OCEANAGOLD
MACRAES OPERATION

15 October 2024

Shay McDonald
Senior Consents Planner
Otago Regional Council
Via email: shay.mcdonald@orc.govt.nz

Dear Shay

RE: Request for further information under section 92(1) of the Resource Management Act 1991 (the Act) – Consent Application Number RM24.184

Further to your letter dated 24 July 2024, we respond to your section 92 request in the table attached to this letter. Additional technical and supporting information is also provided in the documents annexed to the attached table. These include:

- **Annexure 1**: Macraes Water Quality Management Plan;
- **Annexure 2**: Back Road WRS Geochemical Model – MWM;
- **Annexure 3**: Back Road WRS Assessment – Surface water quality modelling – GHD;
- **Annexure 4**: Responses to s92 requests prepared by GHD in respect of surface and groundwater matters;
- **Annexure 5**: Ryder (2024c) – MP4 Stage 3 – Cumulative Effects of Surface Water Ecology – Updated;
- **Annexure 6**: Description of the Macraes Mine Water Management System;
- **Annexure 7**: Figures showing approximate locations of clean water diversions;
- **Annexure 8**: Delineation of Streams in the Macraes Context – Technical Note – Ahika;
- **Annexure 9**: Wetland evaluation of Golden Bar Pit & Waste Rock Stack watercourses – Whirika;
- **Annexure 10**: Responses to s92 requests prepared by EGL in respect of waste rock stack geotechnical matters;
- **Annexure 11**: Responses to s92 requests prepared by PSM in respect of open pit geotechnical matters;
- **Annexure 12**: Responses to s92 requests prepared by Beca in respect of air quality matters;

- **Annexure 13**: Macraes Operation Dust Management Plan;
- **Annexure 14**: Responses to s92 requests prepared by MWM in respect of geochemical matters; and
- **Annexure 15**: Responses to s92 requests prepared by Greg Ryder Consulting in respect of aquatic ecology matters.

Yours sincerely

Matt Curran
Senior Consenting Advisor
Oceana Gold (New Zealand) Limited

Encl

Attachment 1: OceanaGold (New Zealand) Limited response to Section 92 request in respect of RM24.184

Otago Regional Council s92 request	OceanaGold response
1. Planning <u>General</u>	
1.1 Please identify whether any activities will be undertaken in accordance with permitted activity rules. For example, clean water diversions around open pits or waste rock stacks (RPW 12.3.2.1), or the discharge of this clean water (reticulated stormwater) to land or water (12.B.1.8). - Note: please refer to definitions for 'reticulation' and 'stormwater' within the RPW when considering these rules.	In preparing the MP4 Project Assessment of Environmental Effects ("**AEE**"), OceanaGold considered the activities that may be permitted in accordance with the rules in the Regional Plan: Water ("**RPW**") for Otago (and other regional plans). In considering the range of activities proposed and the extent to which they are authorised by existing resource consents, and the proposal to vary these existing resource consents in some instances, in OceanaGold's assessment there is no reliance on permitted activity rules. In making this assessment, particular consideration was given to the clean water diversions around Golden Bar Pit, where a new consent is sought. These diversions would be a permitted activity in accordance with Rule 12.3.2.1 of the RPW if the following relevant conditions are complied with: *(a) The size of the catchment upstream of the dam, weir or diversion is no more than 50 hectares in area; and* *(b) ..* *(c) In the case of diversion, the water is conveyed from one part of any lake or river, or its tributary, to another part of the same lake, river or tributary; and* *(d) No lawful take of water is adversely affected as a result of the damming or diversion; and* *(e) ...* *(f) ...*

Otago Regional Council s92 request	OceanaGold response
	(g) ... *(h) The damming or diversion does not cause flooding of any other person's property, erosion, land instability, sedimentation or property damage; and* *(i) ...* The proposed diversions are likely to comply with the relevant conditions above except for (c). The water being diverted will be runoff from surrounding landforms and not necessarily water in any river or tributary. The water may be diverted into existing water courses but may equally drain to land. Referring to the RPW definitions of "stormwater" and "reticulation" (below), OceanaGold does not consider these terms to be relevant to the proposed collection of runoff water from surrounding surfaces in diversion drains. Therefore, any associated rules are not considered to be relevant. ***Stormwater** - The water running off from any impervious surface such as roads, carparks, roofs, and sealed runways.* ***Reticulated system, or reticulation** - The means by which water, stormwater, sewage or other waterborne contaminant is collected and delivered prior to discharge.* The surface of landforms surrounding the mine features are not impervious and any runoff from them would not meet the definition of stormwater. Besides diverting this water away from the mine features, OceanaGold would not expect to need a resource consent for the management of natural runoff from undisturbed land adjacent to its mine workings. On the basis that existing diversions around mine features are authorised by resource consents, adopting a similar approach for the MP4 activities is suitably precautionary.

Otago Regional Council s92 request		OceanaGold response
1.2	Please provide coordinates (NZTM2000) and names (including alternate names if there is more than one name) for all silt ponds of relevance to this application. Please also include the names and locations of any temporary silt ponds that are proposed as part of this application, where these are known.	The silt ponds relevant to this application, being those that resource consents are sought in respect of, are listed below alongside their respective NZTM 2000 coordinates. › Clydesdale Silt Pond – E1405798, N4968855 › Murphys Silt Pond – E1401997, N4969800 › Frasers West Silt Pond – E1399520, N4970932 › Northern Gully Silt Pond – E1399817, N4974775
1.3	For all silt ponds of relevance to this application, please identify the discharge permit that authorises the discharge of water and contaminants from this silt pond into a surface waterbody or into an open pit or TSF, and/or the identify the water permit that authorises the taking of water from the silt pond for use in the mine water management system, where new consents are not already applied for as part of this application. - Note: a discharge permit has been sought for the discharge of water and contaminants from the Clydesdale Silt Pond into Clydesdale Creek and into Golden Bar pit, as is a water permit to take from the Clydesdale, Frasers East, and Murphys Silt Ponds and use within the mine water management system. This question relates to any other silt pond of relevance to this MP4 application.	All silt ponds that are relevant to this application, and their associated discharge and water permits are listed below. Please note that the reference to Frasers East Silt Pond in the AEE is an error. This should be Frasers West Silt Pond. **Clydesdale Silt Pond** › 2002.759 – Discharge Permit (to water) - To discharge to water up to 30,000 cubic metres per day of water from the Clydesdale silt pond to Clydesdale Creek for the purpose of releasing surface water runoff. › 2002.757_V1 – Water Permit - To dam Clydesdale Creek for the purposes of sediment control, treatment of stormwater runoff and mine dewatering. **Murphys Creek Silt Pond** › RM10.351.11.V1 - To discharge water from silt ponds to tributaries of the North Branch of the Waikouaiti River and Murphys Creek for the purpose of operating silt ponds associated with the Frasers Waste Rock Stack. › 2004.359.V1 – Water Permit (dam) - To dam Murphy's Creek for the purpose of sediment control associated with surface water runoff from waste rock stacks and land disturbed by mining operations and post mining rehabilitation activities. › 2007.583 – Discharge Permit (to water) - To discharge water from Frasers Pit into the North Branch of the Waikouaiti River and Murphys Creek for the

Otago Regional Council s92 request	OceanaGold response
	purpose of disposal of water accumulating within Frasers Pit during and following rainfall events. Locations of activities: Direct discharge into North Branch of the Waikouaiti River: Approximately 270 metres south east of the intersection of Macraes Road and Gifford Road, Macraes Flat; Discharge from Frasers West Silt Pond: Approximately 540 metres east of the intersection of Macraes Road and Red Bank Road, Macraes Flat; Direct discharge into Murphys Creek: Approximately 2.4 kilometres south east of the intersection of Macraes Road and Gifford Road, Macraes Flat; **Discharge from Murphys Creek Silt Pond**: Approximately 2.8 kilometres south east of the intersection of Macraes Road and Gifford Road, Macraes Flat. **Frasers West Silt Pond** › RM10.351.11.V1 - To discharge water from silt ponds to tributaries of the North Branch of the Waikouaiti River and Murphys Creek for the purpose of operating silt ponds associated with the Frasers Waste Rock Stack. › 2007.583 – Discharge Permit (to water) - To discharge water from Frasers Pit into the North Branch of the Waikouaiti River and Murphys Creek for the purpose of disposal of water accumulating within Frasers Pit during and following rainfall events. Locations of activities: Direct discharge into North Branch of the Waikouaiti River: Approximately 270 metres south east of the intersection of Macraes Road and Gifford Road, Macraes Flat; **Discharge from Frasers West Silt Pond**: Approximately 540 metres east of the intersection of Macraes Road and Red Bank Road, Macraes Flat; Direct discharge into Murphys Creek: Approximately 2.4 kilometres south east of the intersection of Macraes Road and Gifford Road, Macraes Flat; Discharge from Murphys Creek Silt Pond: Approximately 2.8 kilometres south east of the intersection of Macraes Road and Gifford Road, Macraes Flat. › 96808.V3 – Discharge Permit (to water) - To dam a tributary of the North Branch Waikouaiti River for the purpose of the control of sediment associated with surface water runoff from land disturbed by mining

Otago Regional Council s92 request	OceanaGold response
	operations, post mining rehabilitation and waste rock stacks in the vicinity of Macraes Flat at the site shown on Map A annexed as Frasers West Silt Pond. › 96810.V3 – Water Permit (take and use surface water) - To take water from the Frasers West silt pond permitted by consent numbers 96808 and 96808(a) for the purpose of providing a water supply for the mining operations and post mining rehabilitation in the vicinity of Macraes Flat at the site shown on Map A annexed. **Northern Gully Silt Pond** › RM20.424.03 – Discharge Permit (to water) - To discharge water from Northern Gully Silt Pond for the purpose of disposing of surplus water during heavy rainfall events to the Deepdell Creek. › 2004.092.V1 – Discharge Permit (to water) - To discharge water collected within the catchment of an unnamed tributary to Deepdell Creek, locally known as Northern Gully, to the Northern Gully silt pond for the purpose of sediment control associated with surface water runoff from land disturbed by mining and mineral processing operations and post-mining rehabilitation activities. › 2004.082 – Water Permit (dam) - To dam an unnamed tributary to Deepdell Creek, locally known as Northern Gully for the purpose of sediment control associated with surface water runoff from land disturbed by mining and mineral processing operations and post-mining rehabilitation activities. › 2004.802 – Water Permit (take and use groundwater) - To take and use groundwater collected within the Northern Gully silt pond for the purposes of providing a water supply for mining and mineral processing operations and post-mining rehabilitation activities. › 2004.083 – Water Permit (take and use surface water) - To take and use surface water from an unnamed tributary to Deepdell Creek, locally known as Northern Gully, as collected in the Northern Gully silt pond, as primary

Otago Regional Council s92 request	OceanaGold response
	allocation for the purposes of providing a water supply for mining and mineral processing operations and post-mining rehabilitation activities.
1.4 Please confirm whether water in Murphys silt pond will be pumped back to Frasers Pit in perpetuity or whether impacted water from this silt pond will be discharged to another location. The requested consents would indicate that water from this silt pond will be pumped back into open pits to prevent the release of contaminants to the environment, but AEE s5.4.4 suggests that this silt pond will be converted to a sump and discharge to the receiving surface water environment during times of elevated catchment flows. Similarly for the Frasers West silt pond and the Clydesdale silt pond. Please confirm how these silt ponds will be operated. - Note that AEE s5.4.4 refers to the Frasers West silt pond but Table 4.1 refers to the Frasers East silt pond. Are these different ponds?	**Current silt pond-sump management** Storage and pumping of WRS seepage back to Frasers Pit is currently applied as a water management measure at Murphys Creek Silt Pond (which operates as both a silt pond and seepage sump) and is discussed in the Macraes Water Quality Management Plan ("**WQMP**") (refer **Annexure 1**). The ongoing intention is for the sump to preferentially discharge to an unnamed tributary in the headwaters of the Murphys Creek except in the circumstances outlined above. For example, when it needs to be returned to Frasers Pit to prevent an uncontrolled discharge. Discharge from Murphys Creek Silt pond is currently provided for by the resource consents applying to Murphys Silt Pond (refer response to Q1.3 above). Other silt ponds, for example Frasers West Silt Pond, are operated in a similar manner in accordance with the relevant resource consents (refer response to Q1.3 above). As noted above in the response to Q1.3, the reference to Frasers East Silt Pond in the AEE is an error and it should be Frasers West Silt Pond. **Proposed silt pond-sump management** WRS seepage mitigation outlined in GHD (2024c; Appendix 13 of AEE) addresses (modelled) compliance exceedance of the current management approach which assumes pumping of water from Murphys Creek Silt pond back to Frasers Pit. GHD determined four components were required to mitigate adverse effects on water quality from pits and WRSs over three timeframes (active mining, closure following rehabilitation, long term) (see Table 17 of their report). These components comprised: – Rehabilitation of WRSs: The Frasers West, Frasers South and Golden Bar WRSs are rehabilitated during and immediately after mining to achieve an average annual infiltration rate reduction to 29.2 mm/year (the infiltration rate for Macraes

Otago Regional Council s92 request	OceanaGold response
	land surfaces); drains along the toe of the WRSs will direct seepage and run-off water to storage sumps. – Passive Treatment Systems (PTS): Prior to discharge to the silt ponds/storage sumps, 'in line' PTSs will treat this seepage water to reduce sulphate loads (assumed to be by 30%). – Storage sumps: Following active mining and once suspended solids are at background run-off levels, silt ponds will be converted to storage sumps with nominal storage capacity of just under 20,000m^3. A new sump near monitoring location NBWRTR (likely coinciding with a previously used silt pond referred to as Redbank Silt Pond) will be added to capture WRS seepage between Frasers West and Murphys sumps via extended drains along the intervening WRS toe. Sumps will store and discharge the water to the North Branch Waikouaiti River ("**NBWR**") when flow rates are sufficient to dilute the contaminants to maintain compliance levels. In the event storage reaches 90% capacity some or all of the sump water will be returned back to the nearby pit. This will ensure sumps do not overtop releasing contaminated mine water in an uncontrolled way to the receiving catchment, and risk breaching compliance limits. It is acknowledged implementing these options may require additional resource consents. Any additional consents will need to be sought at a later date once detailed design of the selected options has been completed. In lieu of those consents or other approvals to establish the required mitigation options, OceanaGold will pump seepage back to Frasers and Golden Bar pits as necessary to ensure compliance with instream water quality criteria. This approach is currently accepted as part of the WQMP (refer **Annexure 1**). **Transition to a closure water management system** During the closure period, the site will transition from the current water management systems and processes to the mitigation water management system outlined above. The table below summarises the components and stage of this transition. Monitoring of seepage and receiving water flows and quality will need to be ongoing. The use of Passive Treatment Systems will need to be

Otago Regional Council s92 request	OceanaGold response
	supported by field trials to ensure the water quality improvement of seepage discharges is known. Control systems for pumps and pipes to direct discharge from storage sumps to either the pit or receiving water may be required.

Mitigation Measure	**Stage (period)**		
	Mining (Current – 2030)	**Closure** (2030 – 2032)	**Long Term** (2032 onwards)
Silt pond with current discharge	Y	Y	
WRS Rehabilitation	Progressive	Complete	Y
Monitoring of seepage and stream flows & water quality	Maintenance of existing monitoring programme	Maintenance and / or consolidations of existing monitoring programme	Ongoing consolidated monitoring programme
Passive Treatment System feasibility	Y		
Passive Treatment System installation		Y	Y
Convert silt ponds to storage sumps		Y	Y

Otago Regional Council s92 request	OceanaGold response

PLC, pumps and pipes		Y	Y
Controlled discharge to NBWR or pit		Y	Y

1.5 The application includes the discharge of waste rock at the Trimbells WRS to create a toe drain and filter buttress. Please identify the resource consent that provides for this discharge activity i.e. please identify the resource consent that provides for the creation and rehabilitation of the Trimbells WRS.

The creation and rehabilitation of Trimbells WRS is authorised by the following Otago Regional Council resource consents:

- RM19.085.01 – Land Use Consent - To disturb and deposit on the bed of unnamed tributaries of Maori Hen Creek, Trimbells Gully, Mare Burn and Coal Creek for the purpose of constructing the Coronation North Pit and the Trimbells Waste Rock Stack.
- RM19.085.02 – Land Use Consent - To reclaim the bed of unnamed tributaries of Maori Hen Creek, Trimbells Gully, Mare Burn and Coal Creek for the purpose of constructing the Coronation North Pit, Coronation North Pit Extension, Coronation North Waste Rock Stack and the Trimbells Waste Rock Stack.
- RM19.085.03 – Discharge Permit - To discharge waste rock and contaminants from waste rock to land, or into land in circumstances which may result in contaminants entering water for the purpose of constructing the Coronation North Waste Rock Stack and the Trimbells Waste Rock Stack.
- RM16.138.01 – Land Use Consent - To disturb and deposit the bed of unnamed tributaries of Maori Hen Creek, Trimbells Gully, Mare Burn and Coal Creek for the purpose of constructing the Coronation North Waste Rock Stack.
- RM16.138.04.V2 – Discharge Permit - To discharge contaminants and water from silt ponds to unnamed tributaries of Maori Hen Creek, Trimbells Gully, Mare Burn and Coal Creek for the purpose of operating silt ponds for Coronation North Pit and the Coronation North Waste Rock Stack.

Otago Regional Council s92 request	OceanaGold response
	› RM16.138.20.V1 – Water Permit - To permanently divert water around the Coronation North Waste Rock Stack and the Trimbells Waste Rock Stack and into unnamed tributaries of Maori Hen Creek, Trimbells Gully, Mare Burn and Coal Creek for the purpose of preventing surface water ingress and managing stormwater runoff.
1.6 The cumulative surface water and groundwater assessment (GHD 2024c) is contingent on the extension of the Back Road Waste Rock Stack, which is provided for by RM10.351.01-06 but has not yet been exercised, not being utilised during the MP4 mine life. Given an application to replace RM10.351.01 has been lodged (RM22.192) to facilitate the river reclamations required for the extension of the BRWRS, please explain why this is a valid exclusion. Will the current application RM22.192 be withdrawn? If not, please update all relevant MP4 technical assessments and the AEE to include the BRWRS in the cumulative effects assessment. Alternatively, amend the MP4 application to include the application for river reclamations required for the BRWRS, and update all relevant assessments. - Note that anything other than withdrawing RM22.192 is likely to result in additional questions from all technical auditors.	OceanaGold confirms that BRWRS is not currently included within the scope of the MP4 Project but acknowledges that it holds existing resource consents in respect of BRWRS that could be exercised concurrently should other necessary approvals be obtained. To ensure these consents are retained, OceanaGold has now included BRWRS in its cumulative effects modelling. Attached to this response is MWM's updated geochemical model for the WRS height-sulphate relationship (**Annexure 2**) and GHD's surface water quality modelling outcomes for Deepdell Creek (**Annexure 3**). GHD's assessment considers the implications that construction of BRWRS has for surface water quality in Deepdell Creek relative to the MP4 base case (referred to as 'baseline' by GHD, which excludes BRWRS). OceanaGold notes that the modelled outcomes for the MP4 base case have been revised to incorporate more recent surface water quality monitoring data that was not available at the time the MP4 application was made. These revised modelling outcomes are attached as Appendix F to GHD's s92 responses (refer **Annexure 4**). The revised model outcomes have been evaluated by Greg Ryder Consulting in an updated aquatic ecology cumulative effects assessment (Ryder 2024c) with is attached to this response as **Annexure 5**. **Annexure 3** demonstrates that BRWRS can be constructed in addition to the MP4 Project without change in the probability of compliance exceedance in Deepdell Creek provided Camp Creek Dam (or another suitable dilution source) is available to provide a variable dilution discharge of up to 20 L/s. The modelled statistics for the BRWRS scenario are comparable to those associated with the MP4 base case considered in Ryder (2024c) (**Annexure 5**). Therefore, the construction of BRWRS will not result in any meaningful changes to the conclusions drawn in relation to adverse effects on aquatic ecology.

Otago Regional Council s92 request		OceanaGold response
		The outcomes of this assessment will be incorporated in an updated AEE for the MP4 Project that will be provided to the Otago Regional Council in due course. OceanaGold does not intend to withdraw RM22.192 and would prefer that any future actions to do with that application be handled within the RM22.192 consent process noting that this application is currently on hold awaiting response to a s92 request.
1.7	On the basis that all activities proposed as part of MP4 would be processed as new activities and not as s127 variations, please provide an updated list of resource consents that will be surrendered, or partially surrendered, in the event that the MP4 proposal is granted in full.	OceanaGold intends to include this information alongside a suite of proposed conditions to be provided in due course.
1.8	On the basis that all activities proposed as part of MP4 would be processed as new activities and not as s127 variations, please indicate the consent term requested for each permit. Please provide justification for each consent term requested.	OceanaGold intends to provide this information in an updated AEE to be provided in due course.
1.9	The application includes water permits under which water will be taken at more than 5 litres per second. Please provide an assessment of the MP4 proposal against the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010. Please identify whether any exemptions are required in relation to keeping continuous records of water taken, provision of daily records, or for metering at a location other than the point of take.	OceanaGold understands that the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 ("**the Regulations**") apply to water permits that allow fresh water to be taken at a rate of 5 litres/second or more but not if the take is non-consumptive. Fresh water is defined in the RMA as all water except coastal or geothermal water. The water that OceanaGold proposes to take is not coastal or geothermal water and is therefore fresh water. OceanaGold notes that the Regulations provide for consistent monitoring and reporting to Councils, which appears to have the purpose of enabling accurate tracking of resource use and allocation. The monitoring and reporting of OceanaGold's proposed water takes in accordance with the Regulations would appear to provide little benefit to the Council as the takes are generally from within the Mine Water Management System and do not give rise to any water allocation issues.

Otago Regional Council s92 request	OceanaGold response
	In any case, the following performance monitoring condition is compliant with the Regulations. The proposed surface water takes will comply with this condition and will therefore be compliant with the regulations. a. *The Consent Holder must install and maintain a water meter at the points of take when water is being taken that will measure the rate and volume of water taken to within an accuracy of +/- 5% over the meter's nominal flow range. The water meter must be capable of output to a telemetry-capable datalogger.* b. *A datalogger(s) that time stamps a pulse from the flow meter at least once every 15 minutes and has the capacity to hold at least 24 months data of water taken.* c. *The Consent Holder must provide records from the datalogger electronically to the Consent Authority at annual intervals by 31 July each year and at any time upon request. Data must be provided electronically giving the date, time and flow rates in no more than 15-minute increments of water.* d. *Within 20 working days of the installation and any subsequent replacement of the water meter or datalogger and at five yearly intervals thereafter for an electromagnetic metre or annual intervals for a mechanical water meter, and at any time when requested by the Council, the Consent Holder must provide written certification to the Consent Authority signed by a suitably qualified person certifying, and demonstrating by means of a clear diagram, that:* i. *Each device is installed in accordance with the manufacturer's specifications;* ii. *Data from the recording device can be readily accessed and/or retrieved in accordance with the conditions above; and* iii. *That the water meter has been verified as accurate.*

Otago Regional Council s92 request	OceanaGold response
	e. *The water meter / datalogger must be installed and maintained throughout the duration of the consent in accordance with the manufacturer's specifications.* f. *All practicable measures must be taken to ensure that the water meter and recording device(s) are fully functional at all times.* g. *The Consent Holder must report any malfunction of the water meter and datalogger to the Consent Authority within 5 working days of observation of the malfunction. The malfunction must be repaired within 10 working days of observation of the malfunction and the Consent Holder must provide proof of the repair, including photographic evidence, to the Consent Authority within 5 working days of the completion of repairs.* OceanaGold notes that passive takes of groundwater for dewatering purposes cannot comply with the above condition as there is no practical means of measuring the quantity of water passively taken with any accuracy. Insofar as this water accumulates in pit sumps and is abstracted from there as surface water, the abstraction will be monitored in accordance with the above condition. As with its existing dewatering permits, OceanaGold proposes a maximum rate of take of 200 L/s for the combined surface and groundwater abstractions from each pit for dewatering purposes. Monitoring of that combined rate will be achieved by the above condition. However, OceanaGold will not have the ability to differentiate groundwater from surface water in its monitoring and reporting of these takes. Similarly, OceanaGold notes that water permits for the take and use of surface water and groundwater to facilitate pit lake filling after closure are not subject to the above condition and are not proposed to be because these takes are passive and there is no practical means by which to measure these relative takes in accordance with the above condition or the Regulations. Activities that will not be able to comply with the Regulations will be clearly identified in the updated AEE to be circulated in due course.

Otago Regional Council s92 request	OceanaGold response
1.10 The AEE states that "suitable operational controls and adaptive management processes" will be developed and implemented to manage the anticipated adverse effects of the proposal, particularly with respect to water quality. Please clarify which of the various mitigation measures recommended by technical experts may be adopted, and how their effectiveness will be monitored.	OceanaGold notes that the quoted statement was made in Section 5.4.4 of the AEE and has its origin in Appendix 13 to the AEE (GHD 2024c). In both instances the statement refers to the management of water quality and accordingly the following response is confined to matters concerning the management of water quality. **Approach to the management of effects on water quality** The primary mechanism by which the adverse effects of the operation on water quality are currently managed is the site Water Quality Management Plan which is required to be implemented by existing resource consent conditions. A copy of the current Water Quality Management Plan is attached to this response (refer **Annexure 1**). The Water Quality Management Plan employs an adaptive management approach. Hilke Giles and Barry Barton (2020, in New Zealand Journal of Environmental Law) provide a useful explanatory note on adaptive management. *'Adaptive management is commonly used to manage activities that require resource consents under the Resource Management Act 1991 (RMA) that have uncertain, complex and potentially significant environmental effects.* *It [is] a process with: flexible decision-making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. [It is] an iterative learning process.* *Monitoring is essential for effective adaptive management.'* An example of a condition requiring the WQMP is included below from RM20.024.14 with emphasis added to aspects that provide for adaptive management. *(a) Prior to the exercise of this consent, the consent holder must submit to the Consent Authority, a Water Quality Management Plan for the Deepdell North Stage III Project. The Water Quality Management Plan must be in*

Otago Regional Council s92 request	OceanaGold response
	accordance with the conditions of this consent and the Deepdell East Waste Rock Stack Compliance and Monitoring Schedule, and include but not be limited to: ***i. Details of surface water and groundwater quality monitoring within the Highlay Creek, Camp Creek and Deepdell Creek catchments, including location and frequency and parameters being measured;*** ***ii. Identification of monitoring results that would trigger the requirement for a comprehensive review of water quality to determine whether additional mitigation measures should be adopted to ensure appropriate surface water and groundwater quality;*** ***iii. A description of mitigation measures implemented or available during the operational period of the Deepdell North Stage III Project;*** ***iv. A description of mitigation measures implemented or available post closure of the Deepdell North Stage III Project; and*** ***v. A timeline detailing when it is anticipated that mitigation measures may be required and providing an indication of implementation timeframes.*** *vi. Provision to monitor water clarity, deposited sediment, suspended particulates by way of the total suspended solids (TSS) and Nephelometric Turbidity Unit (NTU) parameters. This must be undertake both upstream and downstream of each silt pond in Highlay Creek and Deepdell Creek to determine the effects of sediment pond discharges on Highlay and Deepdell Creeks. Limits for both parameters must be included in the Water Quality Management Plan no later than five years following exercise of the consent.* *(b) The Water Quality Management Plan for this consent may be combined with any Water Quality Management Plan required by any other consent*

Otago Regional Council s92 request	OceanaGold response
	held by the consent holder for mining operations at Macraes Flat so long as all conditions of this consent are met. *(c) The consent holder must exercise this consent in accordance with the Water Quality Management Plan.* *(d) The consent holder must review the Water Quality Management Plan annually for the first 10 years of this consent, and every three years thereafter, and, if necessary, update it. Details of the review must be included in the Project Overview and Annual Work and Rehabilitation Plan. The Consent Authority must be provided with any updates of the plan within 1 month.* Section 9.1 of the WQMP discusses existing approaches to adaptive management that centre around a range of potential mitigation options (refer Table 59 and 60 of the WQMP). Section 10 of the WQMP describes the current implementation timeline for these mitigation options. The MP4 Project proposes a continuation of the existing adaptive management approach appreciating that the potential mitigation options and likely timing for implementation of these has been revised by the MP4 water quality assessments. It is expected that the MP4 resource consents will include similar WQMP conditions and thus require the WQMP to be updated to reflect the range of potential mitigation options that have been identified, and a process for determining appropriate implementation of these measures. Macraes is a mature multi-pit operation with a 30+ year history and consequently has a large footprint and a vast number of resource consents. Consenting successive project stages against a backdrop of constant, sometimes incomplete, regulatory change has created a complex backdrop of consents under which environmental effects are managed at Macraes. In addition, there are a variety of different land users and land uses within the catchments which affect water quality. In terms of OceanaGold's activities, the drivers of environmental effects and associated risks are well understood, however there will be opportunities to

Otago Regional Council s92 request	OceanaGold response
	refine and develop mitigation measures as more data is collected and analysed. The WQMP addresses this by providing an overview of the current monitoring regime and can be updated to include additional monitoring or analysis to prescribe certain triggers for implementation of the possible mitigation measures. OceanaGold has undertaken a review of water management options, primarily for WRS seepage, to mitigate the effects of potentially elevated contaminants in the downstream receiving environments. There are a number of engineering controls and treatments that are available to mitigate the risks of elevated sulphate (and other contaminants) (refer to Table 48 of the WQMP, for example). Some of these management options have been implemented on site already or could be implemented in a relatively short time frame; others still require further development (and time to complete studies and trials). In view of this, continuation of the adaptive management approach is proposed for the management of WRS seepage elevated in sulphate and nitrate, in particular. **Mitigation and effectiveness monitoring** For the MP4 Project, predictive models calibrated to available monitoring, empirical and laboratory data for the site and materials have been developed to forecast Mining and Closure (up to 10 years) to Long Term (up to 400 year) effects. These models assume a number of enhancements or additions at site to manage effects. On going performance monitoring during the term of consent at existing sites is required to confirm these models have provided reasonable estimates across the range of effects in the future. Assessment of monitoring data informs the adaptive management process. Monitoring is complimented by risk-based designs and site management plans to control key effects at source. The use of Trigger Action Response Plans (TARPS) provides the framework to manage uncertainty in a manner that makes stakeholders more comfortable that solutions are available and are ready to be implemented if there is variance from the expected case.

Otago Regional Council s92 request	OceanaGold response
	Generally, a TARP has a set of trigger limits to define what a significant change is, and then describes the actions to respond to the variance. TARPs need to be developed to cover the adaptive management regime to foster stakeholder confidence. Annual auditing ensures an objective assessment of performance areas is maintained. Further work will be required to optimise the base set of mitigation measures and other opportunities to support implementation of robust water management solutions during operations and in the long term post closure. The particular requirements for surface and groundwater are summarised below.

Potential Adverse Effect	Mitigation Measure	Effectiveness Monitoring
Degradation of instream water quality	Site management plans, TARPS and performance audits	› Ongoing monitoring in accordance with compliance monitoring schedules augmented with hardness, dissolved organic carbon, pH and temperature for surface water parameters.
Loss of flow or degradation of water quality in Deepdell Creek	Construction and operation of Camp Creek Dam following BPO assessment	› Ongoing monitoring of Deepdell Creek flow and water quality, if practicable; › Monitoring of reservoir level.

Otago Regional Council s92 request	OceanaGold response		
	Loss of flow or degradation of water quality in Mare Burn	Construction and operation of Coal Creek Dam following BPO assessment	› Ongoing monitoring of Mare Burn flows and water quality, if practicable › Monitoring of reservoir level.
	Degradation of water quality as a result of WRS seepage	WRS seepage capture treatment and discharge Trialling passive water treatment systems so that suitable methods for the site have been tested and can be implemented for the post closure period (Long Term).	› Monitoring of seepage sump storage levels and water quality; › Monitoring of receiving water flow and quality › Monitoring quality of PTS inputs and outputs.
1.11 Please confirm whether or not a suite of proposed consent conditions will be provided prior to notification, as indicated in the AEE. Where conditions are to be provided, please do so on the basis that all activities will be treated as new applications, rather than as s127 variations.	It remains OceanaGold's intent to provide a full suite of proposed conditions prior to the application being notified. Given the proposed conditions to some extent rely on the matters in this RFI being closed out, OceanaGold proposes to provide proposed conditions alongside an updated AEE once it has confirmation from Waitaki District Council, Dunedin City Council, and Otago Regional Council that the balance of s92 matters have been satisfied.		
1.12 Please provide coordinates (NZTM2000) and a map to show the Northern Gully Waste Rock Stack in relation to other mining features. If this information can already be found somewhere in the application material, please direct me to this.	Figure 3.7 of the AEE illustrates the location of Northern Gully WRS relative to Golden Point Pit. The Northern Gully Waste Rock Stack is centred on NZTM 2000 E1399785 N4974655.		

Otago Regional Council s92 request	OceanaGold response
1.13 Please provide an update on the engagement process with Aukaha. Does Oceana Gold (New Zealand) Limited intend to provide a Cultural Impact Assessment prior to notification of the application?	Since submitting the resource consent applications for the MP4 Project on the 28th of March 2024, OceanaGold has continued to engage with Aukaha. This has included hui on 12th July, 8th August, and 3rd October with Kā Rūnaka present. OceanaGold understands that the Cultural Impact Assessment ("**CIA**") for the MP4 Project continues to be progressed, but at the date of submitting this response it has not been received. If the CIA is provided to OceanaGold prior to the date of notification, a copy will be provided to Otago Regional Council immediately and OceanaGold may request that the application goes on hold for a brief period while it addresses the matters raised in the CIA. However, should the application be ready to notify prior to provision of the CIA, OceanaGold will not choose to delay notification.
1.14 To the extent that information is available, please describe the previous loss of natural inland wetlands, including ephemeral wetlands, that has occurred within the Macraes Mining Zone since the commencement of mining. Please also describe any enhancement or creation of wetland ecosystems that has been undertaken on the Macraes site as part of any previous offsetting or compensation package for any previous mining activity. This information is required to understand the existing environment and the true cumulative impact upon natural inland wetlands, including the naturally uncommon and critically endangered ephemeral wetland ecosystems. - It is noted that Table 3 in Ahikā 2024a (Appendix 15) suggests this information is unknown, but it is unclear if this only relates to the zone of influence set out for the MP4 project or for the wider Macraes site.	Quantifying the cumulative impact of activities within the Macraes Mining Zone on natural inland wetlands, including ephemeral wetlands, since the commencement of the Macraes Gold Project in 1990 cannot be completed to a level that would provide meaningful information that could be relied upon for the purpose of evaluating cumulative effects. This difficulty arises because the definitions and perceived value of these wetlands has changed over time. The Deepdell North Stage III project in 2020 was the first to systematically quantify the loss of natural inland wetlands, and manage them according to the effects management hierarchy, primarily because of the implementation of the National Policy Statement for Freshwater Management ("**NPSFM**") in 2020. Although previous projects such as MPIII noted the presence, assessed species composition and potential effects on wetlands and appropriate offsetting or compensation was provided (although not subject to the same prescriptions and scrutiny as it is today), before the NPSFM was introduced, wetlands were not consistently valued and were not subject to a high level of scrutiny. We note that wetlands, especially wetlands which are not regionally significant, still receive limited protection under the current Regional Plan: Water for Otago. This is significant, because from a resource management perspective, adverse effects in an ecological sense are a function of the impact and relative value of the feature impacted (including the level of protection in relevant statutory planning documents). Regardless of previous impacts on natural inland wetlands, as a

Otago Regional Council s92 request	OceanaGold response
	result of earlier mining projects, the MP4 Project properly accounts for its impacts in accordance with the requirements of current policy. The decision of the Independent Hearings Panel on the Deepdell North Stage III applications identified that the was no evidence of the operation reaching any kind of "tipping point" in terms of cumulative effects (although this was in relation to the effects of the entire operation, not specifically adverse effects on natural inland wetlands). Since then, all of OceanaGold's resource consent applications for activities at the Macraes Gold Project that impact natural inland wetlands – whether they have been approved or are proposed – have or will be accompanied by the enhancement of values elsewhere unless the residual adverse effects are not more than minor. These activities are provided for by Clause 3.22 of the NPSFM, which provides a consenting pathway for mining activities including those that result in a loss of wetland extent and values. Where residual adverse effects are assessed to be minor or less than minor, there is no requirement to provide offsetting or compensation under the NPSFM or the Resource Management (National Environmental Standards for Freshwater) Regulations 2023. The cumulative effects of Deepdell North Stage III, the Frasers South Waste Rock Stack resource consent application (which is currently in progress, with draft technical assessments completed) and the MP4 Project on natural inland wetlands is set out in the **Table 1** below.

Project	Wetland Loss	Mitigation / Offset
Deepdell North Stage III	0.07 ha seepage wetland 0.3 ha ephemeral wetland	<u>Seepage wetlands</u> Averted loss and improved condition offset via protection of an equivalent existing plant community of larger size (>0.82 ha) at the covenanted

Otago Regional Council s92 request	OceanaGold response		
			Redbank Station Enhancement site. <u>Ephemeral wetlands</u> Improved condition offset of at least 2 ha ephemeral wetlands (across 5-7 sites), supported by a research project investigating ephemeral wetland form, function and threats at the covenanted Middlemarch Ephemeral Wetland Site.
		Frasers South Waste Rock Stack[1]	0.2 ha	These wetlands are assessed as having low ecological value and the residual adverse effects are minor, therefore do not require offsetting or compensation.
		MP4	0.29 ha (Coronation 6 and Innes Mills 10)	Offset via the creation of ephemeral wetlands covering 0.3 ha on the

[1] Figures for the Frasers South Waste Rock Stack are not final and may be subject to change.

Otago Regional Council s92 request	OceanaGold response		
			Taieri Ridge, and creation of 0.1 ha of wetland near the Golden Bar WRS.
		0.114 ha (Golden Bar WRS) 0.008 ha (Golden Bar Pit)	Residual adverse effects on these wetland areas are minor and therefore do not require offsetting or compensation.
	Total	**0.982 ha**	**> 3.22 ha**

As shown in Table 1, whilst OceanaGold's mining activities at Macraes have contributed to the loss of natural inland wetlands, they have also contributed to the protection and enhancement of these in the ecological district via the many and varied offsetting and compensation measures undertaken to date. OceanaGold currently manages 13 ecological covenants and protected wetlands near the Macraes site, covering a total of 655 ha. Additionally, OceanaGold has directly supported the enhancement of wetland values in other areas, including the Middlemarch Ephemeral Wetland Site.

While it is highly likely that natural inland wetlands (as defined today) have been lost within the approximately 1,594.6 ha total disturbance area at the Macraes Gold Project (as at 30 June 2023), it is equally likely that the 655 ha of protected land includes natural inland wetlands that have not been fully accounted for. Since 2020, approximately 0.98 ha of natural inland wetlands have been, or are proposed to be, lost at the Macraes Gold Project, while at least 3.22 ha have been, or are proposed to be, protected and enhanced within the Macraes Ecological District. Consequently, over this period, there has been a net gain (~300%) in natural inland wetlands.

Otago Regional Council s92 request	OceanaGold response
1.15 Based on the data in the GHD reports and any other relevant information, please provide an assessment of the adverse effects of the MP4 proposal upon groundwater quality, and the effects upon current and future users of groundwater. Only a surface water assessment is provided (Ryder) with the application. Groundwater is also a resource and effects on this resource should be considered directly, not just in terms of its function as a conduit for contaminants to migrate into surface water.	A response to this request is provided by GHD (refer **Annexure 4**).
1.16 Storage of water and contaminants in pit lakes and tailings storage facilities (TSF) will result in contaminants seeping through the base and walls of the pit/TSF into groundwater, from where contaminants may migrate into surface water. This is currently managed via discharge permits (for contaminants into a pit lake/TSF) and damming permits (of water and contaminants). In my opinion, this passive discharge should be authorised by a standalone discharge permit. a) Please confirm if you agree that this would apply to the FTSF, the Innes Mills Pit Lake, the Golden Bar pit lake, the Coronation pit lake, and the Coronation North pit lake (should the Coronation North pit not be completely backfilled). If you disagree that such a consent is required or would apply to these mining features, please explain your answer.	OceanaGold does not agree that a standalone discharge permit is required for the passive discharge of water of contaminants to groundwater from TSFs and pit lakes. The Macraes Mine has been operating for over 30 years and a consent of this nature does not exist at the site. It is acknowledged that the resource consents applying to WRS in most instances includes a discharge permit which provides for the discharge of contaminants to water from the base and toe of the WRSs. OceanaGold has operated on the basis that these consents provide for the discharge of seepage contaminants to groundwater (at the base) and surface water (at the toe). With respect to the proposed tailings discharge, on the basis that the proposed discharge of tailings and contaminants from tailings is to land and to water, it is considered that such a permit applies to the discharge of contaminants to groundwater. It is understood that this matter was raised in relation to RM22.282 in respect of applications made for replacement consents at TTTSF and it was agreed there that a consent of this nature was not required. With respect to pit lakes, where these are created by groundwater inflow and surface water runoff, there is no discharge per se. The hydraulic gradient results in an inflow of groundwater as opposed to an outflow until an equilibrium is reached. In the circumstances that the pit lakes are augmented with discharges of mine impacted water, the above statements made in relation to the TSFs apply.

Otago Regional Council s92 request	OceanaGold response
Coronation Stage 6 Pit Extension	
1.17 Please confirm whether there is any operational need to discharge waste rock into Coronation Pit on an ongoing basis i.e. after the construction of haul roads and for temporary storage of waste rock during the stage 6 extension activities. This is to understand the requested consent duration.	OceanaGold is not aware of any planning document that requires an "operational need" to be demonstrated in respect of this activity. It is however acknowledged that the Otago Regional Council needs to consider the consent term applicable to this activity in accordance with the relevant policies in the Regional Plan: Water for Otago. Beyond the operational requirement to construct in-pit haul roads and otherwise handle waste rock within the open pits, OceanaGold has enduring obligations to manage pit wall stability. These obligations attach to OceanaGold's District Council land use consents. To manage pit wall stability in the long term, in some instances it is necessary to construct in-pit buttresses or backfills from waste rock to provide potential remediation of local pit wall instability both during and following the completion of mining. Further to that, OceanaGold is obligated more broadly to backfill open pits to the extent that is practicable. This obligation is reflected in the following condition that is common to OceanaGold's District Council land use consents, including that applying to Coronation Pit: *Where practicable the waste rock shall be backfilled into pits in order to minimise the size of waste rock stack.* OceanaGold is proposing the same condition for the MP4 Project. Any bulk backfilling would not occur until there was surety that mining of the open pit had been completed. It is therefore operationally important for the discharge to land permit to endure beyond the anticipated mining duration, and preferably for as long as possible to enable both pit wall stability and waste rock storage to be managed in the long term. OceanaGold also notes that historically, the discharge permits providing for disposal of waste rock to land in open pits have not had lapsed periods specified. This has been deliberate in that the consents may not be exercised until after mining has been completed.

Otago Regional Council s92 request		OceanaGold response
1.18	A water permit RM23.648.04 is held, authorising the abstraction of water from the Coronation Pit and the use of that water for dust suppression and in the mine water management system. The description of the mine water management system (AEE, s2.4.6) does not include the discharge of water from one pit into another. On this basis, this permit does not appear to provide for the discharge of water into Deepdell North Pit. Please identify whether there is another resource consent held by OGL which provides for this activity.	Refer the attached description / definition of the Mine Water Management System (**Annexure 6**). This includes all open pits. Therefore, the reference to "use in the mine water management system" in the consent purpose is intended to provide for any discharge to another location in the Mine Water Management System. The description of the Mine Water Management System has been discussed with the Otago Regional Council and the principles of it are understood to be agreed. OceanaGold will update the AEE to include the description of the Mine Water Management System in full.
1.19	A new discharge permit is sought to discharge water from Coronation Pit into Deepdell North Pit. Please confirm that no other discharge location (i.e. any other open pit) is sought. Please also confirm whether this discharge is only to dewater the existing Coronation pit lake or whether this discharge will occur on an ongoing basis after the stage 6 mining is complete as part of ongoing site water management.	OceanaGold confirms that the water from Coronation Pit may be discharged to other locations within the Mine Water Management System. Refer the attached (proposed) description / definition of the Mine Water Management System (**Annexure 6**). OceanaGold also confirms that those discharges may occur on an ongoing basis as a result of ongoing, as required, dewatering of Coronation Pit. The discharge permit sought to discharge water from Coronation Pit into Deepdell North Pit was sought initially because the inverse is currently authorised by resource consent (RM21.272.01) Since the MP4 application was made OceanaGold has developed a description of the Mine Water Management System which is intended to resolve the need for individual discharge permits for each transfer of water within the system (**Annexure 6**). The description of the Mine Water Management System has been discussed with the Otago Regional Council and the principles of it are understood to be agreed. OceanaGold will update the AEE to include the description of the Mine Water Management System in full and remove the application for a discharge permit to Deepdell North Pit.
1.20	Please indicate whether any new bores will be drilled to facilitate the dewatering of the Coronation Stage 6 Pit during mining.	No new bores are anticipated to be required to facilitate dewatering of Coronation Stage 6 Pit.

Otago Regional Council s92 request	OceanaGold response
1.21 If the answer to question 1.1 is that consent is required, please state whether the diversions of surface water around the Coronation Stage 6 Pit and subsequent discharge into tributaries of Maori Hen, Trimbells Gully, Mare Burn, or Camp Creeks will occur at fixed locations, or whether these locations vary as mining progresses. Please provide coordinates (NZTM2000) for the locations of these discharges or, if the discharge point is not fixed, provide upstream and downstream coordinates between which the discharge will occur.	OceanaGold confirms that a water permit is required for this diversion. However, at the outset OceanaGold also notes that the "discharge" from a diversion channel is not an activity that triggers s15 of the RMA as it is not a discharge activity. See also response to Q1.1. Attached as **Annexure 7** is a figure that illustrates the likely final location of the diversions at Coronation Stage 6 Pit. The table below indicates the approximate start and finish locations for the final diversion. In reality, these diversions will be developed progressively as the pit extension develops. OceanaGold notes that the discharge will likely be to land along the diversion channel in all but heavy rainfall events.

Discharge (Coordinates in NZTM)	**Clean Water Diversion (approximate diversion start location)**		**Discharge Location**	
	Easting	**Northing**	**Easting**	**Northing**
CO6 Clean water diversion (East of pit extents)	North drain		1396370	4977274
	1396111	4977495		
	South drain			
	1396120	4977465		

Otago Regional Council s92 request	OceanaGold response
Coronation North Backfill	
1.22 My understanding of the proposal at Coronation North is that the pit will be fully backfilled with waste rock, essentially to a height level with the pit crest, yet Table 4.1 of the AEE would suggest that a pit lake is anticipated. Please provide further explanation as to the nature of the following activities proposed at this location: (a) Take and use of surface water via removal of existing diversions – if there is no pit from which to take water and the water would simply run over the surface of the backfilled rock into surface waterbodies as conveyed by topography, what water is taken? (b) Similarly for the groundwater take and use – there is no passive take of groundwater into a pit if there is no pit? (c) Impoundment of water – what water will be impounded? Is a shallow pit lake anticipated above the backfill? (d) Pit lake overflowing into various tributaries of various rivers – if there is no pit lake and all surface water diversions are removed – what discharge is occurring? This would simply be surface runoff controlled by topography? - Note: In preparing your answers, please refer to question 2.8 and 2.9 of this RFI for the relevant geotechnical considerations.	OceanaGold has sought a new discharge permit to provide for the discharge of waste rock to land in Coronation North Pit to enable its complete backfilling (refer to the response to Question 2.8). Assuming that consent is granted, OceanaGold will be under no obligation to exercise that consent beyond what is required to fulfil its minimum backfilling obligations attaching to its District Council land use consents (refer to the response to Question 2.9). If, for any reason, the waste rock discharge permit is not exercised to its full extent, a shallow pit lake will be left to form in the remaining pit void. To ensure this potential scenario is provided for, the existing resource consents for the Coronation North Pit Lake will be retained. There will be no material changes to the activities referred to in (a) – (d) as a result of a partial backfilling scenario at Coronation North Pit. The only reason these consents are being varied is to make reference in the consents to the MP4 Project and its associated plans. This approach is taken out of an abundance of caution, and to ensure there is no confusion if / when these consents are required to be exercised.
1.23 Taking into account your answer above, please update the application to clearly state what consents are applied for in relation to the Coronation North proposal.	No updates to the application are required to reflect the proposed activities at Coronation North Pit.
1.24 New permits are sought to take and use surface water and groundwater (associated with the dewatering of the existing Coronation North pit lake) for the purpose of dust suppression or use in the mine water management system. Previous communications between OGL (and their agents) and	The water taken from Coronation North Pit, and other pits, may be transferred to other locations within the Mine Water Management System. Refer the attached (proposed) description / definition of the Mine Water Management System

Otago Regional Council s92 request	OceanaGold response
ORC have indicated that water from the current pit lake would be discharged into another open pit, but the description of the proposed activity does not include this. Please indicate whether this water may also be discharged into any open pit or the FTSF.	(**Annexure 6**). By reference to the Mine Water Management System in the consent purpose, the intent is to provide for such transfers of water.
Innes Mills Stage 9 and 10 Pit Extension	
1.25 Please indicate whether any new bores will be drilled to facilitate dewatering of any of the Frasers, Innes Mills, or Golden Point pits.	No new bores are anticipated to be required to facilitate dewatering of Frasers, Innes Mills or Golden Point Pits.
1.26 The application suggests (Table 4.1) that RM10.351.50.V2 authorises the ongoing diversion of the NBWR around Frasers Pit. However, Council records indicate that the diversion of the NBWR is authorised by Water Permit 96815, which endures until 31 August 2032, or until cessation of mining operations, whichever occurs first. Please indicate whether you are proposing to change or replace this consent.	It is OceanaGold's view that RM10.351.50 authorises the ongoing diversion of the NBWR around Frasers Pit. Although, upon investigation OceanaGold is aware that 96815 remains active and did previously provide for this activity. It is evident from Table 10 of the Otago Regional Council's Recommending Report for the Macraes Phase 3 Project that RM10.351.50 was intended to replace the following consents: › 96815 – To divert the North Branch Waikouaiti River and its tributaries around open cut pits for the purpose of managing surface water runoff for Innes Mills and Frasers Pits during mining operations and post mining rehabilitation. › 96812 – To divert water around open cut pits known as Southern Pit, Innes Mills Pit and Frasers Pit for the purpose of managing surface water runoff as part of mining operations. Table 11 of the Recommending Report also indicates the same for the following consents: › 96816 – To divert Murphys Creek and its tributaries around and/or into open cut pits known as Frasers Pit and Innes Mills Pit for the purpose of managing surface water runoff as part of mining operations and post mining rehabilitation.

Otago Regional Council s92 request	OceanaGold response
	› 96818 – To divert water around open cut pits known as Round Hill Pit and Golden Point Pit for the purpose of managing surface water runoff as part of mining operations and post mining rehabilitation activities. Condition 1 of RM10.351.50.V2 requires: *This water permit shall not commence until Water Permit 96812 and Water Permit 96818 have been surrendered.* On the basis that 96812, 96813, 96814, and 96816 are intended to be exercised together with 96815 (refer Condition 1 of 96815) we consider the omission of consents 96815 and 96816 from Condition 1 of RM10.351.50 to be an error, and that the intention was that 96815 and 96816 would also be surrendered.
1.27 If the answer to question 1.1 is that consent is required, please state whether the diversions of surface water around the Innes Mills Stage 9 and 10 pit extent and subsequent discharge onto land or into water occur at fixed locations, or whether these locations vary as mining progresses? Please provide coordinates (NZTM2000) for the locations of these discharges or, if the discharge point is not fixed, provide upstream and downstream coordinates between which the discharge will occur.	OceanaGold confirms that a water permit is required for this diversion. However, at the outset OceanaGold also notes that the "discharge" from a diversion channel is not an activity that triggers s15 of the RMA as it is not a discharge activity. See also response to Q1.1. Attached as **Annexure 7** is a figure that illustrates the likely final location of the diversions at Innes Mills Pit. The table below indicates the approximate start and finish locations for the final diversion. In reality, these diversions will be developed progressively as the pit extension develops. OceanaGold notes that the discharge will likely be to land along the diversion channel in all but heavy rainfall events.

Otago Regional Council s92 request	OceanaGold response

Discharge (Coordinates in NZTM)	Clean Water Diversion (approximate diversion start location)		Discharge Location	
	Easting	Northing	Easting	Northing
Innes Mills clean water diversion	1400772	4973526	1401036	4973223

Golden Bar Stage 2 Pit Extension

1.28 If the answer to question 1.1 is that consent is required, please state whether the diversions of surface water around the Stage 2 pit extent and subsequent discharge onto land or into water occur at fixed locations, or whether these locations vary as mining progresses? Please provide coordinates (NZTM2000) for the locations of these discharges or, if the discharge point is not fixed, provide upstream and downstream coordinates between which the discharge will occur.

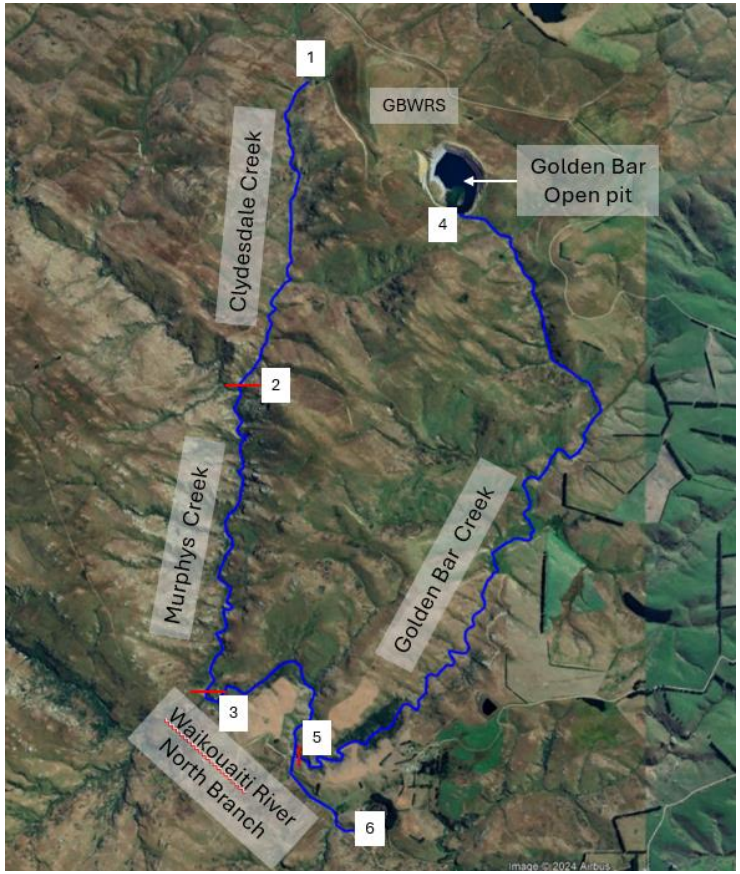
OceanaGold confirms that a water permit is required for this diversion. However, at the outset OceanaGold also notes that the "discharge" from a diversion channel is not an activity that triggers s15 of the RMA as it is not a discharge activity. See also response to Q1.1.

Attached as **Annexure 7** is a figure that illustrates the likely final location of the diversions at Golden Bar Stage 2 Pit. The table below indicates the approximate start and finish locations for the final diversion. In reality, these diversions will be developed progressively as the pit extension develops. OceanaGold notes that the discharge will likely be to land along the diversion channel in all but heavy rainfall events.

Otago Regional Council s92 request	OceanaGold response

Discharge (Coordinates in NZTM)	Clean Water Diversion (approximate diversion start location)		Discharge Location	
	Easting	Northing	Easting	Northing
South drain	1406482	4968245	1406886	4968038
East drain	1407017	4968332		
North drain	1406771	4968726	1406892	4968589

1.29	Please provide a maximum rate of take for the groundwater dewatering. Please identify whether any additional bores need to be drilled to facilitate this dewatering.	A response to this request is provided by GHD (refer **Annexure 4**). OceanaGold notes that no new bores are anticipated to be required to facilitate dewatering of the Golden Bar Stage 2 Pit.
1.30	With regard to the take and use of surface water to dewater the existing pit lake, please clarify whether one of the intended uses of the pit lake water includes the discharge into surface waterbodies (as is implied by the application for discharge permits) and whether the pit lake water may also be discharged into another open pit or the FTSF.	Yes, the intended use of this water includes discharge to surface water bodies (North Branch Waikouaiti River and / or Murphys Creek and/or Golden Bar Creek and/or Clydesdale Creek) and use in the Mine Water Management System with includes other open pits and Frasers TSF. Refer to the attached (proposed) description / definition of the Mine Water Management System (**Annexure 6**). Further information related to this request is provided by GHD (refer **Annexure 4**).

Otago Regional Council s92 request	OceanaGold response
1.31 Please provide coordinates (NZTM2000) for the locations at which the discharge of pit water to the NBWR or Murphys Creek will occur or provide upstream and downstream coordinates between which the discharge will occur.	The image below shows the potential discharge locations as blue lines. 

Otago Regional Council s92 request	OceanaGold response

Potential discharge location	Approximate upper extent of discharge		Approximate lower extent of discharge	
	Easting	Northing	Easting	Northing
Clydesdale Creek	1		2	
	1405794	4968838	1405276	4966979
Murphys Creek	2		3	
	1405276	4966979	1405364	4965058
Golden Bar Creek	4		5	
	1406740	4968038	1405822	4964633
North Branch Waikouaiti River	3		6	
	1405364	4965058	1406327	4964168

1.32 Please identify the resource consent that authorises the discharge of water from the existing Golden Bar pit lake into Golden Bar Creek via pit overflow. It is understood that this activity is currently occurring.

Table 4.1 of the AEE identifies 2002.763 to be the relevant existing consent associated with this activity.

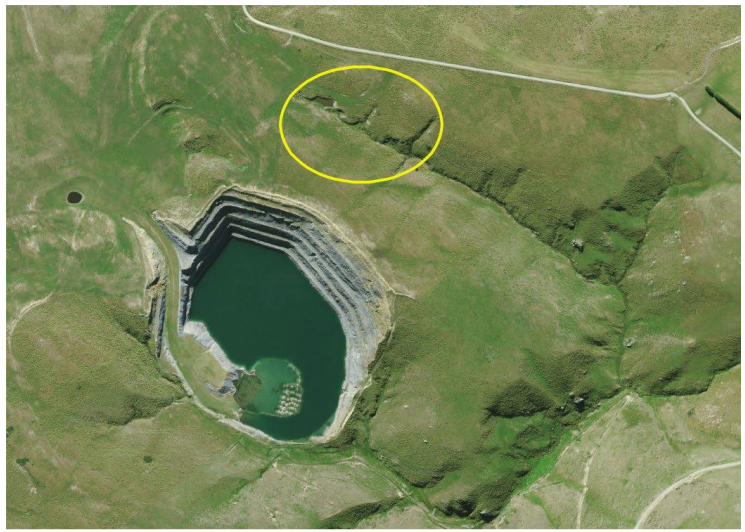
2002.763 - Discharge Permit (to water) - Discharge water into Golden Bar Pit for the purpose of establishing long-term drainage patterns after completion of mining operations in Golden Bar Development Area.

While the purpose of 2002.763 does not make it clear that the discharge of pit lake water is authorised, noting the words “into Golden Bar Pit”, it is evident from the conditions of this permit that it provides for the discharge from the Pit Lake to Golden Bar Creek. For example, Condition 3 requires:

The discharge from Golden Bar Pit Lake shall be controlled by a stable outlet structure and shall be directed into Golden Bar Creek by a stable channel

Otago Regional Council s92 request	OceanaGold response
	constructed to similar grades to the other watercourses in the area and to appear as natural as possible. It is also noted that there are numerical water quality standards in Schedule 1 of this consent ((b)(iii)) that apply to the Golden Bar Pit Lake and Pit Lake overflow (Schedule 1 (b)(iii)).
1.33 The GHD Golden Bar Dewatering Assessment says: "*The existing Golden Bar Pit is proposed to be dewatered by pumping to a discharge point within Golden Bar Creek before feeding into the NBWR…*" Resource consents are sought to discharge this water into NBWR and Murphys Creek, but there is no application to discharge this water into Golden Bar Creek. Please explain this discrepancy.	The apparent discrepancy comes about because the GHD dewatering work undertaken in July 2023 (Appendix 14 of the AEE) was undertaken largely to determine the rate and associated time frame, and water quality and compliance risks associated with pit lake dewatering. To this end, GHD's assessment simplistically assumed the discharge would be to the nearest receiving water body - the Golden Bar Creek as with the current pit overflow discharge. In its conclusions, GHD recognised that assessed scenario would potentially compromise sulphate and arsenic compliance at NB03 and therefore the strategy would require active management of discharges and did not preclude other dewatering options. Subsequent to GHD's work, Greg Ryder (Appendix 21 of the AEE) determined that prior to implementing pit dewatering OceanaGold would need to make a closer assessment of the chosen option(s) to ensure hydrological and other effects are consistent with managing potential adverse effects associated with erosion, stream flows, water quality and ecological criteria or limits. Greg Ryder raised a range of potential dewatering discharge options, including: › All to the North Branch Waikouaiti River at or below the Murphys Creek confluence. › Splitting the discharge between catchments (e.g., Clydesdale and Golden Bar Creeks) to avoid significant changes in their hydrological characteristics; and › Other dewatering configurations including a mix of dewatering to local water ways and all or some dewatering by pumping back to Frasers Pit.

Otago Regional Council s92 request	OceanaGold response
	Discharging all water to Golden Bar Creek as assumed by GHD would likely compromise compliance at NB03. For that reason, application for a discharge permit to Golden Bar Creek was omitted from the application. However, some level of discharge to Golden Bar Creek cannot be entirely discounted until a detailed plan is prepared. OceanaGold wish to keep the options open until a more detailed plan is developed. The updated AEE will include the application for all appropriate discharge permits associated with the options identified above.
1.34 An application is made to disturb (mine) the bed of a tributary of Golden Bar creek (a length of 130 m including the pond). The relevant rule has been identified as RPW 13.5.3.1. While this is correct, I would also consider that the NES-F regulation 57 (river reclamations) is applicable. I note that AEE s3.6.2 describes this as a reclamation. (a) Please confirm that the below image and the yellow ellipse identify the correct tributary and roughly the correct location of the proposed reclamation. (b) Please indicate whether OGL agrees to apply under this regulation and please provide an assessment that describes the functional need for the reclamation in this location and applies the effects management hierarchy. If this is already provided as part of the application, please direct me to this assessment.	OceanaGold confirms that the image shown adjacent correctly illustrates the approximate location of the proposed disturbance for which OceanaGold has sought a land use consent. Since the MP4 application was submitted, Whirika (formerly Ahika) has revisited the Golden Bar site and assessed the environments present by applying a river delineation protocol that was agreed with the Otago Regional Council's experts in the context of the BRWRS stream delineation as part of the s92 request in relation to RM22.282. The river delineation protocol is attached as **Annexure 8**. Applying that protocol, Whirika has determined that there is no river within the proposed Golden Bar pit extension. On the basis that this is not 'river', Whirika has further investigated this area to determine whether wetlands are present. That assessment is provided as **Annexure 9** and indicates that by applying a precautionary approach, the area in question is most appropriately classified a mosaic of riparian and wetland vegetation including up to 0.008 ha of natural inland wetland (assuming it contains animals adapted to wet conditions). OceanaGold therefore requests that its application for a land use consent made under Rule 13.5.3.1 of the RPW be processed as a land use consent under Regulation 45D(2) of the NESF. On the basis that the mining of the Golden Bar pit extension results in a loss of wetland extent, the NPSFM 2020 requires that: › the activity is necessary for the purpose of the extraction of minerals and ancillary activities; and

Otago Regional Council s92 request	OceanaGold response
- Note: please see related question in the Surface Water and Aquatic Ecology section. 	› the extraction of the mineral will provide significant national or regional benefits; and › there is a functional need for the activity to be done in that location; and › the effects of the activity will be managed through applying the effects management hierarchy. Earthworks to expand the Golden Bar pit is clearly necessary to enable the extraction of minerals from the orebody that dips to the northeast. The benefits of mineral extraction at Macraes are discussed in the MP4 AEE and are not repeated here other than to confirm that the Macraes operation and the continuity of the operation (as supported by the Golden Bar Pit extension) has significant national and regional benefits. Regarding functional need for the activity, the National Policy Statement for Freshwater Management ("NPS-FM") defines the term "functional need" as "*the need for a proposal or activity to traverse, locate or operate in a particular environment because the activity can only occur in that environment*." Mining activities by their nature are constrained by the location of the gold bearing ore. At Macraes, OceanaGold mines a well-defined, low grade ore body (the Hyde-Macraes Shear Zone). Extending established pits, whether underground or open pit, to take advantage of the investment in mine development, infrastructure assets and resource consents is the most feasible approach to mining. As described in Section 7 of the AEE, the average ore grade is not sufficient to make underground mining of the ore targeted by the MP4 proposed open pit extensions economically feasible, therefore, the development of open pit extensions is required. At Golden Bar Pit, the ore body dips to the northeast, and the proposed pit extension is a down-dip extension to access deeper ore. For this reason, there is a clear functional need for the activity to be located at the proposed site, and consequently, for the loss of wetlands. In terms of effects management, in accordance with Clause 3.22 of the NPS-FM, OceanaGold will adopt the effects management hierarchy to manage the effects of this Project on wetlands. Due to the physical location of the ore, it is not

Otago Regional Council s92 request	OceanaGold response
	practicable to avoid all adverse effects on wetlands. The next stage of the effects management hierarchy is where avoidance is not practicable, and OceanaGold will firstly minimise the footprint of any intrusion, and secondly, remedy any harm caused. Where residual adverse effects remain that are more than minor, OceanaGold will offset and compensate for these. In this case, the residual adverse effects on the small area of wetland vegetation is not assessed to be more than minor (refer **Annexure 9**). Therefore, offsetting or compensation is not required in accordance with the effects management hierarchy. However, removal of the riparian vegetation mosaic which this wetland vegetation forms part of will result in residual adverse effects on overall ecological values that are potentially more than minor. Accordingly, OceanaGold proposes to compensate for these and other more than minor residual adverse effects of the MP4 Project by protecting a substantially greater area within the MEEA which contains similar mosaics of riparian and wetland vegetation. Details regarding this protection can be found in the MP4 Ecological Impact Management Plan ("I**MP**"), noting that the classification of a small area of wetland vegetation within the Golden Bar footprint has not altered the IMP response to the effects on this area, which remains protection of similar vegetation within the MEEA.
1.35 Please identify which consent will be surrendered in relation to the application described as "*Filling of the Golden Bar Pit Lake via groundwater inflow following the completion of mining operations within the pits.*"	Table 4.1 of the AEE identifies following resource consent to be surrendered: *2002.763 - Discharge Permit (to water) - Discharge water into Golden Bar Pit for the purpose of establishing long-term drainage patterns after completion of mining operations in Golden Bar Development Area.* Note that OceanaGold was not issued any water permits to facilitate the creation of the Golden Bar Pit Lake when the Golden Bar Project was authorised. The above discharge permit appears to have been issued to authorise both the filling and overflow of the Golden Bar Pit Lake.

Otago Regional Council s92 request	OceanaGold response
Golden Bar WRS Extension	
1.36 The AEE (s3.6.3) refers to a second reclamation: "*...90 m of an already modified watercourse in the Clydesdale Creek catchment that runs along part of the toe of the existing rehabilitated WRS...*". Does the below image show the correct tributary? 	OceanaGold confirms that the image shown adjacent correctly illustrates the approximate location of the proposed reclamation for which OceanaGold has sought a land use consent, albeit the proposed reclamation extends slightly further south. Since the MP4 application was lodged, Whirika has refined its assessment of the extent of river present within the Golden Bar WRS extension footprint (refer **Annexure 9**). Deposition of rock into the Golden Bar WRS extension will result in the loss of 95 m of river with a natural bed and the loss of 335 m of modified river bed resulting from creation of the original Golden Bar WRS. In total there will be a loss of approximately 430 m of river extent. In addition, Whirika has identified that some natural wetland vegetation to be present near the juncture of this watercourse and the existing silt pond (refer **Annexure 9**). OceanaGold therefore requests that its application for a land use consent made under Regulation 57 of the NESF and Rule 13.5.3.1 of the RPW be also considered as an application made for a land use consent made under Regulation 45D(2) of the NESF. On the basis that the mining of the Golden Bar pit extension results in a loss of both wetland and river extent, the NPSFM 2020 requires that: › the activity is necessary for the purpose of the extraction of minerals and ancillary activities (in relation to wetlands only); and › the extraction of the mineral will provide significant national or regional benefits (in relation to wetlands only); and › there is a functional need for the activity to be done in that location; and › the effects of the activity will be managed through applying the effects management hierarchy.

Otago Regional Council s92 request	OceanaGold response
	Earthworks to expand the Golden Bar WRS is a necessary ancillary activity to the extraction of minerals from the Golden Bar Pit extension. The benefits of mineral extraction at Macraes are discussed in the MP4 AEE and are not repeated here other than to confirm that the Macraes operation and the continuity of the operation (as supported by the Golden Bar Pit extension to which the Golden Bar WRS extension is a necessary ancillary activity) has significant national and regional benefits. The functional need of the activity is discussed below in response to Q1.37.
1.37 Please provide an assessment that describes the functional need for this reclamation and applies the effects management hierarchy. If this is already done as part of the application, please direct me to this assessment.	As set out above in response to Question 1.34, given the location of the mineral resource, there is a functional need for the extraction of minerals and ancillary activities, such as the construction and extension of WRSs at Macraes. Specifically, there is a functional need for the Golden Bar WRS to be extended as proposed to allow for further waste rock deposition as the WRS is already existing, is adjacent to the pit and alternative sites are not feasible and/or cause much greater adverse environmental effects. As described in Section 7 of the AEE, OceanaGold considered disposing the waste rock in the headwaters of the stream to the north of the site, as an alternative to the extension of the Golden Bar WRS. This had some advantages in that the waste rock would not need to be hauled as high, therefore, resulting in lower cost and less visual impacts. However, this option was discounted due to the greater ground disturbance and stream bed / water course disturbance that would result from this activity. Priority was given to avoiding these areas as discussed in Section 6.2 of the AEE. Furthermore, in selecting the location for the Golden Bar WRS extension, OceanaGold has considered a range of additional factors including, but not limited to: • Land ownership / control – features can only be located on land which the company owns or controls and which is available for development (e.g., does

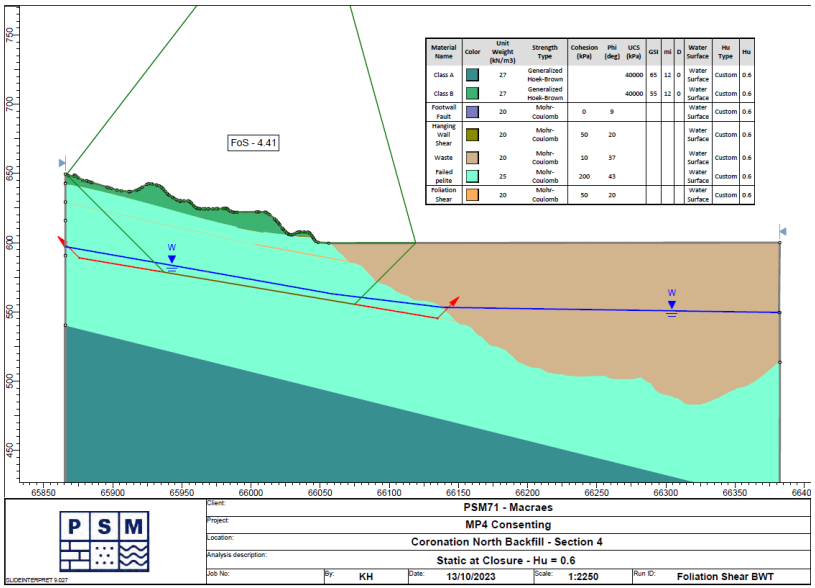
Otago Regional Council s92 request	OceanaGold response
	not contain existing infrastructure). In this case the affected land is fully owned by OceanaGold. • Scale – features must be at sufficient scale to accommodate the required volumes of material meaning that down-scaling to avoid sensitive areas may be impractical while still retaining adequate storage space. All waste rock planned for disposal fits within the proposed footprint and geometric limits required for slope stability of the Golden Bar WRS extension. Limiting the footprint of the WRS results in reduced capacity which cannot be transferred to any other facility. A reduced footprint of the WRS would cause reduced operational efficiency and necessitate disturbing a new area located locally to store the shortfall of waste rock. • Material movement cost – features must be located close to the places from which the material they are constructed from is sourced. The Golden Bar mining area is located a significant distance from the central operations at the MGP. Moving large volumes of overburden significant distances to areas further afield is economically inefficient and would give rise to additional and otherwise avoidable adverse effects (including amenity effects, air discharge effects, and carbon emissions). Furthermore, the existing haul road is designed for smaller trucks hauling ore. To widen this to accommodate larger waste rock trucks would potentially cause significant adverse environmental effects. • Geotechnical and hydrogeological – features must be located on suitable foundations to manage stability and groundwater. The Golden Bar WRS extension has been designed by recognised geotechnical specialists and will be constructed in accordance with those design requirements. • Construction efficiency – the use of existing landforms and contours (such as gullies) can significantly reduce the scale and volume of materials needed to construct storage impoundments, impacting the feasibility using available volumes of rock and soil, time and cost to construct, with due consideration of emissions produced in the process. The disposal of waste rock at Golden Bar WRS is via established, short haulage routes using established disposal

Otago Regional Council s92 request	OceanaGold response
	methods and working toward a landform that achieves appropriate landscape outcomes. • Water management – Potentially affected surface and groundwater resources must be capable of management. This includes the ability and space to construct water management infrastructure (silt ponds, drains etc) and to maintain safe separation distances from sensitive waterbodies. The proposed Golden Bar WRS extension meets these criteria. The WRS extension will benefit from use of the existing Clydesdale Silt Pond. Perimeter drains may be constructed around the extended WRS, to direct surface runoff into the silt control structures, with subsequent treatment if necessary, before discharge to local waterways. This would only be required until rehabilitation of WRS slopes takes effect and generates clean water runoff. In light of the above, there is a clear functional need for the activity to be located within the site, and consequently, for the loss of approximately 430 m of mixed modified watercourse and 0.114 ha of natural inland wetland within the Clydesdale Creek catchment. In accordance with Clauses 3.22 and 3.24 of the NPSFM, OceanaGold will adopt the effects management hierarchy to manage the effects of this Project on river and wetland extent and values, including considering cumulative effects. In the first instance, where practicable, adverse effects on river and wetland extent and values will be avoided. The footprint of the Golden Bar WRS was modified to avoid significant lizard habitat, rare plants, and an ephemeral wetland. The next stage of the effects management hierarchy is where avoidance is not practicable, OceanaGold will firstly minimise the footprint of any intrusion, and secondly, remedy any harm caused. Where residual adverse effects remain that are more than minor, OceanaGold will offset and compensate for these. In this case, the residual adverse effects on the small area of wetland vegetation is not assessed to be more than minor (refer **Annexure 9**). Therefore, offsetting or compensation is not required in accordance with the effects management hierarchy. However, removal of the watercourse (albeit heavily modified) which this wetland vegetation form part of will result in residual adverse effects on

Otago Regional Council s92 request	OceanaGold response
	overall ecological values that are potentially more than minor. Accordingly, OceanaGold proposes to compensate for these and other more than minor residual adverse effects of the MP4 Project by protecting a substantially greater area within the MEEA which contains similar or better value watercourse which include areas of adjoining wetland vegetation. Details regarding this protection can be found in the MP4 Ecological Impact Management Plan ("I**MP**"), noting that the classification of a small area of wetland vegetation within the Golden Bar WRS footprint and the change to the extent of river affected has not altered the IMP response to the effects on this area, which remains protection of the river and wetlands that exist within the MEEA (a much greater extent to that lost as a result of the Golden Bar WRS extension). Ultimately, with the above measures in place, it is considered that there will be no net loss of river or wetland values as a direct result of this proposal.
1.38 If the answer to question 1.1 is that consent is required, please state whether the diversions of surface water around the extended Golden Bar WRS and subsequent discharge onto land or into water occur at fixed locations, or whether these locations vary as mining progresses? Please provide coordinates (NZTM2000) for the locations of these discharges or, if the discharge point is not fixed, provide upstream and downstream coordinates between which the discharge will occur.	OceanaGold confirms that a water permit is required for this diversion. However, at the outset OceanaGold also notes that the "discharge" from a diversion channel is not an activity that triggers s15 of the RMA as it is not a discharge activity. See also response to Q1.1. The final location of the potential diversions at the Golden Bar WRS identified by the perimeter of the proposed Golden Bar WRS. OceanaGold notes that much of this surrounding topography at the permitter drains away from the WRS such that diversions may not be required at completion. However, these diversions will be developed progressively as the WRS is extended such that earlier stages of the extension may require more extensive diversions. OceanaGold notes that the discharge will likely be to land along the diversion channel in all but heavy rainfall events. These diversions will be managed in accordance with the site Erosion and Sediment Control Plan.
1.39 Consent is sought for the passive discharge of contaminants from the base and toe of the Golden Bar waste rock stack into water in the Clydesdale silt pond. The EGL Golden Bar WRS Design Report states that gullies beneath the WRS will be infilled with course rockfill to ensure good drainage. The	GHD has provided an overview of how seepage from Golden Bar WRS has been considered in the water balance model (refer **Annexure 4**).

Otago Regional Council s92 request		OceanaGold response
	GHD Golden Bar Report states that the majority of seepage is expected to move laterally within the weathered schist and be captured in silt ponds, the pit sump and/or report to the receiving surface water catchment. I interpret this to mean that gullies beneath the WRS will provide a flow path for seepage to surface waterbodies other than constructed silt ponds. Please explain how this seepage will be managed and whether it is taken into account within the Ryder assessments.	OceanaGold notes that the consent sought for this activity is to provide for the discharge of contaminants to water from the base and toe of the Golden Bar Waste Rock Stack for the purpose of waste rock disposal. The scope of this consent is not intended to be limited to discharge to the silt pond. Rather, it is intended to capture all discharges to the environment from the base and toe of the Golden Bar WRS, some of which will report to the existing silt pond. This can be clarified in the updated AEE to be provided in due course.
Ancillary Activities and Surface Water Mitigation Activities		
1.40	The application states (s3.5) that the earthworks to construct a road platform involve the discharge of waste rock to land, and that the alignment of the road will potentially be located within 100 m of a natural inland wetland. Please confirm whether these earthworks will occur within or within 10 m setback of a natural inland wetland? If works will occur within 10 m of the wetland, please assess the adverse effects of the earthworks on the wetland.	OceanaGold confirms that works associated with the Golden Bar road realignment will not occur within 10m of any natural inland wetlands. This includes the wetlands that have been identified and fenced as a result of earlier consent processes.
2.	**Geotechnical** Waste Rock Stacks *Relevant reports* – Appendix 4 EGL (2023) and Appendix 5 EGL (2024b)	
2.1	It is noted that different V_{s30} values are used for the Trimbells and Golden Bar waste rock stacks: V_{s30} =1,000 m/s (Trimbells) and 1,500 m/s (Golden Bar). What is the justification for this given both rock stacks are founded on bedrock? This has a minor effect on the seismic loading.	A response to this request is provided by EGL (refer **Annexure 10**).
2.2	For the operating basis earthquake – the bedrock motion is 0.07-0.08g. At Trimbells, 0.176 g is used for the full H analysis. At Golden Bar only 0.07 g	A response to this request is provided by EGL (refer **Annexure 10**).

Otago Regional Council s92 request		OceanaGold response
	is used (i.e. the bedrock motion). Is the Golden Bar acceleration correct as it seems low?	
2.3	The parameters used for the fine-grained waste rock seem very low and not applicable for a rock fill. Can some discussion on this parameter be provided in section 5.2 of the EGL (2024b) report.	A response to this request is provided by EGL (refer **Annexure 10**).
2.4	The EGL (2024b) report mentions that the stratification results in contrasting strength within the WRS. The analysis only seems to use a stratified model on Figure A04, which is labelled as a post-earthquake scenario. Why is this stratified model not used for standard static and EQ analyses? Given the free draining rockfill, strength loss post-earthquake does not seem likely. Please explain.	A response to this request is provided by EGL (refer **Annexure 10**).
2.5	The stratified model (EGL 2024b) only considers circular failures. Is a non-circular failure running along the weak layer not more critical? Please explain.	A response to this request is provided by EGL (refer **Annexure 10**).
2.6	Could a hybrid failure along the rock surface occur in Trimbells, resulting in a lower factor of safety? Please explain.	A response to this request is provided by EGL (refer **Annexure 10**).
2.7	The EGL (2024b) Trimbells Report adopts a layered model to account for layering that would occur due to the rock placement methodology. Why does the same layering not occur at Golden Bar?	A response to this request is provided by EGL (refer **Annexure 10**).

Otago Regional Council s92 request	OceanaGold response
Coronation North Backfill *Relevant report*: Appendix 6 PSM 2024a	
2.8 The AEE (s3.7.3) suggests that Coronation North Pit will be backfilled to a maximum height of 600 m RL but the PSM analysis shows a rock fill level above 600 m RL (see below). Please clarify the maximum backfill height.  	A response to this request provided by PSM (refer **Annexure 11**). This confirms the maximum assessed backfill height of 600mRL. In reality, backfill may extend above 600mRL to achieve appropriate closure and rehabilitation outcomes. Any backfill above the pit crest will comply with existing Factor of Safety requirements for waste rock stacks which are reflected in consent conditions as follows: *All final slopes waste rock stack slopes shall have a minimum factor of safety against instability of 1.2 (under the worst combination of events).*
2.9 There is significant ongoing instability in the Coronation North pit and the backfill of the pit should buttress any unstable ground. However, to do this a minimum level of backfill is required to ensure that when the mine is closed the ground is stable. Please propose a minimum backfill level for the Coronation North Pit and justify why this is geotechnically appropriate.	OceanaGold notes that the District Council land use consent for the Coronation North Extension Project requires backfilling to a minimum height of 575 mRL in the western section as per condition 4.5: *4.5 Backfilling of Coronation North pit shall occur in the west section of the pit to a minimum height of mRL 575 as shown on 'Macraes Gold Project*

Otago Regional Council s92 request	OceanaGold response
	Coronation North Extension Figure 1' attached to and forming part of this consent. The stability of the backfill itself is then controlled by Condition 4 of the discharge to land permit RM16.138.10.V1: *4. The side slopes of any backfill placed in Coronation North Pit and Coronation North Pit Extension must be constructed to ensure the finished slope has a factor of safety against instability of 1.2 under the worst possible combination of events as a minimum.* As per PSM's updated analysis of the instability (refer **Annexure 11**), a minimum backfill level of 560mRL is recommend in Coronation North Pit. This minimum backfill height is proposed as a condition on the District Council land use consent to manage ongoing instability associated with the mining of Coronation North Pit (a land use activity). In OceanaGold's view, there is no cause-and-effect relationship that would warrant such a condition on the discharge to land permit sought from the Otago Regional Council (refer Section 108AA(b)(i) of the RMA).
3. Air Quality	
3.1 Figure 6-10 in the Beca AEE only includes total suspended particulate matter (TSP) monitoring data from site DG15 (Macraes township) to 2022. Please provide a summary of the TSP monitoring data (at least one year at each site) collected at sites DG07 (Horse Flat Road) and DG11 (Macraes Road) in relation to existing consents for Deepdell North Stage 3 (RM20.024.12) and Frasers WRS (RM10.351.52.V3). Please also update the DG15 TSP data to include the period from January 2022 to present.	A response to this request is provided by Beca (refer **Annexure 12**).
3.2 Is revision of the 120 µg/m3 (24-hour average) TSP limit for site DG15 proposed under this application? It is noted that the Good Practice Guide (GPG) for Dust Assessment suggests 24-hour average trigger limits of 60 µg/m3 (high sensitivity) and 80 µg/m3 (moderate sensitivity).	A response to this request is provided by Beca (refer **Annexure 12**). It is noted that no change to the existing compliance limit is proposed. However, OceanaGold does intend to volunteer the addition of trigger limits to DG15 when it provides proposed conditions.

Otago Regional Council s92 request	OceanaGold response
3.3 The TSP monitoring data for DG15 to 2022 indicates several exceedances of an 80 µg /m3 (24-hour average) TSP trigger/limit. While some exceedances may be attributed to fog affecting the nephelometer during winter, other exceedances occur during the summer period. Please provide further analysis or explanation. Is the mitigation proposed expected to be sufficient to enable compliance with a limit in the order of 60 – 80 µg/m3 (24-hour) in future?	A response to this request is provided by Beca (refer **Annexure 12**).
3.4 Is ongoing real-time TSP or PM10 monitoring proposed at sites DG07 and DG11 (or other locations nearby sensitive receptors), with trigger levels set to assist proactive dust management?	A response to this request is provided by Beca (refer **Annexure 12**). It is noted that ongoing TSP monitoring at DG07 (or an equivalent site) is proposed, noting that DG07 has been subject to operational issues. By variation to its existing air discharge permits for the Coronation mining area (RM12.378.15 and RM16.139.19), OceanaGold proposes to incorporate the monitoring at DG07. These obligations will be reflected in the proposed conditions of consent to be provided in due course.
3.5 Receptors R1/R9 and R5 are potentially affected by dust emissions from haul roads at times. The past complaints originating from R5 suggest that such effects can extend over 1 km from the source. The haul road beside Innes Mills is described as 2 km long with approximately 192 truck movements per day at up to 60 km/h speed. (a) Are any specific mitigation measures proposed to control dust emissions from this source and also from the haul road east of R5? (b) Are short-term PM10/TSP triggers proposed (e.g. 150 µg/m3 (1 hr) PM10 or 250 µg/m3 (5 min) TSP as noted in the GPG Dust) with monitoring to determine that such mitigation is effective?	A response to this request is provided by Beca (refer **Annexure 12**). OceanaGold notes that when short term triggers were previously implemented at DG11 this resulted in numerous trigger events that were investigated and found to be unrelated to mining. Subject to determining a practical means by which to monitor mining related trigger events, OceanaGold confirms that it does intend to volunteer the addition of short-term trigger limits for TSP at DG15 and DG07 in its proposed variations to existing consent conditions.
3.6 Have tenanted dwellings on OGL owned land been included in the analysis of sensitive receptors? If they have not been included, please update the analysis to include these residential dwellings as sensitive receptors or	A response to this request is provided by Beca (refer **Annexure 12**). OceanaGold notes that it does not own the property at R9. This property is privately owned and occupied. OceanaGold has obtained the written approval of

Otago Regional Council s92 request		OceanaGold response
	provide justification for why they have not been included. Please also clarify whether receptor R9 (1668 Macraes Road) is owned by OGL? - Note: Occupiers of residential dwellings are also considered to be sensitive receptors.	this property owner. A copy of this will be provided to the consent authorities in due course.
3.7	The Beca AEE states that not more than 19 trucks will be used from 2024, but Table 2-2 shows greater truck numbers. Please clarify.	A response to this request is provided by Beca (refer **Annexure 12**).
3.8	Table 2-3 indicates that electrical excavator use will cease after 2025. Is this correct?	A response to this request is provided by Beca (refer **Annexure 12**).
3.9	The IAQM assessment describes the Dust Pathway Effectiveness in relation to R1/R9 as "ineffective". Have cumulative effects with emissions from other OGL sources been taken into account, including from areas that would affect the receptors under different wind directions (such as the Innes Mills haul road, Frasers pit/WRS)?	A response to this request is provided by Beca (refer **Annexure 12**).
3.10	It appears that the Dust Management Plan (DMP) attached to the Beca AEE has not been updated for some time. For example, the required TSP monitoring at the DG07 and DG11 sites is not included. Will a current, updated DMP be provided for consideration as part of this application? If not, please provide justification for this.	Attached to this response as **Annexure 13** is the latest version of the site's Dust Management Plan. This was most recently updated in May 2023.
Note: addresses for some sensitive receptors seem to be incorrect. For example, receptors R1, R9, A, and R6 are described as being on Macraes-Dunback Road. This road does not exist. These receptors are located on Macraes Road.		It is agreed the formal name is 'Macraes Road'. Some of OceanaGold's existing land use consents refer to Macraes Road as 'Macraes-Dunback Road'. These terms are used interchangeably throughout the AEE and the technical assessments that support it. In all instances they mean Macraes Road.

Otago Regional Council s92 request	OceanaGold response
4. Geochemistry, Water Modelling, and Groundwater	
Relevant reports: Appendix 8 MWM (2024) and Appendix 9 Strata Geoscience (2023)	
4.1 The Shake Flask Extraction data has been used to simulate water quality from the saturated waste rock mass. There is some confusion around data in Table 23 vs Table 17 in terms of units, concentrations and if maximums or averages were ultimately used in the model (MWM, 2024). Please clarify. Can you please explain why the shake flask extraction method using deionised water is appropriate for simulating leaching in this scenario? Can you please confirm the use of the data (mg/kg or mg/L) and how this is then used with the model?	A response to this request is provided by MWM (refer **Annexure 14**).
4.2 The Strata Geoscience technical reviewer suggests that high concentrations of antimony in the XRF data is an issue, and the shake flask extraction data also suggests this may be an issue, though there is limited monitoring data for antimony. Please discuss why it is not considered a possible potential contaminant of concern (PCOC) and whether future monitoring should include antimony?	A response to this request is provided by MWM (refer **Annexure 14**).
Relevant report: GHD (2024a) Coronation	
4.3 The Hyde-Macraes shear zone is said to have increased hydraulic conductivity. What is the impact of not considering this on the models?	A response to this request is provided by GHD (refer **Annexure 4**).

Otago Regional Council s92 request	OceanaGold response
4.4 Steady state calibration from the groundwater models results in lower conductivity layers (Table 4.1) than expected based on the hydraulic testing summary. Please discuss the calibration achieved when using the test results as per Table 3.1 and the justification for the variation.	A response to this request is provided by GHD (refer **Annexure 4**).

Table 3.1 Hydraulic testing summary (Adapted from CDM Smith, 2016a)

Depth (m bgl)	Average minimum (m/s)	Average maximum (m/s)	Geomean (m/s)
<10	2.2E-07	2.4E-04	6.9E-07
10 – 20	5.1E-08	1.7E-04	3.9E-07
20 – 30	1.3E-07	1.9E-05	2.7E-07
30 – 40	3.5E-07	2.3E-04	4.4E-07
40 – 50	1.2E-07	6.7E-07	9.8E-08
> 50	9.7E-08	3.7E-06	4.5E-07
250-500	1.0E-08	7.0E-07	-

Table 4.1 Steady-state model parameters

Unit Name	Model Layer (Thickness of layer)	Kx m/s (m/d)	Kz m/s (m/d)	Ky m/s (m/d)	Specific Yield *	Specific Storage 1/m*
Moderately Weathered Schist (Shallow)	1 (30 m thick)	1.0×10^{-7} (0.0086)	6.0×10^{-8} (0.0052)	2.5×10^{-7} (0.022)	0.02	1E-5
Slightly weathered shist	2 (50 m thick)	5×10^{-8} (0.0043)	5×10^{-9} (0.00043)	5×10^{-8} (0.0043)	0.01	1E-5
Slightly weathered - Unweathered Schist Bedrock	3 - 5 (50 m thick)	1.5×10^{-8} (0.0013)	1.5×10^{-9} (0.00013)	1.5×10^{-8} (0.0013)	0.01	1E-5
Unweathered Schist	6 – 8 (50 m thick each layer)	5×10^{-9} (0.000432)	5×10^{-10} (0.000043)	5×10^{-9} (0.00043)	0.01	1E-5
*Waste Rock	1 (Various thickness)	1.0×10^{-6} (0.086)	1.0×10^{-6} (0.086)	1.0×10^{-6} (0.086)	0.15	1E-5
Notes:	Kx-denotes horizontal hydraulic conductivity in x direction Ky-denotes horizontal hydraulic conductivity in y direction Kz-denotes vertical hydraulic conductivity Vertical anisotropy represents ratio of hydraulic conductivity in horizontal x (Kx) to z (Kz) directions (Kx/Kz) *Parameter used in transient model only.					

Otago Regional Council s92 request		OceanaGold response
Relevant reports: GHD 2024a, 2024b, 2024c.		
4.5	What sensitivity analysis has been completed for the models for K values? What testing has been completed on the hydraulic conductivity of waste rock stacks? What is the likelihood of preferential pathways?	A response to this request is provided by GHD (refer **Annexure 4**).
4.6	Why has there been no calibration or validation of any of the transient groundwater models under current conditions? Can you please provide further information regarding the groundwater levels used to calibrate the models? Has any further analysis of seasonal variation of groundwater levels been completed to understand the impact of steady state calibration to these levels?	A response to this request is provided by GHD (refer **Annexure 4**).
4.7	There is very limited groundwater level or quality data to support the Golden Bar groundwater model. Given the paucity of data, is this model realistic?	A response to this request is provided by GHD (refer **Annexure 4**).
4.8	What is the effect of modelling the TSF as constant head boundaries, given that pooling was not actually occurring on the TSF?	A response to this request is provided by GHD (refer **Annexure 4**).
4.9	There have been compliance exceedances for sulphate at DC08 over the summer, and large increases in sulphate during summer low flows over the past few years. How does this information compare with projected exceedances?	A response to this request is provided by GHD (refer **Annexure 4**).
4.10	Are the modelled flow rates from WRS and pit lakes supported by current flow regimes within the creeks?	A response to this request is provided by GHD (refer **Annexure 4**).
4.11	At which point in each stream is the reduction in flows due to dewatering calculated?	A response to this request is provided by GHD (refer **Annexure 4**).

Otago Regional Council s92 request	OceanaGold response
4.12 Why is Maori Hen silt pond independent of the Coronation pit in the water balance model? Similarly, why is Coronation North SP independent of Coronation North Pit?	A response to this request is provided by GHD (refer **Annexure 4**).
4.13 Can you please provide an analysis of historical groundwater quality monitoring and its implications for the model? Is there any evidence for preferential pathways that should be considered?	A response to this request is provided by GHD (refer **Annexure 4**).
4.14 Can you please provide more information regarding the water quality datasets used to derive the water quality source terms for the surface water quality modelling?	A response to this request is provided by GHD (refer **Annexure 4**).
4.15 The GHD (2024a) report regarding Coronation assumes that water quality of the overflow from the Coronation Pit Lake through the Trimbells WRS remains consistent and does not deteriorate further before entering the Trimbell silt pond and ultimately Trimbells Gully. Can you please quantify the effect of further water quality deterioration along this flow path?	A response to this request is provided by GHD (refer **Annexure 4**).
4.16 The rehabilitation plan discussed in the AEE states that silt ponds will be rehabilitated, but ongoing water quality management relies on their ongoing operation. Please revise the rehabilitation plan accordingly.	The rehabilitation principles referred to in the AEE at Section 3.9.6 are derived from the existing WRS design principles which are reflected in the conditions of the relevant District Council land use consents. One of the principles is (emphasis added) *silt ponds shall be removed and the site rehabilitated or be converted to stock water drinking ponds <u>following completion of mining operations and rehabilitation</u>*. If ongoing water quality management activities rely on continued use of existing silt ponds or the conversion of these to sumps, the use of these will be considered as ongoing mining operations or rehabilitation activity and will need ongoing authorisation as such with the District Council. No changes to the rehabilitation principles are necessary to reflect the current proposal. Provided appropriate Regional Council resource consents are held to authorise the ongoing use of silt ponds for water quality management, the

Otago Regional Council s92 request	OceanaGold response
	rehabilitation principles should not be of concern to the Otago Regional Council as these are a land use matter.
4.17 Please provide an updated monitoring proposal for the activities including relative elevations of monitoring sites (screen intervals for monitoring bores) and discussion regarding catchments and pathways monitored by those locations to ensure that these monitoring points are meaningful?	Monitoring is ongoing in relation to established facilities in accordance with the existing compliance and monitoring schedules attaching to the existing resource consents. Existing resource consents include provision for that monitoring to be amended via review of the Water Quality Management Plan. Similar conditions can be expected on any new discharge permits. Therefore, development of surface and groundwater monitoring plans are expected to be part of the Water Quality Management Plan required by conditions of consent. It is expected that these would be developed by a suitably experienced person and be submitted to Otago Regional Council for certification prior to the consents being exercised.
4.18 Please provide GIS layers of monitoring points (including elevations), features, activities, catchments, and construction details of monitoring bores.	It is unclear to OceanaGold why it is necessary to provide this information. Appreciating that providing this information would be an enormous task, if some clarification can be provided as to why it is required OceanaGold can further consider provision of this. Accompanying this response is a directory containing GIS layers and coordinates of monitoring points (including elevations) and construction details of monitoring bores.
5. Surface Water and Aquatic Ecology Activities associated with Frasers and Innes Mills open pit *Relevant reports*: Appendix 13: GHD – Water quality and balance modelling and Appendix 22: Ryders - Water quality and ecology assessment.	
5.1 Appendix 13 notes ongoing compliance at DC07 and DC08 (Deepdell Creek) relies on:	The mitigation actions listed in (a) – (d) are intended to be implemented as part of an adaptive management framework. Refer to responses to Questions 1.4 and 1.10.

Otago Regional Council s92 request	OceanaGold response
(a) Augmentation from the Camp Creek Dam (or alternative source of water at low flows); (b) A new sump to capture seepage from the Frasers West and South Waste Rock Stacks (WRSs); (c) Conversion of the Frasers West, Clydesdale and Murphys silt ponds to sumps that return to Frasers pit and only discharge to surface water (North Branch of Waikouaiti River) in a controlled manner during high flows; and (d) Passive treatment of seepage from Frasers West/South and Golden Bar WRSs. It is unclear whether these actions are planned. Could the applicant please confirm which of these actions (or their alternatives) will occur?	Augmentation from the Camp Creek Dam (or alternative source of water) at low flows may occur prior to closure if this is assessed as the Best Practicable Option for managing the effects of seepage discharges from the site to Deepdell Creek. The longer Camp Creek Dam is operating prior to mine closure, a greater level of confidence can be applied in closure planning, potentially minimising the need for alternative solutions to be developed. A new sump to capture seepage from the Frasers West and South Waste Rock Stacks (WRSs) is expected to occur during the mining phase and be complete by early closure. This is required to manage seepage from this area during low flow periods which is likely having a significant effect on low flow concentrations within the receiving surface water environment within the NBWR. Proof of concept for this proposal will be best gained through construction and monitoring. Conversion of the Frasers West, Clydesdale and Murphys silt ponds to sumps that return to Frasers pit and only discharge to surface water (North Branch of the Waikouaiti River) in a controlled manner during high flows is expected to occur during or soon after the mining phase and be complete by early closure. Once rehabilitation of contributing WRS surfaces is completed and sediment control is no longer required. Passive treatment of seepage from Frasers West/South and Golden Bar WRSs is expected to occur as soon as practicable. The first step of developing a pilot system for proof of concept is underway.
5.2 Please update Appendix F of Appendix 13 to include summaries of current state (as has been done in Table 5.8 and 5.9 of Appendix 11). If the information requested above reveals an increase in nitrate from current, please assess the potential impacts on periphyton growth in the receiving environments (noting that this is identified as an issue in Appendix 22).	An update to Appendix F is provided is attached to the further information provided by GHD (refer **Annexure 4**). Further information in relation to periphyton growth is provided by Greg Ryder Consulting (refer **Annexure 15**).

Otago Regional Council s92 request		OceanaGold response
5.3	The water quality data contained in Appendix F suggests there is a high probability of copper causing significant adverse effects at MC02 and more than minor effects at NB03 during closure and after closure. To what extent does the current proposal contribute to long-term copper concentrations (i.e., what are the modelled concentrations under a scenario where the proposed activities do not occur)?	A response to this request is provided by GHD (refer **Annexure 4**).
5.4	Section 4.2.6 of Appendix 13 notes that "*the proposed dewatering* [of Frasers, Golden point and Innes Mills open pits] *may reduce the total base flow of local creeks/streams by less than 8%*". It then goes on to state "*modelled reductions in seepage discharges to creeks are expected to have negligible impacts on creek and river flows through summer low flow periods*". This is reinforced in Appendix 22 which states there will be "*no material changes to the hydrological character of the receiving waters*". However, little evidence is provided for this statement in relation to Deepdell Creek and the ecological effects are not considered further. Please provide an assessment of potential impacts on (Deepdell) stream flows in terms of % reduction in naturalised MALF or, if more relevant, duration of drying. Based on this assessment additional comment may be needed on whether flow augmentation is needed to mitigate hydrological effects as well as water quality effects.	A response to this request is provided by GHD (refer **Annexure 4**).
<u>Activities associated with Coronation open pit</u> *Relevant reports*: Appendix 11: GHD – Water quality and balance modelling; and Appendix 20: Ryders - Water quality and ecology assessment		
5.5	No Question 5.5	-
5.6	Appendix 11 notes the Coal Creek dilution dam has not been assumed as it is not needed to remain within existing compliance standards. However, that ignores the previously identified issues around those compliance	A response to this request is provided by GHD (refer **Annexure 4**). OceanaGold notes that construction of the Coal Creek Dam was envisaged as a contingency measure to enable compliance with the Mare Burn in-stream water

Otago Regional Council s92 request		OceanaGold response
	standards. Please model this scenario or describe why it is not feasible to do so (e.g., cost, time > 3 days, etc.).	quality compliance criteria on the Coronation North consents. This is reflected in the conditions of the Coal Creek Dam consents that require a Best Practicable Option assessment to be undertaken prior to the consents being implemented (refer Condition 5 of RM16.138.02). This demonstrates that other potential options need to be considered before Coal Creek Dam is constructed, presumably because construction of the dam itself has environmental effects. This is the primary reason why Coal Creek Dam was not included as a default mitigation option in the model. Being guided by the existing environment created by the existing Coronation North consents, the current priority is to comply with existing limits and not reduced limits that result in the additional (but authorised) environmental effects of Coal Creek Dam.
5.7	Please confirm whether the dissolved metal concentrations in Table 2 of Appendix 20 are correct. The maximums for dissolved copper are much higher than the 95th percentiles in Appendix 11.	A response to this request is provided by Greg Ryder Consulting (refer **Annexure 15**).
5.8	Please provide more quantitative evidence regarding hydrological effects on Mareburn, including comparisons of dewatering effects against relevant hydrological statistics such as naturalised MALF (as has been done in other reports appended to the application). This is not an attempt to refute Dr Ryder's assessment. Rather to ensure that I have sufficient information to confirm it.	A response to this request is provided by Greg Ryder Consulting (refer **Annexure 15**).
5.9	Please confirm whether nitrate is expected to increase or decrease in the Mare burn, Appendix 11 and Appendix 20 contradict each other on this point. If an increase is expected Dr Ryder may need to re-visit the algal assessment in Section 4.3 of Appendix 20.	A response to this request is provided by Greg Ryder Consulting (refer **Annexure 15**).

Otago Regional Council s92 request	OceanaGold response
<u>Activities associated with Golden Bar open pit</u> *Relevant reports*: Appendix 12: GHD – Water quality and balance modelling; and Appendix 21: Ryders - Water quality and ecology assessment.	
5.10 Please explain the order of magnitude difference in current copper concentrations at GB01 presented in Appendix 12 (Table 10) and Appendix 21 (Table 4). The results in Appendix 12 are not consistent with Dr Ryder's assessment that "*dissolved metal concentrations are low and below water quality guidelines*".	A response to this request is provided by Greg Ryder Consulting (refer **Annexure 15**).
5.11 Please confirm the management, rate and location of the dewatering discharge from Golden Bar Pit. While Appendix 12 and Appendix 21 make recommendations on these matters I am unclear on what the actual planned approach is.	Appendix 14 of the AEE (GHD 2023) specifically addresses dewatering of the current Golden Bar Pit Lake prior to recommencement of mining. GHD's modelling shows that at dewatering rates of 30 L/s, 20 L/s and 15 L/s, the Golden Bar Pit Lake (pit lake) could be dewatered in 1.25, 1.75 and 2.5 years respectively, ± 3 months. Table 4 of GHD's report summarises median and mean flow rates for the nearby potential receiving water bodies. Tables 5 and 6 of their report summarises the effect on sulphate and arsenic levels in these potential receiving water bodies. Under these dewatering scenarios, sulphate and arsenic are at times at levels in the Murphys Creek and NBWR that would likely exceed the established consent criteria downstream of the pit. Dewatering would be managed to maintain compliance. With respect to sulphate and arsenic compliance, GHD (2023) and MWM (2024) (Appendix 8 of AEE) describe management options that would enable the proposed dewatering to be undertaken. **Managing discharge** Active management of discharges to the NBWR and Murphys Creek catchments by ceasing or reducing dewatering where sulphate and arsenic concentrations

Otago Regional Council s92 request	OceanaGold response
	upstream of the Golden Bar Creek and/or the North Branch Waikouaiti River confluence do not allow for adequate dilution at NB03. Modelling suggests that dewatering can occur up to 80% of the time and meet in steam compliance criteria for sulphate. GHD determined that applying this strategy would likely increase the dewatering times by 20% or more depending on the efficiency of the operation and climatic conditions at the time. If this extended time frame was problematic, then the pit lake water could be pumped back to the Frasers TSF. GHD's modelling indicates that the established compliance limit for arsenic of 0.1 mg/L could be regularly exceeded for each of the dewatering rates. The risk of arsenic exceedance would require more active intervention than for sulphate as a greater level of dilution is required and would likely increase the dewatering timeline significantly. This does not preclude pumping to the Mine Water Management System as an option, but will likely place time limitations on when this option can be employed without managing pit lake arsenic levels. **Managing pit lake arsenic concentrations** Arsenic concentrations in the pit lake can be managed by a range of options: 1. Segregated dewatering destinations: Sampling and testing shows that arsenic is concentrated in the lower 10-15m of the pit lake (see Figure 46 from MWM 2024). MWM report thermal stratification has been observed in the pit lake, with higher arsenic concentrations and lower dissolved oxygen levels in the deeper parts of the lake during the warmer season. The upper pit lake could be dewatered to the nearby receiving catchments subject to achieving compliance, while the lower pit lake could be dewatered to the FTSF and used in the Mine Water Management System. To facilitate this option, a pump and pipe system will need to be designed and installed. The pipe would run between Golden Bar Pit and Frasers Pit, alongside the haul road where possible. This would have the advantage of being able to accelerate dewatering to meet schedule demands.

Otago Regional Council s92 request	OceanaGold response
	2. Treatment of pit lake water prior to dewatering could be undertaken. This could involve dosing with ferric chloride (as has been demonstrated by OGL at the Globe Pit Lake near Reefton) to reduce arsenic concentrations (MWM 2024). This has the benefit of extending the duration that pit lake water can be discharged to nearby catchment at rates that enable appropriate dilution by background flows. The arsenic rich precipitate that remains would then be recovered and hauled to the Frasers TSF for disposal. 3. MWM (2024) report aeration / mixing of the pit lake prior to dewatering may also be beneficial (e.g., using a 'trompe' (water powered air compressor) or similar: see Leavitt and Danehy (2015); Leavitt et al. (2015)).
5.12 For what reason has the 70 metres of gully within the footprint of the extended Golden Bar pit been classified as a river?	A response to this request is provided by Greg Ryder Consulting (refer **Annexure 15**). Utilising the methodology described in **Annexure 8**, the area is question is not considered to be a river. This will be reflected in the updated AEE to be provided in due course.
Activities associated with Northern Gully silt pond *Relevant reports*: N/A	
5.13 Please provide a (short) assessment of the potential for sediment discharges from the Northern Gully silt pond to generate adverse effects such as conspicuous changes in visual clarity or significant adverse effects on aquatic life.	A response to this request is provided below and augmented by further information provided by GHD for surface water (refer **Annexure 4**) and Greg Ryder Consulting for aquatic ecology (refer **Annexure 15**). Note that as part of the MP4 Project OceanaGold seeks a new discharge permit to discharge silt and sediment to water in the Northern Gully Silt Pond. The silt pond itself is the primary mechanism by which the adverse effects of these discharges will be managed. Operation of the Northern Gully Silt Pond occurs in accordance with the following existing resource consents: › RM20.424.03 – Discharge Permit (to water) - To discharge water from Northern Gully Silt Pond For the purpose of disposing of surplus water during heavy rainfall events to the Deepdell Creek.

Otago Regional Council s92 request	OceanaGold response
	› 2004.082 – Water Permit (dam) - To dam an unnamed tributary to Deepdell Creek, locally known as Northern Gully for the purpose of sediment control associated with surface water runoff from land disturbed by mining and mineral processing operations and post-mining rehabilitation activities. › 2004.092.V1 – Discharge Permit (to water) - To discharge water collected within the catchment of an unnamed tributary to Deepdell Creek, locally known as Northern Gully, to the Northern Gully silt pond for the purpose of sediment control associated with surface water runoff from land disturbed by mining and mineral processing operations and post-mining rehabilitation activities. › 2004.802 – Water Permit (take and use groundwater) - To take and use groundwater collected within the Northern Gully silt pond for the purposes of providing a water supply for mining and mineral processing operations and post-mining rehabilitation activities. › 2004.083 – Water Permit (take and use surface water) - To take and use surface water from an unnamed tributary to Deepdell Creek, locally known as Northern Gully, as collected in the Northern Gully silt pond, as primary allocation for the purposes of providing a water supply for mining and mineral processing operations and post-mining rehabilitation activities. Discharges from Northern Gully Silt Pond to Northern Gully will be undertaken in accordance with the relevant consents identified above.
6. Terrestrial Ecology	
Refer District Council RFI.	All terrestrial ecology matters are addressed in OceanaGold's response to the s92 requests made by the District Councils. A copy of that response has been provided to the Otago Regional Council for reference.