctuary environments that have minimised risks to non-target species.
S 8.3.5 P137	Within both pest-free sanctuaries, the following measures are proposed: • Eradication of all mammalian browsers with the notable exception of rabbits	More information required as to why rabbits are excluded from control within the pest-free sanctuaries, as some plant species may not be able to regenerate under sustained rabbit grazing.	Kā Rūnaka require that more information is provided regarding the exclusion of rabbits from control within pest-free sanctuaries.
S 8.4 Table 8-4	A net loss of 25 ha of tussockland, with no offsets proposed.	It doesn't appear to be clearly laid out why native dominant tussockland is not going to be replanted to at least match the extent that was lost. With a	Kā Rūnaka requires input and participation in oversight of

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P138		total of 2,219 ha to be enhanced there is presumably space to incorporate 25 ha of native tussockland. If this is due to the fact that it is an induced vegetation type that will gradually convert to a woodier state with removal of grazing then this rational needs to be made clearer.	remediation, offsetting and rehabilitation activities.
S 7.3.2.2.4 Table 7-3 P96	While no extensive areas of planted or transplanted tussockland are planned, tussocks are expected to spread and expand over time, particularly in the drier, more exposed parts of the landscape, under a no-grazing management regime.	Is there a precedent to this process? Has short tussockland spread in other areas of no grazing pressure? Any examples in the nearby DOC estate? The spread of scrubland has been well documented nearby, what is to stop woodier species from dominating in the absence of grazing. Should there be provision for some areas to be managed as tussockland to provide habitat for non-woody plant species in the interstitial spaces and to provide more open habitat for invertebrate and lizards?	Kā Rūnaka require that Matakanui Gold give specific regard to managing for tussock communities, including a monitoring and adaptive management framework to ensure the assumptions of the report are correct, or adjust approach if needed.
S 2.2.3 P 37	For wetland delineation the rapid pasture test was used (wetland dominated by exotic plants excluded from assessments)	These areas should be included in wetland delineation. Their current state is a result of historic land use practices and they would return to wetland given the opportunity. This area can still provide habitat for native species and be a potential area for replanting and hold ecological values. As later stated in pg 56 excessing pugging from stock access has led to increased exotic cover due to disturbance. If these areas are fenced, planted out they will provide ecological benefit and fit within delineation guidelines.	Kā Rūnaka require that currently degraded wetland sites that have been excluded from the delineation process should be included as potential offset/rehabilitation plans.
S 3.2.2	No mapped regionally significant wetlands within the site.	Effort be done to avoid disturbance of any wetlands, if any works nearby, riparian zones be	Kā Rūnaka require net gain of wetland area from current state

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P 50	13 in upper catchment above mine envelope.	planted to mitigate any runoff to area. Any areas of non-regionally significant wetlands disturbed be offset by being protected and enhanced elsewhere or constructed wetlands being erected in suitable areas.	and mitigation buffer zones around any wetlands adjacent to earthworks.
S 4.2 P 54	A total of ten nationally or regionally Threatened, At Risk and Data Deficient wetland plant species were detected in the ESA. This includes three Regionally Threatened (and Nationally At Risk) species detected in wetlands in the DDF and in the SLSW. A further four regionally or nationally At-Risk species were detected in wetlands in the DDF and three in the SLSW.	Where possible these areas be excluded from earthworks. All disturbed areas be offset in other areas. This could be by retiring of land with established wetlands or through appropriate wetland construction. Access for seed collection for these at regionally threatened or risk species.	Kā Rūnaka require access for seed collection for taoka species, regionally threatened species or at-risk species.
7.3.2.2.1 And 7.3.2.2.2	Loss of 3.02ha of wetland during mine construction • 0.13 ha of moderate value seepage wetlands • 0.47 ha of moderate value gully fen wetlands • 2.42 ha of high value swamp/marsh wetlands. Following mine closure, re-establishing indigenous wetland communities totalling 7.5 ha.	A loss of 3.02ha and post mining a re-establishment of 7.5ha. Would be good to see the 3.02ha lost be offset by an equal or greater establishment before works begin outside of the DDF. Otherwise the loss will not be remediated till the end of mining (assuming 35 years).	Kā Rūnaka require at least 3.02ha of constructed wetlands to offset the 3.02 lost for the duration of the mine, in addition to the 7.5ha of post-closure wetlands proposed.
P152/156	**Principle not met/addressed:** The design and implementation has been informed by Western science but not (prior to lodgement of the	The environmental assessment identifies multiple taonga species within ESA (taramea, karearea, etc) yet the offset design fails to: Acknowledge the	Kā Rūnaka require meaningful incorporation of mātauraka Māori and participation in design and

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	FTAA application) by mātauranga Māori. **Principle not met/addressed:** planning for biodiversity offsets and compensation— including its evaluation, selection, design, implementation and monitoring— has not yet included participation from tangata whenua and stakeholders under the FTAA process.	cultural significance of these species beyond their ecological function. The exclusion of mātauraka Māori potentially compromises the proposed offset effectiveness by overlooking cultural management techniques that could enhance restoration success. The proposed 35-year management timeline would significantly benefit from rūnaka involvement, as rūnaka possess enduring interests in ecosystem guardianship that transcend typical management cycles, and the long-term success of offset activities will be fundamentally dependent on maintaining cultural relationships to taonga species present within in restoration areas.	oversight of proposed offset design. Kā Rūnaka also require dedicated resources and funding for Kā Rūnaka involvement in all phases of the offset plan, such as participation in monitoring, protection, and pest control programmes that support taoka species recovery in the sanctuary areas.
S 7.3.1 P88-89	Potential ecological effects • Mortality or injury associated with road kills or blasting. • Direct mortality through collision, particularly for falcon which may collide with high fences, windows, and power lines. • Risk of nest destruction during habitat clearance, and loss of eggs and chicks.	In terms of mortality events affecting vertebrate species such as lizards and avifauna, it is unclear what protocols will be implemented for reporting these events when they occur (when feasible). This represents a critical gap in tracking offset performance and determining additional compensation requirements, as systematic mortality documentation is essential for assessing whether impacts exceed predicted levels, evaluating offset adequacy, triggering threshold-based compensation when mortality limits exceed expectations, and enabling adaptive management responses that ensure offset effectiveness and accountability for both predicted and unforeseen impacts on native vertebrate populations.	Kā Rūnaka require that Matakanui Gold develop and include mortality and injury reporting protocols in the report for native vertebrate species that include standardised documentation procedures, clear reporting timelines, and direct linkages to offset performance tracking and compensation mechanisms. Kā Rūnaka also require that Matakanui Gold establish financial compensation frameworks and adaptive offset expansion provisions that can respond to unexpected impacts, species

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			discoveries, or disturbance effects that exceed the scope of original surveys and reports, ensuring adequate compensation when impacts surpass predicted levels.
Bendigo-Ophir Gold Project: Lizard Values Assessment			
S 3.1 P32	McCanns skink most abundant where mixed shrubland was sparse.	With conversion to a woodier landscape, habitat may be too shaded to support the same abundance of McCanns skink. Suggest considering a managed tussockland portion of the rehabilitation zone.	Kā Rūnaka require that there is a diverse range of habitats within protected areas, with specific actions in place to maintain and enhance tussockland.
p7	Possible disruption to resident lizard communities through relocation of salvaged lizards from the DDF, and release into neighbouring areas of Ardgour station set up for the management of native lizards	It is unclear from the proposed methodology whether lizards will be translocated while maintaining the social groups in which they are found, and if there will be assessment around the resident populations translocated lizards are being released into. Social grouping can be critically important for prey detection, predator avoidance, thermoregulation, and breeding success, and may be particularly important to consider when translocating vulnerable species that are already experiencing significant stress from habitat displacement.	In order to minimise disruption and maximise translocation success, Kā Rūnaka require that salvaged lizards should be relocated in social groups by maintaining the groupings of individuals found together during capture, implementing coordinated release protocols that keep socially associated individuals together in suitable habitat, and conducting comprehensive pre-release assessments of resident lizard populations to determine carrying capacity, social structure, and territorial boundaries to ensure translocated individuals can be integrated without overwhelming existing communities or disrupting established social hierarchies.
Lizard Management Plan			

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p5 Sec 3 Table 2	This work will enable the potential re-introduction of nationally Threatened or At Risk lizard species such as the Otago skink.	The reintroduction of nationally Threatened or At Risk lizard species is stated only as a potential option, unless it is confirmed and cannot be counted towards an offset to the adverse effects of the mining operation on existing lizard populations.	Kā Rūnaka require that the reintroduction of nationally Threatened or At Risk lizard species is committed to by Matakanui Gold.
p6 Sec 3 Table 2	At a rough estimate, the project footprint is estimated to support 450,000 or more native lizards Efforts will focus on salvaging approximately 10 – 30% of lizards	After salvage, losses of lizards are likely to still be extremely high, with estimates of between 315,000 to 405,000 or more. The proposed habitat rehabilitation may not improve the site for lizards if it becomes more shaded and lack of grazing and mesopredator release causes an increase in mice populations. The measures proposed to compensate for these losses are the creation of the pest exclusion fences.	Notwithstanding Kā Rūnaka's objection to the scale of loss of lizards, Kā Rūnaka requires that the proposed habitat rehabilitation needs to be reconsidered to include pest exclusion fences.
p7 Sec 3 Table 2	Principles addressed via a comprehensive biodiversity outcome monitoring programme as set out in the Biodiversity Outcome Monitoring Plan. Determination of the success of salvaging and relocation operations is contingent on approval to toe-clip salvaged individuals so they can be distinguished from resident lizards at relocation sites.	Biodiversity Outcome Monitoring Plan has not been seen, the details within this would be useful to inform mana whenua on the reasons behind toe clipping. Could non-toxic paint suffice?	Kā Rūnaka require the opportunity to review and input into the Biodiversity Monitoring Plan.
Whole document	No mention of mana whenua involvement in salvage efforts.	Provision should be given to the training of mana whenua representatives in lizard handling and salvage techniques to increase the capacity for salvage efforts.	Kā Rūnaka require that funding and organisation of training of Kā Rūnaka representatives in lizard handling and salvage techniques to increase the capacity for salvage efforts.

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Mammalian Pest Survey			
S 4.2 P24	Weighted average CCI was 28.4% for possums, 0.8% for rats, and 10.1% for mice. Possums and mice, on the other hand, were plentiful on both the cameras and chewcard lines, with possums detected on all but one chewcard monitor line, and mice on over half of the chewcard lines.	Mice were recorded at high densities across the site (see note above).	
S 4.4.5 P32	No lizards recorded in mice guts using eDNA sampling	This is a surprising finding and possibly the result of a small sample size (6 mice) and sampling occurring during the warmer months (Nov – May) when lizards are not dormant and less vulnerable to predation. With the densities of mice described in the report and the prevalence of lizards at the site it is expected that lizards would be predated often by mice.	Kā Rūnaka require that the risk of mice predation should be managed in line with current literature (i.e significant impact).
Mammalian Pest Management Plan			
p7 Sec 3	This section describes the 12 mammalian pest species that will be actively managed at the BOGP site.	14 pest species described in this section, seek clarification that all 14 species listed are in fact being controlled.	
p29 Sec 2.2.2	Mustelids (ferrets, stoats, and weasels) and hedgehogs are controlled using DOC 250 traps	Weasels are too light to trigger DOC 250 traps, suggest that DOC 150 traps are also used in areas where weasels need to be targeted.	
Whole document	No mention of mice control	Stock exclusion is likely to increase habitat for mice, and control of mice predators is likely to cause a mesopredator release which would result in higher densities of mice (which are already abundant at the site). Mice will need to be directly	Kā Rūnaka requires that the Predator Control Plan incorporates sufficient control of mice.

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		targeted with appropriate levels of predator control to alleviate the risk of lizard predation.	
Bendigo-Ophir Gold Project: Native Bat Survey			
Exec summary P3	The report concludes that native bats were not found in the ESA and are not likely to be affected by proposed mining activities at the site. Data within the report suggests further consideration of potential effects on bat populations is not warranted in subsequent stages of the consent process for the BOGP. The findings highlight that while potential occasional presence cannot be ruled out, it is unlikely that long tailed bats are regularly present and extremely unlikely that lesser short-tailed bats are present in the BOGP ESA.	The report's conclusion that native bats are unlikely to be affected by the proposed mining operations is inadequate, given the documented ecology and ranging behaviour of long-tailed bats (*Chalinolobus tuberculatus*). **Key Concerns:** 1. **Home Range Considerations:** Long-tailed bat colonies exhibit extensive home range requirements. Research conducted on Eglinton Valley populations demonstrates individual ranges exceeding 11,700 hectares, indicating these species utilise vast territories for foraging, roosting, and seasonal movements. 2. **Spatial Context:** The National Bat Database records confirmed bat activity within 60 kilometres (encompassing approximately 6,000 hectares) of the proposed mining area. Given the species' documented ranging behaviour, periodic utilisation of the ESA remains plausible despite the absence of detection during the survey period. **Temporal Variability:** Bat activity patterns exhibit significant seasonal and annual variation influenced by weather conditions, prey availability, reproductive cycles, and habitat disturbance. A single survey period cannot definitively establish absence across all temporal scenarios.	Kā Rūnaka requires that Matakanui Gold mplement a comprehensive five-year (minimum) bat monitoring programme within the ESA utilising methodology from the original survey. This programme must: • Conduct seasonal surveys during peak activity periods when detection probability is maximised • Employ standardised acoustic monitoring protocols with appropriate detector placement and sampling intensity • Document environmental variables that may influence detection rates (temperature, wind conditions, moon phase) Kā Rūnaka require that an Adaptive Management Framework is established including clear protocols for modifying mining activities, minimising, mitigating or compensating disturbance should bat presence be confirmed during the extended monitoring period.

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
S 4.1 P13	The positive activity record was removed from the National Bat Database in late 2023 due to the degree of uncertainty around the recordings validity (M. Pryde, Department of Conservation, pers comm, September 2023). Following the data update, the nearest known bat activity to the BOGP study area was at least 60km from the site (Figure 7).	The removal of a proximate bat activity record represents a fundamental change in the baseline data informing impact assessment, yet the application provides insufficient transparency regarding the validity concerns that justified this database modification. The removed record's close proximity (2km) substantially alters the probability assessment for bat presence within the study area, with the difference between proximate confirmed activity and the nearest remaining record at 60km distance representing a critical shift in ecological risk assessment. This change is particularly significant considering the National Bat Recovery Group's guidance protocols for minimising risk of felling bat roosts, which identify bat presence within 25km as a key factor influencing planning around tree removal activities.	Kā Rūnaka requires that Matakanui Gold provide technical documentation justifying the removal of the proximate bat activity record, including detailed specific validity concerns, independent verification of the removal decision, and transparent explanation of the assessment criteria used to determine recording reliability.
Bendigo Ophir Gold Project: Assessment of Effects on Aquatic Habitat			
S 1.2 P7	The report does not assess potential mitigation, offset or compensation work for aquatic environments for the BOGP. Information on offsets and compensation cannot be found in any of the documents that we currently have access to.	Due to the significant impact on perennial streams within the site envelope, offset and compensation will be required (discussed further below).	Kā Rūnaka requires discussion on mitigation for the cultural effects on the aquatic habitat.
S 3.3 P34-35	Fish surveys show that there are significant reaches of Clearwater	These should be considered as potential translocation sites for threatened non-migratory	Kā Rūnaka require that Clearwater Creek and Shepherds Creek where no fish are present are considered

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
	Creek and Shepherds Creek where there are no fish present.	*Galaxias SpD* from nearby tributaries of the Lindis River (Cluden Stream, Wainui Creek etc).	for potential translocation sites for threatened non-migratory Galaxias SpD from nearby tributaries of the Lindis River.
S 6.2 P66-75	Mining activities will result in the loss of a total of 10,626m of perennial stream across the effected catchments, with a further 7,000m being realigned. Smaller stream flowing into the mine footprint will be diverted around the area and rejoin the main creeks below the mine footprint.	There is no offset or compensation offered for the large-scale destruction of these creeks. Even though the streams do not have particularly high ecological values with regards to species present, they have an intrinsic value as habitat and as natural features. The cultural impact of this destruction will need to be considered carefully.	Kā Rūnaka note that this is one of the most significant impacts of the proposed mine, and will require offsets/compensation as mitigation is not possible. Kā Rūnaka require that ecological offsets should include the establishment of a *Galaxias SpD* reserve in the Shepherds/Clearwater catchments, or other nearby catchments if they are deemed more appropriate. This should be developed in collaboration with Kā Rūnaka. The following work should also be undertaken; • A non-migratory *Galaxias* management plan for the Lindis catchment • Site specific feasibility studies • Implementation of management plan, including establishment of new populations, habitat enhancement, barrier enhancement and trout control as required.

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
Recommended water quality compliance limits for the Bendigo-Ophir Gold Project			
S 2.1.2 P15	Determined low freshwater values due to poor invertebrate communities and absence of fish due to past mining practice and introduced species. Over 18,301kms of watercourse set to be lost or realigned. Identified in Bendigo creek Brown trout and potentially Koaro	That surrounding an area with known native fauna (fish and invertebrates) that is greater than the area disturbed (>18,301kms) be set aside as a freshwater sanctuary. This could include removal of pest plant species (i.e. crack willows), monitoring and protection of native species, planting of native riparian species, protection from grazing. Where appropriate enhanced wetlands could be erected as it's been identified past mining has caused damage. Removal of introduced brown trout population (could be relocated to local dam or reservoir for fishing) as likely of low fishing value, to further protect native fauna.	See notes above re *Galaxias Sp D* sanctuary and creation of additional wetlands as offsets (not just post closure rehabilitation) to manage sediment discharge, increase biodiversity. Focus on degraded wetland areas impacted by historic grazing. Kā Rūnaka require removal of aquatic pest plants (e.g. crack willow) from affected catchments.
S 3.4.2 Pg 22	Proposed limits within of streams draining from footprint to be 5 NTU	Would like to see some mitigations put in place to further limit sediment discharge to waterways. Potentially constructed wetlands with riparian planting to act as filters, pools to act as sediment traps.	See notes above re mitigation for sediment.
Bendigo-Ophir Gold Project: Terrestrial Invertebrate Survey			
S 4.1.3 P 26-33	Several rare or data deficient species of beetles (*Megadromus, Inophloeus, etc*), moths (*Agrotis*) ,grasshoppers (*Sigaus tumidicauda, Phaulacridium otagoense*) and spiders (*Cantuaria*) are present in the mine envelope and surrounding areas.	Further mitigation and offsets are required due to the scale of the activity and the data deficiency of many species. For some of the threatened flightless species, hedgehog and mouse control becomes particularly important. This reinforces the need for	See notes above for inclusion of permanent mouse control in the Pest Management Strategy.

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
	Some mitigation (e.g. road realignment) has already been proposed to avoid impacts on some species.	mouse control in proposed sanctuaries as discussed earlier.	
Preliminary Site Investigation – Geocontam Risk Management			
Page iv	There is no record of permanent Māori occupation within the Project area, however the Project area has a long history of pastoral occupation dating back to the late-1850s, and historic gold mining operations comprising alluvial sluicing and shallow mining of quartz reefs occurred in several areas across the site and surrounds between the 1860s through to the 1940s. Whilst pastoral land use has continued through to present day, only limited exploration activities have been undertaken since the 1980s;	This document typical of many which speaks to only historical significance of site to Iwi and diminishes it because there was no 'permanent occupation' – a pākehā concept.	Kā Rūnaka requires that reports such as this one are reconsidered as part of the ongoing and significant connection that Kā Rūnaka have with the location of the proposed mint.
Wetland Values Assessment and Vegetation Values Assessment by RMA Ecology			
General comment		Document fails to recognise any Mana Whenua values the Kai Tahu Ki Otago Natural Resources Management Plan etc	Kā Rūnaka requires that this values assessment and other documents as part of the consent documentation are revised to take account of the importance of Kā Rūnaka values and mātauraka.
A10 Project Description			
Section 3.5.1	Total Rock Mined 213,972 (kt) maximum groundwater inflows to	Pit lake forming after 25 years seems a bit of an exaggeration. The RAS void will be only 1/4 full if	MGL to provide assurance around assumptions.

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
Pg 140, 141	the RAS Open Pit are estimated to be between 14 and 28 l/s Assume density of 2.5t/m3 Total volume excavated 86M m3 inflow at 25L/s = 20M m3 over 25 yrs balance (circa 65Mm3) required to be from rainfall	only ground water inflow. Check RL of discharge and model assumptions.	
Section 3.13 Pg 183	The topsoil and brown rock stockpiles will be up to 30 m high	Topsoil stored to this depth will become anoxic at depth and will loose fertility . Ideally topsoil stored at this depth should be temporary or, if testing demonstrates the material has become anoxic, treatment of the "soil" will need to be undertaken to recover its productive capacity.	MGL to consider how soil can recover its productive capacity.
A13. Assessment of Environmental Effects			
Section 6.6.1 Pg 23	Model results suggest that active water treatment within the Shepherds Creek catchment will be needed for 50 years, when concentrations of SO4, Mo, and Sb after passive treatment are below the surface water and groundwater limits, for the base case model scenario.	The project will operate in a water deficit situation until year 8 (see bullet point 1, pg22) after which a surplus would be treated through a water treatment plant. The project has an 11yr mining life so the WTP would operate from years 8 to 11 then for 47yrs post closure before passive treatment commenced. The associated liability is not referred to in the Bond Introduction (Lane & Assoc, B.44).	Kā Rūnaka expects that allowance must be made for the ongoing management of water treatment during post operational and post closure phases.
Section 6.6.1 Pg 23	Operational Management Recommendations >Back-to-back wet years and changes of water balance assumptions (e.g., dust suppression water sources) may move the site into a water surplus condition. As such, detailed water balance modelling by mine stage and that	There is significant reference made throughout to the need for further modelling and adaptive management principles to be adopted for numerous factors associated with project. This is typical for a project that has not completed the detailed feasibility study normally required for financial closure. The FTA process has required that the application is by necessity at a high level in some key areas.	The associated risk to the Runaka is there are several impacts that have to be weighted up with little supporting evidence.

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
	includes rainfall variability is recommended to support detailed mine design and improve confidence in a water deficit being maintained. Development of an adaptive management process related to the site water balance would also support proactive management of identified risks.		
Section 6.6.4 Pg 24	Other water management options include the early construction, during operations, of the water treatment plant if prolonged water surplus conditions eventuate.	Iti s suggested that a condition based on site discharge water quality is set to trigger the construction of the WTP.	
Section 6.7 Pg 36	Proposed biodiversity offsets/compensation The overarching objective and intended biodiversity outcome for addressing residual effects is to achieve, where possible, demonstrable benefits to indigenous terrestrial and wetland biodiversity that outweigh impacts within 35 years of granting of approvals.	The objective is to achieve demonstrable benefit within 35yrs of the granting of approvals. The LoM is 11yrs so the work to achieve the benefit will extend +/-20yrs post closure. "Long-term biodiversity outcomes will be supported by a combination of extensive weed and animal pest control, animal pest exclusion, habitat enhancement, and browsing pressure management, tailored to the specific requirements of each area". Whilst active management will be required for the entire 35yr period any gan achieved will be lost once the maintenance efforts are suspended (pest reinvasion, weed infestation etc).	Kā Rūnaka expect a net gain is achieved for the future requiring ongoing funding of the biodiversity programme. An endowment fund is recommended to achieve this.
Section 6.7 Pg 38	The unavoided loss of irreplaceable and vulnerable species or communities will be permanent and either cannot be replaced or		Kā Rūnaka cannot identify reference to taonga species – MGL to confirm these have been identified and are provided for.

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
	balanced by the suite of beneficial actions. Under good ecological practice, such values should not be impacted. For those ecology values, the project will result in significant residual adverse effects that cannot be addressed.		
Section 6.7 Pg 39	In broad terms, the proposed biodiversity offset/compensation package is expected to kick-start a large-scale transition from exotic-dominated to native-dominated ecosystems, reversing the ongoing decline of key native habitats and many associated species outside the DDF, while maintaining cushionfield ecosystems beyond the mine footprint.	The "large scale transition from exotic dominated to native dominated ecosystems" will only be achieved if the gains made during the active offset programme are maintained into the future and provision is made in some way to fund this.	
B28. Rise & Shine Pre-feasibility Geotechnical Assessment			
Section 7.1 Pg 62	The extent to which caving could propagate would be dependent on local ground conditions, presence/ absence of major faults and stoping geometry, that is, effective hangingwall spans and available stope void. Specific potentials for caving are unknown; however, given limited stope volumes it is expected that ore draw would be terminated, and caving would be choked well before overbreak could reach natural surface.	The geotechnical report is high level due to the paucity of data to support a more detailed study. A example of this is the reference to caving above the Long Hole Open Stopes that are to be used in the underground ming operation. The use of the word "expected" in the discussion about caving is indicative of this lack of detailed data.	Kā Rūnaka expects that there is more detail required to assess the development of an underground operation but a condition precluding any measurable impact (or a prescribed limit) on surface from subsidence activity would be appropriate.

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
Mine Impacted Water Overview Report			
Section 2.6 Pg 21	Compliance monitoring for certain PCOC is recommended once passive treatment commences. Anaerobic passive treatment system (PTS) can generate secondary PCOC including ammoniacal nitrogen, BOD10, and sulphide. Monitoring of these PCOC is not required until an operating PTS is installed.	The passive treatment will extend well into the post closure phase of the project when management of the site will likely have passed to another party.	Conditions are required setting out how this is anticipated to be managed. Kā Rūnaka want to understand long term post mine life management arrangements and have a role in this as kaitiaki.
Section 2.6 Pg 21	Confirmation of a suitable location for reuse of the As-rich soils for rehabilitation purposes within the Rise and Shine Creek Valley (keeping the materials within their geochemical origin) is required. Subsequent management of these areas should be considered (e.g., stock management).	This might be an opportunity for BOGP to consider net gain in the rehabilitation of the As rich soils. There has been work done on the use of biochar in the remediation of contaminated soils, the opportunity exists for more than just management of the contaminated materials.	Kā Rūnaka would like to see MGL consider this opportunity.
Secton 3.6.2 Pg 28	Elevated nitrate without any mitigation could be expected from BOGP materials for many decades and this will require management.		Kā Rūnaka require consent conditions that include provision for effective treatment of discharge water not just during the active mining and closure phases but into the post closure term.
Section 4.3.1 Pg 33	NP for the covered ELF and TSF could be between 20% and 50% of annual precipitation.	A net percolation rate (NP) of 20% of rainfall has been assumed and drives the predicted term of active water treatment. If the NP is as high as 50% the active treatment will be required for a significantly longer period (100% increase?) with associated cost and closure delay.	Kā Rūnaka have concerns about the assumptions and would like to see active treatment provided for a significantly longer period.

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
Section 4.5 Pg 35	Bullet pt4: Net percolation (NP) rates need to be validated to confirm that NP is < 20%. Lysimeters should be installed in the first 1-2 years of the operation to monitor NP and quality. Lysimeters should be installed into operational waste rock disposal areas and rehabilitated surfaces. If these NP rates are not achieved, then further work is required to validate the effects of the waste rock storage on downstream waterways at closure. Higher NP rates might require a longer active treatment phase.	A net percolation rate (NP) of 20% of rainfall has been assumed and drives the predicted term of active water treatment. If the NP is as high as 50% the active treatment will be required for a significantly longer period (100% increase?) with associated cost and closure delay.	See above
Section 5.1 Pg 37	The WLBM (MWM, 2025j) indicates that treatment of MIW is required for the base case model (e.g., a NP of 20%) where: • Active water treatment is required for ~50 years post closure due to some PCOC being elevated on a yearly basis (SO4, Mo, Sb,): Active Closure Phase. • Passive water treatment is required after ~50 years as part of the post closure phase: PostClosure Phase	The water management capability is required to operate as either an active or a passive system for 50+ years, likely to be ≤100yrs. No mention is made in the B.44 Bond Introduction (Lane and Assoc.) document of long term liability beyond mine closure or how this will be managed.	Kā Rūnaka want to understand how this intergenerational risk will be managed.
Section 5.2.2 Pg 37	Active Water Treatment will include .... Sludge management	Process Flow suggest that sludge will be managed by disposal at an off site facility or an on site disposal solution determined.	Kā Rūnaka would like clarity that ongoing costs associated with "sludges" generated by long term use of the WTP are provided for.

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
Section 5.2.3 Pg 38	If passive treatment cannot achieve compliance with water quality limits, then the WTP must operate for a longer time period.	The operation of the WTP may have to extend for a longer period than anticipated and passive treatment might only be practicable following a prolonged "active" treatment period.	Kā Rūnaka wish to ensure that a mechanism is in place to cover the associated costs of a prolonged period is provided for.
Section 5.3 Pg 38	Modelling (MWM, 2025o) indicates that the transition from active to passive treatment could occur within ~50 years of the cessation of mining.	There is no indication as to the likely term for passive treatment and inter alia the ongoing associated costs or how these will be managed.	See above
Mine impacted Water Overview Report Appendix M Water Treatment Study Appendix B			
Section 4.2.2 Pg 293	if Chemical precipitation processes are chosen, large volumes of sludge will be produced. Further studies need to be completed to determine the quantity and quality of the water treatment residues (including sludge) for both active and passive treatment systems and identify appropriate disposal options and locations. The sludge should be disposed of at a suitable facility or studies should be undertaken to confirm onsite management options.	It is likely the operation of the water treatment plant will extend beyond the active mining phase (possibly up to 24years post closure or longer if the passive system cannot achieve the required discharge standards). Provision must be made for the costs of sludge disposal during his period, either in a bespoke "on site" facility or to an approved offsite landfill. The documentation makes no reference to the quantification of volumes requiring management or the associated costs.	Kā Rūnaka wish to have comfort that long term arrangements are in place to manage intergenerational effects
Mine Closure Management B40			
Section 9.6.6 Pg 57	The most favourable sites (microsites) will be selected for planting to cover approximately 20% of benches across the site.	There is no indication of planting densities (eg: stems per hectare) and 20% of the area to be planted leaves large areas to be managed for weed control.	Kā Rūnaka hold the view that a high density of planting over a larger area would require less maintenance from a weed control perspective and may prove to be more economic in the long term.
Mine Closure Plan - Appendix C B40			

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
C4.2.1 Pg 103	Following the granting of the resource consent for the construction and operation of the Shepherds TSF, a detailed Closure Manual will be prepared by MGL	It seems unusual that development of a mine closure plan which is so crucial to intergenerational effects should have to wait until post consenting particularly as it also goes to bond calculations.	Kā Rūnaka expect to be involved in the development and approval of the closure manual and see appropriate adjustments to bonding arrangements.
C4.3.1 Pg 104		Open pits are designed to be stable during the life of the mining operations but may not be stable in the long term as materials weather and erode, leading to instability of sections of the pit walls post-closure.	Kā Rūnaka require conditions to ensure that the site remains safe or that remedial work can be carried out to make it safe. Provision of funding post closure is required for this.
C5.3.6 Pg 138		Residual impacts include the release of solutes such as sulphate and total nitrogen, which could accumulate in valley-floor groundwater systems, potentially affecting downstream water quality and ecological values.	Kā Rūnaka require absolute limits for the water quality of any site discharge (surface or underground) need to be set.
C6.2	Uncertainties remain regarding the extent of contaminant dispersion in subsurface environments and long-term ecological impacts.	This poses difficulties for Kā Rūnaka as they are being asked to approve a project where the extent of the associated impacts are not fully understood.	Kā Rūnaka requires more information around these effects and risks.
Freshwater Ecology Management and Monitoring Plan			
Table 1 – P5	Additional compensation is proposed in the form of management of existing willows and transformation to native riparian vegetation over some 6,700 m of Bendigo and Clearwater Creeks (Willow concession area). Compensation completes the effects management by providing for the lag time	Willow removal does not adequately address the cultural and ecological effects of the destruction of 7,139 m of perennial stream, despite the later reinstatement and enhancement proposed. Further offset and compensation for cultural and ecological impacts is required to enhance and protect taoka species in line with what has been proposed for terrestrial species (e.g. the fenced sanctuaries)	In addition to the actions already proposed in the effects management hierarchy, it is the Rūnaka's position that the applicant should work with mana whenua to establish a non-migratory *Galaxias* reserve sourcing fish from local populations and translocating them to a new protected site within or adjacent to the mine envelope.

Section and Page Number	MGL Position	Feedback on BOGP Position	Kā Rūnaka Feedback
	to achieve ecological values.		
Matakanui Sanctuary Management Plan			
S 1.1.2 P3	This Matakanui Sanctuary Management Plan (MSMP) sets out the management processes that guide the creation, operation, and enduring stewardship of two predator-proof sanctuaries within the BOGP area.	"enduring stewardship" appears to consist of the life of the mine, 35 years.	Establish arrangements to maintain and support the sanctuaries in perpetuity, as well as wider ecological management projects that extend beyond the life of the mine.

Sensitivity: General

Bendigo Ophir Gold Project Review

CIA Assessment Support

Prepared for Aukaha
Prepared by Beca Limited

7 April 2025



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Appendices

Appendix A – Planning Provisions

Revision History

Revision N°	Prepared By	Description	Date
A	Adam Pendleton, Paul Horrey, James Burr, Josie Burrows	Draft – For Review and Comment	7 April 2025

Document Acceptance

Action	Name	Signed	Date
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on behalf of	Beca Limited		

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Executive Summary

This report provides Aukaha with an independent technical review of the Bendigo-Ophir Gold Project (BOGP), offering a high-level summary to support hui with mana whenua and contribute to a Cultural Impact Assessment (CIA). The assessment evaluates the proposal's technical processes, risks, compliance with standards, and alignment with regional policies while exploring ways to mitigate impacts.

The BOGP, located in Central Otago, New Zealand, combines open pit and underground mining of the Rise and Shine (RAS) and Srex (SRX) orebodies and leverages modern infrastructure. With a rich mining heritage and ongoing exploration since 2012, the project is framed by a Preliminary Feasibility Study (PFS), targeting sustainable operations and informed engagement with stakeholders. The review, based on the PFS report and supporting documentation from Santana Minerals Limited, focused on the following risk areas:

- **Use of cyanide -** The Bendigo-Ophir Gold Project uses gravity and carbon-in-leach (CIL) processes with cyanide for gold recovery, supported by standard controls such as pH regulation and the INCO SO2/Air method for cyanide destruction. Additional measures, like adopting the Cyanide Code, exploring alternative leaching methods and enhancing stormwater containment, could further improve environmental safety and risk management while aligning with global best practices.
- **Arsenic in the ore -** arsenopyrite poses environmental and health risks due to its leaching alongside gold. The PFS outlines arsenic removal controls, such as using ferric chloride to precipitate stable ferric arsenate, but further testing is required to confirm effectiveness. Additional strategies could include exploring alternative leaching methods and advanced oxidation techniques, with considerations for international arsenic discharge standards. Sites like OceanaGold Macraes Mine use established processes for managing similar arsenic challenges, highlighting the need for detailed analysis and mitigation planning.
- **Tailings storage facility –** BOGP plans to construct a wet tailings storage facility (TSF) within a valley using a rockfill starter dam and downstream raises, buttressed by an engineered landform. The TSF will incorporate water recovery through thickening, seepage collection via underdrains, and a lined pond for runoff management, while relying on the low permeability of the schist rock foundation. Key risks include slope instability, seepage, overtopping, and long-term closure impacts, with mitigations such as seismic-resistant design, adherence to high dam safety standards, and a closed-loop water system. Alternatives like dry stack tailings or additional controls, including lining the TSF or auditing against global standards, are also being considered to enhance safety and environmental outcomes.
- **Mine activity impacted water/discharge -** BOGP aims for zero release of mine-impacted water through measures like an unlined TSF utilising the valley's natural containment, encapsulating waste rock in an engineered landform (ELF), and recycling water within the processing circuit. Risks include acid mine drainage (AMD), nitrates, suspended solids, and contaminants like arsenic, managed through sediment control, seepage treatment, and baseline water quality monitoring. Additional controls, such as alignment with global standards like the Global Acid Rock Drainage (GARD) Guide and ICMM Water Stewardship principles, or introducing pre-oxidation steps, could further enhance water management and mitigate environmental impacts.
- **Mine stability (geotechnical) –** The project involves extracting mineralised zones through both open pit and underground mining methods. The open pit will reach depths of 200 metres, while underground mining will target deeper ore zones using paste fill retreat methods to maximise stability and minimise surface impacts. Geotechnical studies have defined pit slope angles and assessed risks like groundwater inflows, slope instability, and subsidence, with mitigations such as drainage drilling, backfilling, and extensive ground support planned. A closure plan is still in development, and

the final configuration of the open pit, including the presence or absence of a pit lake, is still to be defined. Further investigations and detailed modelling at later stages will refine designs and address risks during operations and post-closure.

The review suggests several additional actions/potential conditions would enhance risk management for the Bendigo-Ophir Gold Project, including compliance with industry standards like Responsible Gold Mining Principles (RGMP), Cyanide Code (ICMC), International Council on Mining and Metals (ICMM), and Global Industry Standard on Tailings Management (GISTM) for safety and environmental practices.

The review recommends exploring international guidelines for arsenic discharge and considering site layout changes for better stormwater management and chemical containment. Additionally, the project should validate pathways for cyanide destruction and arsenic fixation, as well as geotechnical stability factors, in the definitive feasibility study phase. Clarifications on alternative lixiviant, cyanide destruction, and arsenic removal technologies are advised, along with potential tailings management strategies. We recommend that any further studies conducted should be independently reviewed by Aukaha to ensure stakeholder confidence.

The report also identifies that the majority of the recommended actions are aligned with Otago's planning framework and therefore should be considered in the Fast Track Act approval process.

1 Introduction & Background

1.1 Scope of this work

This report provides Aukaha with an independent, high-level summary and technical review of the Bendigo-Ophir Gold Project (BOGP). The purpose of this technical assessment is to support hui with mana whenua by offering a clear understanding of the proposal and its potential implications.

This review is designed to form the foundation for developing a Cultural Impact Assessment (CIA), specifically contributing to Section 3 of a CIA in line with the current Aukaha format. By undertaking this technical evaluation, mana whenua can have confidence that the proposal has been reviewed on their behalf by industry specialists.

The level of detail in each technical review reflects the complexity of the proposal and is conducted by relevant specialists. These reviews:

- Summarise the proposal and clearly outline its technical processes.
- Identify potential risks associated with the proposal.
- Assess compliance with applicable standards and highlight their relevance.
- Explore potential alternative methods or approaches to reduce impacts or risks, where relevant.
- Identify key Regional Policies linked to the proposal and suggest how they could shape conditions or influence outcomes.

This approach provides a thorough, independent analysis that empowers mana whenua with essential information to engage meaningfully in decision-making processes.

1.2 Background – the BOGP

The BOGP, outlined in the Preliminary Feasibility Study (PFS), is planned as an open pit and underground mining operation. The project will primarily target the Rise and Shine (RAS) orebody, with supplemental feed from the Srex (SRX) orebody.

The RAS orebody underpins the project, supporting both open-pit and underground mining operations, with a total processing inventory of 16.8Mt at 2.3g/t for 1,245koz. Initial processing will occur at 1.5Mtpa, expanding to 2.1Mtpa when underground mining commences alongside continuing open-pit operations. Recovery rates are projected at 93% for RAS mineralisation and 68% for SRX through the optimised gravity concentrate and carbon-in-leach (CIL) process. The flowsheet includes single-stage crushing, grinding, gravity concentration, CIL, elution, and a wet tailings storage facility (TSF).

Supporting infrastructure includes access to the national road network, fresh water, and high-voltage power. A temporary construction camp will be established, while operations staff will be based in nearby communities within an hour's drive of the project. Waste material from the RAS pit will be used to fully buttress the TSF, forming an engineered landform (ELF) during and post-operations.

The BOGP is located in the Dunstan Mountains, Central Otago, South Island, New Zealand, within the jurisdictions of Central Otago District Council (CODC) and Otago Regional Council (ORC). The Bendigo area has a rich mining heritage dating back to the 1860s Otago gold rush, when miners from across the globe were drawn to Central Otago following the discovery of gold. Gold mineralisation is widespread in the Otago Schist, with over 5 million ounces of hard-rock gold and 8 million ounces of alluvial gold mined historically from the Otago goldfields. Bendigo quickly became one of the most significant quartz reef mining areas, yielding approximately 300,000 ounces of gold up to the 1940s.

Modern exploration in the area began in 2012, initiated by Depot Corporation Ltd, utilising mapping, rock chip sampling, and soil geochemistry. Depot Corporation transferred its exploration permits to Matakanui

Gold Limited (MGL) in 2014, leading to drilling operations at Come-In-Time (CIT), Rise and Shine (RAS), and Srex (SRX) deposits in 2018 and 2019. Santana Minerals Ltd acquired MGL in 2020.



Figure 1 - Map showing the location of the Bendigo Ophir Gold project (Figure ES2 from the BOGP report)

1.3 Abbreviations

Table 1 - Table of Abbreviations

Abbreviation	Definition
ANFO	Ammonium nitrate and fuel oil
AMD / ARD	Acid Mine Drainage / Acid Rock Drainage
BOGP	Bendigo-Ophir Gold Project
CAPEX	Capital Expenditure
COPC	Contamination of potential
CIL	Carbon in Leach
DST	Dry Stack Tailings
ELF	Engineered Landform

Abbreviation	Definition
GARD	Global Acid Rock Drainage Guide
GISTM	Global Industry Standard on Tailings Management
HAZOP	Hazard and Operability Study
HCN	Hydrogen Cyanide Gas
ICMC	The International Cyanide Management Code For the Manufacture, Transport, and Use of Cyanide In the Production of Gold, a.k.a Cyanide Code
ICMM	International Council on Mining and Metals
INAP	International Network for Acid Prevention
MIW	Mine Impacted Waters
NZ	New Zealand
OPEX	Operational Expenditure
ORP	Oxidation Reduction Potential
PFS	Pre-Feasible Study
RGMP	Responsible Gold Mining Principles
TSF	Tailings Storage Facility
WAD	Weak Acid Dissociable

2 Processing

2.1 Leaching of gold

2.1.1 What the Project is doing

The project is using two pathways to recover gold:

- Gravity and intensive cyanide leach recovery of the gravity concentrate
- Conventional Carbon-In-Leach (CIL) recovery of the gravity tails and leached gravity concentrate

In both pathways cyanide is used as a lixiviant to dissolve the gold into a cyanide complex, which will subsequently bind to activated carbon. The carbon is then collected and washed, and the gold stripped from it before being electrowon. This method is extremely common for gold production and is used widely. Some sites that use cyanide:

- OceanaGold, Waihi – New Zealand
- OceanaGold, McRaes – New Zealand
- Newmont, Lihir – Papua New Guinea
- KCGM, Super Pit – Australia
- Barrick, Carlin / Goldstrike – Nevada, USA
- VBictoria Gold Corp, Eagle Mine – Canada
- Agnico Eagle – Kittila – Finland

The Cyanide Code notes the location of all its signatories that are mining, production or transportation companies, see the Figure 2.



Figure 2 - World map showing signatories to the cyanide code (Source: https://cyanidecode.org/worldwide-participants/)

2.1.2 What are the risks

There are two primary risks with use of cyanide:

- Under a certain pH, cyanide will react with free hydrogen in solution (H+ ions) and form hydrogen cyanide (HCN) gas which is highly toxic to persons
- Cyanide is toxic, so release to the environment can be deadly to humans and animals

2.1.3 What are the mitigations planned

Currently, the PFS report received outlines the following controls/mitigations for the use of cyanide and the risks above as:

HCN Gas:

- Quicklime/pH control of slurry – by adding quicklime, which is basic, the process will be maintained at a pH above that which HCN gas starts to evolve
- Not explicitly stated (and should be confirmed in later stages) is usual industry practice of; Voting/redundant pH measurement instruments, use of fixed and personal HCN meters around at-risk areas, installation of windsocks to inform evacuation routes and similar.

Toxic chemical release to environment:

- The process has included a cyanide destruction step in the flowsheet, this uses the INCO SO2/Air process, advantages are low reagent cost and efficient oxidation of Weak Acid Dissociable (WAD) cyanide.
  This is utilised at McRae's and Waihi and many other sites globally.
- Additionally, the Appendix D of the study notes:
    - That additional destruction may be required in the future "Provision will be made in the plant layout to accommodate future cyanide destruction of the tailings thickener overflow and decant return water should the levels of cyanide affect the plant performance." (The PFS notes that cyanide destruction testwork was undertaken however some results deviated from the expected with WAD cyanide not decreasing in one of the tests and decreasing below the target in the other.)
    - An Oxidation-reduction potential (ORP) probe will be located in the second destruction tank to provide an online millivolt reading displayed both on the PCS and at the field unit. The ORP is an online indication of the cyanide reduction performance.

2.1.4 What additional controls are there

There are additional controls or considerations that can be made to the above, these are subject to the economic impact and more detailed analysis:

- ICMC – the ICMC is the "*International Cyanide Management Code For the Manufacture, Transport, and Use of Cyanide In the Production of Gold*" (a.k.a Cyanide Code), this is a voluntary certification program for best practices for gold and silver mining companies, as well as companies producing and transporting cyanide. The code specifically covers the following for mining operations:
    - Production and Purchasing
    - Transportation
    - Handling and storage
    - Operations
    - Decommissioning
    - Worker safety
    - Emergency response
    - Training
    - Dialogue and Disclosure
- It is also worth noting that the Responsible Gold Mining Principles [1], also makes reference to compliance with the ICMC *"8.3 Cyanide and hazardous materials – We will identify and manage*

potential risks relating to the transportation, handling, storage and disposal of all hazardous materials. Where our operations use cyanide we will ensure that our arrangements for the transport, storage, use and disposal of cyanide are in line with the standards of practice set out in the International Cyanide Management Code."

- The INCO Process utilises oxygen and SO_2, however, efficient and complete reaction requires vigorous mixing of the gas and liquid to ensure mass transfer of oxygen into solution to promote the leaching reaction. It would be pragmatic to utilise a higher purity oxygen stream instead of blown air (e.g. 95% vs 20.8%) as this will provide favourable reaction kinetics. Blown Air would be a suitable back up in the event of loss of oxygen / lack of supply. Utilisation of enriched air or higher purity oxygen in CIL circuits is commonplace to improve leach kinetics and would likely improve CIL performance if used in place of blown air. This is commonly used at other sites such as OceanaGold Waihi & Macraes.
- The design of the process plant is such that it is adjacent to Shepards Creek which will be re-aligned as part of the process plant construction. The current layout of the process plant shows the grade and hence storm water collection will run between the plant and the creek/road effectively separating the two. However, it is unclear if there is a catchment or treatment of this stormwater prior to discharge to the wetland area (refer to drawings 310206156-01-001-C104 and 310206156-01-001-C105). Any loss of containment from piping or a bund within the processing plant or maintenance areas or runoff from these areas will potentially report to the stormwater system. A detailed risk assessment is required in subsequent phases to understand the risk, but a potential control is secondary containment (or tertiary in context of the CIL and some process areas) in the form of a pond to manage releases from the plant could be considered. This is applied at sites such as Macraes as depicted in the satellite image below.

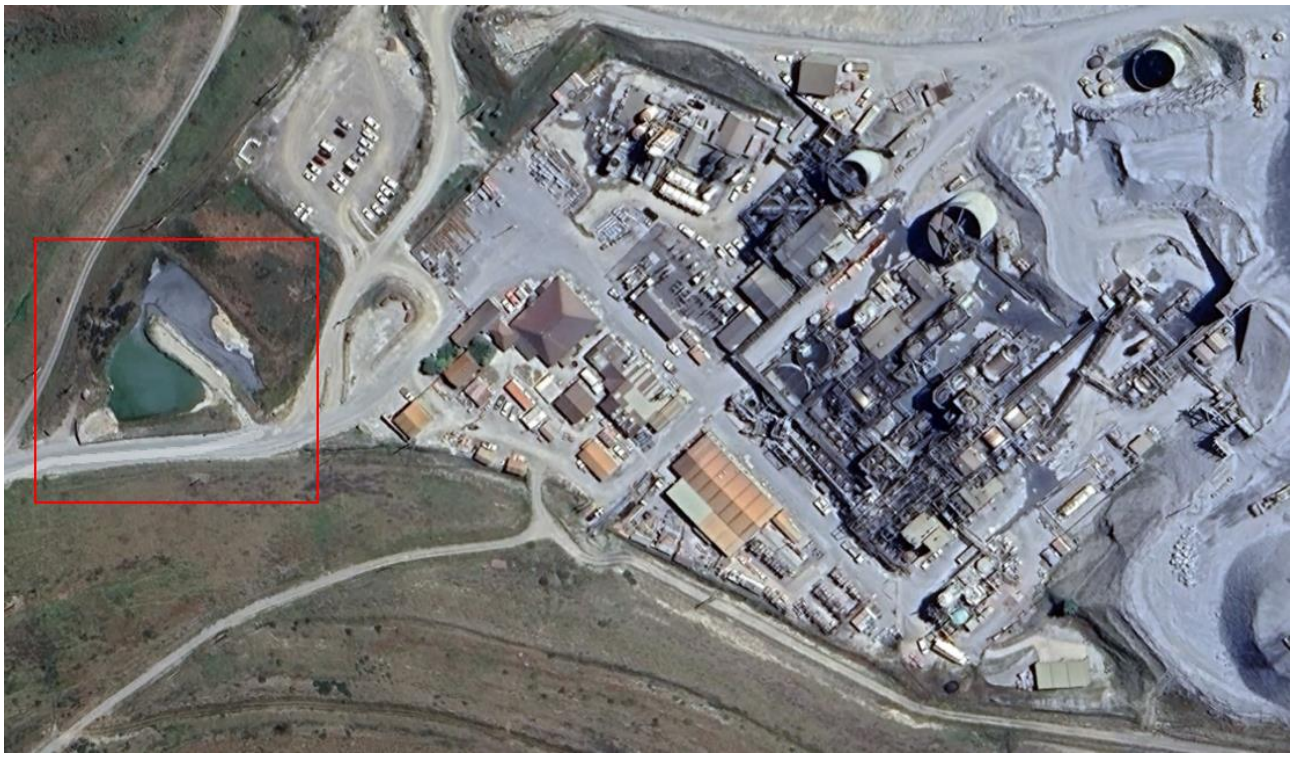


Figure 3 - Aerial view of Macraes processing plant with stormwater catchment pond shown in red box. (google earth)

- Review of the process plant layout shows a relative compact bund around the CIL circuit. As these tanks contain a hazardous substance (cyanide & lime), it is probable it will trigger the New Zealand 'Health and Safety at Work (Hazardous Substances) Regulations 2017' which will require bunding. Under this requirement the crest-locus rule is generally applied which would dictate a larger bund

around the CIL circuit. (it is noted there is minimal to no mention of NZ legislation around hazardous substances in the PFS or appendix D).
- A Hazard and Operability (HAZOP) study could be included in the forward work plan for the DFS (and is not currently mentioned in the PFS or appendix D)

2.1.5 What alternatives options/opportunities are there?

In reviewing the BOGP PFS study and industry practices, it is noted that there are some alternative options to the planned project configuration (noting these are all subject to review for technical, risk and commercial feasibility).

- Cyanide recovery / recycling – where cyanide used in the process is recovered and recycled into the plant. An example of such a technology is the RECYN process [2]. In this case the cyanide monitoring and destruction would be downstream of the recycling step. Whilst this recovers cyanide from the tailings stream it does not replace that which is consumed in the process. As such it reduces cyanide consumption by up to 50% (claimed), which also reduces the amount of cyanide transported to site. Furthermore, the technology can also remove metal complexes in the discharge. **There is however limitations/risk such as limited commercial scale implementation of these plants and the potential additional CAPEX/OPEX/Economic impacts**
  At a commercial scale;
  - *Ity operated by Endeavour mining in the Cote d'Ivoire utilises the RECYN process*
  - *Martable in Indonesia utilises the RECYN process*
  - *Heritage Minerals in Australia plans to utilise the process for their plant planned in Queensland*
- Alternatives to the INCO SO_2/O_2 method exist, such as; Alkaline Chlorination, Hydrogen Peroxide, Ferrous Sulphate Complexation, Caro's Acid and Ozonation. Based on the PFS report, it does not appear that any study or consideration of alternatives have been made. A different pathway may present a more reliable or consistent or extensive destruction of cyanide and be better suited to the oxidation of Arsenic (e.g. Ozone). From Appendix D of the PFS it does not appear alternatives have been considered.
- Cyanide alternatives or supplemented leaching:
  - Thiosulphate is an alternative lixiviant to cyanide for gold leaching, however it is not as favourable kinetically as cyanide (slower reaction so requires orders of magnitude greater lixiviant concentrations) and not as robust as cyanide, requiring tighter control/optimisation. It can achieve similar gold recoveries, especially in preg-robbing(carbonaceous) ores and is also benign. The gold thiosulphate complex is also poorly attracted to carbon so often requires alternative adsorption/concentration pathways (e.g. resin instead of activated carbon). Currently this technology is marketed by an Australian company [3]https://www.clean-mining.com/. **There is however limitations/risk such as limited commercial scale implementation of these plants and the potential additional CAPEX/Economic impacts.**
    At a commercial scale - Goldstrike executed the "TCM Project" which used this pathway to address preg-robbing ores along with a RIL circuit (noting this facility is significantly larger than the BOGP and Barrick Gold mines retain a patent for this) [4]
  - Glycine leaching is alternative to cyanide with three different (hybrid) offerings; Glycine-Cyanide, Glycine-Additives and Glycine-Ammonia. This technology is marketed by Draslovka [5]. Notionally the Glycine-Cyanide claims to reduce cyanide use and maintain or increase recovery of gold and silver. **There is however limitations/risk such as limited commercial scale implementation of these plants and the potential additional CAPEX/Economic impacts.**

At a commercial scale - Barrick Gold has committed to implementing the GlyCat (Glycine-Cyanide hybrid) at their operating sites in a bid to reduce the quantity of cyanide used (and hence the risk) [6]

- It is worth noting that a number of countries and provinces have banned the use of cyanide for gold leaching, these include; Costa Rica, Czech Republic, Germany, Hungary, certain counties within California, Montana, Wisconsin, Colorado and South Dakota in the USA and certain provinces in Argentina.
- From Appendix D of the PFS it does not appear alternatives have been considered.

Refer to: [7]

2.2 Arsenic Release

2.2.1 What is the project doing

Arsenic was identified in the mineralogy early in the testwork, specifically present as arsenopyrite and appears to capture some of the gold as refractory. Refractory gold requires additional processing to free the microscopic gold trapped in a sulphide matrix, this is the process that is applied at the MacRaes processing plant nearby. Through the process of leaching gold into solution, some arsenic is also being leached into solution. Noting the Arsenic levels in testwork were considered high (ranging from 0.06 to 0.6%) compared to typical ores.

Arsenic present because of ore processing that requires treatment occurs at a number of sites and is also associated with acid mine drainage (as a result of sulfide mineral oxidation). Examples of sites with elevated arsenic that requires management are:

- Macraes which utilises a pressure oxidation process prior to leaching, which creates elevated levels of arsenic as a result of the destruction of the arsenopyrite
- Red Lake (Canada) which had a historic issue with Arsenic Trioxide dust and sulphur dioxide (https://www.redlakemuseum.com/environment.html#:~:text=Some%20mines%20in%20Red%20Lake,dust%20was%20collected%20and%20sold.)
- Chelopech (bulgaria), New Afton (Canada), Tampakan (Phillipines), Toromocho (Peru), NorthParkes (Australia), Ministro (Chile), Marcapunta Norte (Peru), Huaron (Peru) are all elevated arsenic copper/gold concentrators that are producing streams rich in the same mineral as BOGP, for smelting at specialist smelters such as (Alto Norte, Tsumeb, Guixi Horne, Chuquicamata & Potrerillos) https://www.mckinsey.com/industries/metals-and-mining/our-insights/arsenic-will-it-take-the-shine-off-the-red-metal#/

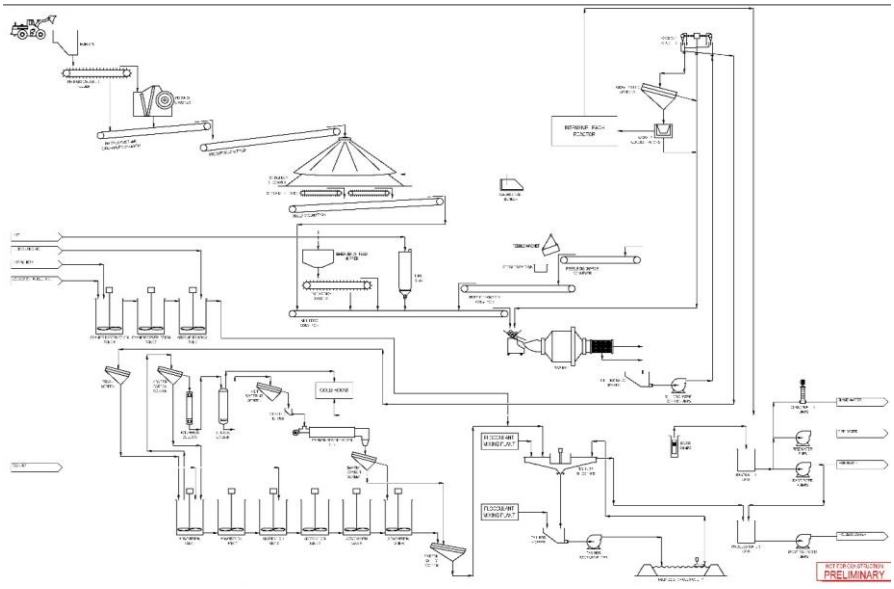


Figure 4 - View of Process Flow Diagram (Figure 10-1 from BOGP PFS)

2.2.2 What are the risks

Release of arsenic to the environment is the primary issue, with elevated levels of arsenic posing a health risk to persons (causing cancer and lesion, as well as being associated with other medical conditions).

With a negative water balance due to evaporation, it is possible that concentrations of metals can accumulate over time if not properly controlled.

2.2.3 What are the mitigations planned

Currently, the PFS report received outlines the following controls/mitigations for the release of arsenic to the environment:

- An arsenic removal step has been included in the design which aims to utilise the oxidation occurring in the cyanide destruction step and adding ferric chloride to precipitate a stable solid ferric arsenate which can be removed in the tails thickener.
- BOGP is nominating a suitable limit of leachable Arsenic in soil, noting “Table 2 of EPA Publication IWRG621 Soil Hazard Categorisation and Management nominates 0.7 mg/L as the leachable concentration above which tailings are considered to have a high environmental impact. While this is not a directly correlated limit, it has been taken as the limit that BOGP will target for arsenic removal” – this would mean the tailings are considered a category C contaminated soil under the EPA guidance in Australia.
- BOGP is flagging that: “Significant additional testwork is required for the arsenic removal step, including undertaking Toxicity Characteristic Leaching Procedure (TCLP) testing of solids generated in the arsenic removal process to determine the stability of the precipitate formed, and undertaking further testing to confirm the reproducibility of these results.” So the effectiveness of the arsenic fixation is subject to further testwork.
- This is the focus around the processing aspect of arsenic – water releases are covered in Section 4, which explores the risks around the seepage and drainage and the like from mine impacted water sources.

2.2.4 What additional controls are there?

There are additional controls or considerations that can be made to the above, these are subject to the economic impact and more detailed technical analysis/feasibility:

- Similar to that noted for the cyanide:
    - A secondary/tertiary stormwater collection pond to manage a spill
    - A HAZOP
- It is noted that alternative standards exist for industrial wastewater:
    - One example being Canada which has guidance for such treatment facilities that arsenic is below a monthly mean concentration of 0.5mg/L before discharge is permitted and meet a target ambient water quality of 5 µg/L [8]. Whilst this is not a NZ standard, this is more stringent than the nominated Australian standard (0.7mg/L), and consideration could be given to international guidance for determining the arsenic fixation effectiveness under standard ground/leaching conditions (similar to that of assessing risks for AMD/ARD risks).
    - In NZ, previously water quality guidance would be to maintain any seepage or water contents to levels below those in the ANZECC & ARMCANZ (2000) - Australian and New Zealand Guidelines for Fresh and Marine Water Quality (which are unchanged for ANZG 2018) (Other suitable guidance is the National Policy Statement (NPS) for Freshwater Management (2020)) for determining the arsenic fixation effectiveness under standard ground/leaching conditions (similar to that of assessing risks for AMD/ARD risks).

Table 2 - Applicable Arsenic Limits set by ANZECC & ARMCANZ (2000) water quality guidelines, Volume 1, Paper No. 4, those shown in pink are still current

Source / Section	Description	Limit	Note
Table 3.4.1	As(III) trigger for freshwater and protection of 95% of species	<24ug/L	For 99% it is <1ug/L
Table 3.4.1	As(V) trigger for freshwater and protection of 95% of species	<13ug/L	For 99% it is <0.8ug/L
Table 3.5.1	Arsenic mg/kg dry wt in sediment	20 (low)	
Table 3.5.1	Arsenic mg/kg dry wt in sediment	70 (high)	
Table 4.2.10	Concentration of Arsenic in soil (kg/ha)	20	Cumulative Contaminant Loading Limit
Table 4.2.10	Irrigation concentration of Arsenic (Long term) mg/L	0.1	100 year watering
Table 4.2.10	Irrigation concentration of Arsenic (Short term) mg/L	2.0	20 year watering
Table 4.3.2	Trigger value for livestock drinking water – Arsenic Metalloids	0.5mg/L	
Table 4.4.3	For protection of aquaculture species (ug/L)	<50	(freshwater only, saltwater is <30)
Table 5.2.3	Water quality guidelines for recreational purposes (ug/L)	50	

Arsenic (As) – Arsenic is considered to be a non-threshold contaminant with internal cancers, such as bladder and liver cancers, the most sensitive endpoints. Estimates of carcinogenic potency are primarily derived from human epidemiological data from exposure via drinking water. A daily risk-specific dose of 0.0086 micrograms per kilogram bodyweight (µg/kg bw), derived from the arsenic

concentration in drinking water determined to represent "negligible risk" by Canadian agencies (0.3 micrograms per litre, µg/L), is recommended. This value is based on the most current risk modelling data, and includes an external comparison population. Dermal absorption is considered to be negligible, although the skin absorption factor of 0.5% could be used as a refinement in the development of soil contaminant standards. [9]

2.2.5 What alternatives or additional options/opportunities are there?

In reviewing the BOGP PFS study and industry practices, it is noted that there are some alternative options to the planned project configuration (noting these are all subject to review in terms of technical and commercial feasibility).

- With the leaching of arsenic a byproduct of the process as a result of the ore body it is difficult to avoid its creation however further testing is needed and this is flagged by BOGP.
- Alternative leaching pathways – it is unclear whether an enhanced or alternative leaching pathway would affect the leaching of arsenic (this could be a negative or positive effect) and would need to be studied in detail if an alternative to the current cyanide leaching pathway was to be considered.
- Alternative or additional treatment for the removal of arsenic, namely one of the following (noting this list is not exhaustive):
    - Oxidation (currently planned via air) – it is established that oxidation of species is faster with oxygen than air, however the most efficient means of oxidation of arsenic is with ozone [10], [11], [12], [13], [14], [15], being order of magnitudes quicker (minutes vs days).
    - Coagulation – Flocculation (currently planned with $FeCl_3$) – It was noted in the PFS that $FeCl_3$ is preferred as this is used in wastewater treatment. FeCl3 is only one option, with others being (noting this is not an exhaustive list); Alum, titanium chloride, ferric sulphate, titanium sulphate or a mixture.
    - Ion Exchange – Can be used for removal of arsenic (as well as nitrates, DOC, chomate and other heavy metals) as opposed to fixation in tailings. With the disposal of the more concentrated arsenic stream needing to be addressed.
- It is noted that additional testwork is required for the arsenic removal/fixation and hence it is expected that investigation into oxidation extent, reagent addition and recovery/efficiency is undertaken. Along, with consideration as to the water balance and effects of the water recycle taken into account.

3 Mining

3.1 Mining Methodology and Stability

3.1.1 What is the project doing

The northwest-dipping Rise and Shine shear zone and Thomson's Gorge Fault represent the boundary between textural zones TZ3 and TZ4 within the Haast Schist rock which underlies the proposed mine site. The rock exhibits strong mineral layering known as foliation which also results in strength anisotropy. Mineralisation is hosted within the shear zone (which is parallel to foliation) and the upper 40-140 m of TZ4 schist (Figure 5).

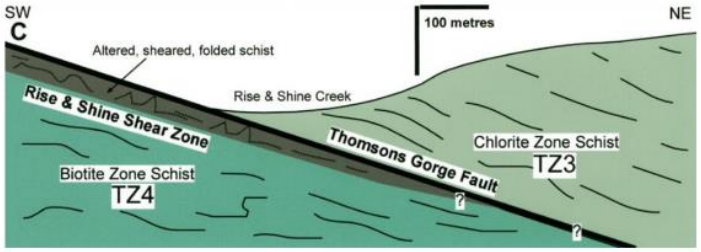


Figure 5 - Indicative geological section through mine area, north to south. From PFS report Appendix E "Bendigo Ophir Gold Project Prefeasibility Geotechnical Assessment" PSM Consult Pty Ltd 31 July 2024

Extraction of the mineralised zone will be accomplished by open pit mining at the southern side of the property, with underground mining proposed to the north of the open pit as the mineralised zone extends too deep to be economically extracted by surface methods (Figure 6).

3.1.1.1 RAS Open Pit

The proposed open pit will be around 200 m deep at the highwall, 1000 m long and 900 m wide. Waste rock from open pit development will be placed in a valley-fill engineered landform immediately to the east of the pit (see Section 4). Other than some initial pre-stripping, mining will be achieved by large scale drilling and blasting.

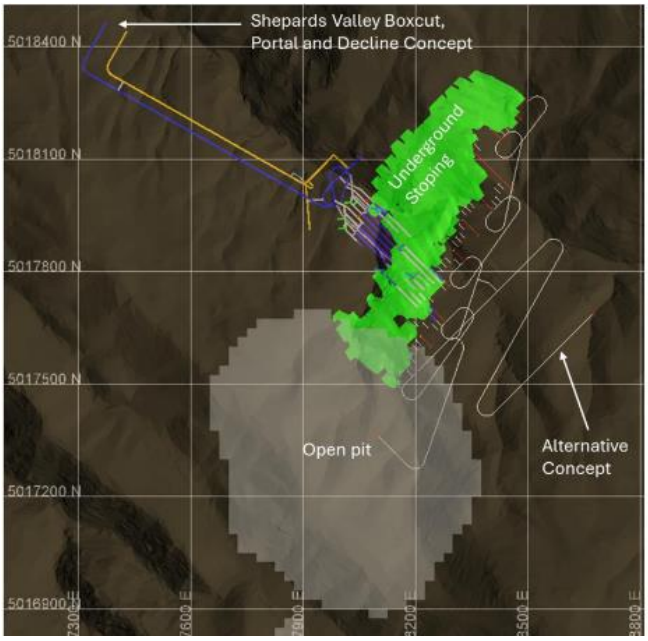


Figure 6 - Overview of proposed layout showing open pit and underground development. From PFS report Appendix E "Bendigo Ophir Gold Project Prefeasibility Geotechnical Assessment" PSM Consult Pty Ltd 31 July 2024

Basic geotechnical information has been collected from a large number of exploration drillholes. In addition, four purpose-drilled geotechnical boreholes have also been carried out within the open pit footprint and include detailed field description of cores, together with televiewer and core orientation studies to assess predominant discontinuity sets in the rock mass.

Groundwater levels have also been measured and monitored in selected boreholes. Groundwater depth in the pit area ranges from near the surface in the floor of the valley to around 50 m depth near ridgelines.

From the information collected, structural domains within the rock mass have been defined and characterised. Stability of proposed pit slopes has been assessed considering potential for failure both through the rock mass and also along specific discontinuity sets. Stability has been assessed against industry-recognised acceptance criteria to develop recommended pit slope angles, which range from 30 to 47 degree inter-ramp angles (Figure 7) for different walls of the pit.

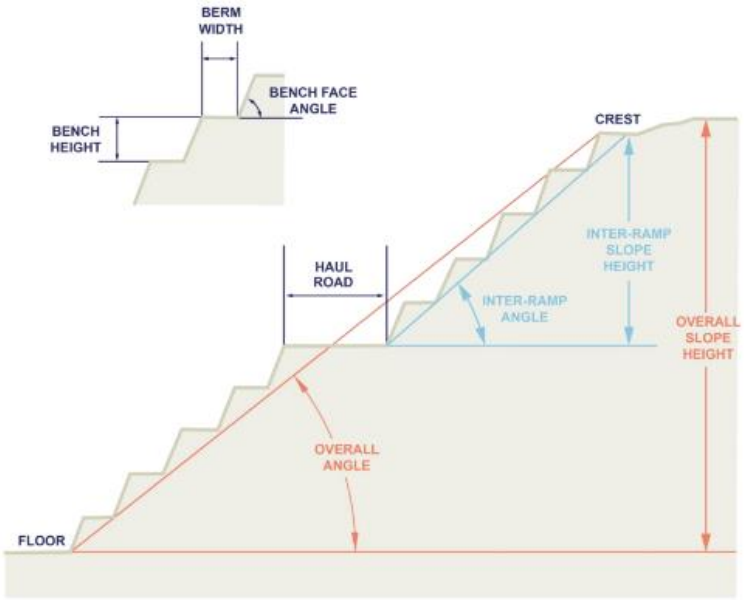


Figure 7 - Definitions of pit slope angles, from PFS report Appendix E "Bendigo Ophir Gold Project Prefeasibility Geotechnical Assessment" PSM Consult Pty Ltd 31 July 2024

Mining will extend well below groundwater levels and dewatering will be required during mining. This will involve sump pumping of accumulated groundwater from the base of the pit. Further depressurisation of the surrounding rock mass by drainage drilling into the pit walls is also being considered as this will enhance stability and may allow slightly steeper pit slopes to be adopted. Water pumped from the pit is proposed to be used in the gold extraction process and be kept in a close loop for the duration of the mine. Hydrogeological assessment suggest inflow to full pit development of around 14-28 litres per second.

The mine closure plan is still in development. Resource consenting plans indicate passive closure whereby the end of mine life pit is allowed to flood as groundwater returns to equilibrium once pumping ceases (Figure 8). Any water discharges from the site after mine closure are proposed to be treated after closure by a water treatment plant on an ongoing basis. The Closure Summary provided indicates scenarios involving both (i) backfill sufficiently to avoid a pit lake and (i) a pit lake remaining, are being evaluated in the development of the closure plan.

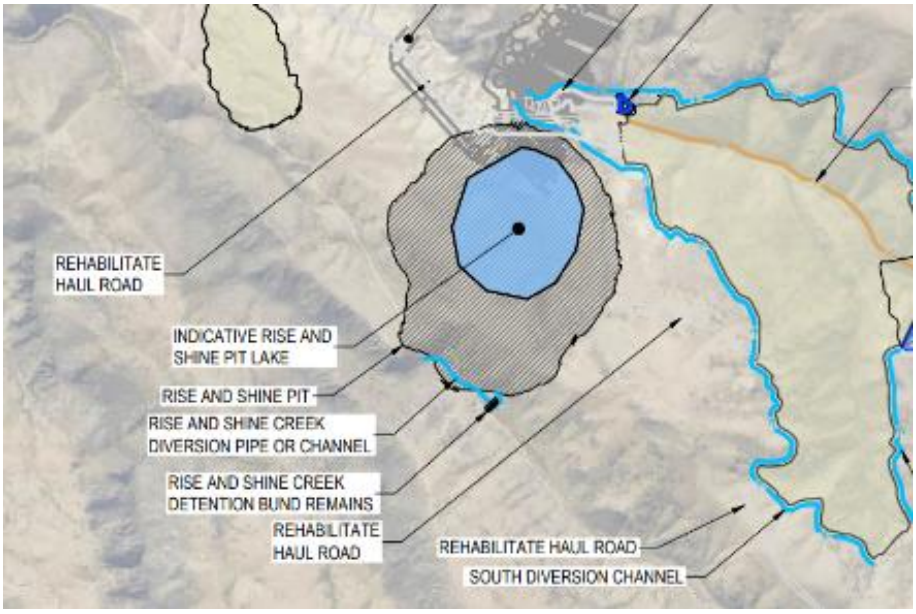


Figure 8 - Extract from Resource Consent Stage Plan - Passive closure showing indicative pit lake.

3.1.1.2 Underground mining

Underground mining of the deeper, down-dip ore is proposed as shown in Figure 9. The change-over between surface and underground mining methods is largely economically driven and is likely to be refined further as reserves are better defined and mine plans develop. Mining would commence at around 225 m depth with an offset of around 50 m horizontally north of the base of the open pit. Underground extraction will extend approximately 900 m down dip (northwest). A paste fill open stope retreat mining methodology (Figure 10) is proposed following an assessment of alternative methods carried out at previously scoping level.

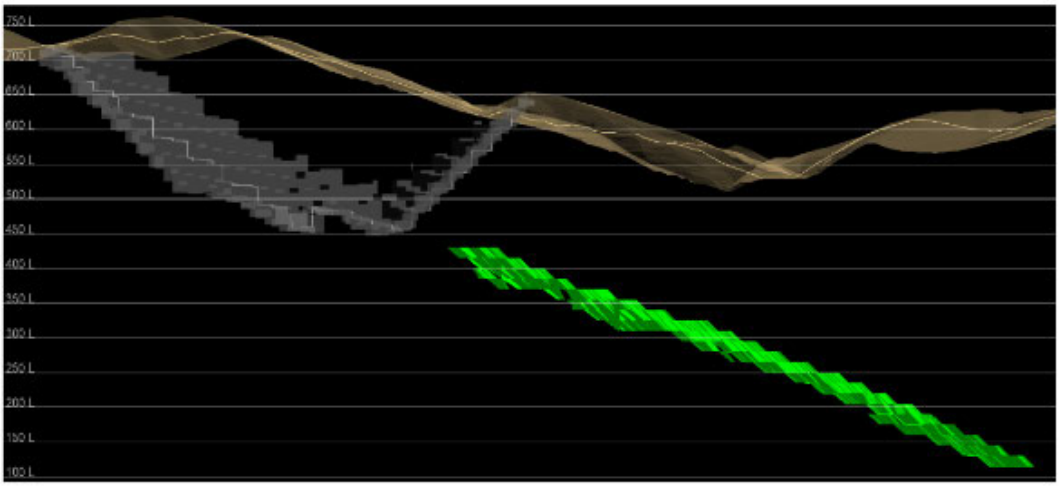


Figure 9 - Proposed underground mining methodology (from PFS Section 8.7.2)

Concept options indicate the mine would be accessed via dual decline tunnels (one primary access and the other ventilation, paste tailings backfill supply line and emergency egress) from a box cut and portals further down Shepherd's Creek, although alternative options, including access from the open pit, are shown.

A network of mine stopes (underground openings within in the orebody) will be developed following the ore zone to allow extraction. The dimensions, layout and separation of these stopes is critical to maintain stability during mining while also maximising recovery and reducing dilution of ore with un-mineralised host rock. As mining will proceed down-dip, groundwater entering the stopes will need to be removed by pumping, with

inflows of up to around 24 litres per second estimated from hydrogeological assessment. At this phase of study estimates of inflow should be considered indicative only. Mined-out stopes will be backfilled with dewatered tailings (“paste”) with a small amount of cement additive.

The sequencing of mine development and backfill is important to maintain the stability of the rock mass. The separation of underground working from the open pit walls and adjacent mine infrastructure is also a key consideration to avoid instability. All of these aspects have been assessed in the PFS using empirical design methods (methods developed by industry based on observed historical performance from a wide range of sites).

The stability of the access decline and required rock support has been assessed using the Barton “Q” system (Norwegian Geotechnical Institute, 2013), and industry standard for preliminary tunnel support estimates.

Ore processing facilities and mine infrastructure will be located further down Shepherd’s Creek to the West. The project will also look to extract groundwater from bores to provide mine process water. Test bores completed that indicate adequate groundwater supply.

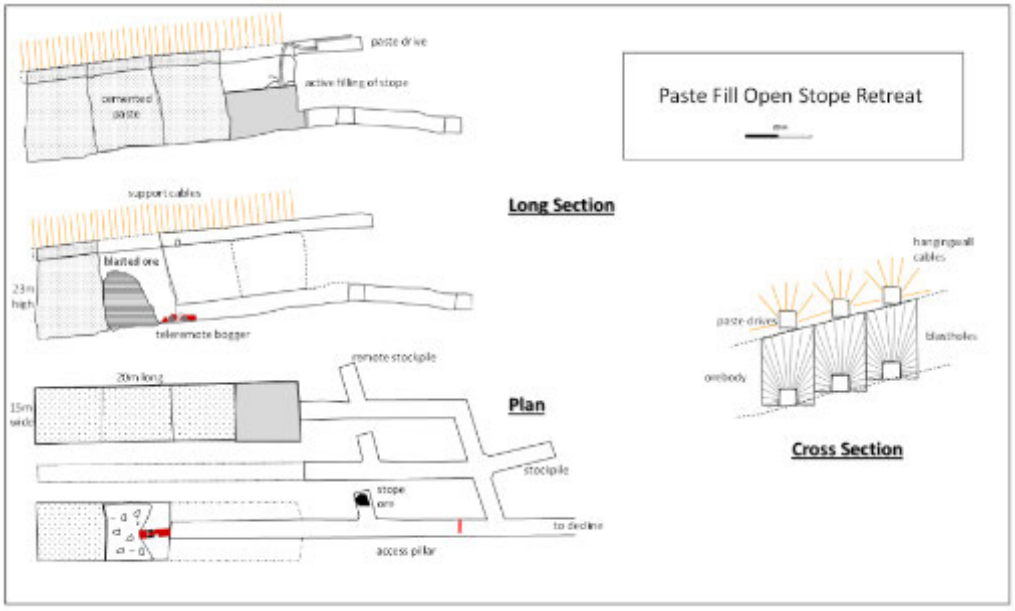


Figure 10 - Indicative 3D view showing underground mine development (green) following the deeper extent of the ore zone to the north. From PFS report Appendix E

3.1.2 What are the risks

The following high-level risks are identified:

- Open pit mining
    - Slope instability during mine development and extraction, both within and beyond the mine footprint. In particular, the stability of the high point B10D at 916 m elevation directly above the southeastern pit wall
    - Slope instability post closure, both within and beyond the mine footprint
    - Water quality of closure pit lake (if not backfilled) and any remaining discharges
- Underground mining
    - Stope stability during operations
    - Subsidence of ground above completed workings
    - Interaction between underground mining and pit walls or other infrastructure
    - Water quality of mine drainage during operations and post-closure

- Risks common to both
    - Temporary effects of mine dewatering on surrounding groundwater and surface water
    - Potential adverse effect of mine dewatering discharge
    - Premature cessation of mining due to economic or other conditions

3.1.3 What are the mitigations planned

3.1.3.1 Open pit mining

Geotechnical stability risk is identified in the risk register provided. Further studies are proposed (PFS Appendix E Section 12) before open pit stripping commences which, if carried out, will improve confidence in the behaviour of proposed pit slopes. These include:

- Further detailed outcrop mapping
- Develop correlation between field rock strength estimation and lab testing
- Additional rock mass shear strength testing
- A pit scale 3D numerical groundwater model
- Additional stability analysis (open pit and underground)

Open pit mines are typically operated near the limit of stability to maximise economic recovery commensurate with maintaining worker safety and environmental protection. As a result, occasional failures in pit may be expected and are planned for. The risk is proposed to be managed operationally by:

- Ongoing mapping and geological data collection to identify major discontinuities or degrade rock quality which could affect stability and anticipate parts of the pit that may be at elevated risk.
- Daily walkover inspections of active mining areas
- Automated, real-time monitoring of pit slopes by methods such as slope stability radar, automated ground survey, UAV surveys etc.

Following closure these methods are not available so the closure plan should address long term pit instability and may include some recontouring or backfilling in selected areas to increase confidence in long term stability. The closure plan is mentioned as being in preparation.

The site is located in a relatively high seismic area, and while large open pits and underground openings generally perform well in earthquakes, there is a risk of local slope failure in an extreme seismic event.

3.1.3.2 Underground mining

Ground control to maintain stability during operations is a key part of underground mining and fundamental to an economically successful project. The proposed mining methodology includes allowance extensive ground support by cable bolts, particularly in the stope backs (roofs) which in some instances will be formed in or close to the Thomson's Gorge Fault. The proposal to backfill completed workings will significantly improve the confidence in long term performance and reduce the potential for effects to manifest at the surface through ground subsidence. The PFS refers to more detailed 3D numerical modelling at later project stages to better evaluate potential for surface subsidence.

PFS hydrogeological assessment suggests the effects of mining on surface water depletion through groundwater lowering are "considered acceptable in the site context". In particular, the schist aquifers that are likely to be affected by mining are considered to be largely isolated from near-surface groundwater systems and there are no abstraction bores extending into the schist.

3.1.4 What addition controls are there?

For the two types of mining being planned

- Open pit mining – Additional geotechnical investigation, characterisation and analysis should be carried out (and is planned) prior to finalising mine design and commencing development. Should instability be observed during operation, risk management may include some or all of:
    - Flattening or buttressing of affected slopes, if practical
    - Depressurisation by drainage drilling and dewatering
    - Addition of local rock support (usually a last resort due to cost)
    - Temporary cessation of operations in affected parts of the pit.
- Underground mine stability may be addressed during operation by:
    - Modified excavation and backfill sequencing
    - Modified stope dimensions
    - Modification of blast design
    - Additional ground support
    - Ground depressurisation

These are not available post closure and hence a more conservative approach to stability is required for this phase. Underground workings are generally sealed at closure, with provision for ongoing drainage (if any), which may require treatment. Post-closure risk is typically addressed through some form of bonding or other aftercare provision which would normally be addressed in parallel with a closure plan.

3.1.5 What alternatives or additional options/opportunities are there?

Geotechnical studies for open pit and underground mining are generally appropriate to PFS level (as outlined in Table 1.2, from “Guidelines for Open Pit Design”, Read and Stacey 2009) and acknowledge the need for more detailed assessment as the project moves to later stages. This is the standard approach to mining projects whereby confidence in expected performance is increased as the project achieves successive milestone gates. As these additional studies are completed risks will be better understood and better able to be mitigated in later stages of mine design.

4 Tailings

4.1 Tailings Storage Facility

4.1.1 What is the project doing

The project is planning:

- Implementation of a tailings thickener (43%w/w to 50%w/w) to recover water before pumping to a wet tailings storage facility (TSF) located within the valley.
- The facility is to be constructed using rockfill, initially with a starter dam and then raised using the downstream method during its operation. The large Engineered Land Form (ELF) downstream will buttress the dam.
- The TSF is unlined based on the assumed low permeability of the valley rock. Tailing underdrains and a cutoff drain at the upstream toe will collect seepage from the tailings. These will be piped to a lined pond at the toe of the ELF.
- A clean water diversion channel will collect the natural runoff on the northern side of the TSF and carry this flow to a silt pond at the bottom of the ELF. Runoff from the southern side will report to the TSF directly
- The TSF impoundment will be away from the Pit/Underground portal and the processing plant (located further down the Shepards valley).

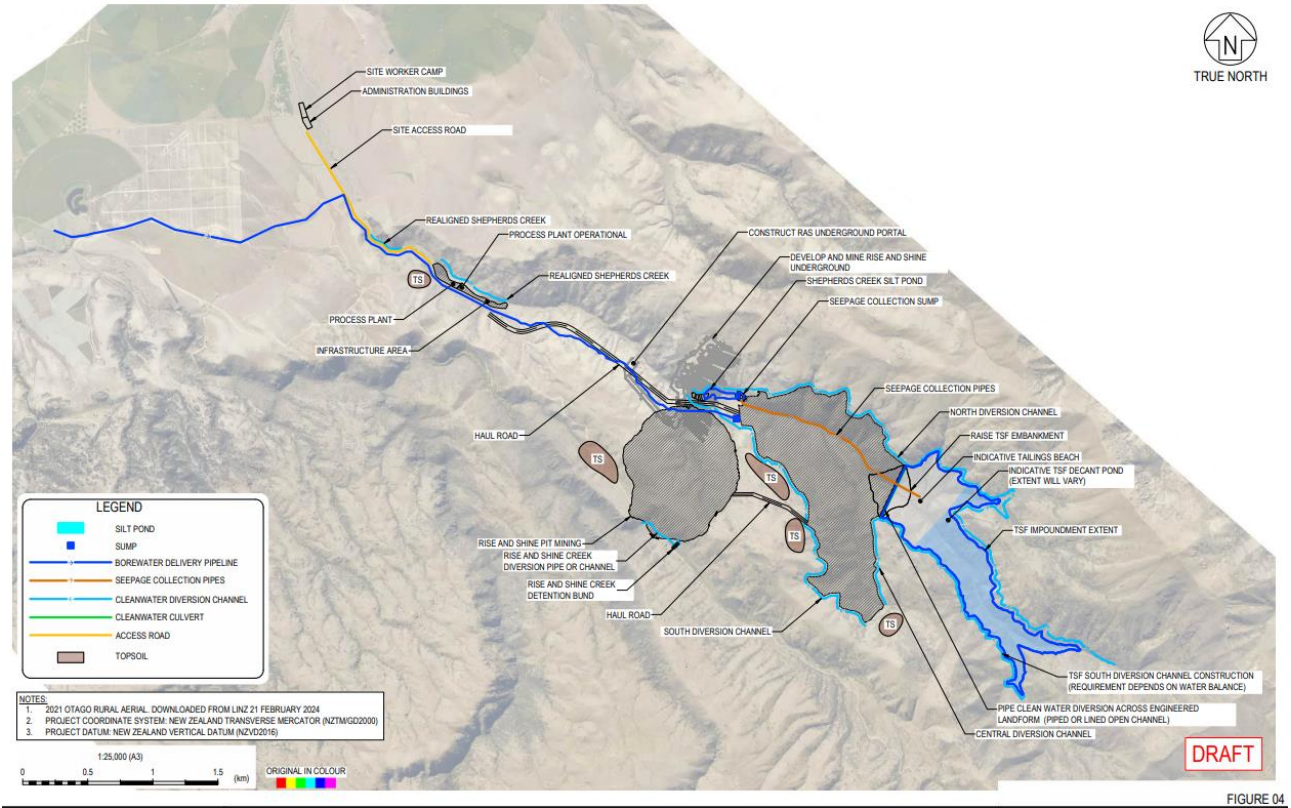


Figure 11 11- View of the TSF (BENDIGO-OPHIR GOLD PROJECT - RESOURCE CONSENT - STAGE PLAN - OPERATION - RAS PIT/RAS UNDERGROUND – Figure 04)

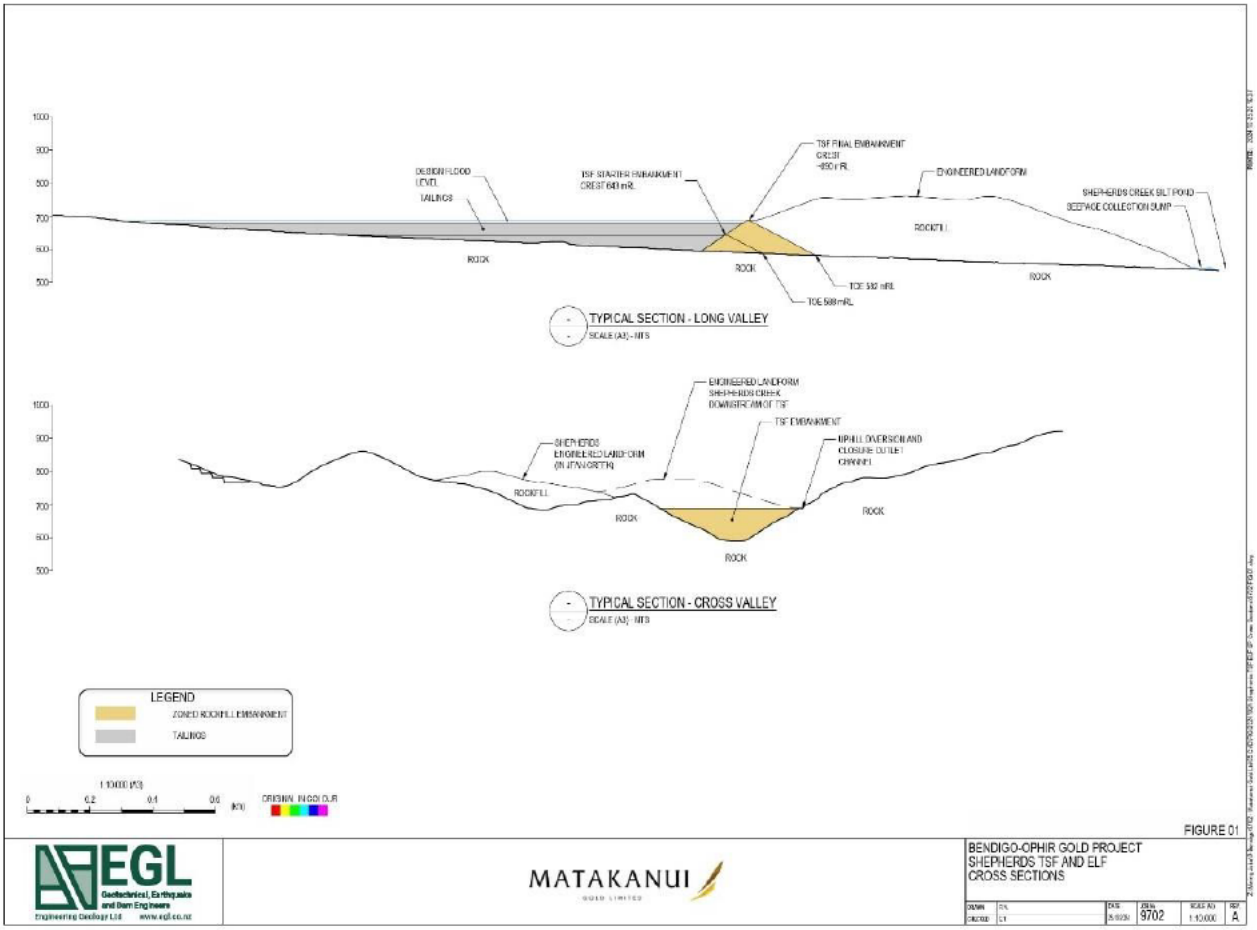


Figure 12 -12 Sections through the TSF (BENDIGO-OPHIR GOLD PROJECT – PFS)

This review of the tailings storage facility is based on the high level information available in the PFS. That document is limited in the technical detail it provides and so the review is unable to consider the potential risks beyond a generic level. In order to provide a more detailed review, we would need to see the underlying technical documents for the TSF and associated facilities. These would include the documents listed in Table 3.

Table 3 - Technical documents for the TSF and associated facilities required for further detailed review

Who?	Area	Title
EGL	Geotech	BOGP Site Wide Factual Report Draft 20241203_Optimized 80%
EGL	Geotech	Natural Hazards and Tailings and Rock Storage Options Report
EGL	Geotech	Probabilistic Seismic Hazard Report
EGL	Geotech	Tailings Storage Facility Technical Report
EGL	Geotech	TSF Dam Breach Report
EGL	Geotech	Engineered Landform Technical Report
EGL	Geotech	Tailings Management Plan
EGL	Geotech	Engineered Landform Management Plan
EGL	Geotech	Tailing Storage Facility Dams and Ponds Emergency Action Plan

4.1.2 What are the risks

The primary risks associated with operating a wet TSF with a downstream raise methodology are:

- Slope Stability - Potential for slope failure due to significant earthquakes, saturated conditions or design/construction flaws.

- Seepage and Piping - Risk of water seeping through the dam, leading to internal erosion and/or instability.
- Overtopping - Inadequate capacity or extreme weather causing excess water to overflow.
- Liquefaction - Saturated tailings may lose strength during seismic loading.
- Environmental Impact **-** Release of tailings or pollutants into surrounding ecosystems.
- Operational Challenges - Managing water levels, drainage, and material deposition effectively.
- Continuity of design/construction resource – As tailings dams are typically constructed over the life of the mine, there can be issues associated with knowledge gaps from the inevitable change in design and construction people over that period.
- Closure – The closure design/construction may not effectively control runoff and erosion in the long term resulting in sediment release or seepage into the tailings

4.1.3 What are the mitigations planned

Current mitigations planned are:

- Design for earthquakes – the BOGP notes a building consent and appropriate seismic controls are intended for the tailings facility *"It will be designed to withstand a 1 in 10,000 year earthquake including aftershocks. This includes withstanding a potential rupture on the Alpine Fault (a 1 in 300 year earthquake) or any of the other active faults in the region".*
- Design for flood events – the BOGP notes that includes the TSF will include an "allowance to manage a normal operational decant pond and inflows from a 72-hour probable maximum precipitation (748 mm depth), with 1 m freeboard for wave action. The uphill diversion channels are conservatively assumed not to function for this design condition"
- Design to NZSOLD Guidelines and obtain a Building Consent – BOGP states that the *"Shepherds TSF will be designed to meet the New Zealand Dam Safety Guidelines"*. BOGP notes that the above earthquake and flood criteria meet those for a High PIC dam which is the highest classification in New Zealand. The dam will also be independently peer reviewed as part of the application for a Building Consent.
- Use of landform to capture seepage – BOGP notes that "The TSF foundation is a schist rock mass. The schist rock will form a low permeability foundation at depth. Near the surface the schist rock may have variable permeability. Due to the high slopes leading down into Shepherds Creek, the valley provides a natural hydraulic containment for the control and capture of seepage". This seepage is then collected and transferred to a lined pond at the ELF toe and either pumped back to the TSF or used in the process plant.
- Water is expected to be a closed loop – BOGP notes that all TSF water will remain within the TSF or be used in processing. Water will only be discharged to the environment once the site is closed. *"Water treatment at closure when the site will need to start releasing water ($8.3M);"* with the water from the TSF being recycled back into the process per appendix D of the PFS until closure." *The process water tank will receive tailings thickener overflow which is inclusive of decant return water and raw water which is modulated to maintain the process water tank level*."

4.1.4 What additional controls are there?

There are additional controls or considerations that can be made to the above, these are subject to the economic impact and more detailed analysis:

- Applying the ICMM mining principles [16] for tailings governance – which requires operators to comply with all GISTM standard (is considered more stringent than the RGMP)
    - Global Industry Standard on Tailings Management is a standard that provides a framework for safe tailings facility management while affording Operators flexibility as to how best to achieve this goal (ref https://globaltailingsreview.org/global-industry-standard/) Without a

detailed review, an option would be to have an audit of the current tailings plan versus this criteria/standard as this does not appear to be referenced in the PFS.

- Lining of the TSF – the current TSF is unlined, relying on the natural Schist rock to capture water seepage from the TSF and prevent infiltration into the underlying ground. Lining is an option should the geological and geotechnical investigations highlight risks of seepage. However, this is expected to increase the cost of the facility and could affect project economics. Addition of a liner comes with risks of maintaining liner integrity and ongoing monitoring for any leakage (which would be similar to that of an unlined facility).
- Additional Geotechnical investigations – it is noted in the PFS risk register than no geotechnical ground investigations have been undertaken in the selected site of the TSF (Risk number 18) and as such further work will be needed to confirm the site's suitability.

4.1.5 What alternatives or additional options/opportunities are there?

The following opportunities exist for consideration as alternatives or additional controls in regards to alternative tailings storage, based on the study supplied it is unclear what options have been considered:

- In pit – this is where a previously mined pit is filled with tailings. As only one pit is under development, the ability to use in pit tailings placement is not possible.
- Paste/Backfill – This is where the tailings are mixed with cement and pumped underground to stabilise previously mined areas. This is already currently planned as a part of the underground mining method. As this project is a mixture of open pit and underground the volume of tailings produced will be too great to place it all by this method. This limits the application of this option beyond what that which the project has already planned.
- Dry stack tailings (DST) - As an alternative to the current wet storage facility, a further dewatering step can be utilised. This is termed "dry stacking", where a filter press or similar technology is used to reduce the tailings to a suitable moisture content for placement as bulk earthworks (i.e. the tailings are not truly dry). This has two primary benefits; reduced volume of tailings storage and increased recovery of water. DST carries a number of considerations that can affect its viability, such as; annual rainfall and capping methodology (allowing for placement and then mitigating water ingress through capping and tightness to limit AMD), additional CAPEX cost associated with the additional infrastructure, increased operating costs (associated with the additional unit process of filtering and placement).
- At a commercial scale, there are many operating and in development facilities using DST (with 63 noted in the Global Tailings Portal – refer figure below). A review of existing plants from 2016 (see figure below) indicates that this site may be suitable for DST.

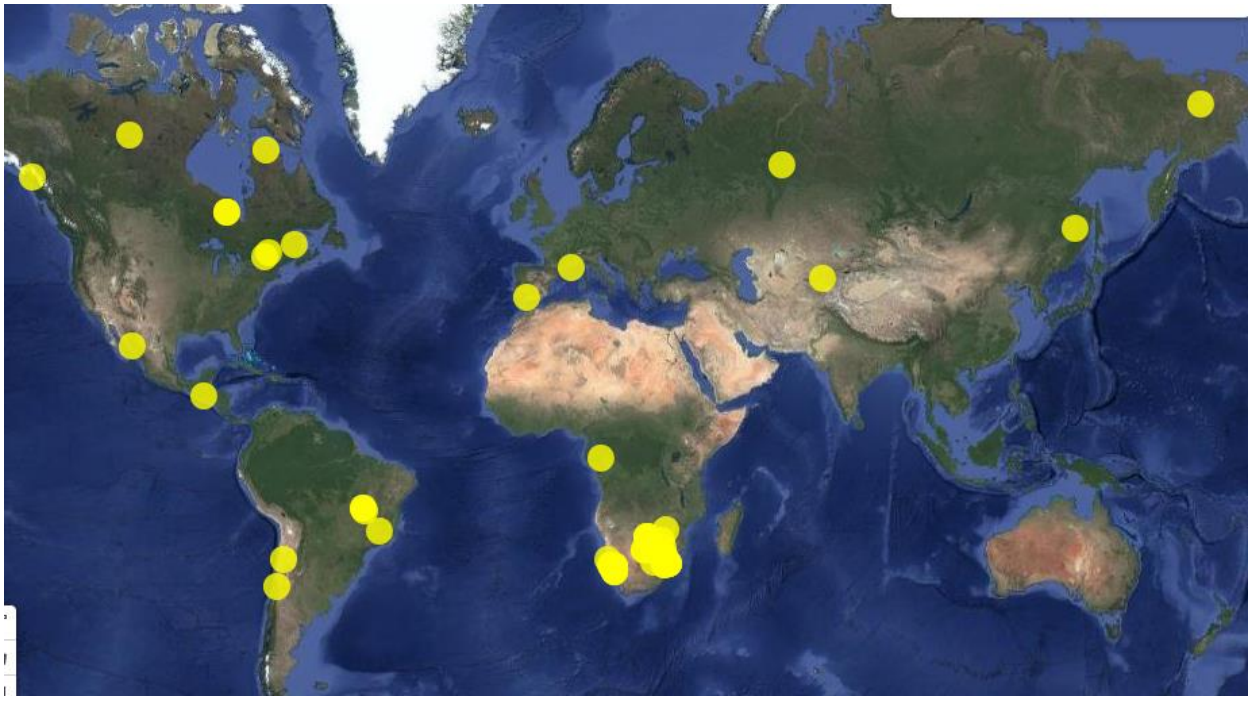


Figure 13 - (Map of dry stack tailings operations as captured in the Global Tailings Portal, https://tailing.grida.no/map/overview/)

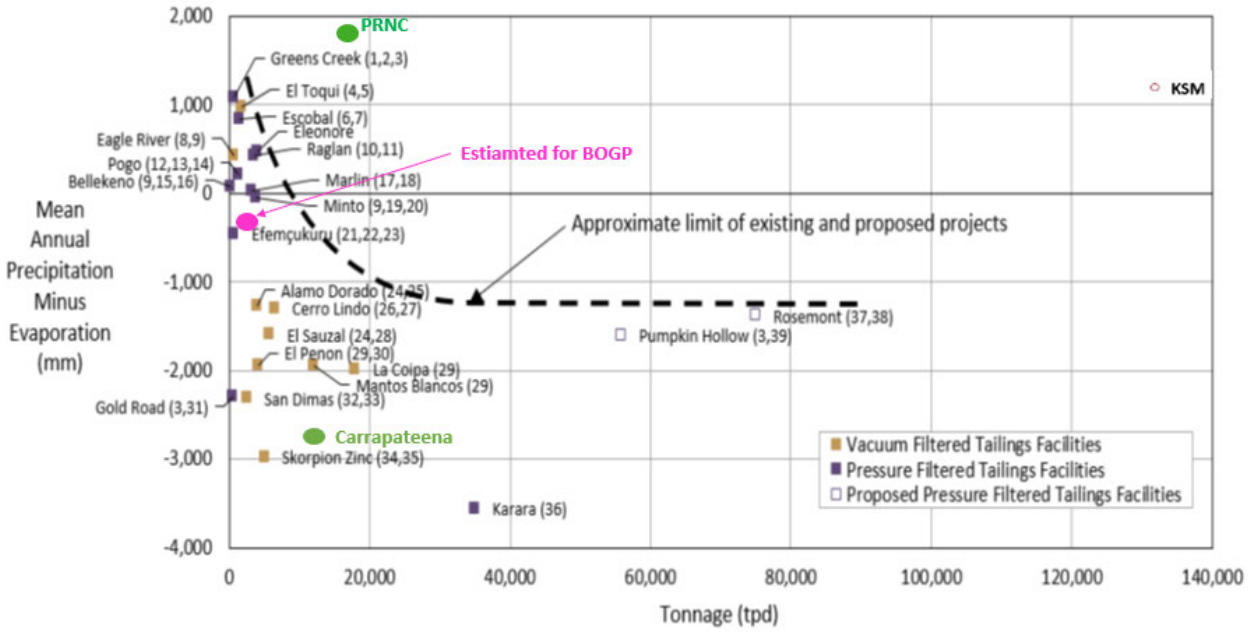


Figure 14 - Marked up graph of Filtered Tailings Facilities with estimated BOGP in pink (adapted from, Figure 3, Patterson et al. Are filter tailings practical for a high production mine in a cold wet climate? Proceedings of the 20th international conference on tailings and mine waste, October 2016.)

4.2 Mine Impacted Waters & Water Balance

4.2.1 What is the project doing

The project is undertaking the following:

- Unlined TSF utilising the valley formation and a single raise post construction
- Encapsulating at risk overburden/waste rock in the ELF

- Expected water balance is negative due to consumption in the plant and evaporation/low rainfall environment, so fresh water bores are to be added. And is noted as a strategy of “zero release of mine impacted water”
- Utilising ANFO for the drill and blast operations

4.2.2 What are the risks

The risks associated with water contamination from mine related activities are generally summarised as follows and is highly dependent on the geology, mineralogy and management of waste:

- Suspended solids
- Acid Mine Drainage (AMD) (from the oxidation of sulfides)
- Contaminants of potential concern (e.g. Arsenic, Chromium, Copper, Cadmium, Zinc, Managanese, Antimony that are leached from the ore body or waste piles)
- Nitrates (from the use of ANFO based explosives)

Note the above excludes the chemicals released and used in the processing plant which are covered in section 2 Processing.

It is important to consider the testwork done to date around MIW by BOGP. From their geochemical assessment, it is determined that the overall assessment is non acid forming. However the PFS does allude to specific areas or zones that hold the majority of arsenic and sulphur which pose the highest risk of acid formation and arsenic leaching. “*Studies indicate that the rocks associated with the project (TZ3, TZ4, and RSSZ) will not generate acid rock drainage with >350 samples tested by industry accepted acid base accounting (ABA) techniques (e.g., AMIRA, 2002). This is a function of the high acid neutralisation capacity (ANC) of the rocks associated with carbonate minerals (e.g., dolomite) and a low sulfide mineral content (e.g., arsenopyrite, pyrite) that can generate lesser acidity. The overall ABA assessment indicates that the rocks are classified as non-acid forming (NAF) ”*

4.2.3 What are the mitigations planned

Based on the PFS Report and supplied information (notably section 16.4.3 of the PFS):

- Materials management and the construction of an Engineered Landform (ELF) to minimise contaminant loads from the waste rock; - This is around minimising the extent of oxidation of sulfide minerals which will result in the release of arsenic and acid as flagged by the testwork. And where these rocks are exposed, ensuring mitigations are in place to manage risks.
- Water management and treatment as necessary – This is around:
    - Diverting clean water away from the activity areas with new culverts prior to establishing site and release from the project area
    - Sediment and erosion control
    - Treatment of CIL tailings
    - Capturing and treating any water impacted by the BOGP activities (MIW water) before release to the environment (as these are expected to be elevated in suspended solids, sulfates and COPCs (As & FE primarily) versus the baseline
- And takes the form of the catchment ponds/basins (and can also consider the arsenic fixation and cyanide destruction post the leach circuit)
- Capture and treatment of the seepage (as for the TSF) - notably, design “includes allowance to manage a normal operational decant pond and inflows from a 72-hour probable maximum precipitation (748 mm depth), with 1 m freeboard for wave action” with “A lined pond of approximately 4500 m^3 will be required at the toe of the ELF as a sump to manage the collection and pumping of seepage to the TSF or process plant “

- Water is expected to be a closed loop (as for the TSF) - water is only going to be discharged to the environment once the site closed. *"Water treatment at closure when the site will need to start releasing water"* And has noted that the site will look to utilise water from the mine once available. This does align with the RGMP "*10.1 …… we will take proportionate and practicable steps to improve the efficiency of our water use and seek to reduce our water footprint including, where possible, through increased recycling.*"
- Baseline measurements and a DGV has been set for the existing water quality [17]

4.2.4 What additional controls are there?

There are additional controls or considerations that can be made to the above (these are subject to the economic impact and more detailed analysis):

- The International Network for Acid Prevention [18] recommends the application of the Global Acid Rock Drainage (GARD) Guide [19] as a means of assessing acid rock/mine drainage and management of this. For the component of the rock/ore body identified as this and to be stored in the ELF it could be validated that the proposed design and operation of the ELF aligns with the recommendations (as appropriate).
- Notably, BOGP has supplied a large portion of expected documentation from the GARD guide and references it in the work around the percolation assessments and ELF. An assessment of compliance or similar could be applied.
- Applying the ICMM mining principles [20] specifically the ICMM Water Stewardship Position Statement would be considered industry practice in water management (*e.g. Position statement items; 1.4- Publicly report company water performance, material risks, opportunities and management response using consistent industry metrics and recognised approaches, 2.3- Proactively manage water quantity and quality to reduce potential socioenvironmental impacts and realise opportunities, 3.1- Identify, evaluate, and respond to catchment-level water-related risks and opportunities*) Some additional controls this could represent (in the context of BOGP):
    - Public reporting of catchment water quality and discharges
    - Establishment of water targets for the operation
- The RGMP promotes the use of water recycling which is noted in the PFS for the Mine Dewatering and the tailings decant systems.

4.2.5 What alternatives or additional options/opportunities are there?

In reviewing the BOGP PFS study and industry practices, it is noted that there are some alternative options to the planned project configuration. (Noting these are all subject to review in terms of technical and commercial feasibility).

- It is noted that the design of the processing plant is such that the grinding circuit does not have a thickener prior to leaching. This could limit the ability the of the site to control feed density to the CIL circuit as it will be driven by cyclone underflow and trash screen spray water reporting to undersize. Apart from the risk of poor recovery as a result of low or high CIL density affecting carbon movement the thickener also adds an opportunity to capture and recycle water within the process prior to cyanide addition.
- Addition of a pre-oxidation step - A paper investigating the arsenic geochemistry in Macraes mine TSF (Christenson H, et al, 2014) noted that a lack of a process pre-oxidation step (pressure oxidation) prior to 1999 resulted in As in tailings associated primarily with sulphides. Post 1999 when pressure oxidation was introduced, As in the tailings was associated primarily with reducible metal oxide minerals (predominately crystalline metal oxides). A pre-oxidation step as a mitigation may provide some reduction in tailings AMD potential resulting from the reduction in As bearing sulphides. Noting

the complexity and cost of introducing a further step in the ore processing may be unjustified as a AMD mitigation. Also, undertaking this does not mitigate AMD from waste rock piles

- Whilst continuous release of water is not expected due to the process /area being water negative (annual mean evapotranspiration is greater than annual mean rainfall) and the significant volume of water able to be stored in the TSF, Section 16.4.3 notes “This will be confirmed by further modelling work in progress.” Indicating further analysis is needed to confirm the zero release strategy is feasible. To mitigate this:
    - The planned closure water treatment facility could be brought forward in the event of a need to release water due to operation/climatic conditions. **This adds complexity of sizing, operating and managing such a water treatment plant prior and the corresponding technical risk and commercial impacts to the project.**
    - Or a partial implementation of the closure water treatment plant process so it can be expanded in future if needed (or means to manage with minimal impact on production or environment)

5 Interaction of Planning Framework with Identified Risks

The Fast-track Approvals Act requires that for resource consent applications, the decision makers must take into account the purpose of the Act, the provisions of Part 2 (sections 5, 6 and 7 only), 3, 6 and 8 to 10 of the Resource Management Act (excluding section 104D); and the relevant provisions of any other legislation that directs decision making under the RMA. This includes section 104 which requires regard is had to the relevant provisions of Otago's planning documents including operative and proposed regional policy statements and plans by the decision panel when making a decision.

Further, there is an overarching clause requiring that all persons performing or exercising functions, powers and duties under the Act must act in a manner consistent with the obligations arising under existing Treaty settlements. Of relevance to this proposal is the Ngāi Tahu Claims Settlement Act 1998.

This section highlights some of key areas of the planning framework relevant to the risks, additional controls and alternative options raised in the preceding sections. Due to the scope of this review, not all relevant provisions are identified, just specific ones that provide the most direct linkages.

It is noted that the specific consents being sought by the applicant are not known, and this assessment is based only on the information presented in the earlier sections of this report relating to the mining process (i.e., does not address provisions related to ecology, landscape, amenity, etc.).

5.1 Relevant planning documents

The Otago Regional Policy Statement provides an overarching policy framework that identifies and drives progress on significant resource management issues in the region. There are currently two relevant regional policy statements:

- The Otago Regional Policy Statement 2019 (ORPS), which became fully operative on 4 March 2024.
- The Proposed Otago Regional Policy Statement 2021, decisions version (pORPS), which was notified on 26 June 2021. Following a determination by the High Court, the pORPS 2021 was separated into two parts: a freshwater and a non-freshwater planning instrument.

The relevant Otago regional plans are:

- Regional Plan: Water for Otago (RPW)
- Regional Plan: Waste for Otago (RPWa)
- Regional Plan: Air for Otago (RPA)

Also relevant is the Central Otago District Plan (CODP).

5.2 Leaching of gold

As described in section 2.1, a commonly used leaching method involving cyanide is proposed to be used to recover the gold. Risks associated with the use of cyanide include formation of a gas which is highly toxic to humans, and release of cyanide to the environment which can be deadly to humans and animals. The PFS report proposes several mitigations in relation to these risks (not repeated here), which are supported by the planning framework.

Additional controls or considerations are identified which could further address these risks (noting that the viability of these is subject to more detailed analysis). Of particular relevance to the planning framework is the:

1) voluntary certification program ICMC for best practice gold mining companies,

2) possible use of a higher purity oxygen stream (in place of blown air) and

3) confirmation of appropriate bunding of contaminants.

Alternative options and opportunities are also presented (relevant to the required consideration of alternatives), including cyanide recovery/recycling, use of alternatives to the INCO process and alternatives to the use of cyanide or supplemented leaching.

The relevant provisions supporting further assessment of these matters are presented below and provided in full in **Appendix A**. It is noted that the applicant will also be subject to other regulations including the New Zealand 'Health and Safety at Work (Hazardous Substances) Regulations 2017' for the use, storage and handling of hazardous substances.

- ORPS – Objective 4.6, Policy 4.6.2, Policy 4.6.3, Policy 4.6.7, Policy 4.6.8, Policy 4.6.9, Policy 5.4.8. These provisions relate to ensuring hazardous substances and waste materials don't harm human health or the quality of the environment, and the creation of new contaminated land is avoided. They require hazardous substances are used, stored and disposed of appropriately; and encourage giving effect to the waste minimisation hierarchy (reduce, reuse, recycle, recover, treatment, then disposal) which supports the recovery/recycling of cyanide. Policy 5.4.8 specifically relates to adverse effects from mineral extraction and processing activities and includes avoiding adverse effects on the health and safety of the community (among other matters).
- pORPS – AIR-O2, AIR-P4, HAZ-CL-O3, HAZ-CL-P15, HAZ-CL-P16, HAZ-CL-P17. These provisions require that discharges to air do not compromise human health and other values, and that the creation of new contaminated land is avoided. They also require that the principles of waste management hierarchy (reduce, reuse, recycle, recover, residual waste management) to the management of all waste streams, and disposal of waste materials only occurs if they cannot be recycled, recovered or treated for re-use.
- RPA – Objective 6.1.2, Policy 8.2.2. These provisions relate to avoiding localised adverse effects, with priority being given to hazardous air contaminants listed in the referenced schedule which includes cyanide compounds.
- RPWa – Objective 4.3.1, Objective 4.3.2, Policy 4.4.1, Policy 4.4.2, Objective 5.3.2, Objective 6.3.1, Objective 6.3.2, Policy 6.4.1, Policy 6.4.4, Policy 6.4.6. These provisions relate to minimising the amount of waste generated in Otago and maximising opportunity for reuse, recycling and recovery of materials. Also to avoid further site contamination and avoid, remedy and mitigate the effects of hazardous substances.
- CODP – Objective 17.3.1, Policy 17.4.5. These provisions require that activities that involve hazardous substances are designed or located in a manner that avoids or mitigates risk to the environment and community to a level that is safe to the community.

5.3 Arsenic release

As described in section 2.2, the mineralogy identified high arsenic levels in the testwork, meaning the gold requires additional processing which will in some arsenic being leached into the solution. Arsenic present because of ore processing is also associated with acid mine drainage. Risks associated with this are the release of arsenic to the environment and the potential for concentrations to accumulate over time when there is a negative water balance due to evaporation. The PFS report proposes several mitigations in relation to these risks (not repeated here).

Additional controls or considerations are identified which could further address these risks (noting that the viability of these is subject to more detailed analysis). Of particular relevance to the planning framework is the:

1) appropriate bunding of contaminants, and

2) assessment of alternative standards for arsenic in industrial wastewater and in the receiving environment.

Alternative options and opportunities are also presented (relevant to the required consideration of alternatives), including alternative leaching pathways and alternative or additional removal of arsenic (e.g. oxidation, coagulation, ion exchange), however it is raised by BGOP that further testwork is required for the arsenic removal/fixation and therefore expected that these options will be considered further.

The relevant provisions supporting further assessment of these matters are presented below and provided in full in **Appendix A**. It is noted that the applicant will also be subject to other regulations including the New Zealand 'Health and Safety at Work (Hazardous Substances) Regulations 2017' for the use, storage and handling of hazardous substances.

- ORPS – Objective 4.6, Policy 4.6.2, Policy 4.6.3, Policy 4.6.7, Policy 4.6.8, Policy 4.6.9, Policy 5.4.8. These provisions relate to ensuring hazardous substances and waste materials don't harm human health or the quality of the environment, and the creation of new contaminated land is avoided. They require hazardous substances are used, stored and disposed of appropriately; and encourage giving effect to the waste minimisation hierarchy (reduce, reuse, recycle, recover, treatment, then disposal) which supports the additional treatment for arsenic removal. Policy 5.4.8 specifically relates to adverse effects from mineral extraction and processing activities and includes avoiding adverse effects on the health and safety of the community (among other matters).
- pORPS –HAZ-CL-O3, HAZ-CL-P15, HAZ-CL-P16, HAZ-CL-P17. These provisions require that the creation of new contaminated land is avoided, or where not practicable adverse effects are minimised. They also require that the principles of waste management hierarchy (reduce, reuse, recycle, recover, residual waste management) to the management of all waste streams which supports additional treatment for arsenic removal, and disposal of waste materials only occurs if they cannot be recycled, recovered or treated for re-use.
- RPWa – Objective 4.3.1, Objective 4.3.2, Policy 4.4.1, Policy 4.4.2, Objective 5.3.2, Objective 6.3.1, Objective 6.3.2, Policy 6.4.1, Policy 6.4.4, Policy 6.4.6. These provisions relate to minimising the amount of waste generated in Otago and maximising opportunity for reuse, recycling and recovery of materials. Also to avoid further site contamination and avoid, remedy and mitigate the effects of hazardous substances.
- CODP – Objective 17.3.1, Policy 17.4.5. These provisions require that activities that involve hazardous substances are designed or located in a manner that avoids or mitigates risk to the environment and community to a level that is safe to the community.

5.4 Tailings

As described in section 4.1, a wet tailings storage facility is proposed. Risks associated with the operation of a wet TSF include slope stability, seepage and piping, overtopping, liquefaction, environmental impact from releases, operational challenges, continuity of design/construction resource and closure effects. Several mitigations in relation to these risks are proposed (not repeated here), which are supported by the planning framework – in particular design for flood events and a 1 in 10,000-year earthquake event which includes a potential rupture of the Alpine Fault, and closed loop water processing with water discharged to the environment only on closure of the site.

Additional controls or considerations are identified which could further address these risks (noting that the viability of these is subject to more detailed analysis). Of particular relevance to the planning framework is the:

1) applying the more stringent ICMM mining principles (which requires compliance with the GISTM standard that provides a framework for flexible safe tailings facility management) and

2) lining of the TSF instead of relying on the natural underlying rock if investigations highlight risks of seepage (risks of having a liner also highlighted).

Alternative options and opportunities are also presented (relevant to the required consideration of alternatives), including dry stack tailings which utilise a further dewatering step and reduces volume of tailings storage and increases recovery of water.

The relevant provisions supporting further assessment of these matters are presented below and provided in full in **Appendix A**. It is noted that the applicant will also be subject to other regulations including the requirement to obtain a Building Consent for the dam and designing to the New Zealand Society of Large Dams (NZSOLD) Guidelines which have recently been updated.

- ORPS – Objective 4.1, Policy 4.1.1, Policy 4.1.2, Policy 4.1.3, Policy 4.1.4, Policy 4.1.5, Policy 4.1.6, Policy 5.4.8. These provisions require that risks posed by natural hazards to Otago communities are minimised, requiring assessment of the likelihood, consequences and risks. Measures to avoid, remedy or mitigate these risks need to be considered including the long-term viability and cost of those measures, which support further assessment of the other options / alternatives identified above. Policy 5.4.8 specifically relates to adverse effects from mineral extraction and processing activities and includes minimising any increase in natural hazard risk through mitigation measures and avoiding adverse effects on the health and safety of the community (among other matters).
- pORPS – HAZ-NH-O1, HAZ-NH-P1, HAZ-NH-P2, HAZ-NH-P3. These require that risks to people, communities and property form natural hazards do not exceed a tolerable level, and new activities are managed to avoid significant natural hazard risks, manage tolerable levels of risk, and maintain acceptable levels of risk.
- CODP – Objective 17.3.1, Policy 17.4.1, Policy 17.4.4. These provisions require that activities that hazards are avoided or mitigated to limits acceptable to the community, and the location, design and/or operation of land use activities does not increase the intensity or frequency of existing hazards unless they can be avoided, remedied or mitigated.

5.5 Mine impacted waters & water balance

As described in section 4.2, the project proposes an unlined TSF and encapsulation of at risk overburden/waste rock in the ELF below. The expected water balance is negative and ANFO will be utilised for drill and blast operations. Risks associated with water contamination from mine-related activities include suspended solids, acid mine drainage, heavy metals and nitrates – with the risks being highly dependent on geology, mineralogy and management of the wastes. The PFS report proposes several mitigations in relation to these risks (not repeated here), which are supported by the planning framework.

Additional controls or considerations are identified which could further address these risks (noting that the viability of these is subject to more detailed analysis). Of particular relevance to the planning framework is the:

1) an assessment of compliance of the relevant component of the rock/ore body with the Global Acid Rock Drainage Guide as a means of assessing acid rock/mine drainage and management, and

2) establishment of public reporting of catchment water quality and discharges, and establishment of water targets for the operation.

Alternative options and opportunities are also presented (relevant to the required consideration of alternatives), including review of processing plant design relating to potential for thickener prior to leaching, addition of a pre-oxidation step which could reduce acid mine drainage potential, and confirmation of the

water balance by modelling – and if a zero release strategy is not feasible then bringing forward the construction of the closure water treatment facility (or partial implementation).

The relevant provisions supporting further assessment of these matters are presented below and provided in full in **Appendix A**.

- ORPS – Objective 3.1, Policy 3.1.1, Policy 4.6.9. These provisions relate to the management of freshwater resources and associated values, including safeguarding the life-supporting capacity of freshwater, maintaining good water quality (enhancing where degraded) and maintaining or enhancing ecosystem health, etc which provides direction on the management of the quality of any discharges. They also seek avoidance of the creation of new contaminated land, and where this is not practicable minimising adverse effects on the environment.
- pORPS – LF-VM-O2, LF-FW-P16, HAZ-CL-O3, HAZ-CL-P15. These provisions require management of the freshwater resources including reference to the Clutha Mata-Au freshwater management unit, to ensure that the health and wellbeing of waterbodies and freshwater ecosystems is maintained (or if degraded, improved), and the avoidance of the creation of new contaminated land where practicable (where not practicable effects are to be minimised). LF-FW-P16 requires the promotion of source control as a method for reducing contaminants in discharges from industrial and trade waste.
- RPW – Objective 7.A.1, 7.A.2, 7.A.3, Policy 7.B.2, Policy 7.B.8. These provisions relate to managing discharges such that they maintain water quality and support natural and human use values, and that objectionable discharges are avoided, including specifically encouraging innovation that reduces the level of contaminants in discharges.

6 Conclusions / Recommendations

Summarising the reviews above, a list of possible actions have been suggested below.

Leveraging industry frameworks that can be applied to understand the risks:

1. Request compliance/assurance in following the RGMP and ICMC for cyanide safety. This could be extended further to request they be a signatory of the cyanide code – noting this will likely have economic impacts on the project.
2. Request compliance/assurance in following ICMM (and RGMP) and GISTM for tailings management and water management.
3. Request compliance/assurance in following INAP and GARDE guide compliance/assurance for acid mine/rock drainage – noting the project already seems to be utilising these standards and guides in the work so may already be the intent.
4. Establishing international guidelines for acceptable arsenic level in discharge and agreement with stakeholders based on allowable arsenic release under standard ground conditions (similar to how INAP/GARD is applied).

Physical Process or Site Layout changes:

1. Confirm if there has been allowances (or consideration of) for a secondary/tertiary containment for process area stormwater run off/collection – this would act to capture any run off from the processing area so it can be monitored or treated (or recycled) before release to the environment. *(Noting that given the proximity of the plant to sensitive/wetland area, if an alternative position would mitigate the risk of these releases?)*
2. Confirm if the CIL circuit bunding (and all other chemical tanks/reactors) will meet the crest-locus requirements of the NZ Health and Safety at Work (Hazardous Substances) regulations.
3. Clarify if a grind thickening circuit has been considered to reduce water usage and improve CIL density control.

There are a number of exercises planned for subsequent stages of the project that are necessary to understand the projects potential effects on the environment (the next phase is the definitive feasibility study):

1. Validation of cyanide destruction pathway achieves required WAD cyanide target (consistently).
2. Validation of Arsenic Fixation pathway achieves required arsenic levels.
3. Geotechnical factors that influence stability of ELF/TSF.
4. Geological/geotechnical investigations on permeability and seepage around the TSF and ELF.

Seek additional clarifications that would help understand the risks or request that a condition in the fast track process is offered to require a study that responds appropriately to the following matters prior to commencement of mine process construction

1. Has the project considered use of alternative lixiviant (e.g. thiosulphate) or supplemented Lixiviant pathways (e.g. GlyCat) that could reduce cyanide consumption onsite? If yes, what were the outcomes, if no, why not and will they be?
2. Has the project considered use of alternative Cyanide destruction pathway and Arsenic fixiation/removal (e.g. Ozone or Oxygen vs Air and Ion Exchange)? If yes, what were the outcomes, if no, why not and will they be?

3. Has the project considered use of alternative Arsenic removal technology (e.g. ion exchange) as opposed to fixation? If yes, what were the outcomes, if No, why not and will they be? Noting that the removal of arsenic from water discharge isn't allowed for until closure, and that this might be required should water discharge be required before closure, requiring a clear risk management strategy and plan.
4. Have any alternative tailings management strategies (e.g. DST) been considered? If yes, what were the outcomes, if no, why not and will they be?

Any requests to explore alternatives above would be best undertaken as *"undertake a trade-off or feasibility study as a pre construction activity with the outcome independently reviewed and audited by Aukaha and stakeholders*" in order to assure the stakeholders of the validity of the findings.

When seeking any of the above actions or conditions to be imposed on the mining activity, it may be useful to identify where these recommended actions align to Otago's planning framework (as identified in section 5) – which must also be considered by the decision makers in the Fast Track Act approvals process.

7 List of Documents Received

Table 4 - Table of Received Documents

	Supporting Documents
1	J011821_HA_DRAFT REV A.pdf
2	Economic impacts of the Bendigo-Ophir Gold Project_FINAL.pdf
3	BOGP_Native_Bat_Survey_Final_20250221 (1).pdf
4	BOGP_Mammalian_Pest_Report_Final_20250221.pdf
5	BOGP_Terrestrial_Invertebrate_Survey_Final_20250219.pdf
6	PFS_Appendix_D_804-04060-RPT-0001_B BOGP PFS report final.docx
7	Site locations & Infrastructure Map 16102024.pdf
8	Reverse Brief REV 3.pdf
9	Workshop LPED Plan 11.10.2024.pdf
10	Workshop WWTP Plan 11.10.2024.pdf
11	Logitank-LTKKL-60.pdf
12	Lower Office & Accommodation LPED 11.10.2024.pdf
13	Lower Office & Accommodation WWTP Plan 11.10.2024.pdf
14	SW21-First-Defense.pdf
15	Upper Office LPED Plan 11.10.2024.pdf
16	Upper Office WWTP Plan 11.10.2024.pdf
17	Structural markups 06.06.2024_2024.09.04_Accommodation Block.pdf
18	Structural markups 06.06.2024_2024.09.03_Recreation Room & Gym.pdf
19	Structural markups 06.09.2024_2024.09.03_Dining Hall.pdf
20	Structural markups 06.06.2024_2024.09.03_Toilet & Shower Block.pdf
21	Structural markups 06.06.2024_2024.09.03_Heavy Vehicle Workshop.pdf
22	Structural markups 06.06.2024_2024.09.03_Office & Crew Line Up.pdf
23	Structural markup 06.06.2024_2024.09.03_Goods Warehouse.pdf
24	Structural markups 06.06.2024_2024.09.03_Commerical Kitchen.pdf
25	Structural markups 06.06.2024_2024.09.03_Administration Block.pdf
26	2024.09.09 Building Services - Accomodation & Admin.pdf
27	2024.09.06 Building Services - Mine Site Buildings.pdf
28	2024.09.23_Heavy Vehicle Workshop - Revised Plan.pdf
29	2024-09-23_Office & Crew Line Up.pdf
30	2024-09-23_Goods Warehouse PDF.pdf
31	Design Outline Specification_Construction Camp_Rev 01_240906.pdf
32	2024.09.03_Recreation Room & Gym.pdf
33	2024.09.03_Heavy Vehicle Workshop.pdf
34	2024.09.03_Office & Crew Line Up.pdf
35	2024.09.03_Toilet & Shower Block.pdf
36	2024.09.04_Accommodation Block.pdf

	Supporting Documents
37	2024.09.03_Goods Warehouse.pdf
38	2024.09.03_Commerical Kitchen.pdf
39	2024.09.03_Dining Hall.pdf
40	2024.09.03_Administration Block.pdf
41	Site Masterplan_20241105.pdf
42	PFS_Appendix_K_BOGP_PFS_Risk_Register_17102024.pdf
43	PFS_Plant Block Flow Diagram.jpg
44	Appendix_F_SML Bendigo Ophir Paste RevA. DRAFT.pdf
45	9702-HIGH LEVEL SITE DEVELOPMENT CONSENTING FIG-01-09.pdf
46	PFS_Appendix_E_PSM5131-003R DRAFT.pdf
47	full study area veg mapping 18March2024 preliminary.pdf
48	Matakanui Gold Terrestrial Ecology Report for Aukaha.pdf
49	Rev0 Factual Report - Geoenvironmental Hazards.pdf
50	Rev1-Bendigo Baseline Water Report.pdf
51	BOGP_PFS_Full_Document_Final.pdf
52	Rev0-Engineered Landform Design Philosophy.pdf
53	Rev0-ELF Options Assessment.pdf
54	Rev0 BOGP Net Percolation Assessment.pdf

8 References

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[10] “Nicomel NR, Leus K, Folens K, Van Der Voort P, Du Laing G. Technologies for Arsenic Removal from Water: Current Status and Future Perspectives. Int J Environ Res Public Health. 2015 Dec 22”.

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[14] “https://www.smenet.org/What-We-Do/Technical-Briefings/Mining-Production-and-Control-of-Arsenic”.

[15] “https://laws-lois.justice.gc.ca/eng/acts/C-15.31/index.html”.

[16] “ICMM Mining Prinicples https://www.icmm.com/en-gb/our-principles/position-statements/tailings-governance”.

[17] “Baseline Water Quality Report, Bendigo-Ophir Gold Project, 5 February 2025J-NZ0233-006-R-Rev1”.

[18] “INAP - https://www.inap.com.au/”.

[19] “Gard Guide https://www.gardguide.com/index.php?title=Main_Page”.

[20] “ICMM Mining Prinicples Water Stewardship https://www.icmm.com/en-gb/our-principles/position-statements/water-stewardship”.

A

Appendix A – Planning Provisions

Operative Regional Policy Statement

Objective 3.1 The values (including intrinsic values) of ecosystems and natural resources are recognised and maintained, or enhanced where degraded

Policy 3.1.1 Fresh water Safeguard the life-supporting capacity of fresh water and manage fresh water to:

a) Maintain good quality water and enhance water quality where it is degraded, including for: i. Important recreation values, including contact recreation; and, ii. Existing drinking and stock water supplies;

b) Maintain or enhance aquatic: i. Ecosystem health; ii. Indigenous habitats; and, iii. Indigenous species and their migratory patterns.

c) Avoid aquifer compaction and seawater intrusion;

d) Maintain or enhance, as far as practicable: i. Natural functioning of rivers, lakes, and wetlands, their riparian margins, and aquifers; ii. Coastal values supported by fresh water; iii. The habitat of trout and salmon unless detrimental to indigenous biological diversity; and iv. Amenity and landscape values of rivers, lakes, and wetlands;

e) Control the adverse effects of pest species, prevent their introduction and reduce their spread;

f) Avoid, remedy or mitigate the adverse effects of natural hazards, including flooding and erosion; and,

g) Avoid, remedy or mitigate adverse effects on existing infrastructure that is reliant on fresh water.

Objective 4.1 Risks that natural hazards pose to Otago's communities are minimised

Policy 4.1.1 Identifying natural hazards Identify natural hazards that may adversely affect Otago's communities, including hazards of low likelihood and high consequence by considering all of the following:

a) Hazard type and characteristics;

b) Multiple and cascading hazards;

c) Cumulative effects, including from multiple hazards with different risks;

d) Effects of climate change;

e) Using the best available information for calculating likelihood;

f) Exacerbating factors.

Policy 4.1.2 Natural hazard likelihood Using the best available information, assess the likelihood of natural hazard events occurring, over no less than 100 years.

Policy 4.1.3 Natural hazard consequence Assess the consequences of natural hazard events, by considering all of the following:

a) The nature of activities in the area;

b) Individual and community vulnerability;

c) Impacts on individual and community health and safety;

d) Impacts on social, cultural and economic wellbeing;

e) Impacts on infrastructure and property, including access and services;

f) Risk reduction and hazard mitigation measures;

g) Lifeline utilities, essential and emergency services, and their co-dependence;

h) Implications for civil defence agencies and emergency services;

i) Cumulative effects;

j) Factors that may exacerbate a hazard event.

Policy 4.1.4 Assessing activities for natural hazard risk Assess activities for natural hazard risk to people, property and communities, by considering all of the following:

a) The natural hazard risk identified, including residual risk;

b) Any measures to avoid, remedy or mitigate those risks, including relocation and recovery methods;

c) The long-term viability and affordability of those measures;

d) Flow-on effects of the risk to other activities, individuals and communities;

e) The availability of, and ability to provide, lifeline utilities, and essential and emergency services, during and after a natural hazard event.

Policy 4.1.5 Natural hazard risk Manage natural hazard risk to people, property and communities, with particular regard to all of the following:

a) The risk posed, considering the likelihood and consequences of natural hazard events;

b) The implications of residual risk;

c) The community's tolerance of that risk, now and in the future, including the community's ability and willingness to prepare for and adapt to that risk, and respond to an event;

d) Sensitivity of activities to risk;

e) The need to encourage system resilience;

f) The social costs of recovery.

Policy 4.1.6 Minimising increase in natural hazard risk Minimise natural hazard risk to people, communities, property and other aspects of the environment by:

a) Avoiding activities that result in significant risk from natural hazard;

b) Enabling activities that result in no or low residual risk from natural hazard;

c) Avoiding activities that increase risk in areas potentially affected by coastal hazards over at least the next 100 years;

d) Encouraging the location of infrastructure away from areas of hazard risk where practicable;

e) Minimising any other risk from natural hazard.

Objective 4.6 Hazardous substances, contaminated land and waste materials do not harm human health or the quality of the environment in Otago.

Policy 4.6.2 Use, storage and disposal of hazardous substances Manage the use, storage and disposal of hazardous substances, by all of the following:

a) Providing secure containment for the storage of hazardous substances;

b) Minimising risk associated with natural hazard events;

c) Ensuring the health and safety of people;

d) Avoiding, remedying or mitigating adverse effects on the environment;

e) Providing for the development of facilities to safely store, transfer, process, handle and dispose of hazardous substances;

f) Ensuring hazardous substances are treated or disposed of in accordance with the relevant regulatory requirements;

g) Restricting the location and intensification of activities that may result in reverse sensitivity effects near authorised facilities for hazardous substance bulk storage, treatment or disposal; h) Encouraging the use of best management practices.

Policy 4.6.3 Hazardous substance collection, disposal and recycling Promote and facilitate the establishment of hazardous substance collection, disposal and recycling services across the region.

Policy 4.6.7 Waste minimisation responses Encourage activities to give effect to the waste minimisation hierarchy of responses, by:

a) Giving preference to reducing waste generated; then

b) Reusing waste; then

c) Recycling waste; then

d) Recovering resources from waste; then

e) Treatment; then

f) Disposing residual waste to a disposal facility.

Policy 4.6.8 Waste storage, recycling, recovery, treatment and disposal Manage the storage, recycling, recovery, treatment and disposal of waste materials by undertaking all of the following:

a) Providing for the development of facilities and services for the storage, recycling, recovery, treatment and disposal of waste materials;

b) Ensuring the health and safety of people;

c) Minimising adverse effects on the environment;

d) Minimising risk associated with natural hazard events;

e) Restricting the location of activities that may result in reverse sensitivity effects near waste management facilities and services.

Policy 4.6.9 New Contaminated land Avoid the creation of new contaminated land or, where this is not practicable, minimise adverse effects on the environment.

Policy 5.4.8 Adverse effects from mineral and petroleum exploration, extraction and processing Manage adverse effects from the exploration, extraction and processing of minerals and petroleum, by:

a) Giving preference to avoiding their location in all of the following: i. Areas of significant indigenous vegetation and significant habitats of indigenous fauna in the coastal environment; ii. Outstanding natural character in the coastal environment; iii. Outstanding natural features and natural landscapes, including seascapes, in the coastal environment; iv. Areas of significant indigenous vegetation and significant habitats of indigenous fauna beyond the coastal environment; v. Outstanding natural character in areas beyond the coastal environment; vi. Outstanding natural features and landscapes beyond the coastal environment; vii. Outstanding water bodies or wetlands; viii. Places or areas containing historic heritage of regional or national significance; ix. Areas subject to significant natural hazard risk;

b) Where it is not practicable to avoid locating in the areas listed in a) above because of the functional needs of that activity: i. Avoid adverse effects on the values that contribute to the

significant or outstanding nature of a) i-iii; ii. Avoid, remedy or mitigate, as necessary, adverse effects on values in order to maintain the outstanding or significant nature of a)iv-viii; iii. Consider first biological diversity offsetting, and then biological diversity compensation, if adverse effects described in b)ii. on indigenous biological diversity cannot be practicably remedied or mitigated; iv. Minimise any increase in natural hazard risk through mitigation measures; v. Consider environmental compensation if adverse effects described in b) ii, other than on indigenous biological diversity, cannot practically be avoided, remedied or mitigated;

ba) Avoid significant adverse effects on natural character in all other areas of the coastal environment;

c) Avoiding adverse effects on the health and safety of the community;

d) Avoiding, remedying, or mitigating adverse effects on other values including highly valued natural features, landscapes and seascapes in order to maintain their high values;

e) Considering biological diversity offsetting or compensating for residual adverse effects on other values;

f) Reducing unavoidable adverse effects by: i. Staging development for longer term activities; and ii. Progressively rehabilitating the site, where possible;

g) Applying a precautionary approach (including adaptive management where appropriate) to assessing the effects of the activity, where there is scientific uncertainty, and potentially significant or irreversible adverse effects.

Proposed Otago Regional Policy Statement

AIR-O2 – Discharges to air The localised adverse effects of discharges to air do not compromise human health, amenity values, mana whenua values and the life-supporting capacity of ecosystems.

AIR-P4 – Managing certain discharges Manage the adverse effects of discharges to air by:

(1) avoiding noxious or dangerous effects,

(2) ensuring discharges to air do not cause offensive or objectionable effects,

(3) avoiding, remedying or mitigating other adverse effects from discharges to air, including but not limited to discharges arising from:

(a) outdoor burning of organic material, (b) agrichemical and fertiliser applications, (c) primary production activities, (d) activities that produce dust, and (e) industrial and trade activities.

(4) locating new sensitive activities to avoid potential reverse sensitivity effects from existing consented or permitted discharges to air, unless these can be appropriately managed.

LF-VM-O2 – Clutha Mata-au FMU vision In the Clutha Mata-au FMU, and in addition to the matters in LF-FW-O1A:

(1) management of the FMU recognises that: (a) the Clutha Mata-au is a single connected system ki uta ki tai, and (b) the source of the wai is pure, coming directly from Tāwhirimātea to the top of the mauka and into the awa,

(1A) sustainable abstraction occurs from lakes, river main stems or groundwater in preference to tributaries, to the extent reasonably practicable,

(6) the national significance of the ongoing operation, maintenance and upgrading of the Clutha hydroelectricity generation scheme, including its generation capacity, storage and operational flexibility and its contribution to climate change mitigation, is recognised, provided for and protected,

and potential further development of the scheme in Lake Hāwea, on the Hāwea River, and on the Clutha River/Mata-au mainstem, upstream of Roxburgh (within existing consented upper operating levels as at the date this Regional Policy Statement is made operative) is provided for. 185

(6A) water bodies support a range of outdoor recreation opportunities,

(7) in the Upper Lakes rohe, the high quality waters of the lakes and their tributaries are protected, and if degraded are improved recognising the significance of the purity of these waters to Kāi Tahu and to the wider community,

(7A) in the Lower Clutha rohe, opportunities to restore the natural form and function of water bodies are promoted wherever practicable, and

(8) the outcomes sought are to be achieved within the following timeframes: (a) by 2030 in the Upper Lakes rohe, (b) by 2045 in the Dunstan and Roxburgh rohe, and (c) by 2050 in the Manuherekia and Lower Clutha rohe

LF-FW-P7 – Fresh water Environmental outcomes, attribute states (including target attribute states), environmental flows and levels, and limits ensure that:

(1) the health and well-being of water bodies and freshwater ecosystems is maintained or, if degraded, improved,

(2) the habitats of indigenous species with life stages dependent on water bodies are protected and sustained,

(2A) the habitats of trout and salmon are protected insofar as this is consistent with (2), (2B) fish passage is provided for, except where it is desirable to prevent the passage of some fish species in order to protect desired fish species, their life stages, or their habitats,

(3) specified rivers and lakes are suitable for primary contact within the following timeframes: (a) by 2030, 90% of rivers and 98% of lakes, and (b) by 2040, 95% of rivers and 100% of lakes, and

(4) resources harvested from water bodies including mahika kai and drinking water are safe for human consumption.

LF-FW-P16 – Discharges containing animal effluent, sewage, greywater and industrial and trade waste Minimise the adverse effects of direct and indirect discharges of wastewater, 202 animal effluent, sewage, greywater and industrial and trade waste to fresh water by:

(1) phasing out existing discharges of wastewater, 203 sewage or industrial and trade waste directly to fresh water to the extent practicable,

(2) requiring:

(a) new discharges of wastewater,205 sewage or industrial and trade waste to be to land, unless: (i) the adverse effects associated with a discharge to land are demonstrably greater than a discharge to fresh water, or (ii) the adverse effects associated with a discharge to water are significantly less than, and replace, an existing discharge(s), or (iii) the discharge is to a constructed water body from which there is no discharge of water or contaminants

(b) discharges of animal effluent from land-based primary production to be to land,

(c) that all discharges containing sewage or industrial and trade waste are discharged into a reticulated wastewater system, where one is made available by its owner, unless alternative treatment and disposal methods will result in improved outcomes for fresh water,

(d) implementation of methods to progressively reduce the frequency and volume of wet weather overflows and minimise the likelihood of dry weather overflows occurring from reticulated wastewater systems,

(e) on-site wastewater systems and animal effluent systems to be designed and operated in accordance with best practice standards,

(f) that any discharges do not prevent water bodies from meeting any applicable water quality standards set for FMUs and/or rohe,

(3) to the greatest extent practicable, requiring the reticulation of wastewater in urban areas, and

(4) promoting source control as a method for reducing contaminants in discharges

HAZ-NH-O1 – Natural hazards Risks to people, communities and property from natural hazards within Otago are maintained where they are acceptable, and managed to ensure they do not exceed a tolerable level.

HAZ-NH-P1 – Identifying areas subject to natural hazards For hazards not identified in accordance with HAZ-NH-P1A, using the best available information, identify areas where natural hazards may adversely affect Otago's people, communities and property, by assessing:

(1) the hazard type and characteristics,

(2) multiple and cascading hazards, where present,

(3) any cumulative effects,

(4) any effects of climate change,

(5) the likelihood of different hazard scenarios occurring, and

(6) any other exacerbating factors.

HAZ-NH-P2 – Risk assessments Within areas identified under HAZ-NH-P1 as being subject to natural hazards, assess natural hazard risk as significant, tolerable, or acceptable by determining a range of natural hazard event scenarios and their potential consequences in accordance with the criteria set out within APP6.

HAZ-NH-P3 – New activities Once the level of natural hazard risk associated with an activity has been determined in accordance with HAZNH-P2, manage new activities to achieve the following outcomes:

(1) significant natural hazard risks are avoided,

(2) when the natural hazard risk is tolerable, manage the level of risk so that it does not exceed tolerable and

(3) when the natural hazard risk is acceptable, maintain the level of risk.

HAZ-CL-O3 – Contaminated land Contaminated land and waste materials are managed to protect human health and do not harm Kāi Tahu, values and the environment in Otago

HAZ-CL-P15 – New contaminated land Avoid the creation of new contaminated land or, where this is not practicable, minimise to the extent reasonably practicable adverse effects on the environment and Kāi Tahu values.

HAZ-CL-P16 – Waste minimisation responses Apply the principles of the waste management hierarchy (reduce, reuse, recycle, recover, residual waste management) to the management of all waste streams.

HAZ-CL-P17 – Disposal of waste materials Provide for the development and operation of facilities and services for the storage, recycling, recovery and treatment of waste materials but only for the disposal of waste materials if those materials cannot be recycled, recovered or treated for re-use.

Regional Plan: Air for Otago

Objective 6.1.2 To avoid adverse localised effects of contaminant discharges into air on:

(a) Human health;

(b) Cultural, heritage and amenity values;

(c) Ecosystems and the plants and animals within them; and

(d) The life-supporting capacity of air.

Policy 8.2.2 Priority will be given to avoiding adverse effects from hazardous air contaminants identified in Schedule 3 when considering the effects of any discharge of contaminants into air.

Regional Plan: Water for Otago

Objective 7.A.1 To maintain water quality in Otago lakes, rivers, wetlands, and groundwater, but enhance water quality where it is degraded.

Objective 7.A.2 To enable the discharge of water or contaminants to water or land, in a way that maintains water quality and supports natural and human use values, including Kāi Tahu values.

Objective 7.A.3 To have individuals and communities manage their discharges to reduce adverse effects, including cumulative effects, on water quality.

Policy 7.B.2 Avoid objectionable discharges of water or contaminants to maintain the natural and human use values, including Kāi Tahu values, of Otago lakes, rivers, wetlands, groundwater and open drains and water races that join them.

Policy 7.B.8 Encourage adaptive management and innovation that reduces the level of contaminants in discharges.

Regional Plan: Waste for Otago

Objective 4.3.1 To minimise the amount of waste generated at source in Otago

Objective 4.3.2 To maximise the opportunities for reuse, recycling and recovery of materials from the waste stream.

Policy 4.4.1 To recognise and provide for the relationship Kai Tahu have with natural and physical resources by:

(a) Acknowledging that future generations will inherit the results of good and bad waste management practices;

(b) Providing for the management of Otago's waste stream in a manner that takes into account Kai Tahu cultural values; and

(c) Maintaining consultation with Kai Tahu on issues relating to waste minimisation.

Policy 4.4.2 To encourage, support and facilitate integrated waste management by (in order of priority):

(a) Minimising the effects on the environment by reducing the quantity and / or toxicity of material entering the waste stream;

(b) Reusing materials;

(c) Recycling materials, where practicable, that cannot be reused;

(d) Recovering resources from materials in the waste stream; and

(e) Disposing of the residual waste in an environmentally safe manner.

Objective 5.3.2 To avoid further site contamination.

Objective 6.3.1 To avoid, remedy and mitigate the risk to the environment and human health from hazardous substances and hazardous wastes.

Objective 6.3.2 To avoid, remedy and mitigate the harmful effects of hazardous substances and hazardous wastes on traditional water, land and mahika kai values of importance to Kai Tahu.

Policy 6.4.1 To promote the safe transportation, and the use, treatment, storage and disposal of hazardous substances and hazardous wastes in such a manner that avoids adverse environmental effects.

Policy 6.4.4 To encourage and facilitate the reuse, recycling and recovery of hazardous substances.

Policy 6.4.6 To promote the development and use of environmentally safe alternatives to hazardous substances.

Central Otago District Plan

Objective 17.3.1 - Avoidance or Mitigation of Hazards To avoid or mitigate the adverse effects of hazards, both natural and human induced, to limits acceptable to the community.

Policy 17.4.1 - Information on Hazards To gather and maintain information on hazards including:

a. The location or potential location of hazard events,

b. The causes of hazard events, and

c. The risks associated with hazard events,

in conjunction with the Otago Regional Council.

Policy 17.4.4 - Intensification of Hazard Effects To ensure that the location, design and/or operation of subdivision and land use activities does not increase the intensity and frequency of existing hazards unless such adverse effects can be avoided, remedied or mitigated.

Policy 17.4.5 - Hazardous Substances and Processes To ensure that activities which involve the use, production or transportation of hazardous substances, and/or hazardous processes are designed and/or located in a manner that avoids or mitigates any risk to the environment and the community's health and safety, to a level that is acceptable to the community.