

Waikato Regional Council Consents

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Attachment 1 – Groundwater Analysis Parameters

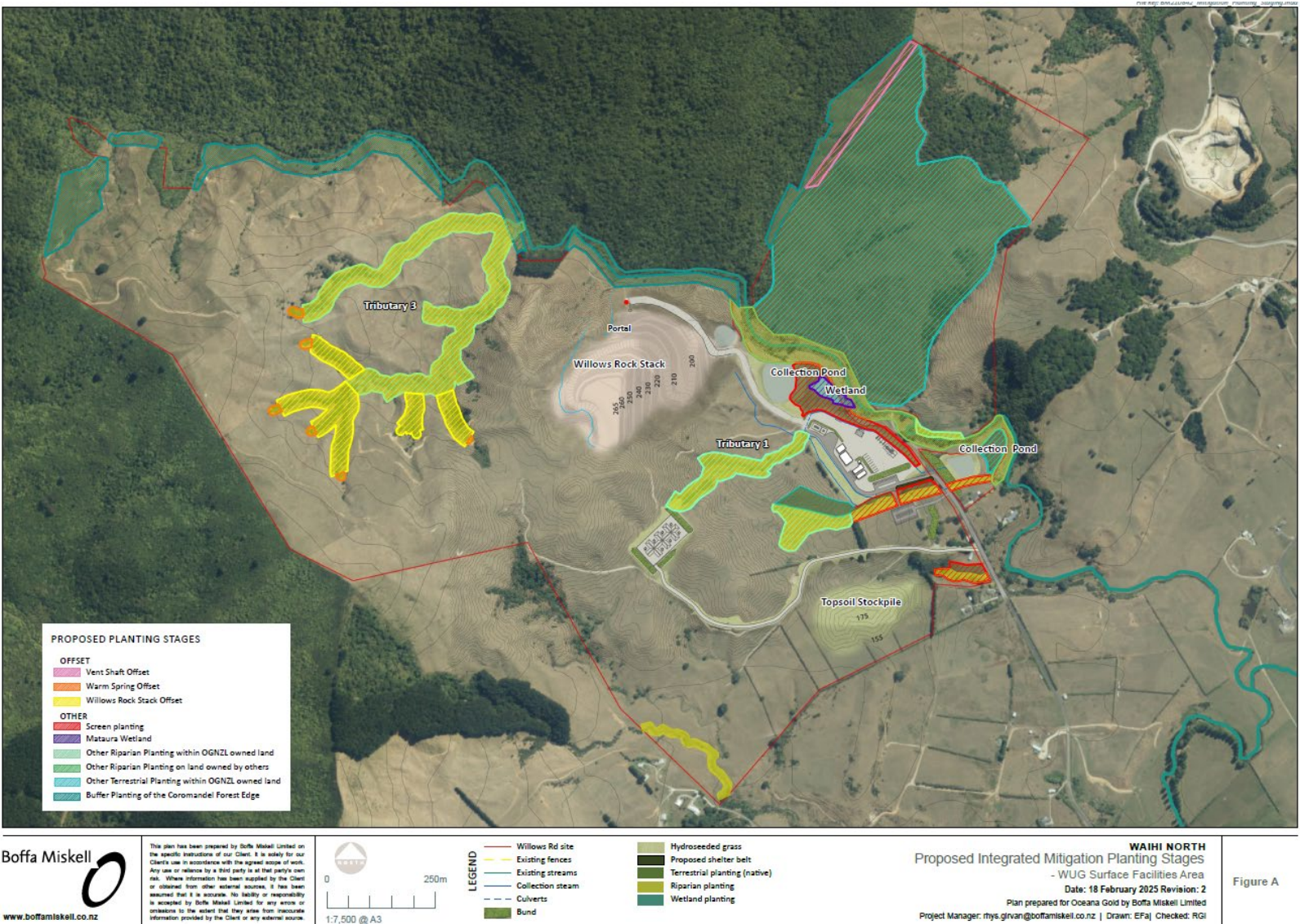
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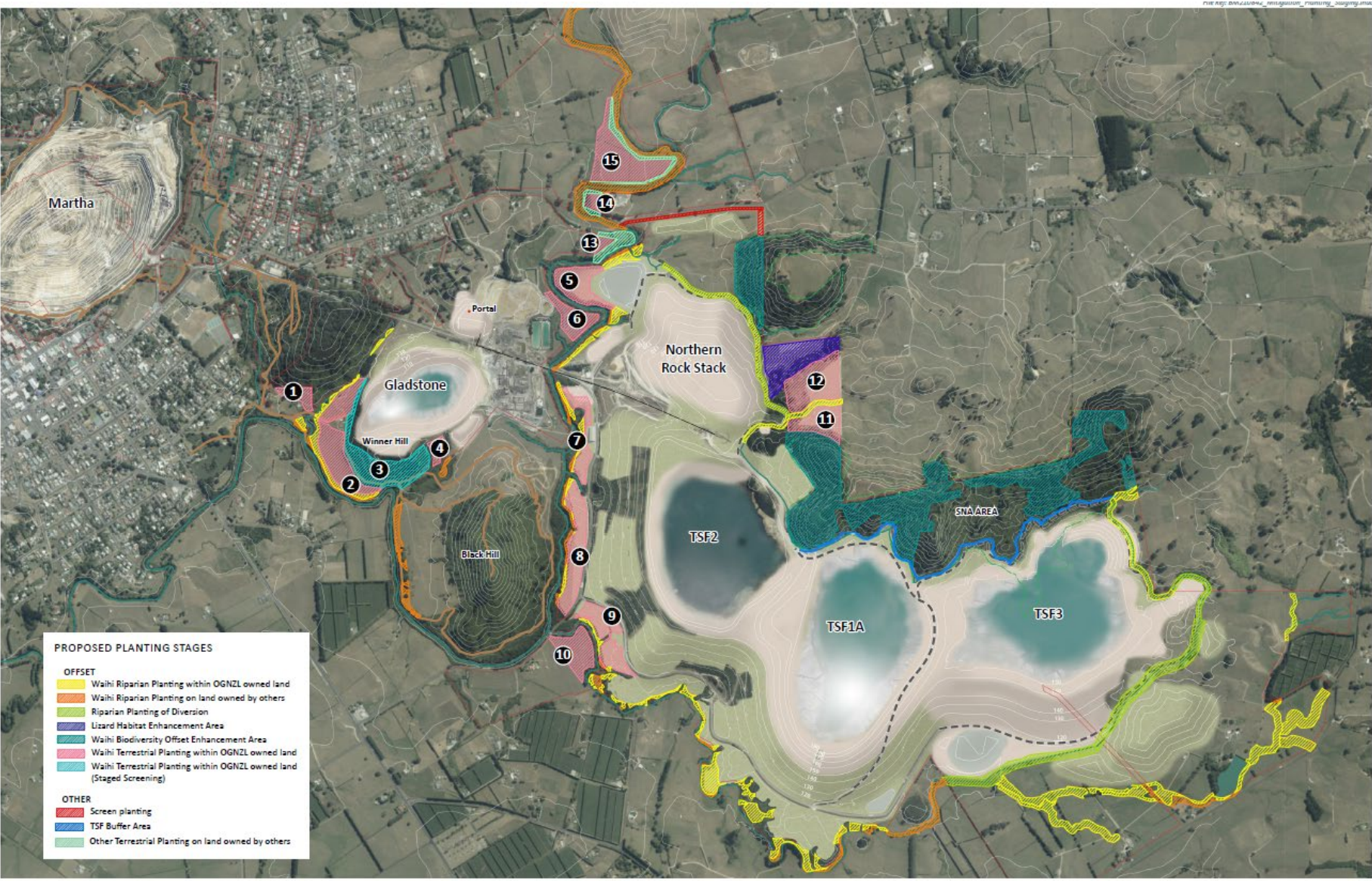
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GENERAL

ATTACHMENT 1 - PROPOSED INTEGRATED MITIGATION PLANTING STAGES MAPS





ATTACHMENT 2 - PROPOSED INTEGRATED MITIGATION PLANTING DETAILS

Table 1: Proposed Integrated Mitigation Planting Details

Area	Trigger Activity	Objective	Treatment	Timeframe
Figure A				
Offset Planting				

Appendix B7: Waikato Regional Council Consent Attachments

Vent Shaft Offset	<ul style="list-style-type: none"> > Clearance of vegetation for first vent shaft / pump test site. 	<ul style="list-style-type: none"> > To offset for the loss of vegetation and habitat associated with the vent raises in Area 1; > To recreate complex broadleaf native forest habitat with species and vegetation tiers consistent with the Coromandel Forest Park (CFP); > To provide an extension of habitat for native fauna in the CFP; > To promote natural reseeding from the CFP; > General ecological and landscape enhancement. 	<ul style="list-style-type: none"> > Stock and pig exclusion; > Low density native planting with suitable broadleaf species, for example kanuka (<i>Kunzea robusta</i>), pigeonwood (<i>Hedycarya arborea</i>), mahoe (<i>Melicytus ramiflorus</i>). Once established (3-5 years), enrichment planting with specimen tawa (<i>Beilschmiedia tawa</i>), miro (<i>Prumnopitys ferruginea</i>), pukatea (<i>Laurelia novae-zelandiae</i>) and rimu (<i>Dacrydium cupressinum</i>); > Planting should be staged to support natural forest regeneration processes particularly where natural seedling establishment is observed; > Weed control; > Mammalian pest control. 	<ul style="list-style-type: none"> > Pioneer planting completed by the end of the first planting season following vegetation clearance for vent shafts within Area 1; > Enrichment planting of future canopy species once the pioneer plantings have reached a sufficient size to shelter enrichment species (likely to be between 3 and 5 years following pioneer planting).
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Appendix B7: Waikato Regional Council Consent Attachments

Area	Trigger Activity	Objective	Treatment	Timeframe
Other Planting				
Screen planting	> Commencement of Willows SFA construction.	> To visually contain and assimilate landform modification and screen associated surface infrastructure area from Willows Road (including the unformed paper road) and adjoining rural dwellings.	<ul style="list-style-type: none"> > Stock exclusion; > Site preparation; > Standard mass planting of riparian and adjoining terrestrial areas using representative native pioneer species and non-invasive exotic shelter belt in specified area; > Enrichment with future representative canopy species once the pioneer plantings have reached a sufficient size to shelter enrichment species; > Establishment of a shelterbelt in the location shown in Figure A; > Weed control; > Mammalian pest control. 	> Planting complete within the first planting season following the completion of bulk earthworks in Area 2 associated with the establishment of the Willows Road Surface Facilities Area.
Other Terrestrial Planting within OGNZL owned land	> Commencement of Willows SFA construction.	<ul style="list-style-type: none"> > To recreate complex broadleaf native forest habitat with species and vegetation tiers consistent with the CFP; > To provide an extension of habitat for native fauna in the CFP; 	<ul style="list-style-type: none"> > Stock and pig exclusion; > Low density native planting with suitable broadleaf species, for example kanuka (<i>Kunzea robusta</i>), pigeonwood (<i>Hedycarya arborea</i>), mahoe (<i>Melicytus ramiflorus</i>). Once established (3-5 years), enrichment 	> As soon as practicable but no more than 10 years following commencement of activities within Area 2.

Appendix B7: Waikato Regional Council Consent Attachments

Area	Trigger Activity	Objective	Treatment	Timeframe
		<ul style="list-style-type: none"> > To promote natural reseeding from the CFP; > General ecological and landscape enhancement 	<ul style="list-style-type: none"> planting with specimen tawa (<i>Beilschmiedia tawa</i>), miro (<i>Prumnopitys ferruginea</i>), pukatea (<i>Laurelia novae-zelandiae</i>) and rimu (<i>Dacrydium cupressinum</i>); > Planting should be staged to support natural forest regeneration processes particularly where natural seedling establishment is observed; > Weed control; > Mammalian pest control. 	
Buffer Planting of the Coromandel Forest Edge (subject to approval being provided by the Department of Conservation)	> Commencement of Willows SFA construction.	<ul style="list-style-type: none"> > Minimise edge effects and provide a buffer between the CFP and the farmland; > To recreate complex broadleaf native forest habitat with species and vegetation tiers consistent with the CFP; > To provide an extension of habitat for native fauna in the CFP; > To promote natural reseeding from the CFP; > General ecological and landscape enhancement. 	<ul style="list-style-type: none"> > Stock exclusion; > Low density native planting with suitable broadleaf species, for example, kanuka (<i>Kunzea robusta</i>), pigeonwood (<i>Hedycarya arborea</i>), mahoe (<i>Melicytus ramiflorus</i>). Once established (3-5 years), enrichment planting with specimen tawa (<i>Beilschmiedia tawa</i>), miro (<i>Prumnopitys ferruginea</i>), pukatea (<i>Laurelia novae-zelandiae</i>) and rimu (<i>Dacrydium cupressinum</i>); > Planting should be staged to support natural forest regeneration 	> As soon as practicable but no more than 10 years following commencement of activities within Area 2.

Appendix B7: Waikato Regional Council Consent Attachments

Area	Trigger Activity	Objective	Treatment	Timeframe
			<p>processes, particularly where natural seedling establishment is observed;</p> <ul style="list-style-type: none"> > Weed control; > Mammalian pest control. 	
Figure B				
Offset Planting				
Lizard Habitat Enhancement Area	<ul style="list-style-type: none"> > Vegetation removal in Area 7. 	<ul style="list-style-type: none"> > To enhance an existing 1.3 ha area of known habitat for Nationally 'At Risk' moko skinks (<i>Oligosoma moco</i>); > To provide a safe (pest managed) refuge for relocated lizards; > General ecological and landscape enhancement with additional habitat creation of 4.04 ha adjacent to SNA166 (including the 1.3 ha of known habitat listed above). 	<ul style="list-style-type: none"> > Stock exclusion; > Pine tree removal; > Provision of permanent lizard refuge structures; > Standard mass planting of targeted lizard habitat species, for example flax (<i>Phormium tenax</i>), Pohuehue (<i>Muehlenbeckia complexa</i>), Toetoe (<i>Austroderia toetoe</i>), Mingimingi (<i>Leucopogon fasciculatus</i>), Pohutukawa (<i>Metrosideros excelsa</i>) and Cabbage Tree (<i>Cordyline australis</i>); > Weed control; > Mammalian pest control (until mine closure). 	<ul style="list-style-type: none"> > Pine tree removal before any vegetation removal in Areas 5, 6 or 7; > Pioneer planting complete by end of first planting season following vegetation removal in Area 7; > Enrichment planting undertaken once the pioneer plantings have reached a sufficient size to shelter enrichment species (likely to be between 3 and 5 years following pioneer planting).

Appendix B7: Waikato Regional Council Consent Attachments

Area	Trigger Activity	Objective	Treatment	Timeframe
Waihi Biodiversity Offset Planting Area	> Vegetation removal in Area 7.	<ul style="list-style-type: none"> > 17.5 ha of new planting in, adjacent to, and in the wider landscape of the SNA to offset loss of 8.3 ha of SNA vegetation; > 20 ha of new planting in wider WNP area to offset loss of 10.1 ha of site-wide indigenous vegetation; > General ecological and landscape enhancement 	<ul style="list-style-type: none"> > Stock exclusion; > Site preparation; > Standard mass planting using native pioneer species; > Enrichment with WF11 future canopy species once the pioneer plantings have reached a sufficient size to shelter enrichment species; > Weed control; > Mammalian pest control. 	<ul style="list-style-type: none"> > Pioneer planting complete by end of first planting season following vegetation removal in Area 7; > Enrichment planting undertaken once the pioneer plantings have reached a sufficient size to shelter enrichment species (likely to be between 3 and 5 years following pioneer planting).
Waihi Biodiversity Offset Enhancement Area	> Vegetation removal in Area 7.	<ul style="list-style-type: none"> > 20 ha of enhancement actions within pine-dominant areas of SNA 166 to offset loss of 1.2 ha of non-SNA native vegetation; > General ecological and landscape enhancement. 	<ul style="list-style-type: none"> > Stock exclusion; > Pine tree removal or poison, top & delimb; > Infill planting SNA Enrichment species at 5 m spacing where pine trees are removed; > Weed control; > Mammalian pest control. 	<ul style="list-style-type: none"> > Pine tree management, SNA enhancement planting (pine tree areas) complete by end of first planting season following vegetation removal in Area 7; > Enrichment planting undertaken once the pioneer plantings have reached a sufficient size to shelter enrichment species (likely to be between 3 and 5 years following pioneer planting).
Other Planting				
TSF Buffer Area	> Vegetation removal in Area 7.	> To rapidly buffer the edges of SNA166 to reduce weed reinvasion	> Buffer planting a minimum of 10 m wide along the southern boundary of	> Pioneer planting complete by end of first planting season following vegetation removal in Area 7.

Appendix B7: Waikato Regional Council Consent Attachments

Area	Trigger Activity	Objective	Treatment	Timeframe
		and other edge effects following vegetation removal; > General ecological and landscape enhancement.	the Southern Fragment of SNA 166 with fast growing native shrubs; > Weed control; > Mammalian pest control.	
Replacement Planting Zones 1, 2 and 4	> Vegetation removal in Areas 5, 6 or 7.	> Replacement planting for - unprotected planted vegetation (including pine) that would be removed; > Provide for and enhance ecological connectivity; > Provide ecological buffers to existing ecological values;	> Stock exclusion; > Site preparation; > Standard mass planting using native pioneer species; > Enrichment with WF11 future canopy species once the pioneer plantings have reached a sufficient size to shelter enrichment species;	> Pioneer planting complete by end of fifth planting season following vegetation removal in Areas 5, 6 or 7; > Enrichment planting undertaken once the pioneer plantings have reached a sufficient size to shelter enrichment species (likely to be between 3 and 5 years following pioneer planting).
Replacement Planting Zones 5 – 9	> Vegetation removal in Areas 5, 6 or 7.	> General ecological and landscape enhancement.	> Weed control; > Mammalian pest control.	> Pioneer planting complete by end of seventh planting season following vegetation removal in Areas 5, 6 or 7; > Enrichment planting undertaken once the pioneer plantings have reached a sufficient size to shelter enrichment species (likely to be between 3 and 5 years following pioneer planting).
Replacement Planting Zone 3	> Commencement of works at GOPTSF.			> Existing pine trees retained whilst Gladstone Pit is in operation; > Pine tree management and pioneer planting completed within the first

Appendix B7: Waikato Regional Council Consent Attachments

Area	Trigger Activity	Objective	Treatment	Timeframe
				<p>planting season following completion of surface mining in Gladstone Pit. This requires planting to occur before or whilst GOPTSF is in operation;</p> <p>> Enrichment planting undertaken once the pioneer plantings have reached a sufficient size to shelter enrichment species (likely to be between 3 and 5 years following pioneer planting).</p>
Replacement Planting Zone 10	> Vegetation removal in Areas 5, 6 or 7.			<p>> Pioneer planting complete by end of second planting season following vegetation removal in Areas 5, 6 or 7;</p> <p>> Enrichment planting undertaken once the pioneer plantings have reached a sufficient size to shelter enrichment species (likely to be between 3 and 5 years following pioneer planting).</p>
Screen Planting	> Vegetation removal in Areas 5, 6 or 7.	> To screen temporary stockpiles and Northern Rock Stack from Golden Valley Road.	> Establishment of fast growing native planting.	> Planting complete within the first planting season following the commencement of the consent.
Other Terrestrial Planting on OGNZL owned land	> As above.	> General ecological and landscape enhancement.	<p>> Stock exclusion;</p> <p>> Site preparation;</p> <p>> Standard mass planting using native pioneer species;</p>	> As soon as practicable but no more than 10 years following commencement of activities within Areas 5, 6 or 7.

Appendix B7: Waikato Regional Council Consent Attachments

Area	Trigger Activity	Objective	Treatment	Timeframe
			<ul style="list-style-type: none"> > Enrichment with WF11 future canopy species once the pioneer plantings have reached a sufficient size to shelter enrichment species; > Weed control; > Mammalian pest control. 	
Other Terrestrial Planting on land owned by others	<ul style="list-style-type: none"> > Vegetation removal in Areas 5, 6 or 7. 	<ul style="list-style-type: none"> > General ecological and landscape enhancement. 	<ul style="list-style-type: none"> > Stock exclusion; > Site preparation; > Standard mass planting using native pioneer species; > Enrichment with WF11 future canopy species once the pioneer plantings have reached a sufficient size to shelter enrichment species; > Weed control; > Mammalian pest control. 	<ul style="list-style-type: none"> > As soon as practicable but no more than 10 years following commencement of activities within Areas 5, 6 or 7.

UNDERGROUND ACTIVITIES

ATTACHMENT 1 - COMPOSITION / FUNCTION OF THE DERIVATION OF THE ALERT TRIGGER LEVEL

Alert Trigger Level

The trigger level is based on the calculated 7 day MALF for specific locations within the Wharekirauponga catchment. The trigger value signifies a defined low flow period. Effects from mining (if any) are not likely to be measurable/realised at flows above low flow events.

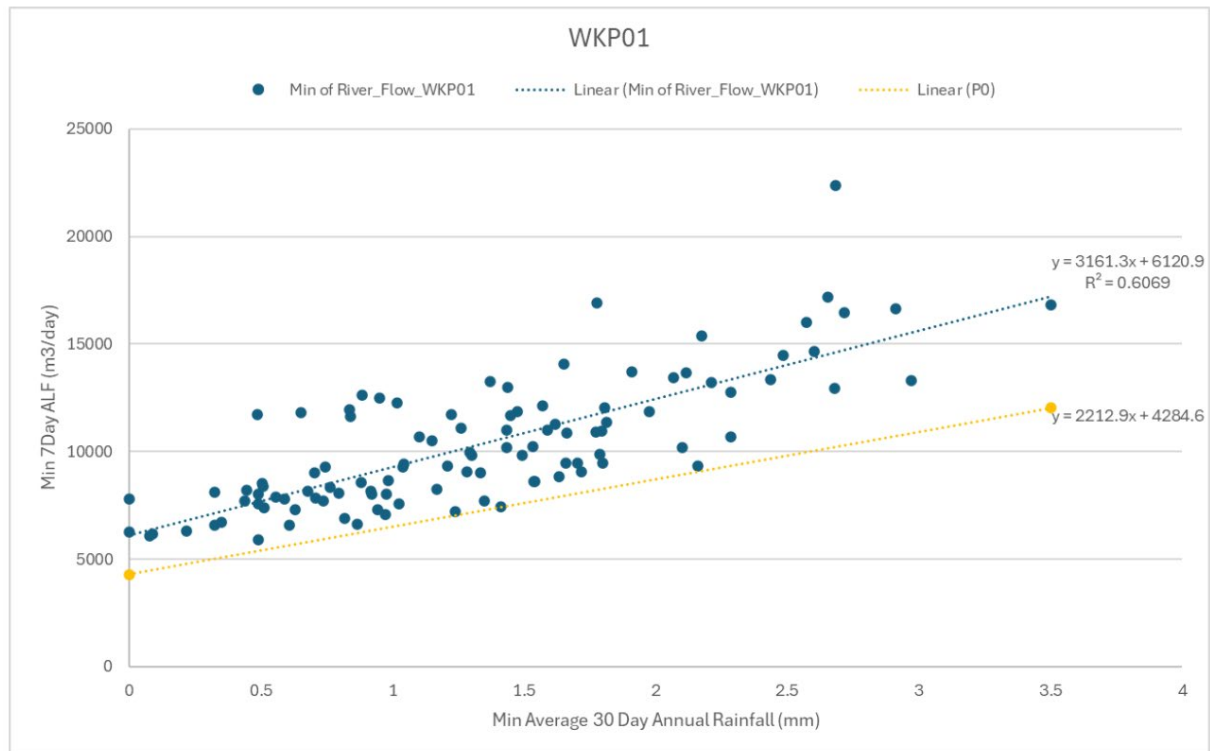
Respond Trigger Level

Flows lower than expected (as defined by the respond trigger level relationship) signify a potential departure from known trends and initiate a need for additional investigation.

The respond trigger levels have been developed utilising an extended climate dataset. This dataset has been used to plot the relationship between flow and rainfall at specific locations within the Wharekirauponga catchment. For each hydrological year (July – June), the period of lowest flow (defined as the lowest average 7-day flow) is compared to the preceding 30 days rainfall. The spread of the relationship (between rainfall and flow) provides a baseline against which to assess actual flows from preceding rainfall events. The following figure shows the plotted points for WKP01. The lowest expected flow (for concomitant 30-day preceding rainfall) is then calculated based on this relationship. The resulting relationship is defined by the yellow line in the below figure. This forms the basis for the formulae used in the 'Respond Trigger Level' column listed in the consent. A Respond trigger is activated if the actual measured flow (defined as the 7-day rolling average flow) is lower than the expected flow (based on the minimum expected flow relationship), which requires further investigation.

It is expected that natural flows will occasionally fall below the minimum expected based on this relationship (estimated to be approximately once every two years) during exceptionally dry seasons or years. The effects of such infrequent events are expected to result in similarly low flows at all monitored sites, assuming that mine dewatering is not affecting stream flows. A dewatering effect on surface water would be indicated by a very low triggering flow occurring in one or more sites that is not attributable to the preceding weather (30-day rainfall) and/or is not duplicated by similarly low flows elsewhere in the catchment and at the control sites.

Appendix B7: Waikato Regional Council Consent Attachments



Explanation of Respond Trigger Level Format

The Respond trigger level takes a form similar to the following, which applies to WKP01:

$$2213 \times R_{30'} + 4285$$

where $R_{30'}$ is the average rainfall that falls over the preceding 30 days

This equation is shown as the yellow line in the above graph. It means that if a situation ever occurred where no rain fell in the preceding 30 days ($R_{30'}=0\text{mm}$), the stream flow would be expected to be greater than $4,285\text{m}^3/\text{day}$. The Respond trigger is tripped if the stream flow drops to this value or to something less.

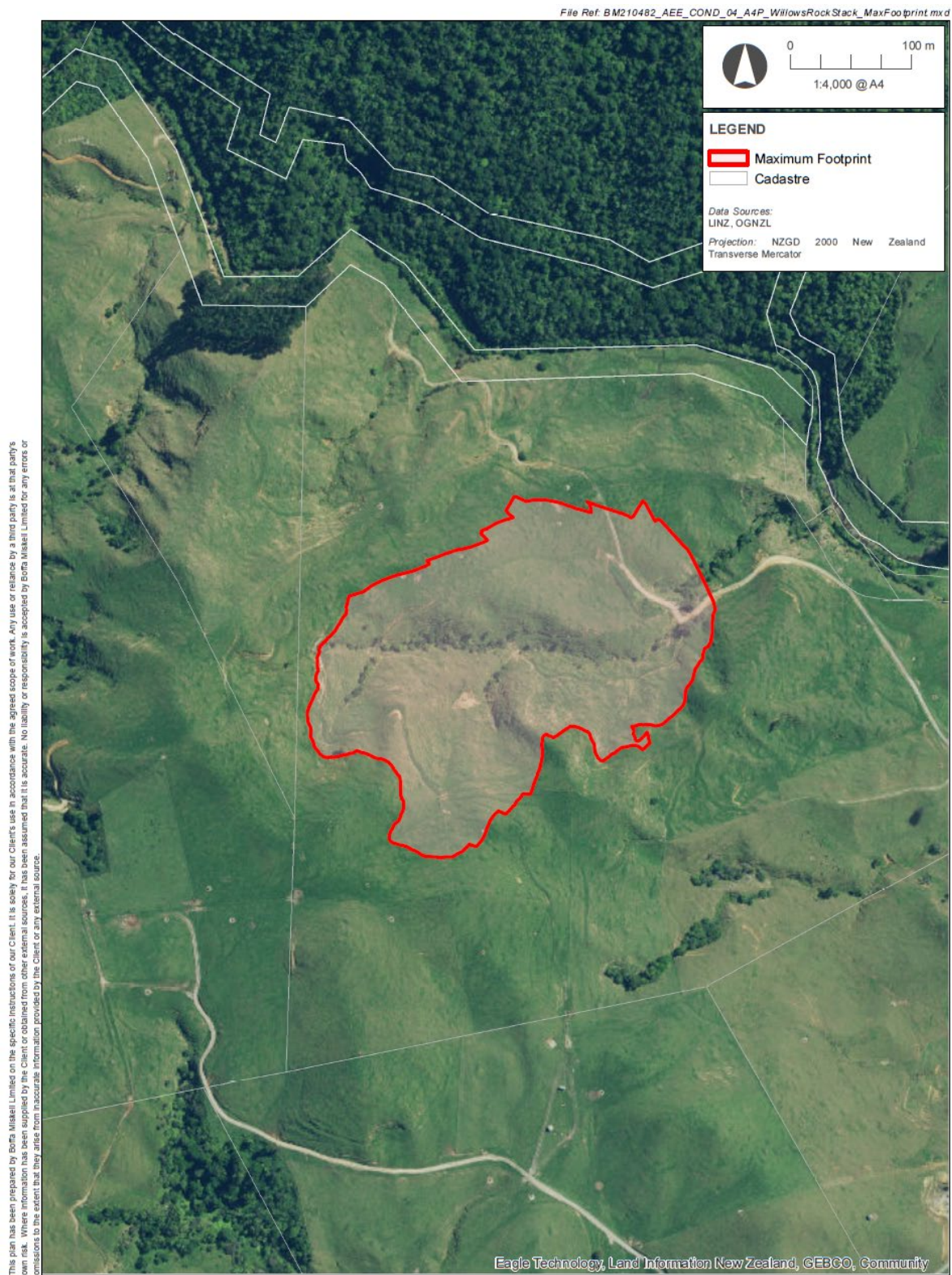
The situation of a period without any rain over 30 days in the Coromandel Range is very rare. And if there was rainfall at any time in the prior 30 days, it would cause the flow to something greater than $4,285\text{m}^3/\text{day}$. However, that flow could still be sufficiently low as to warrant a check on the cause.

Rainfall events are accounted for in the first expression in the above equation ($2213 \times R_{30'}$). If the average 30-day rainfall was $1\text{mm}/\text{day}$, this additional input would add $2,213\text{m}^3/\text{day}$ ($2213 \times 1\text{mm}$) to the trigger flow, making it $6,489\text{m}^3/\text{day}$. If the rainfall was $2\text{mm}/\text{day}$ on average, there would be a commensurate increase in the stream flow of $4,426\text{m}^3/\text{day}$ ($2213 \times 2\text{mm}$), generating a total trigger level flow of $8,711\text{m}^3/\text{day}$.

Each stream has a slightly different relationship that reflects its expected flow response to rainfall based on the Wharekirauponga water balance model.

AREA 2 SPECIFIC CONSENTS - F

ATTACHMENT 1 – WILLOWS ROCK STACK FOOTPRINT



WAIHI NORTH PROJECT AEE
Willows Rock Stack
Maximum Allowable Footprint
Date: 10 February 2025 | Revision: 0

Map 1

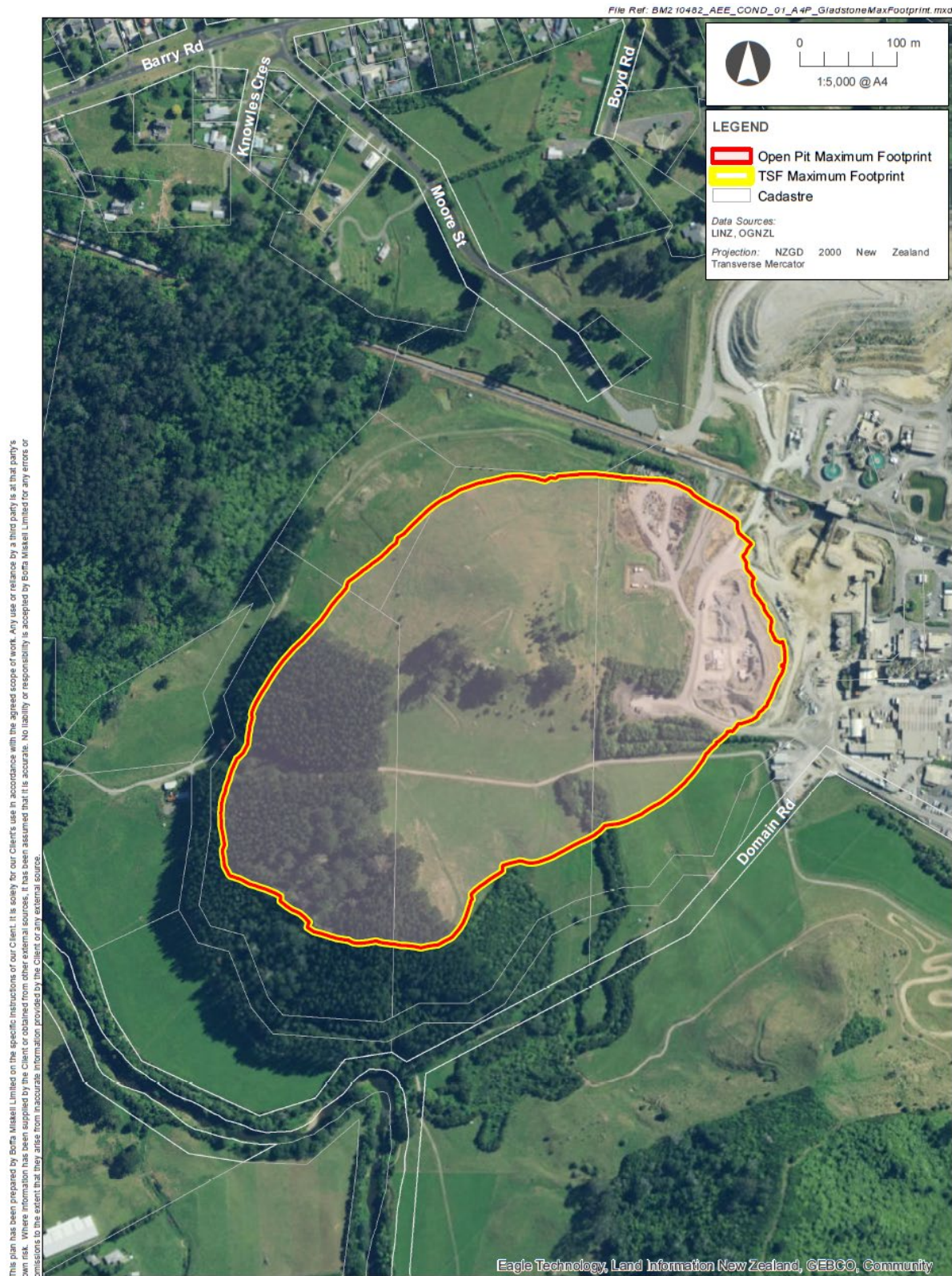
Project Manager: polly.smith@mitchelldaysh.co.nz | Drawn: BMC | Checked: PSM

ATTACHMENT 2 – GROUNDWATER ANALYSIS PARAMETERS

Parameter	Baseline and quarterly monitoring	Trigger level required to be developed (95th percentile confidence limit)
Electrical conductivity	✓	
pH		✓
Temperature		
Cyanide (WAD)		✓
Manganese		✓
Ammoniacal N		✓
Hardness		
Sulphate		✓
Dissolved metals		
Antimony	✓	✓
Arsenic		✓
Cadmium		✓
Chromium (VI)		✓
Mercury		✓
Nickel		✓
Zinc		✓
Lead		✓
Silver		✓
Copper		✓
Iron		✓
Selenium		✓

AREA 5 SPECIFIC CONSENTS - D

ATTACHMENT 1 – GLADSTONE OPEN PIT FOOTPRINT



WAIHI NORTH PROJECT AEE Gladstone Open Pit and Tailings Storage Facility Maximum Allowable Footprint

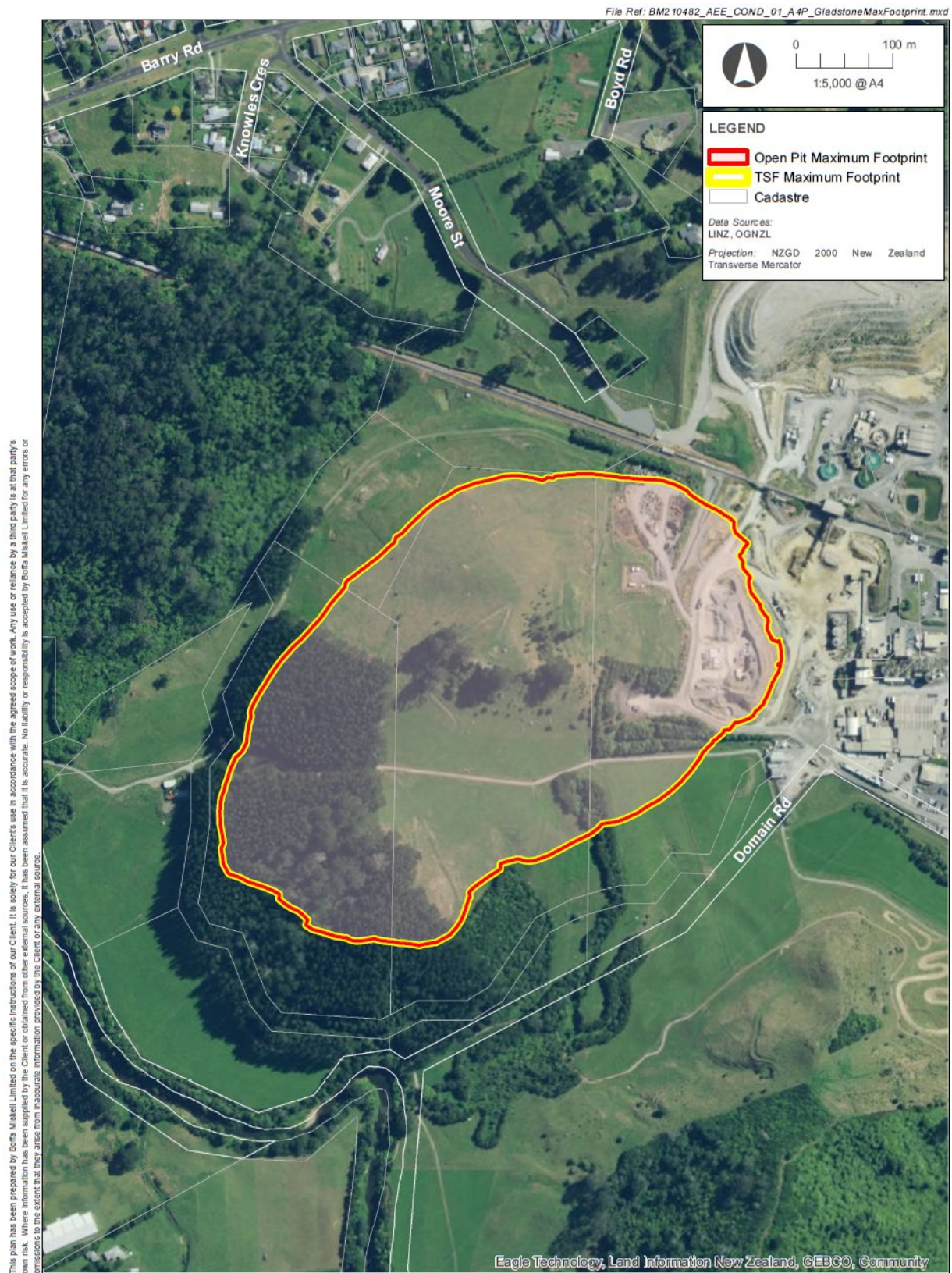
Date: 10 February 2025 | Revision: 0

Project Manager: polly.smith@mitchelldaysh.co.nz | Drawn: BMC | Checked: PSM

Map 1

AREA 5 SPECIFIC CONSENTS - G

**ATTACHMENT 1 - GLADSTONE OPEN PIT TAILINGS STORAGE FACILITY AREA
FOOTPRINT**



WAIHI NORTH PROJECT AEE
Gladstone Open Pit and Tailings Storage Facility
Maximum Allowable Footprint
 Date: 10 February 2025 | Revision: 0
 Project Manager: polly.smith@mitchelldaysh.co.nz | Drawn: BMC | Checked: PSM

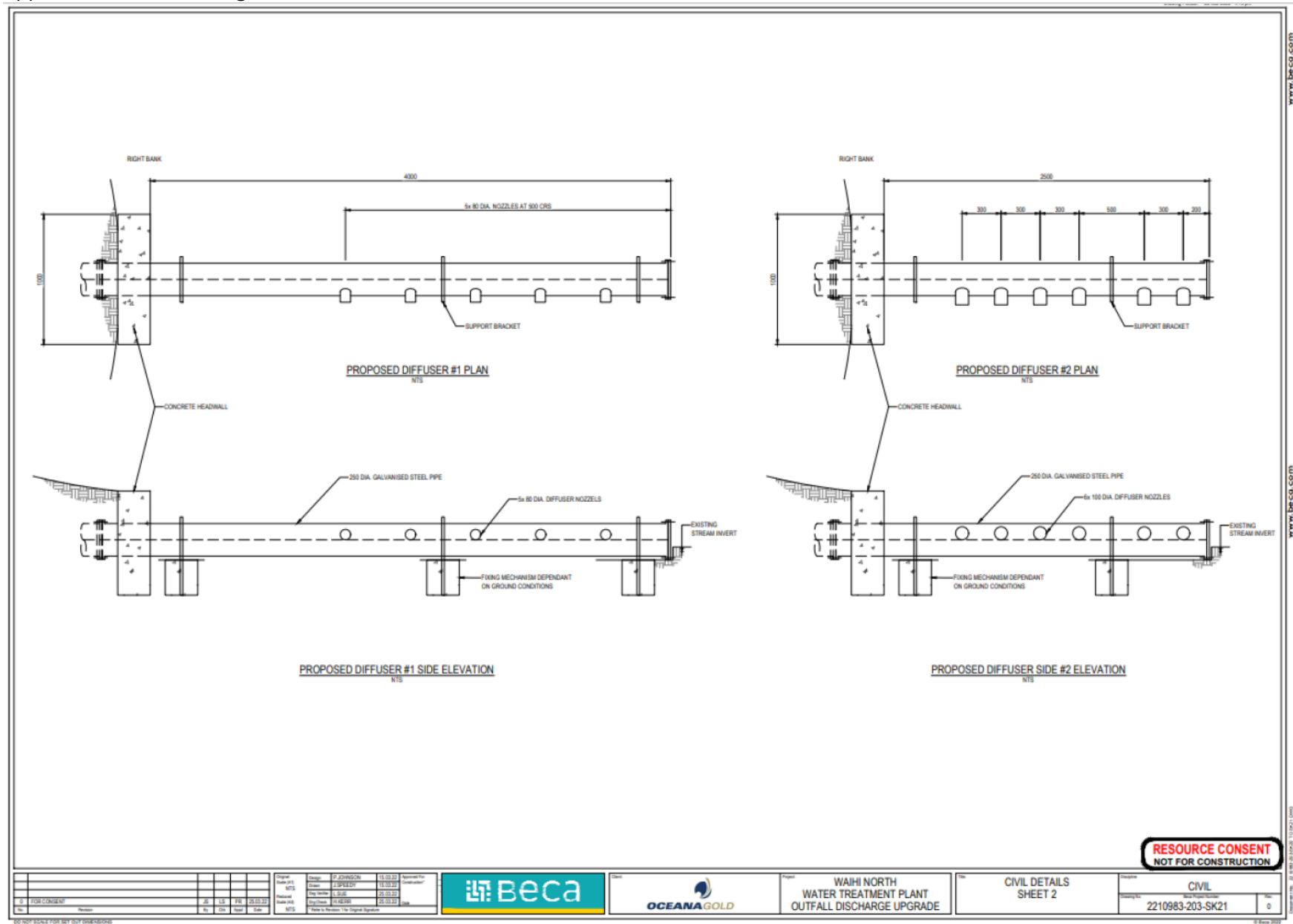
Map 1

ATTACHMENT 2 – GROUNDWATER ANALYSIS PARAMETERS

Parameter	Baseline and quarterly monitoring	Trigger level required to be developed (95 th percentile confidence limit)
Electrical conductivity	✓	
pH		✓
Temperature		
Cyanide (WAD)		✓
Manganese		✓
Ammoniacal N		✓
Hardness		
Sulphate		✓
Dissolved metals		
Antimony	✓	✓
Arsenic		✓
Cadmium		✓
Chromium (VI)		✓
Mercury		✓
Nickel		✓
Zinc		✓
Lead		✓
Silver		✓
Copper		✓
Iron		✓
Selenium		✓

AREA 5 SPECIFIC CONSENTS - J

ATTACHMENT 1 – OUTFALL DESIGN



AREA 5 SPECIFIC CONSENTS - K

ATTACHMENT 1 – RIVER SAMPLING LOCATIONS



AREA 5 SPECIFIC CONSENTS - O

ATTACHMENT 1 – GROUNDWATER ANALYSIS PARAMETERS

Parameter	Baseline and quarterly monitoring	Trigger level required to be developed (95 th percentile confidence limit)
Electrical conductivity	✓	
pH		✓
Temperature		
Cyanide (WAD)		✓
Manganese		✓
Ammoniacal N		✓
Hardness		
Sulphate		✓
Dissolved metals		
Antimony	✓	✓
Arsenic		✓
Cadmium		✓
Chromium (VI)		✓
Mercury		✓
Nickel		✓
Zinc		✓
Lead		✓
Silver		✓
Copper		✓
Iron		✓
Selenium		✓

AREA 6 SPECIFIC CONSENTS - G

ATTACHMENT 1 – NORTHERN ROCK STACK FOOTPRINT



WAIHI NORTH PROJECT AEE
Northern Rock Stack
Maximum Allowable Footprint
Date: 10 February 2025 | Revision: 0

Map 1

Project Manager: polly.smith@mitchelldaysh.co.nz | Drawn: BMC | Checked: PSm

ATTACHMENT 2 – GROUNDWATER ANALYSIS PARAMETERS

Parameter	Baseline and quarterly monitoring	Trigger level required to be developed (95 th percentile confidence limit)
Electrical conductivity	✓	
pH		✓
Temperature		
Cyanide (WAD)		✓
Manganese		✓
Ammoniacal N		✓
Hardness		
Sulphate		✓
Dissolved metals		
Antimony	✓	✓
Arsenic		✓
Cadmium		✓
Chromium (VI)		✓
Mercury		✓
Nickel		✓
Zinc		✓
Lead		✓
Silver		✓
Copper		✓
Iron		✓
Selenium		✓

AREA 6 SPECIFIC CONSENTS - J

ATTACHMENT 1 – GROUNDWATER ANALYSIS PARAMETERS

Parameter	Baseline and quarterly monitoring	Trigger level required to be developed (95 th percentile confidence limit)
Electrical conductivity	✓	
pH		✓
Temperature		
Cyanide (WAD)		✓
Manganese		✓
Ammoniacal N		✓
Hardness		
Sulphate		✓
Dissolved metals		
Antimony	✓	✓
Arsenic		✓
Cadmium		✓
Chromium (VI)		✓
Mercury		✓
Nickel		✓
Zinc		✓
Lead		✓
Silver		✓
Copper		✓
Iron		✓
Selenium		✓

AREA 7 SPECIFIC CONSENTS - H

ATTACHMENT 1 – TAILINGS STORAGE FACILITY 3 FOOTPRINT



WAIHI NORTH PROJECT AEE
 Tailings Storage Facility 3
 Maximum Allowable Footprint
 Date: 17 February 2025 | Revision: 0

Map 1

Project Manager: polly.smith@mitchelldaysh.co.nz | Drawn: BMC | Checked: PSM

ATTACHMENT 2 – GROUNDWATER ANALYSIS PARAMETERS

Parameter	Baseline and quarterly monitoring	Trigger level required to be developed (95 th percentile confidence limit)
Electrical conductivity	✓	
pH		✓
Temperature		
Cyanide (WAD)		✓
Manganese		✓
Ammoniacal N		✓
Hardness		
Sulphate		✓
Dissolved metals		
Antimony	✓	✓
Arsenic		✓
Cadmium		✓
Chromium (VI)		✓
Mercury		✓
Nickel		✓
Zinc		✓
Lead		✓
Silver		✓
Copper		✓
Iron		✓
Selenium		✓