

PRELIM CIVIL INFRASTRUCTURE REPORT



Proposed Cleanfill

469 Ridge Road,
Pokeno

PROJECT INFORMATION

CLIENT: NZ Cleanfil Limited

PROJECT: 231006

DOCUMENT CONTROL

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REVISION A

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1. OVERVIEW

1.1 PROJECT

NZ Cleanfil Limited is intending to lodge an application for a proposed cleanfill within the site at 469 Ridge Road, Pokeno, with the intent of the site to be listed on the schedule to the Fast-track Approvals Bill. If included on the schedule it would seek approvals for its proposal using the fast-track process. This memorandum provides a high-level civil engineering assessment of the proposal.

This report provides information in support of the Fast Track application, and further reporting and engineering design will be required before lodgement of a resource consent.

The calculations and assessments included in this report are 'desktop' analysis and are preliminary in nature based on information available at time of issue.

1.2 LEGAL DESCRIPTION

Applicant	NZ Cleanfil Limited
Record of Title	NA18B/924
Legal Description	Allotment 323 Mangatawhiri Parish
Site Area	75.92 ha

1.3 SITE DESCRIPTION

The site is 75.9 hectares and features varied topography. The centre of the site features some moderate grades within the valley base. A permeant stream meanders through the low-point. There are several features (wetlands/streams etc) which all feed down into the stream at the base of the site.

The site drops away steeply from the Ridge Road boundary towards the centre of the site before rising steeply again towards the rear (north-western) boundary.

The site has been mostly cleared of vegetation to facilitate for historical and current farming activities. However, there are two Significant Natural Areas (SNAs) on the site where indigenous vegetation remains dense. These SNA areas are shown within the draft concept plans attached within Appendix A..

The site is currently used for cattle and sheep farming purposes. There are several buildings (including dwellings) currently on the site.

The site is benefited from several lawful and existing vehicle crossings and roads within. The primary access point is well formed and sealed from Ridge Road, and then features a rural make up from there (Gravel / table drains etc).

The location of the subject site is shown below in Figure 2.



Figure 1: Site Locality Plan (Approximate boundaries in red).

There are existing power and communications network present within or nearby, noting that the National Grid Corridor passes through the site. The location of the lines and pylon are clearly shown within the appended plans. The site is, however, not serviced by reticulated water, wastewater, or stormwater networks.

1.4 PROPOSED DEVELOPMENT

The Applicant seeks approval to use the site for a cleanfill activity. The site is both well located and well suited (from a topography / ecology impact) to support the intended cleanfill.

Bulk filling would occur through the lower-lying, flatter areas to the east of the permanent stream. To accommodate the loss of identified wetland areas, two permanent wetland features would be constructed and planted before the earthwork operations began. The upstream catchments would be diverted around the intended earthwork area via engineered swales before being discharged into the wetlands, before ultimate discharge into the stream.

Sediment Retention Ponds (SRPs) would then be constructed to enable the progressive filling of the gullies and upstream catchment. Progressive lifts would occur before final levels are achieved. Undersoil drainage would be included in support of the fill, as specified by the Geotech engineer.

Once final levels are reached, the SRPs would be decommissioned, and would be formed into part of the wider wetland/planted margins. The earthwork platform would be grassed and reinstated for agricultural/farming purposes.

2. EARTHWORKS

The intended cleanfill requires significant filling within the site. IN total, approximately 21ha of the lower valley will be earthworked and progressively filled. A specific methodology will be provided in support of the intended earthworks of which is summarised below and would be provided in more detail (inclusive of sediment control) in support of any future application.

A summary of the earthworks (subject to further refinement and Geotech input) is provided below:

- Earthworks area = 21,000m² (21 ha)
- Total cut volume = 46,700m³
- Total fill volume = 1,320,200 m³
- Topsoil stripped (assumed 200mm) = 42,000m³
- Maximum cut depth = 4m
- Maximum fill depth = 15.5m

2.1 METHODOLOGY AND EARTHWORKS DESIGN

Prior to bulk earthworks being undertaken, the ecology mitigation would occur. This includes the creation and planting of the two wetland areas. The existing catchments will be diverted via engineered swales around the intended earthwork area, before discharging into the wetlands, to mimic the predevelopment hydrology within the site. The wetland areas will be planted out and will ultimately discharge into the stream.

The swales form the clean water diversions for the earthwork operations. The next step would see the formation of the Sediment Retention Ponds (SRPs). The SRPs are located in the natural low-points. Whilst the design allows for the full catchment to be exposed at any one time, it is assumed that SRPs 2 and 3 would be formed first, which would allow for the filling of the lowest areas, based around the existing wetlands which the catchment all falls too.

The SRPs will treat dirty water with floc before discharge into the wetlands. SRPs 4 and 1 provide the required treatment for their respective catchments, and are required in support of the full catchment. As the SRPs are intended to be maintained for an extended duration, Maven have oversized the SRPs from what would be required under GD05. Each SRP has been sized as if they have a contributing catchment of 7ha, whereas the actual catchment size (assuming fully open) ranges from 4.29 - 4.79ha.

The progressive lifts within the site is supported by a 1/3 batter slope back down to existing levels, which contains the developed wetlands, the SRPs and access/maintenance track. This embankment would be stabilised by grass as the batter is progressively built up, and long term when final levels are reached would be planted out in native vegetation.

As the batter is formed, a dirty water diversion bund will be maintained along the edge of the earthworks area, at the top of the batter. This would contain dirty water, before being discharged down the embankment via a flume and into a riprap area prior to discharge into the forebay of the SRPs. This will ensure there is no erosion of the batter slope whilst earthwork operations continue.

Whilst the actual methodology will be determined in a final Erosion and Sediment Control plan, the overall intent would be to limit exposed area within the site.

Resource consent will require that erosion and sediment control measures are implemented and maintained in accordance with the Engineering Drawings.

Silt control measures will need to be installed onsite prior to or during (as specified) earthworks commencement. All silt control measures will be checked and confirmed acceptable by the Engineer before relevant earthworks commence. A Geotech Completion Report will be provided at the completion of earthworks.

2.2 Geotech Reporting

CMW Geosciences have been engaged and are currently doing initial site investigations. CMW Geosciences have reviewed the initial concept plans attached (Appendix A) and will provide a formal review prior to the design being submitted for approval.

CMW will also specify subsoil drainage design which will be included in support of the fill areas, specifically around the increased heights through the lower points and gullies.

CMW will provide Geotech supervision during construction and will provide a Geotech Completion Report upon completion.

3. FLOODING AND OVERLAND FLOW

3.1 OVERLAND FLOWPATHS ('OLFPS')

The overland flowpaths within the site are largely contained to the streams and wetlands and associated margins. The primary stream / overland flow corridor is maintained, along with the existing planted areas within the riparian margins. The SRPs will be located nearby but out of the identified OLFPS.

The upstream catchments and OLFPS will be diverted around the earthworks area. This will divert OLF but will ultimately discharge into the stream within the site. The swales have been designed to contain the full 100-yr flows, as to ensure no effect to adjoining properties.

3.2 FLOODING

There is known flooding within the site, however, this is limited to the streams and associated margins and is for the most part removed from the intended earthwork extents.

The site sits relatively high in the catchment, and thus limits the extent of flooding contained within. As the earthworks operation does not seek to increase the current impervious area, there is no downstream effects created by the intended cleanfill operation.

4. STORMWATER

4.1 STORMWATER RETICULATION

There is no existing stormwater network in the vicinity of the development area. The improved access road and any impervious area will be provided with a suitable means of stormwater disposal, via table drains, or catchpits and pipes. This will be discharged into the diversion swales, and ultimately into the stream within the site.

4.2 STORMWATER CAPACITY

The proposed stormwater network (as required) will be subject to future Building Consent approval and will be designed to have capacity for the 10-year rainfall event. The sizing will be undertaken as part of the developed design process.

5. ROADING AND ACCESS

The existing entranceway and farm accessway will be upgraded to accommodate the intended use. The road will be widened and will be suitable to allow for two-way heavy vehicle movements. The entrance will also be upgraded, the extent of which will be detailed in any future application and is subject to traffic engineer feedback which is being currently sought.

A haul road / farm access track will be constructed along the north-eastern side of the earthworks area. This will enable continued maintenance of the SRPs, wetland areas whilst retaining access to the balance of the farm on the western side of the stream.

6. CONCLUSION

The report outlines the high-level civil servicing strategy for the intended Fast Track development.

The concept plans demonstrate a cleanfill operation with circa 1,300,000 m³ of fill. This is considered to be regionally significant, with a shortage of suitable clean fill sites in proximity to the growth cells of Auckland and the Waikato.

The report and appended plans provide a high-level earthworks methodology and design which will allow for the progressive filling of the site. The design enables the full area to be earthworked at anyone time, with the sediment and erosion control design conservative with all SRPs oversized.

The proposal will be supported by some roading upgrades, including a new entranceway and access road. The details of which will be provided in support of any future application.

There is known flooding and overland flowpaths within the development area. Whilst the OLFPs are being diverted around the works area, the discharge point remains the same. The swales will be designed for the 100-yr flows, ensuring no external effects.

The flooding which occurs around the stream margin will be left unaffected by the proposal, and the new wetland areas will be able to accommodate these flows as required. As the proposal does not seek to increase the impervious areas within the site, there will be no downstream effects created from that of the pre-development scenario.

Information gathered to-date confirms the site is suitable for the proposed development.

7. APPENDICES

7.i APPENDIX A – CONCEPT ENGINEERING PLANS



REFER TO C201-1

RIDGE ROAD

RIDGE ROAD

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
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 3. LEVELS IN TERMS OF THE AUCKLAND VERTICAL DATUM 1946.
 4. ORIGIN OF LEVELS = SM XXXX SO XXXX(XXXX) PUBLISHED RL=XX.XX, SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
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 9. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.
 10. SEDIMENT CONTROL TO COMPLY WITH GD05 STANDARDS.

LEGEND

---	EX BDY
---	PROP BDY
---	PROP EXTENT WORK
+	EX SNA
---	EX WETLAND
---	EX STREAM
⊗	EX TRANSPOWER PYLONS

A	FOR INFORMATION	JAW	05/2024
Rev	Description	By	Date
		By	Date
Survey	LIDAR	-	
Design	JAW	12/2023	
Drawn	JAW	12/2023	
Checked	AC	12/2023	



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Project

**BULK EARTHWORK OF
469 RIDGE ROAD
POKENO
FOR
NZ CLEANFIL LTD.**

Title

**PROPOSED
EARTHWORK OVERALL
PLAN**

Project no.	231006
Scale	1:4000@ A3
Cad file	C200 S1-1.DWG
Drawing no.	C200-1
Rev	A

FOR INFORMATION



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- LEGEND
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 - PROP BDY
 - EX MAJOR CONTOUR
 - EX MINOR CONTOUR
 - PR MAJOR CONTOUR
 - PR MINOR CONTOUR
 - PROP EXTENT WORK
 - EX SNA
 - EX WETLAND REMAIN
 - EX STREAM
 - EX TRANSPWER PYLONS

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Scale	1:4000@ A3
Cad file	C200 S1-1.DWG
Drawing no.	C201-1
Rev	A

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LEGEND		
	EX BDY	
	PROP BDY	
	PROP EXTENT WORK	

Cut/Fill Table			
Number #	Minimum Elevation	Maximum Elevation	Color
1	-6.000	-5.000	
2	-5.000	-4.000	
3	-4.000	-3.000	
4	-3.000	-2.000	
5	-2.000	-1.000	
6	-1.000	0.000	
7	0.000	1.000	
8	1.000	2.000	
9	2.000	3.000	
10	3.000	4.000	
11	4.000	5.000	
12	5.000	6.000	
13	6.000	7.000	
14	7.000	8.000	
15	8.000	9.000	
16	9.000	10.000	
17	10.000	11.000	
18	11.000	12.000	
19	12.000	13.000	
20	13.000	14.000	
21	14.000	15.000	
22	15.000	16.000	

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Project no.	231006
Scale	1:4000@ A3
Cad file	C200 S1-1.DWG
Drawing no.	C220-1
Rev	A

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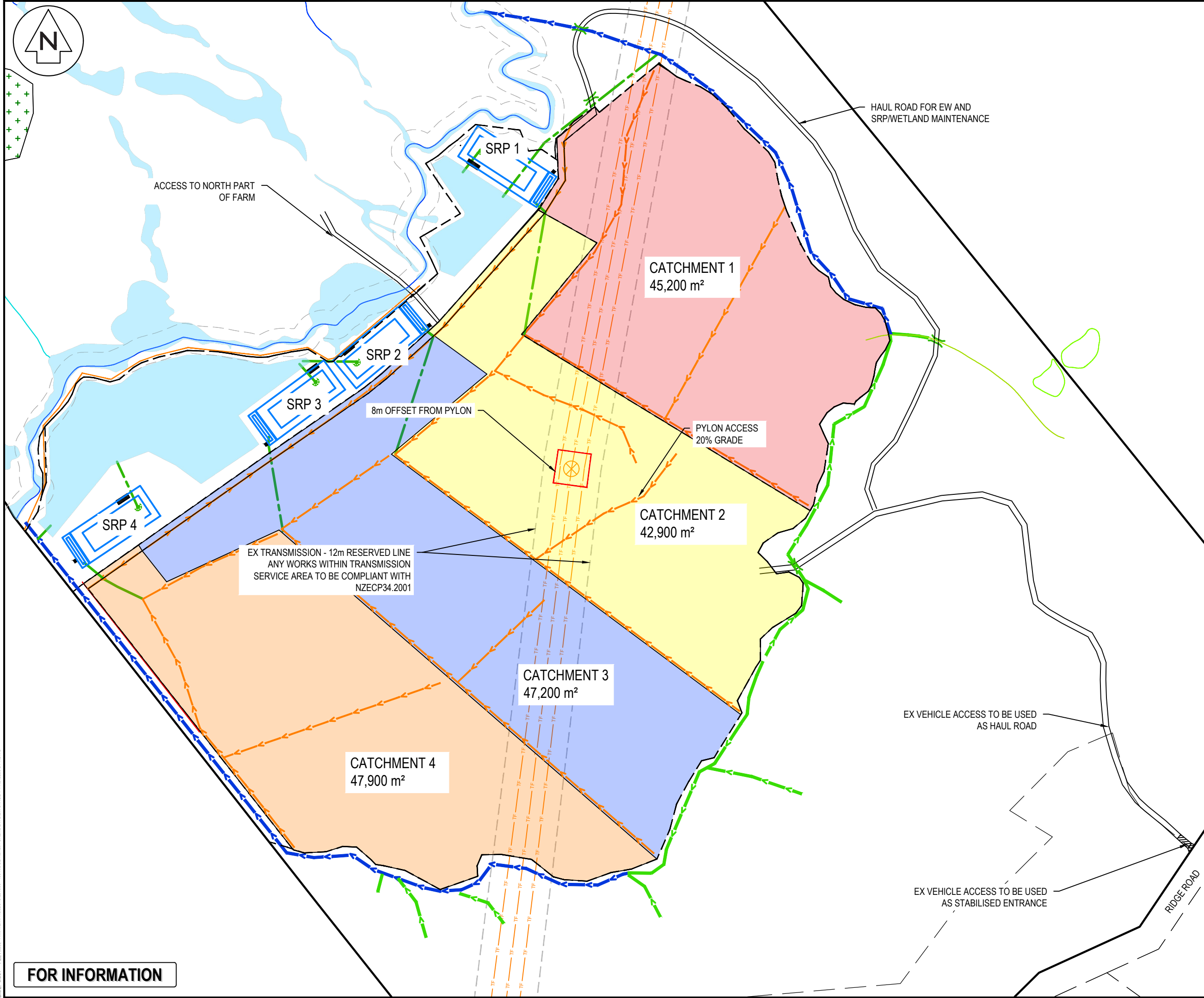
FOR INFORMATION

EARTH WORKS (SURFACE EGL COMPARISON WITH SURFACE PGL)

CUT VOLUME 46,700 m³
FILL VOLUME 1,320,200 m³
NET FILL 1,273,500 m³

TOPSOIL STRIPPED (200mm) = 42,000 m³
EARTHWORKS AREA = 210,000m² / 21.0 Ha

NOTE: NO ALLOWANCE FOR SERVICES TRENCHES,
VOLUMES ARE UNFACTORED AND IN SITU



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LEGEND

---	EX BDY
---	PROP BDY
---	EX MAJOR CONTOUR
---	EX MINOR CONTOUR
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---	PR MINOR CONTOUR
---	PROP EXTENT WORK
---	EX STREAM
⊗	EX TRANSPOWER PYLONS
---	PR SWALE/BUND 6.0m
---	PR SWALE/BUND 4.0m
---	PROP DIRTYWATER
---	PROP SILT FENCE
---	PROP SUPPER SILT F.
---	PROP DECANT
---	PROP DECANT BAR
---	PROP SW PIPE

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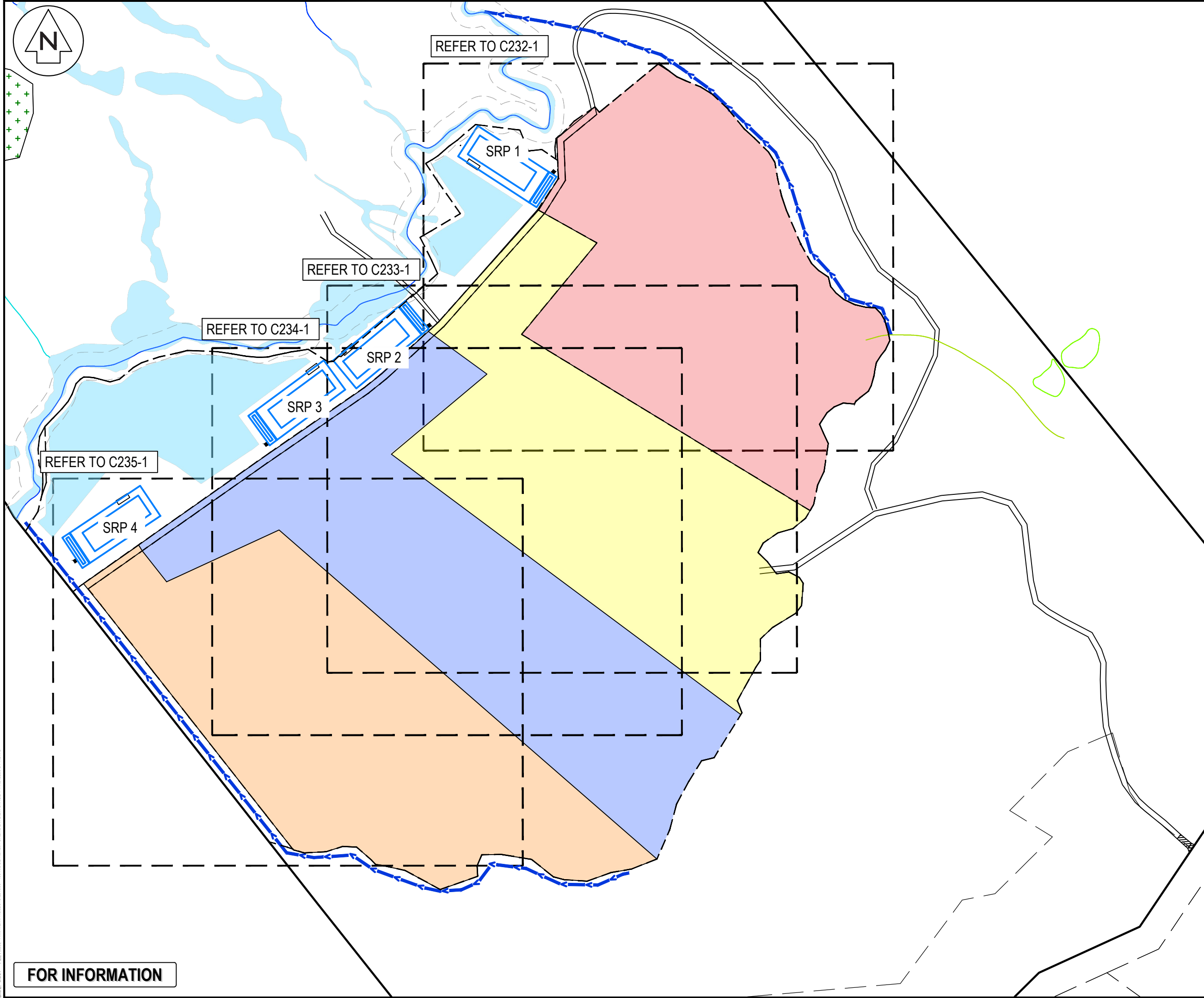
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**PROPOSED
ESC PLAN**

Project no.	231006		
Scale	1:2500@ A3		
Cad file	C230 S1-1.DWG		
Drawing no.	C230-1	Rev	A

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---	EX STREAM

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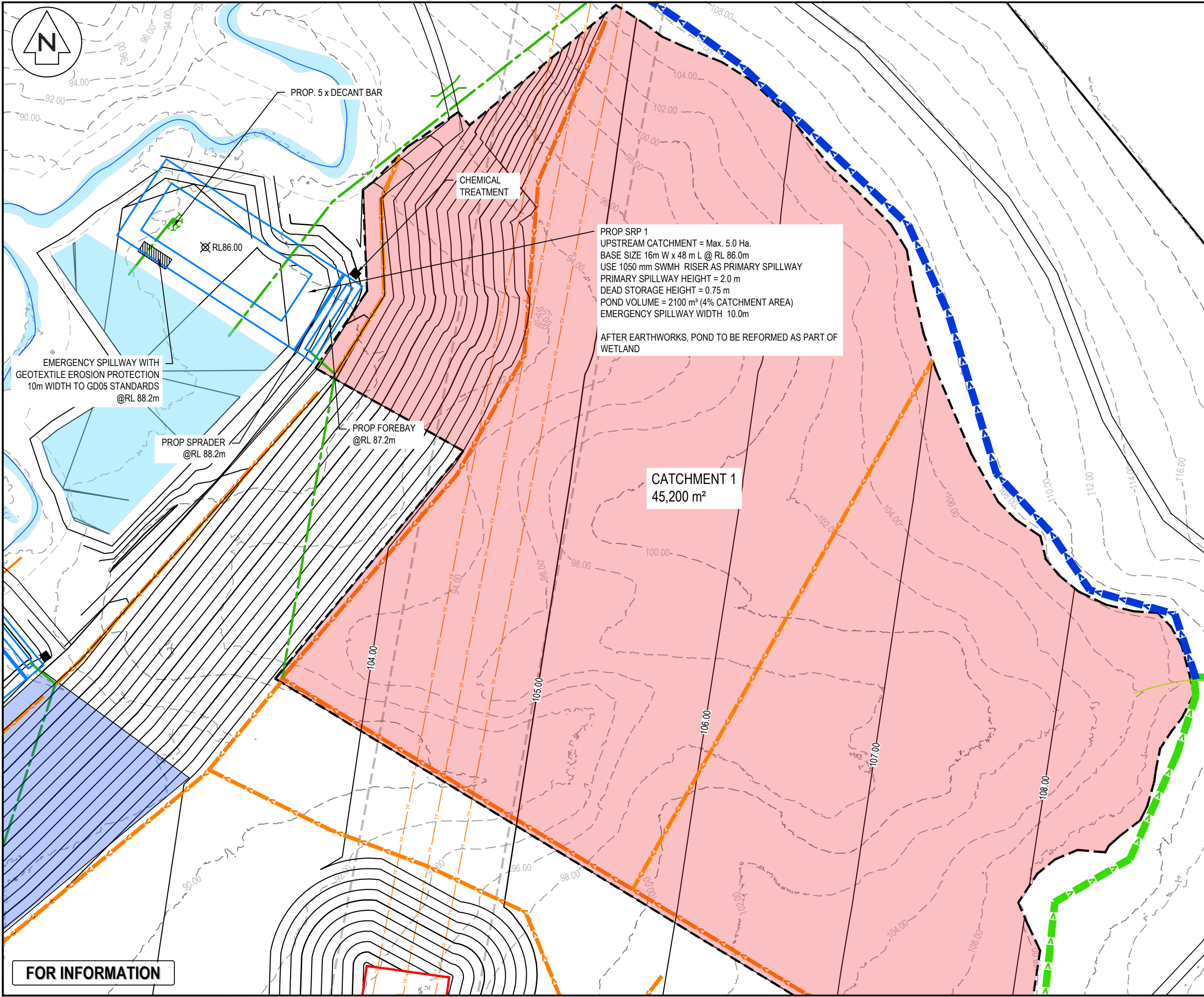
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**PROPOSED
ESC PLAN
OVERALL**

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Cad file	C230 S1-1.DWG		
Drawing no.	C231-1	Rev	A

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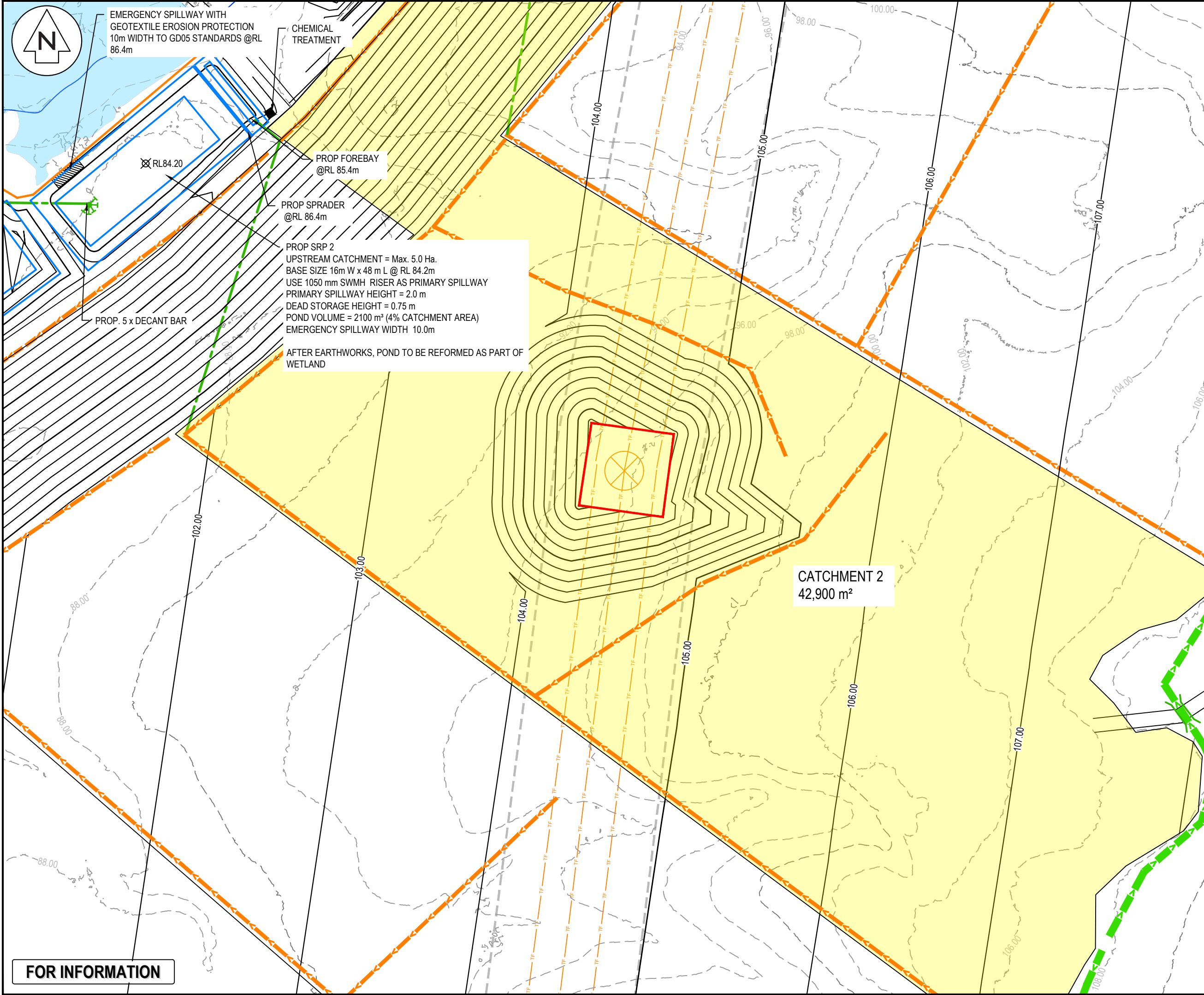
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Project
**BULK EARTHWORK OF
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Title
**PROPOSED
SRP1
PLAN**

Project no.	231006
Scale	1:1000@ A3
Cad file	C230 S1-1.DWG
Drawing no.	C232-1
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---	PR SWALE/BUND 4.0m
---	PROP DIRTYWATER
---	PROP SILT FENCE
---	PROP SUPPER SILT F.
---	PROP DECANT
---	PROP DECANT BAR
---	PROP SW PIPE

Rev	Description	By	Date
A	FOR INFORMATION	JAW	05/2024
Survey	LIDAR	-	
Design	JAW	12/2023	
Drawn	JAW	12/2023	
Checked	AC	12/2023	

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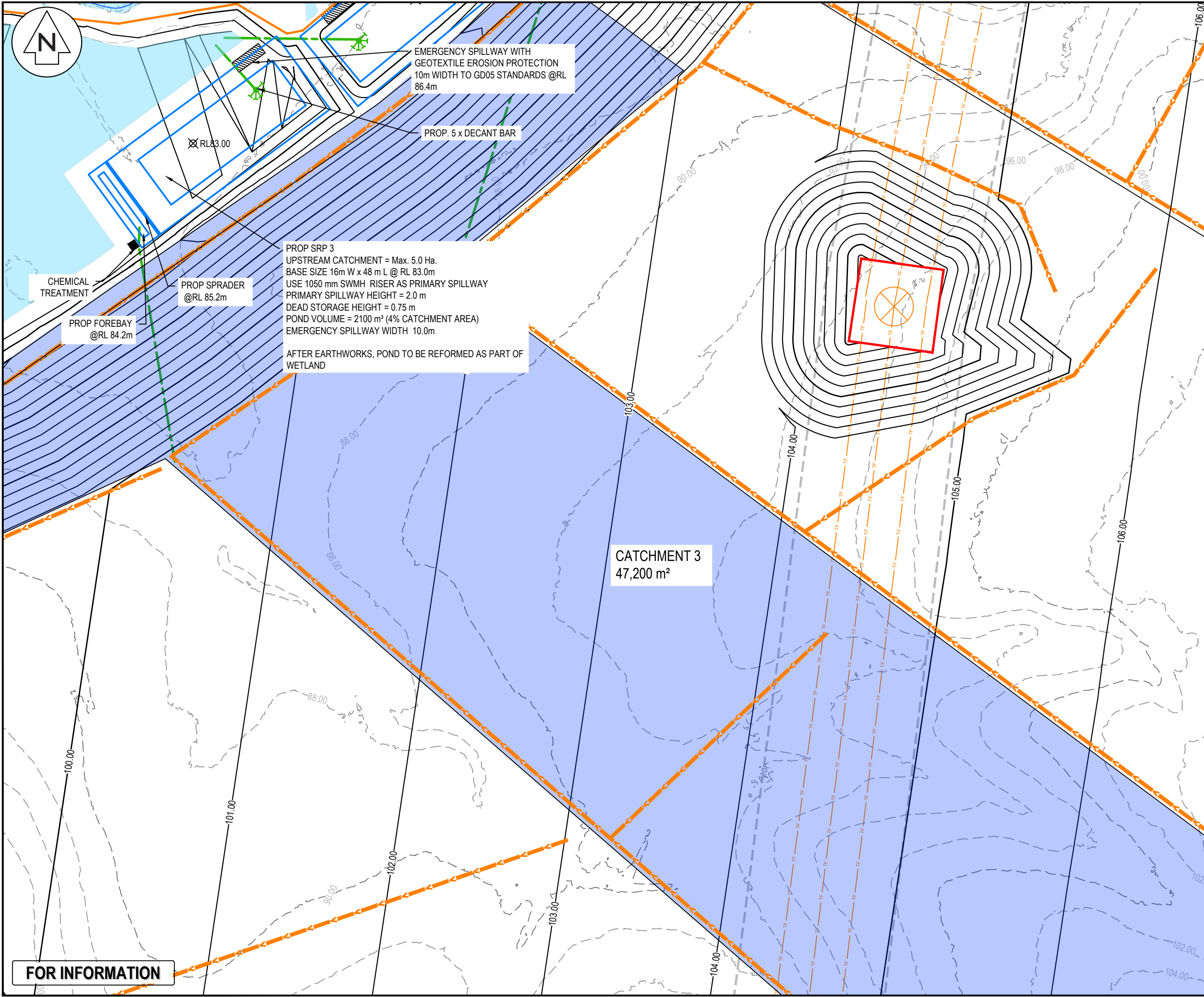
Project

**BULK EARTHWORK OF
469 RIDGE ROAD
POKENO
FOR
NZ CLEANFIL LTD.**

Title

**PROPOSED
SRP2
PLAN**

Project no.	231006		
Scale	1:1000@ A3		
Cad file	C230 S1-1.DWG		
Drawing no.	C233-1	Rev	A



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000
 3. LEVELS IN TERMS OF THE AUCKLAND VERTICAL DATUM 1946.
 4. ORIGIN OF LEVELS = SM XXXX SO XXXX(XXXX) PUBLISHED RL=XX.XX. SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
 5. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY THEIR OPERATIONS.
 6. THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT HEALTH AND SAFETY REQUIREMENTS.
 7. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVAL FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
 8. SEDIMENT CONTROL SHALL BE INSTALLED AND OPERATIONAL BEFORE EARTHWORKS START ONSITE IN ACCORDANCE WITH COUNCIL STANDARDS.
 9. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.
 10. SEDIMENT CONTROL TO COMPLY WITH GD05 STANDARDS.

- LEGEND
- EX BDY
 - PROP BDY
 - EX MAJOR CONTOUR
 - EX MINOR CONTOUR
 - PR MAJOR CONTOUR
 - PR MINOR CONTOUR
 - PROP EXTENT WORK
 - EX STREAM
 - EX TRANSPWER PYLONS
 - PR SWALE/BUND 6.0m
 - PR SWALE/BUND 4.0m
 - PROP DIRTYWATER
 - PROP SILT FENCE
 - PROP SUPPER SILT F.
 - PROP DECANT
 - PROP DECANT BAR
 - PROP SW PIPE

A	FOR INFORMATION	JAW	05/2024
Rev	Description	By	Date
		By	Date
Survey	LIDAR	-	
Design	JAW	12/2023	
Drawn	JAW	12/2023	
Checked	AC	12/2023	

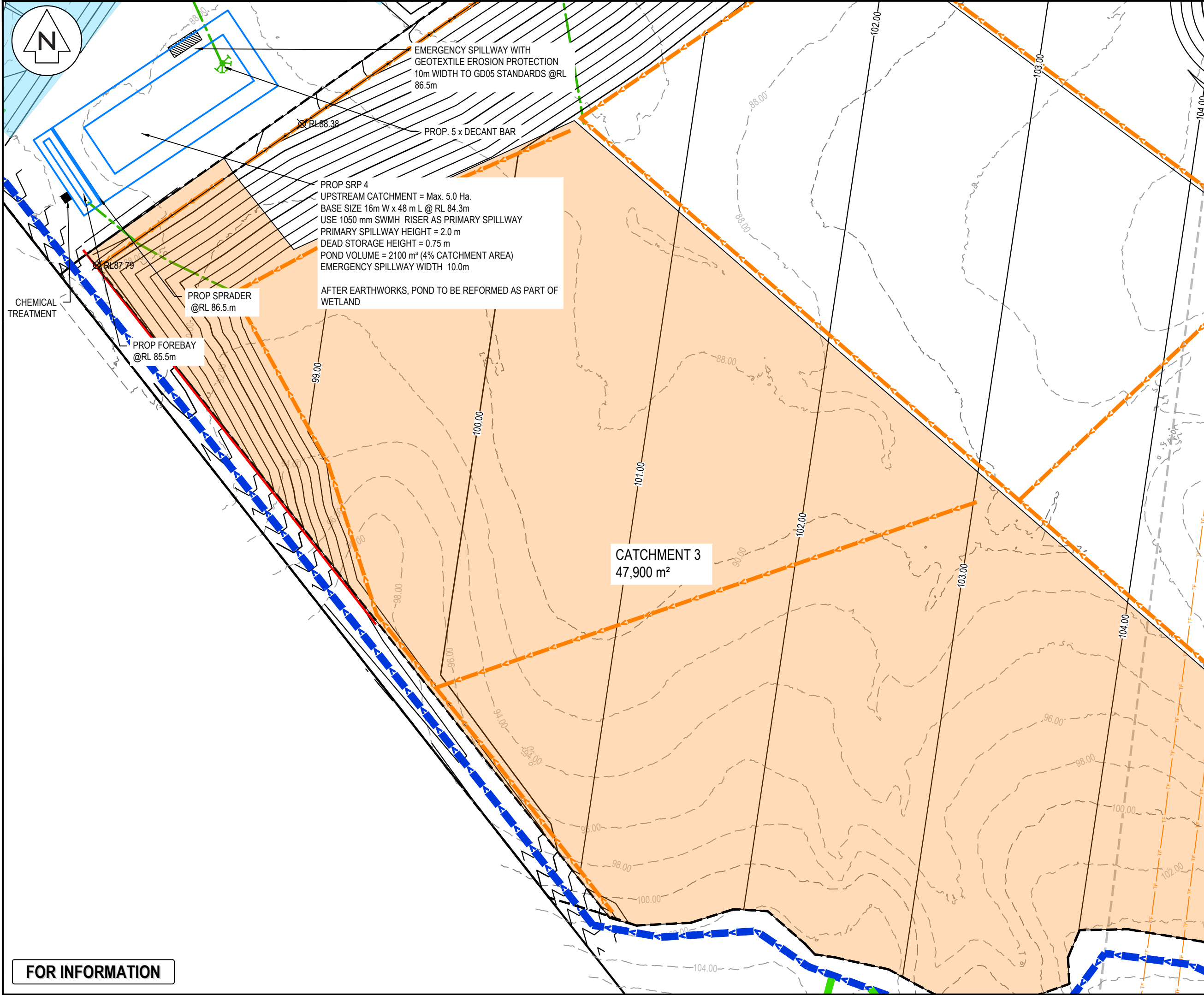
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Project
**BULK EARTHWORK OF
469 RIDGE ROAD
POKENO
FOR
NZ CLEANFIL LTD.**

Title
**PROPOSED
SRP3
PLAN**

Project no.	231006
Scale	1:1000@ A3
Cad file	C230 S1-1.DWG
Drawing no.	C234-1
Rev	A

FOR INFORMATION



NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000
3. LEVELS IN TERMS OF THE AUCKLAND VERTICAL DATUM 1946.
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10. SEDIMENT CONTROL TO COMPLY WITH GD05 STANDARDS.

LEGEND

---	EX BDY
---	PROP BDY
---	EX MAJOR CONTOUR
---	EX MINOR CONTOUR
---	PR MAJOR CONTOUR
---	PR MINOR CONTOUR
---	PROP EXTENT WORK
---	EX STREAM
⊗	EX TRANSPOWER PYLONS
---	PR SWALE/BUND 6.0m
---	PR SWALE/BUND 4.0m
---	PROP DIRTYWATER
---	PROP SILT FENCE
---	PROP SUPPER SILT F.
---	PROP DECANT
---	PROP DECANT BAR
---	PROP SW PIPE

A	FOR INFORMATION	JAW	05/2024
Rev	Description	By	Date
		By	Date
Survey	LIDAR	-	
Design	JAW	12/2023	
Drawn	JAW	12/2023	
Checked	AC	12/2023	

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Project

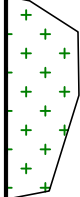
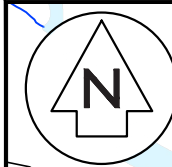
**BULK EARTHWORK OF
469 RIDGE ROAD
POKENO
FOR
NZ CLEANFIL LTD.**

Title

**PROPOSED
SRP4
PLAN**

Project no.	231006		
Scale	1:1000@ A3		
Cad file	C230 S1-1.DWG		
Drawing no.	C235-1	Rev	A

DATE: 5/24 FILE PATH: F:\Maven\PROJECTS\231006-469 RIDGE ROAD, POKENO\DWG\GEN STAGE 1\1 RC235 S1-1.DWG



ACCESS TO NORTH PART
OF FARM

8m OFFSET FROM PYLON
1:3 BATTER

EX TRANSMISSION - 12m RESERVED LINE
ANY WORKS WITHIN TRANSMISSION
SERVICE AREA TO BE COMPLIANT WITH
NZECP34.2001

PYLON ACCESS
20% GRADE

HAUL ROAD FOR EW AND
SRP/WETLAND MAINTENANCE

EX VEHICLE ACCESS TO BE USED
AS HAUL ROAD

EX VEHICLE ACCESS TO BE USED
AS STABILISED ENTRANCE

RIDGE ROAD

WETLAND BOTTOM AREA: 1.39 ha
WETLAND BATTER AREA : 0.65 ha
TOTAL AREA : 2.04 ha

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH AUCKLAND COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000
 3. LEVELS IN TERMS OF THE AUCKLAND VERTICAL DATUM 1946.
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 10. SEDIMENT CONTROL TO COMPLY WITH GD05 STANDARDS.

LEGEND

---	EX BDY
---	PROP BDY
---	EX STREAM
⊗	EX TRANSPOWER PYLONS
---	PROP LANDSCAPE
---	PROP WETLAND
---	EX WETLAND REMAIN
---	EX SNA
---	PR 4.0 m SWALE/BUND
---	PR 6.0 m SWALE/BUND

A	FOR INFORMATION	JAW	05/2024
Rev	Description	By	Date
		By	Date
Survey	LIDAR	-	
Design	JAW	12/2023	
Drawn	JAW	12/2023	
Checked	AC	12/2023	

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Project
**BULK EARTHWORK OF
469 RIDGE ROAD
POKENO
FOR
NZ CLEANFIL LTD.**

Title
**PROPOSED
SITE & ROADING
PLAN**

Project no.	231006		
Scale	1:2500@ A3		
Cad file	C300.DWG		
Drawing no.	C300	Rev	A

FOR INFORMATION