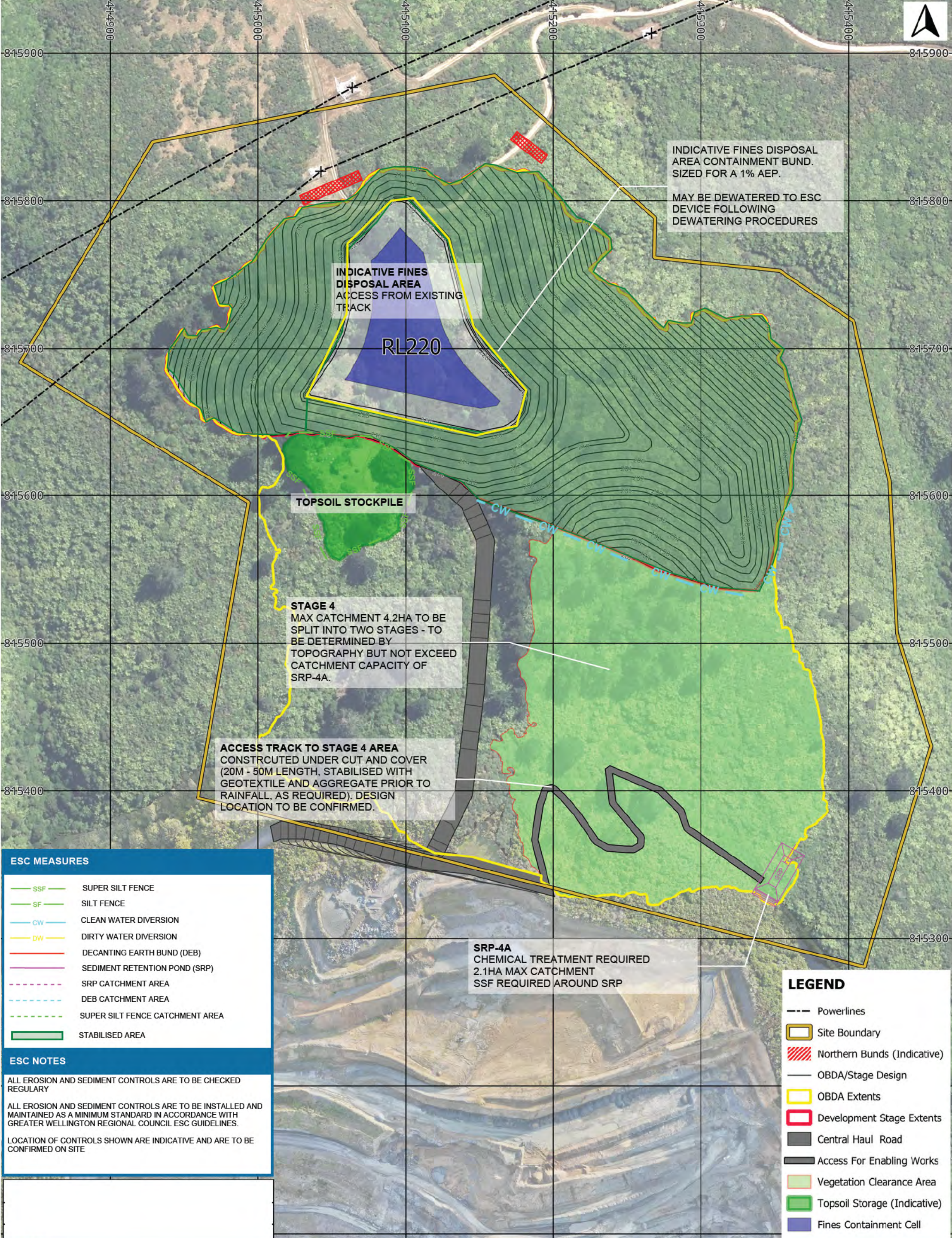




Belmont Quarry Development – Part B

Substantive Application
Appendix B.4.2 – Erosion and Sediment Control
Assessment Report – Part 2
Winstone Aggregates

16 August 2026



ESC MEASURES	
SSF	SUPER SILT FENCE
SF	SILT FENCE
CW	CLEAN WATER DIVERSION
DW	DIRTY WATER DIVERSION
DEB	DECANTING EARTH BUND (DEB)
SRP	SEDIMENT RETENTION POND (SRP)
SRP CA	SRP CATCHMENT AREA
DEB CA	DEB CATCHMENT AREA
SSF CA	SUPER SILT FENCE CATCHMENT AREA
SA	STABILISED AREA

ESC NOTES	
ALL EROSION AND SEDIMENT CONTROLS ARE TO BE CHECKED REGULARLY	
ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED AND MAINTAINED AS A MINIMUM STANDARD IN ACCORDANCE WITH GREATER WELLINGTON REGIONAL COUNCIL ESC GUIDELINES.	
LOCATION OF CONTROLS SHOWN ARE INDICATIVE AND ARE TO BE CONFIRMED ON SITE	

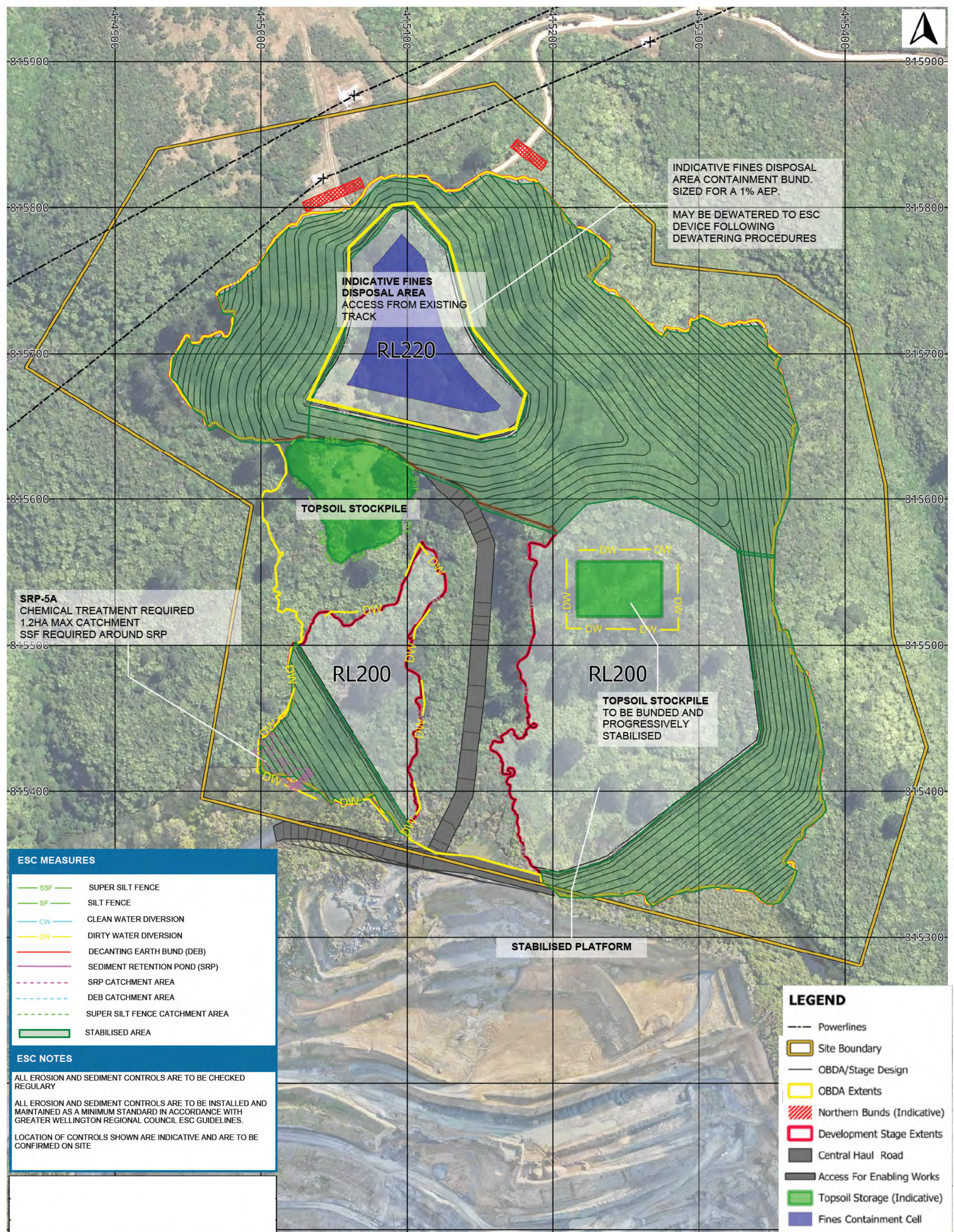
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WINSTONE AGGREGATES			
PROJECT			
BELLMONT QUARRY – OBDA EXPANSION			
TITLE	ESCP STAGE 4		
DWG NO	ESCP-BQ-08	SCALE	1:2200

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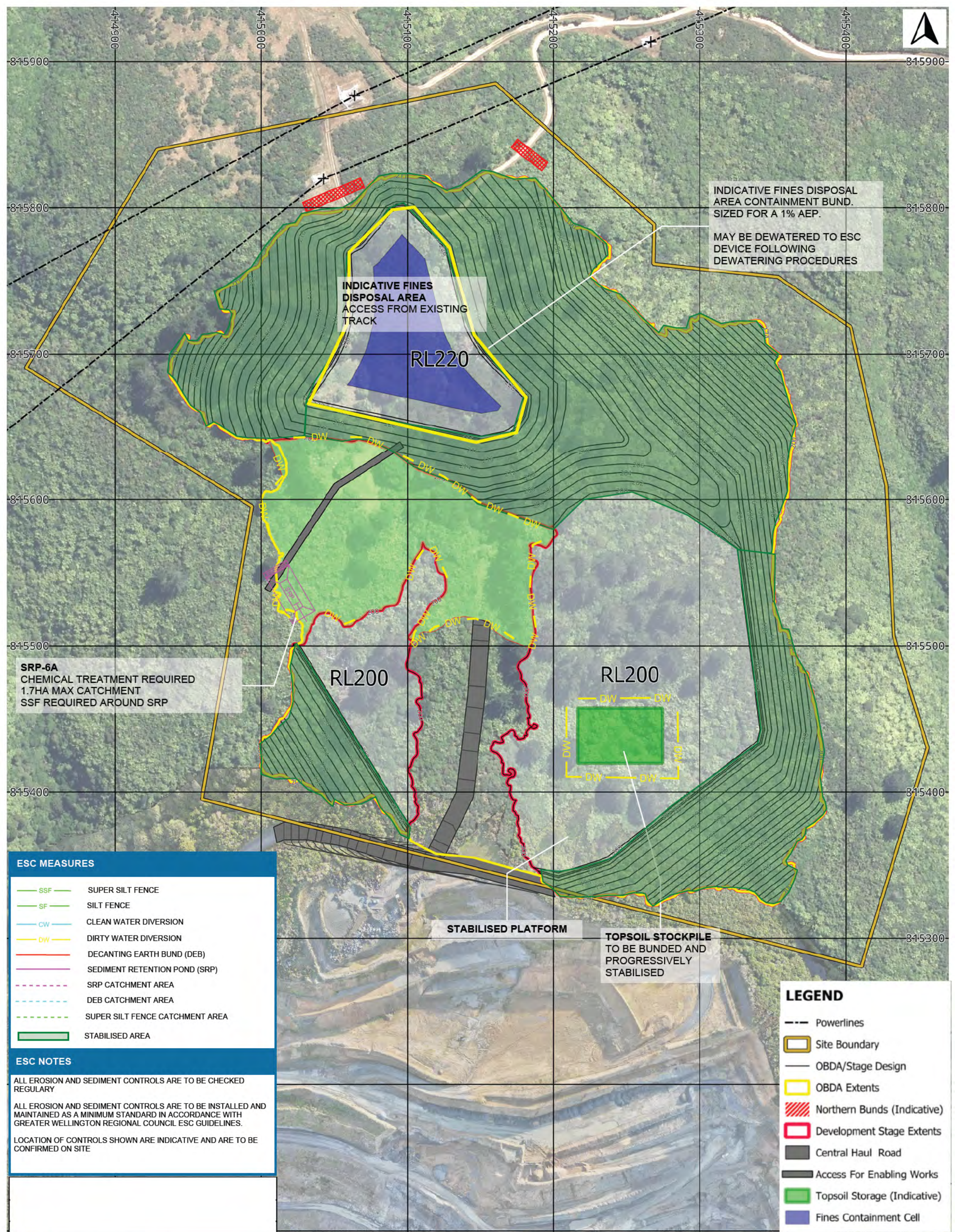
DRAWING STATUS	PROPOSED
PROJECT PHASE	PROPOSED
THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS APPROVED	







CLIENT WINSTONE AGGREGATES				REV 1	DESCRIPTION ESCP DRAWINGS FOR PROPOSED BELLMONT QUARRY OBDA	DRAWN MD	CHECK PH/SS	DATE 12.05.2026	DRAWING STATUS PROPOSED	
PROJECT BELLMONT QUARRY – OBDA EXPANSION									PROJECT PHASE PROPOSED	
TITLE	ESCP STAGE 5									
DWG NO	ESCP-BQ-10	SCALE	1:2200						THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS APPROVED	



SRP-6A
CHEMICAL TREATMENT REQUIRED
1.7HA MAX CATCHMENT
SSF REQUIRED AROUND SRP

INDICATIVE FINES
DISPOSAL AREA
ACCESS FROM EXISTING
TRACK

INDICATIVE FINES DISPOSAL
AREA CONTAINMENT BUND.
SIZED FOR A 1% AEP.

MAY BE DEWATERED TO ESC
DEVICE FOLLOWING
DEWATERING PROCEDURES

- ESC MEASURES**
- SSF SUPER SILT FENCE
 - SF SILT FENCE
 - CW CLEAN WATER DIVERSION
 - DW DIRTY WATER DIVERSION
 - DEB DECANTING EARTH BUND (DEB)
 - SRP SEDIMENT RETENTION POND (SRP)
 - SRP CATCHMENT AREA
 - DEB CATCHMENT AREA
 - SUPER SILT FENCE CATCHMENT AREA
 - STABILISED AREA

ESC NOTES

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE CHECKED
REGULARY

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED AND
MAINTAINED AS A MINIMUM STANDARD IN ACCORDANCE WITH
GREATER WELLINGTON REGIONAL COUNCIL ESC GUIDELINES.

LOCATION OF CONTROLS SHOWN ARE INDICATIVE AND ARE TO BE
CONFIRMED ON SITE

- LEGEND**
- Powerlines
 - Site Boundary
 - OBDA/Stage Design
 - OBDA Extents
 - Northern Bunds (Indicative)
 - Development Stage Extents
 - Central Haul Road
 - Access For Enabling Works
 - Topsoil Storage (Indicative)
 - Fines Containment Cell

CLIENT
WINSTONE AGGREGATES
PROJECT
BELLMONT QUARRY – OBDA EXPANSION

TITLE ESCP STAGE 6A
DWG NO ESCP-BQ-11
SCALE 1:2200

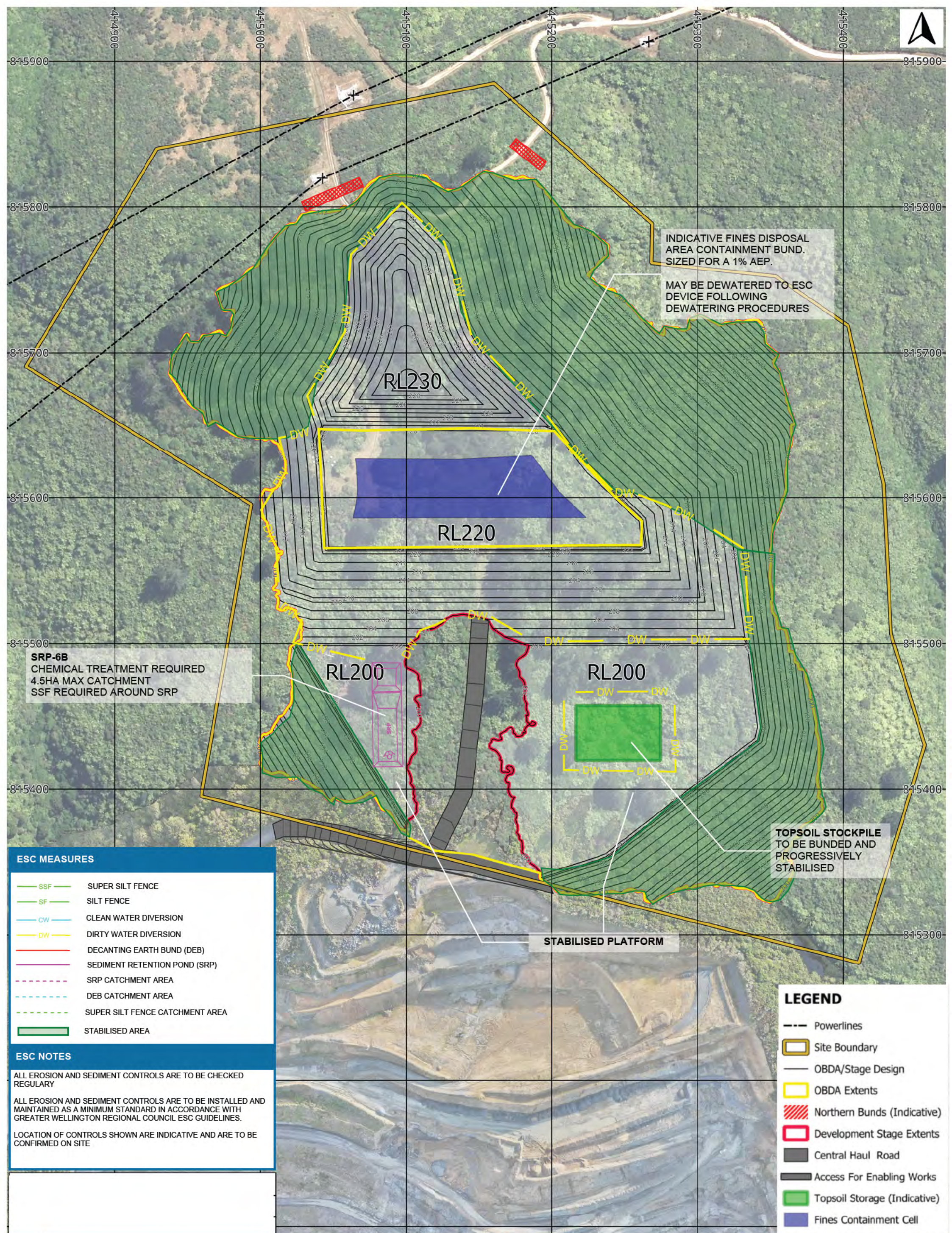
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DRAWING STATUS
PROPOSED

PROJECT PHASE
PROPOSED

THIS DRAWING IS NOT TO BE USED FOR
CONSTRUCTION PURPOSES UNLESS APPROVED





SRP-6B
CHEMICAL TREATMENT REQUIRED
4.5HA MAX CATCHMENT
SSF REQUIRED AROUND SRP

INDICATIVE FINES DISPOSAL
AREA CONTAINMENT BUND.
SIZED FOR A 1% AEP.

MAY BE DEWATERED TO ESC
DEVICE FOLLOWING
DEWATERING PROCEDURES

TOPSOIL STOCKPILE
TO BE BUNDED AND
PROGRESSIVELY
STABILISED

STABILISED PLATFORM

ESC MEASURES

- SSF SUPER SILT FENCE
- SF SILT FENCE
- CW CLEAN WATER DIVERSION
- DW DIRTY WATER DIVERSION
- DEB DECANTING EARTH BUND (DEB)
- SRP SEDIMENT RETENTION POND (SRP)
- SRP CATCHMENT AREA
- DEB CATCHMENT AREA
- SSF CATCHMENT AREA
- STABILISED AREA

ESC NOTES

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE CHECKED
REGULARY

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CONFIRMED ON SITE

LEGEND

- Powerlines
- Site Boundary
- OBDA/Stage Design
- OBDA Extents
- Northern Bunds (Indicative)
- Development Stage Extents
- Central Haul Road
- Access For Enabling Works
- Topsoil Storage (Indicative)
- Fines Containment Cell

CLIENT
WINSTONE AGGREGATES

PROJECT
BELLMONT QUARRY – OBDA EXPANSION

REV	DESCRIPTION	DRAWN	CHECK	DATE
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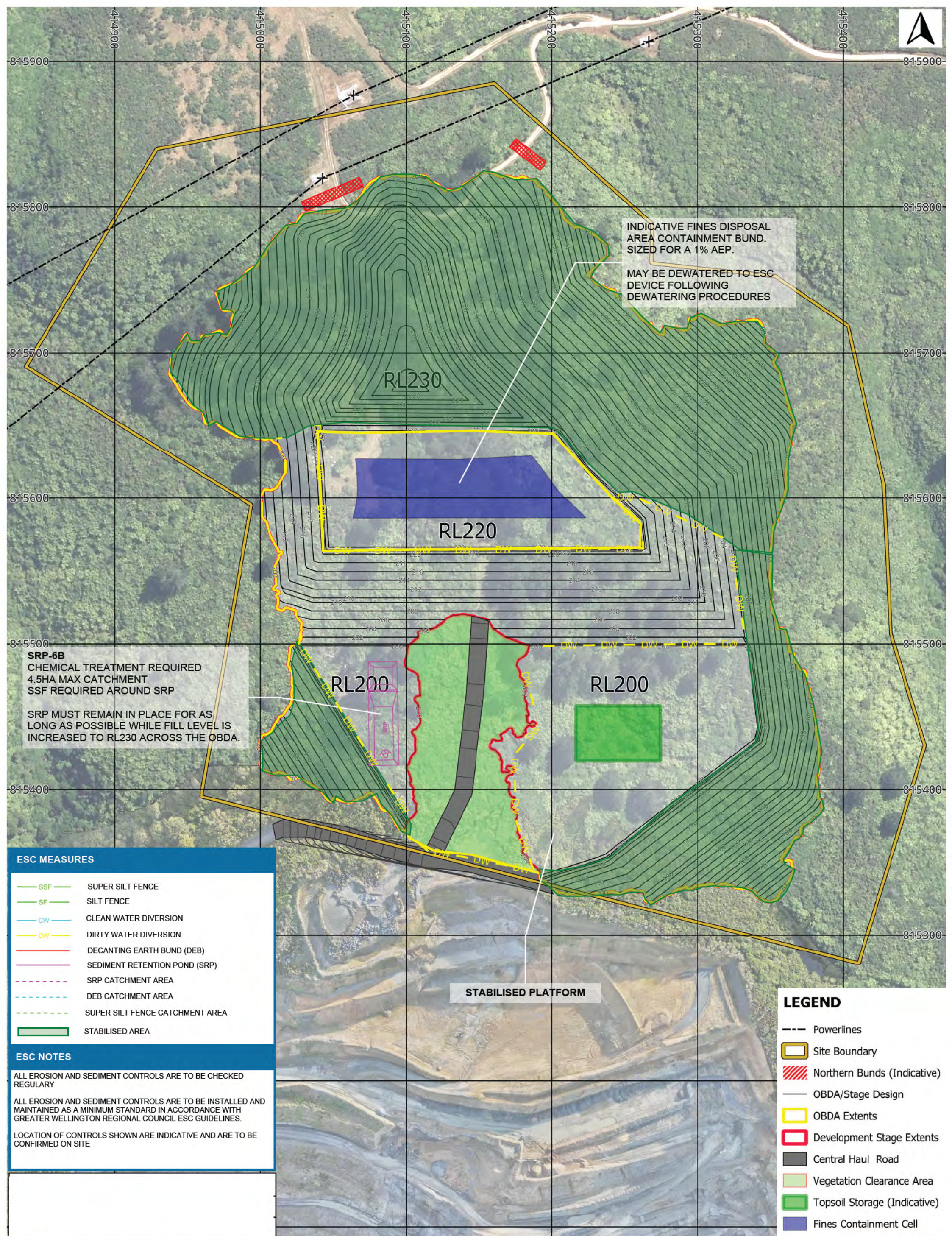
DRAWING STATUS
PROPOSED

PROJECT PHASE
PROPOSED

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DWG NO	ESCP-BQ-13
SCALE	1:2200

THIS DRAWING IS NOT TO BE USED FOR
CONSTRUCTION PURPOSES UNLESS APPROVED





SRP-6B
CHEMICAL TREATMENT REQUIRED
4.5HA MAX CATCHMENT
SSF REQUIRED AROUND SRP

SRP MUST REMAIN IN PLACE FOR AS LONG AS POSSIBLE WHILE FILL LEVEL IS INCREASED TO RL230 ACROSS THE OBDA.

INDICATIVE FINES DISPOSAL
AREA CONTAINMENT BUND.
SIZED FOR A 1% AEP.

MAY BE DEWATERED TO ESC
DEVICE FOLLOWING
DEWATERING PROCEDURES

ESC MEASURES

SSF

SF

CW

DW

DEB

SRP

SRP Catchment Area

DEB Catchment Area

SSF Catchment Area

Stabilised Area

SUPER SILT FENCE

SILT FENCE

CLEAN WATER DIVERSION

DIRTY WATER DIVERSION

DECANTING EARTH BUND (DEB)

SEDIMENT RETENTION POND (SRP)

SRP CATCHMENT AREA

DEB CATCHMENT AREA

SUPER SILT FENCE CATCHMENT AREA

STABILISED AREA

ESC NOTES

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE CHECKED REGULARY

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED AND MAINTAINED AS A MINIMUM STANDARD IN ACCORDANCE WITH GREATER WELLINGTON REGIONAL COUNCIL ESC GUIDELINES.

LOCATION OF CONTROLS SHOWN ARE INDICATIVE AND ARE TO BE CONFIRMED ON SITE

LEGEND

Powerlines

Site Boundary

Northern Bunds (Indicative)

OBDA/Stage Design

OBDA Extents

Development Stage Extents

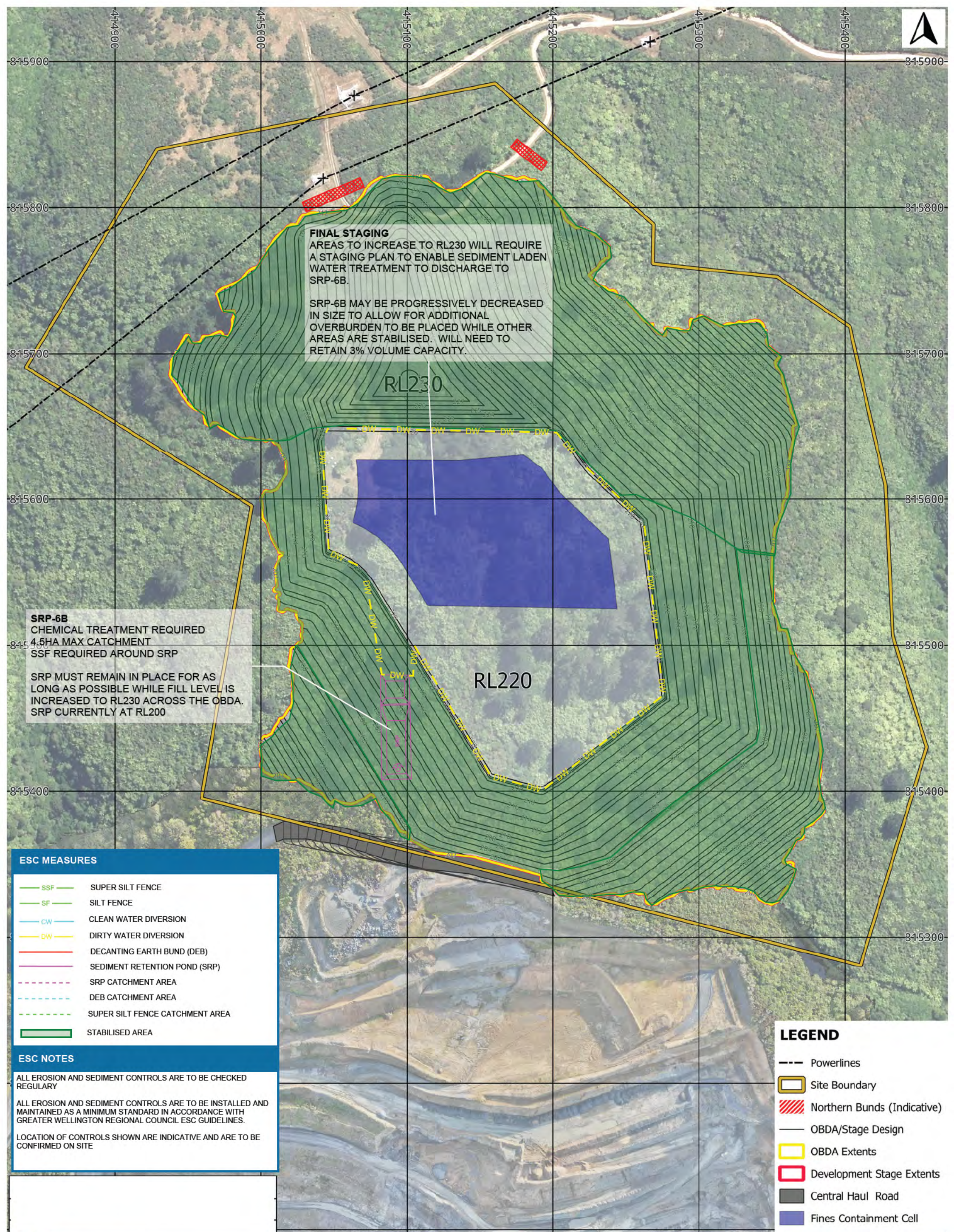
Central Haul Road

Vegetation Clearance Area

Topsoil Storage (Indicative)

Fines Containment Cell

CLIENT WINSTONE AGGREGATES PROJECT BELLMONT QUARRY – OBDA EXPANSION				REV	DESCRIPTION	DRAWN	CHECK	DATE	DRAWING STATUS PROPOSED PROJECT PHASE PROPOSED THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS APPROVED
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TITLE ESCP STAGE 8									
DWG NO	ESCP-BQ-14	SCALE	1:2200						



FINAL STAGING
AREAS TO INCREASE TO RL230 WILL REQUIRE
A STAGING PLAN TO ENABLE SEDIMENT LADEN
WATER TREATMENT TO DISCHARGE TO
SRP-6B.

SRP-6B MAY BE PROGRESSIVELY DECREASED
IN SIZE TO ALLOW FOR ADDITIONAL
OVERBURDEN TO BE PLACED WHILE OTHER
AREAS ARE STABILISED. WILL NEED TO
RETAIN 3% VOLUME CAPACITY.

RL230

RL220

SRP-6B
CHEMICAL TREATMENT REQUIRED
4.5HA MAX CATCHMENT
SSF REQUIRED AROUND SRP

SRP MUST REMAIN IN PLACE FOR AS
LONG AS POSSIBLE WHILE FILL LEVEL IS
INCREASED TO RL230 ACROSS THE OBDA.
SRP CURRENTLY AT RL200

ESC MEASURES

- | | |
|-----------------|---------------------------------|
| SSF | SUPER SILT FENCE |
| SF | SILT FENCE |
| CW | CLEAN WATER DIVERSION |
| DW | DIRTY WATER DIVERSION |
| DEB | DECANTING EARTH BUND (DEB) |
| SRP | SEDIMENT RETENTION POND (SRP) |
| SRP CA | SRP CATCHMENT AREA |
| DEB CA | DEB CATCHMENT AREA |
| SSF CA | SUPER SILT FENCE CATCHMENT AREA |
| Stabilised Area | STABILISED AREA |

ESC NOTES

ALL EROSION AND SEDIMENT CONTROLS ARE TO BE CHECKED
REGULARY

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- OBDA/Stage Design
- OBDA Extents
- Development Stage Extents
- Central Haul Road
- Fines Containment Cell

CLIENT
WINSTONE AGGREGATES

PROJECT
BELLMONT QUARRY – OBDA EXPANSION

TITLE	ESCP STAGE 9A		
DWG NO	ESCP-BQ-15	SCALE	1:2200

REV	DESCRIPTION	DRAWN	CHECK	DATE
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DRAWING STATUS
PROPOSED

PROJECT PHASE
PROPOSED

THIS DRAWING IS NOT TO BE USED FOR
CONSTRUCTION PURPOSES UNLESS APPROVED



7 Site Contact Details

Overburden disposal area preparation and overburden disposal earthworks will be undertaken by an earthworks contractor working under the supervision of a Winstone Aggregates contracts manager. Erosion and sediment controls will be supervised by Winstone Aggregates personnel.

Day to day supervision of the works will be undertaken by the Belmont Quarry Manager. Emergency contact phone numbers of experienced persons who will ensure permit conditions are adhered to are as follows:

Craig Lee

Lower North Island Regional Quarries Manager, responsible for the overview of quarry operations

Phone: [REDACTED]

Email: [REDACTED]

Jacqui Rose

Belmont Quarry Manager, responsible for day-to-day management of site works

Phone: [REDACTED]

Email: [REDACTED]

Spencer Benefield

Belmont Quarry Supervisor, responsible for day-to-day supervision of site works

Phone: [REDACTED]

Email: [REDACTED]

Paul Herbert

Senior Project Manager, overview of erosion and sediment controls

Phone: [REDACTED]

Email: [REDACTED]

Belmont Quarry can be contacted by phoning 04 565 1551 during working hours.

Greater Wellington Regional Council will be notified in writing of any changes to personnel.

Appendix B – ESC Design

The following information includes further details of key construction aspects of the proposed enabling works and bulk earthworks. All controls will be designed, installed, and maintained in accordance with best practice. This includes being in general accordance with The Guidelines.

Minimum Design Standards

Peak flows are based on HIRDS data from NIWA (Earth Science New Zealand) for the site location over 10-minute intensities. At the time of writing, no provision has been made for climate change due to the temporary and adaptive nature and duration of the works. The expansion will be carried out over a long time period, and it may require updated design standards during the life of the project which take into account climate change. For the purposes of this ESCP, focus has been placed on the first 35 years of construction.

It is recommended that any variations for climate change should be considered during a 10-year review of these calculations.

The coefficients used in the ESCP are based on the NZIE (New Zealand Institute of Engineers) Coefficient Chart (1980). This is the chart provided in MPI's Standardisation of design flows for coastal catchments in NZ by Craig Martell. This allows for extreme events, soil and slope type. Adjustment due to ground slope can also be made, up to a factor of +0.10 which can be done for steep areas of the site (20% or steeper).

A minimum flow depth of 300mm has been used. Final measurements and stabilisation requirements will be captured in the as built process.

Diversions

Cleanwater Diversions (All)

Peak Flow = $1.63\text{m}^3/\text{s}$

Maximum Catchment Area 7.5ha

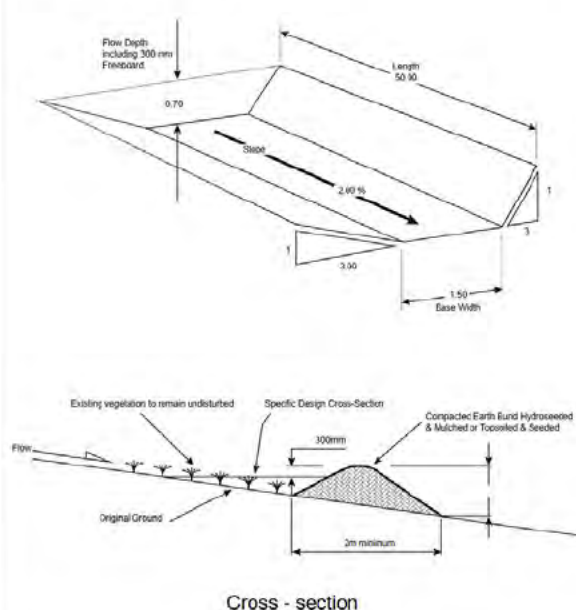
Weighted CN = 74

Rainfall (I) – 165mm/24hr (ARI 100)

Bund Dimensions

Minimum height 700mm (including 300mm freeboard)

Channel slope 2% (Flattest)



Dirty Water Diversion Bunds (All)

Peak Flow = 1.081m³/s

Maximum Catchment Area = 4.5ha

ARI 20 = 24 hr rainfall 126mm

Weighted CN = 90

Slope 2% (Flattest)

Trapezoidal Channel

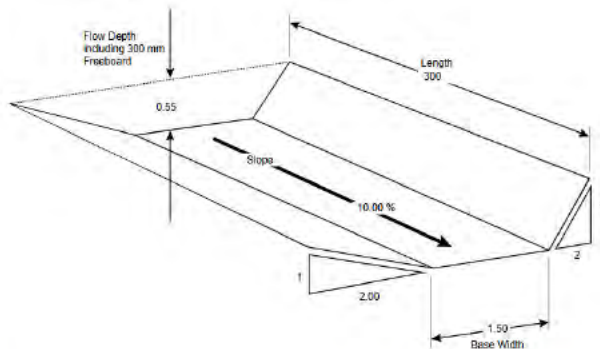
Base Width = 1.5m

Flow Depth = 0.55m (including 300mm freeboard)

Mannings (n) (Bare Earth - Rough) = 0.025

Channel Flow Velocity (m/s) = 4.19m/s

Channel Capacity (m³/s) = 2.097m³/s



Fines Containment Area - Dirty Water Bunds (All)

ARI 20 = 24 hr rainfall 165mm

Ponding Depth = 0.165m

Maximum Catchment Area = 2ha

Required storage volume = 3300m³

Required Depth = 0.126m

Minimum Height = 665mm (including 500mm freeboard)

Minimum Width = 3.7m at base

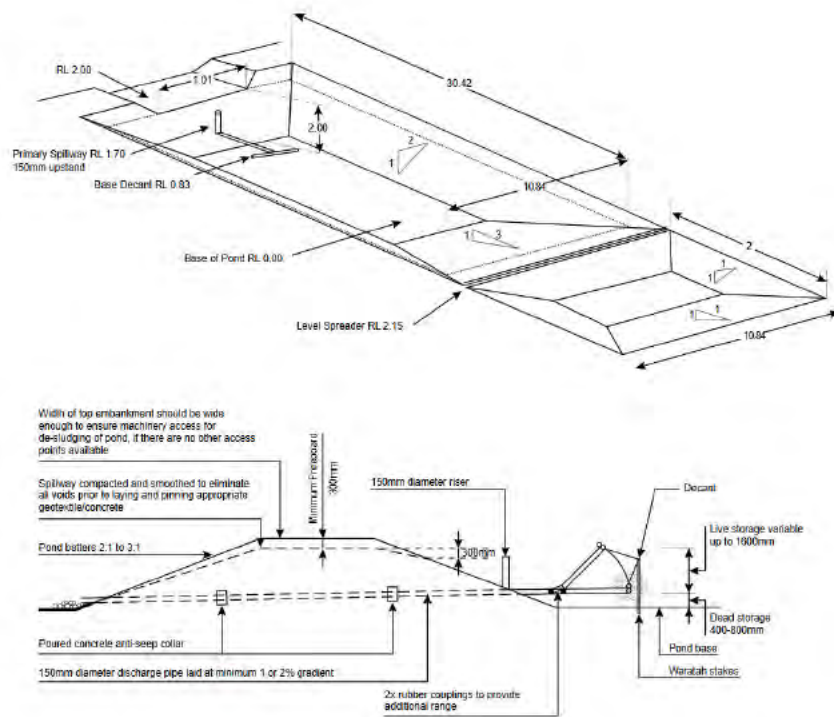
Sediment Retention Devices⁷

SRP-1A

Storage Volume Criteria	3	%
Contributing Catchment	0.9	ha
Length Ratio	3:1	
Side Slopes	2:1	
Minimum Storage Volume	270	m ³
Dead Storage	81	m ³
Live storage	189	m ³
Length at Emergency Spillway Level	30.42	m
Width at Emergency Spillway Level	10.84	m
Emergency Spillway base width (300mm deep)	3	m

⁷ A RL of 0m for the base of each SRP and DEB has been used for simplicity

Primary Spillway diameter	150	mm
Number of decants	1	
Number of holes per decant	120	
Minimum outlet pipe diameter	150	mm
RL Emergency Spillway	2	m
RL Primary Spillway	1.7	m
RL Level Spreader (min)	2.15	m
RL Base Decant	0.83	m
Length at Base	20.42	m
Width at Base	2.84	m
Forebay		
Depth (min. depth)	1.5	m
Width (full width of pond)	10.84	m
Length (min. length)	2	m



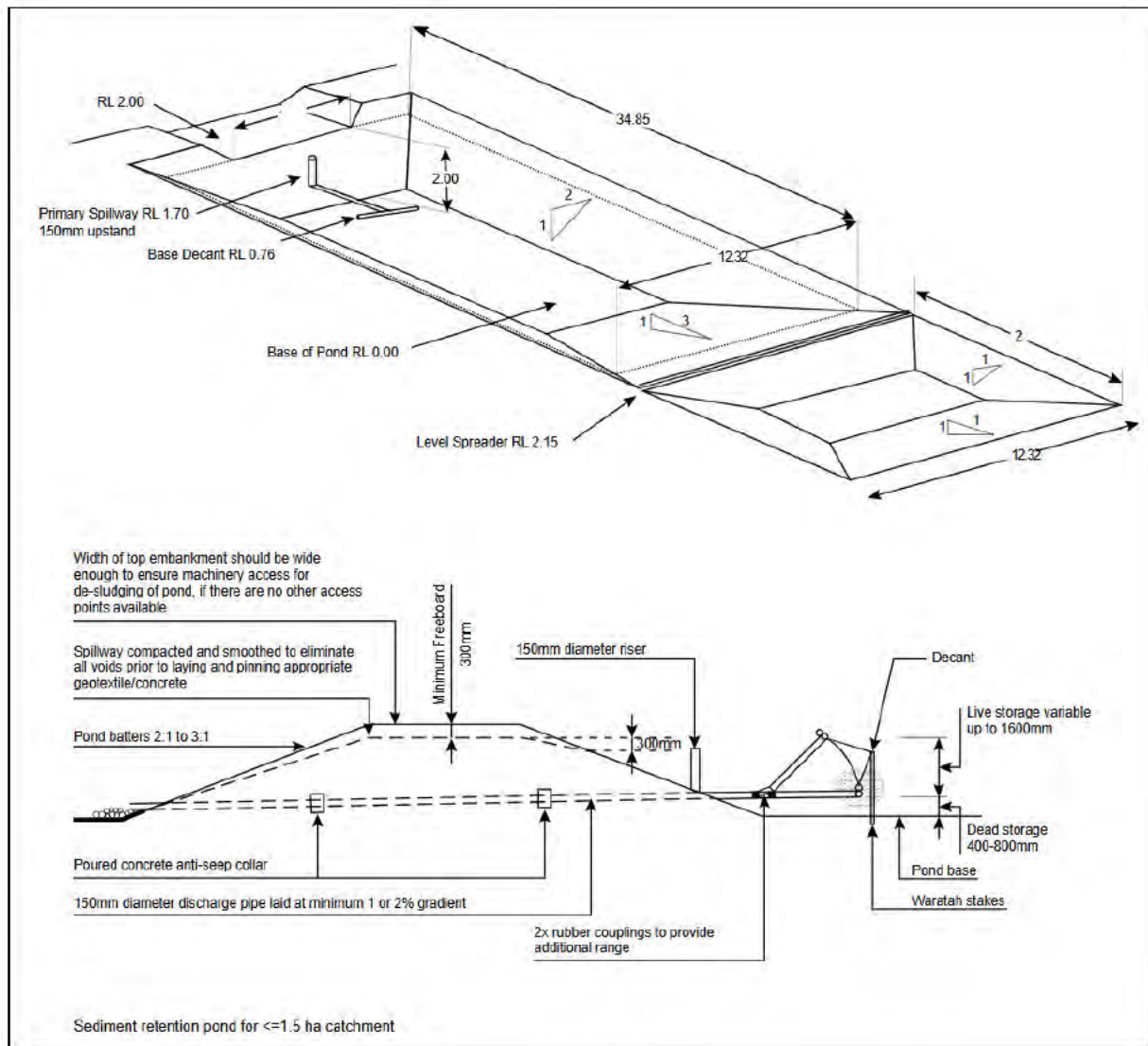
Sediment retention pond for <=1.5 ha catchment

DEB-1A

Storage Volume Criteria	3	%
Contributing Catchment	0.3	ha
Length Ratio	3:1	
Side Slopes	2:1	
Minimum Storage Volume	90	m ³
Dead Storage	28.7	m ³
Live storage	64.1	m ³
Length at Emergency Spillway Level	18.5	m
Width at Emergency Spillway Level	8	m
Emergency Spillway base width (300mm deep)	2	m
Primary Spillway diameter	150	mm
Number of decants	1	
Number of holes per decant	40	
Minimum outlet pipe diameter	150	mm

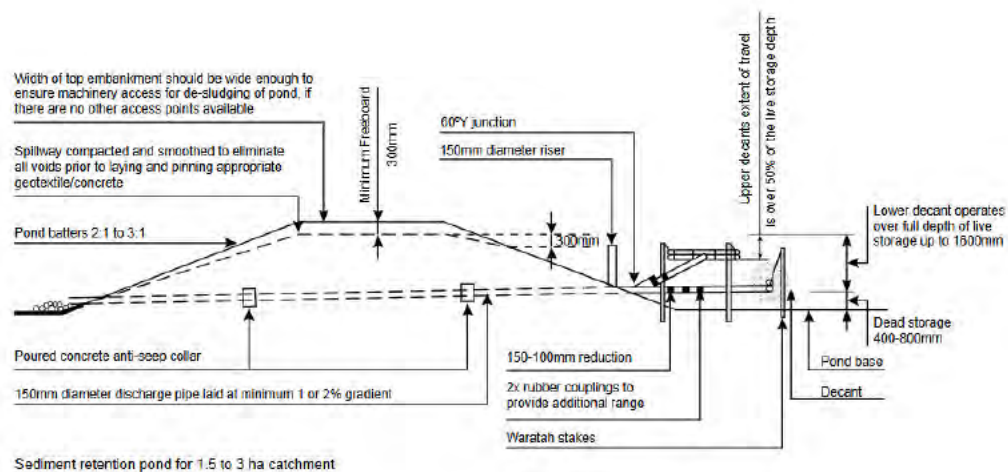
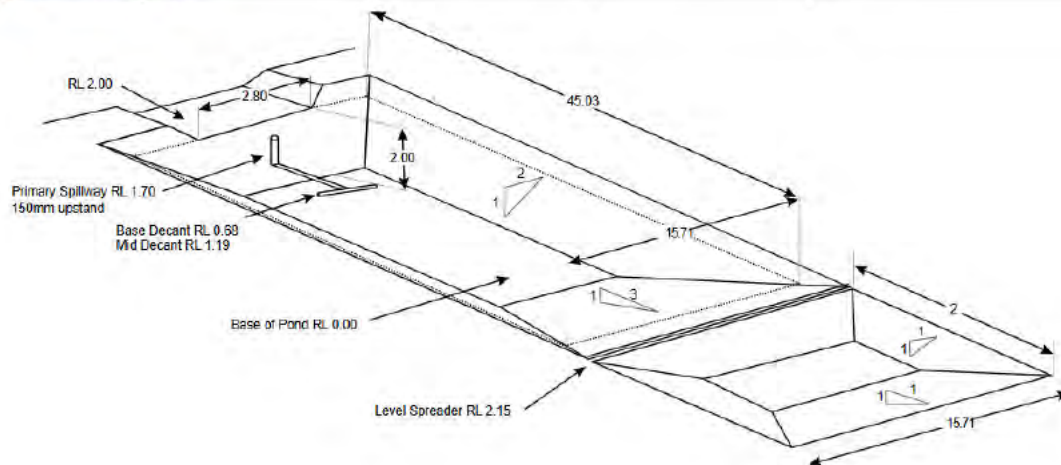
RL Emergency Spillway	1.5	m
RL Primary Spillway	1.4	m
RL Level Spreader (min)	1.65	m
RL Base Decant	0.65	m
Length at Base	13.5	m
Width at Base	2	m

SRP-1B		
Storage Volume Criteria	3	%
Contributing Catchment	1.3	ha
Minimum Storage Volume	390	m ³
Length Ratio	3:1	
Side Slopes	2:1	
Dead Storage	117	m ³
Live storage	273	m ³
Length at Emergency Spillway Level	34.85	m
Width at Emergency Spillway Level	12.23	m
Emergency Spillway base width (300mm deep)	3.5	m
Primary Spillway diameter	150	mm
Number of decants	1	
Number of holes per decant	173	
Minimum outlet pipe diameter	150	mm
RL Emergency Spillway	2	m
RL Primary Spillway	1.7	m
RL Level Spreader (min)	2.15	m
RL Base Decant	0.76	m
Length at Base	24.85	m
Width at Base	4.32	m
Forebay		
Depth (min. depth)	1.5	m
Width (full width of pond)	12.32	m
Length (min. length)	3	m



SRP-1C		
Storage Volume Criteria	3	%
Contributing Catchment	2.5	ha
Minimum Storage Volume	750	m ³
Length Ratio	3:1	
Side Slopes	2:1	
Dead Storage	225	m ³
Live storage	525	m ³
Length at Emergency Spillway Level	45.03	m
Width at Emergency Spillway Level	15.71	m
Emergency Spillway base width (300mm deep)	2.8	m
Primary Spillway diameter	150	mm
Number of decants	2	
Number of holes per decant	166	
Minimum outlet pipe diameter	150	mm
RL Emergency Spillway	2	m
RL Primary Spillway	1.7	m
RL Level Spreader (min)	2.15	m
RL Base Decant	0.68	m

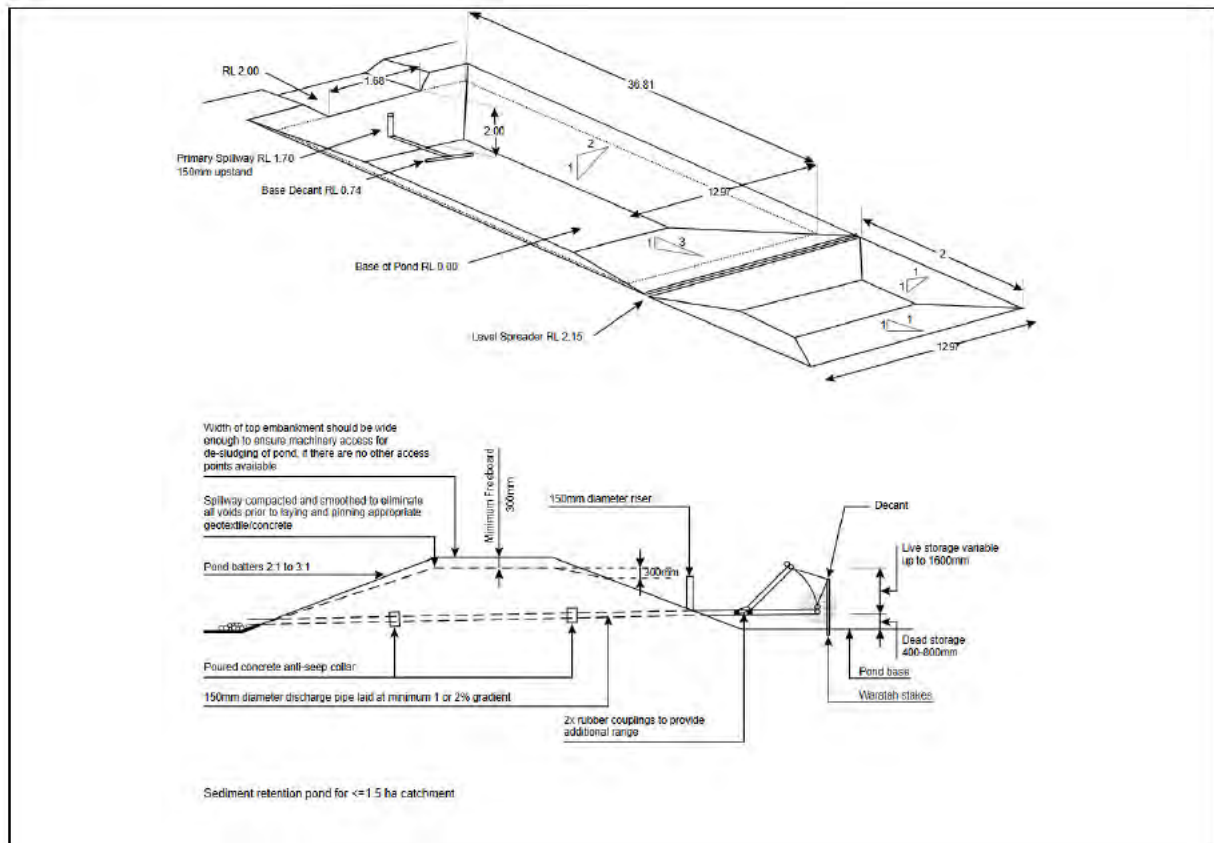
RL Middle Decant	1.19	m
Length at Base	35.03	m
Width at Base	7.71	m
Forebay		
Depth (min. depth)	1.5	m
Width (full width of pond)	15.71	m
Length (min. length)	3	m



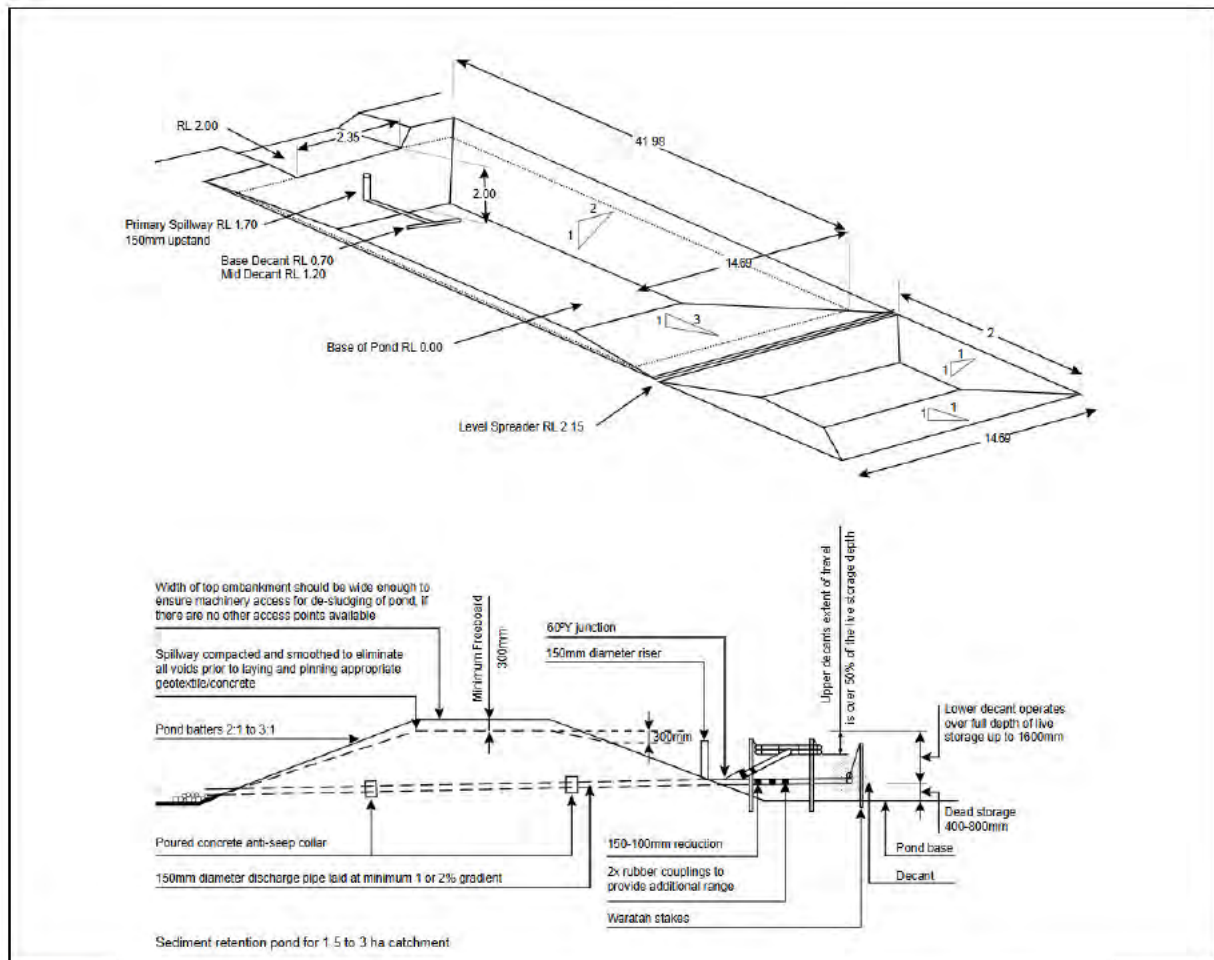
DEB-1B		
Storage Volume Criteria	3	%
Contributing Catchment	0.3	ha
Length Ratio	3:1	
Side Slopes	2:1	
Minimum Storage Volume	90	m ³
Dead Storage	28.7	m ³
Live storage	64.1	m ³
Length at Emergency Spillway Level	18.5	m
Width at Emergency Spillway Level	8	m
Emergency Spillway base width (300mm deep)	2	m
Primary Spillway diameter	150	mm
Number of decants	1	

Number of holes per decant	40	
Minimum outlet pipe diameter	150	mm
RL Emergency Spillway	1.5	m
RL Primary Spillway	1.4	m
RL Level Spreader (min)	1.65	m
RL Base Decant	0.65	m
Length at Base	13.5	m
Width at Base	2	m

SRP-2A		
Storage Volume Criteria	3	%
Contributing Catchment	1.5	ha
Minimum Storage Volume	450	m ³
Length Ratio	3:1	
Side Slopes	2:1	
Dead Storage	135	m ³
Live storage	315	m ³
Length at Emergency Spillway Level	36.81	m
Width at Emergency Spillway Level	12.97	m
Emergency Spillway base width (300mm deep)	1.68	m
Primary Spillway diameter	150	mm
Number of decants	1	
Number of holes per decant	200	
Minimum outlet pipe diameter	150	mm
RL Emergency Spillway	2	m
RL Primary Spillway	1.7	m
RL Level Spreader (min)	2.15	m
RL Base Decant	0.74	m
Length at Base	26.81	m
Width at Base	4.97	m
Forebay		
Depth (min. depth)	1.5	m
Width (full width of pond)	12.97	m
Length (min. length)	2	m

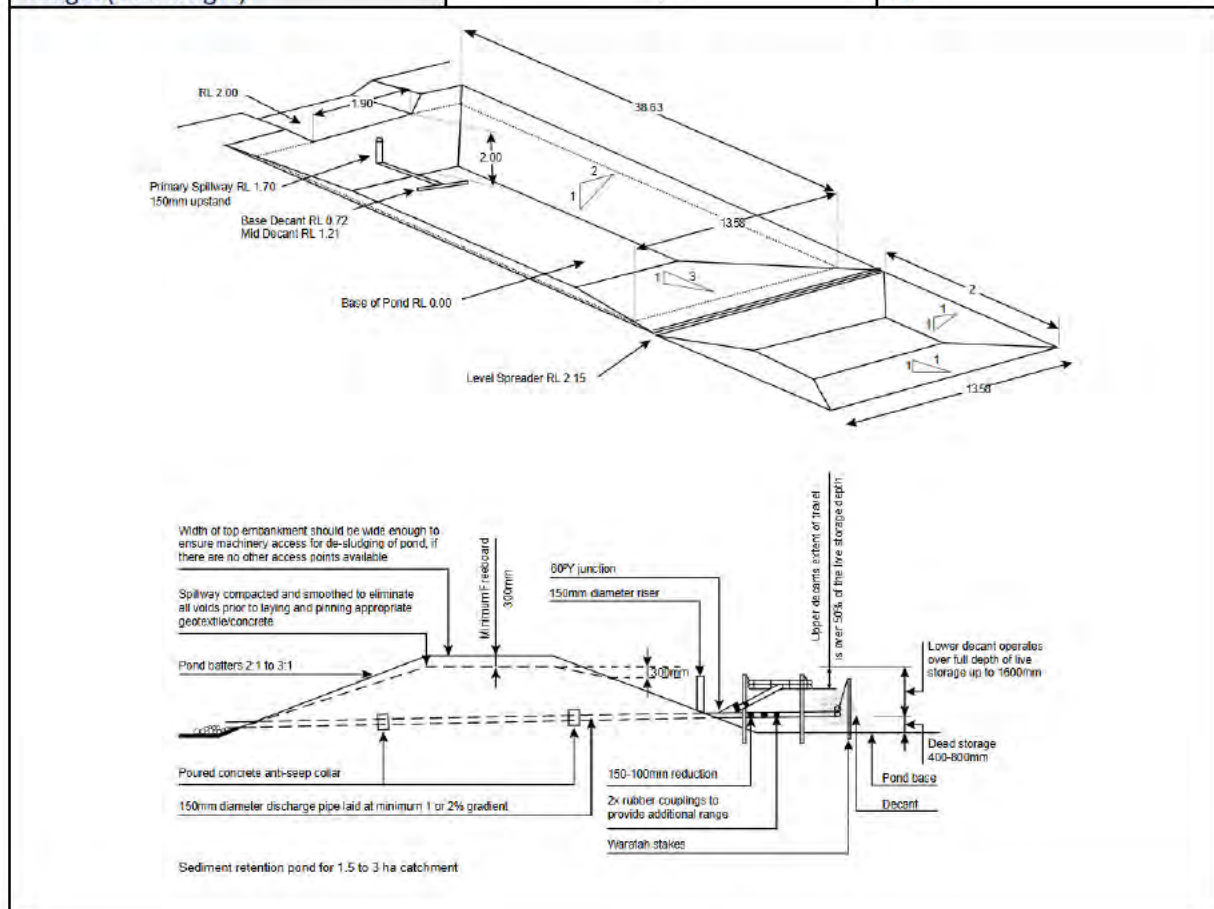


SRP-4A		
Storage Volume Criteria	3	%
Contributing Catchment	2.1	ha
Length Ratio	3:1	
Side Slopes	2:1	
Minimum Storage Volume	630	m ³
Dead Storage	189	m ³
Live storage	441	m ³
Length at Emergency Spillway Level	41.98	m
Width at Emergency Spillway Level	14.69	m
Emergency Spillway base width (300mm deep)	2.35	m
Primary Spillway diameter	150	mm
Number of decants	2	
Number of holes per decant	140	
Minimum outlet pipe diameter	150	mm
RL Emergency Spillway	2	m
RL Primary Spillway	1.7	m
RL Level Spreader (min)	2.15	m
RL Base Decant	0.7	m
RL Middle Decant	1.2	m
Length at Base	31.98	m
Width at Base	6.69	m
Forebay		
Depth (min. depth)	1.5	m
Width (full width of pond)	14.69	m
Length (min. length)	3	m

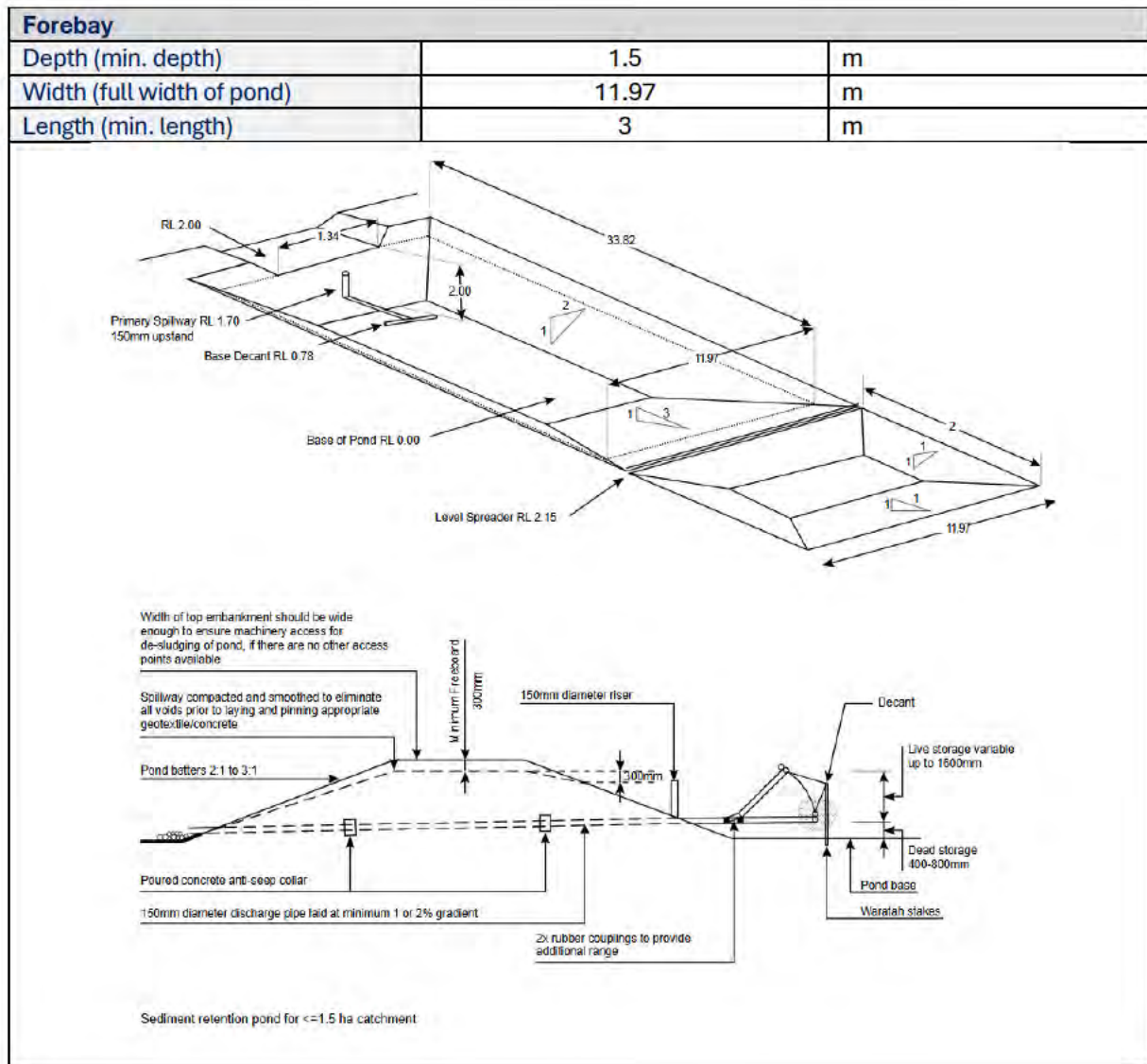


SRP-4B		
Storage Volume Criteria	3	%
Contributing Catchment	1.7	ha
Length Ratio	3:1	
Side Slopes	2:1	
Minimum Storage Volume	510	m ³
Dead Storage	153	m ³
Live storage	357	m ³
Length at Emergency Spillway Level	38.63	m
Width at Emergency Spillway Level	13.58	m
Emergency Spillway base width (300mm deep)	1.9	m
Primary Spillway diameter	150	mm
Number of decants	2	
Number of holes per decant	113	
Minimum outlet pipe diameter	150	mm
RL Emergency Spillway	2	m
RL Primary Spillway	1.7	m
RL Level Spreader (min)	2.15	m
RL Base Decant	0.72	m
RL Middle Decant	1.21	m
Length at Base	28.63	m
Width at Base	5.58	m
Forebay		

Depth (min. depth)	1.5	m
Width (full width of pond)	13.58	m
Length (min. length)	3	m

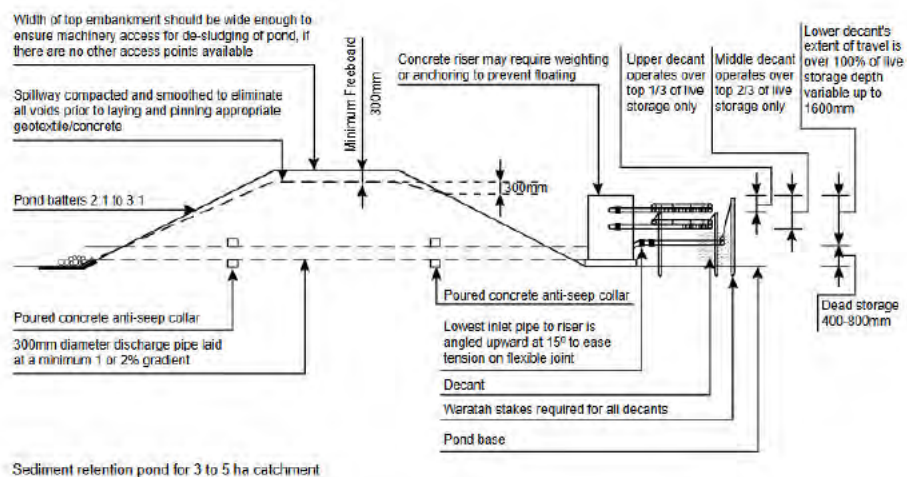
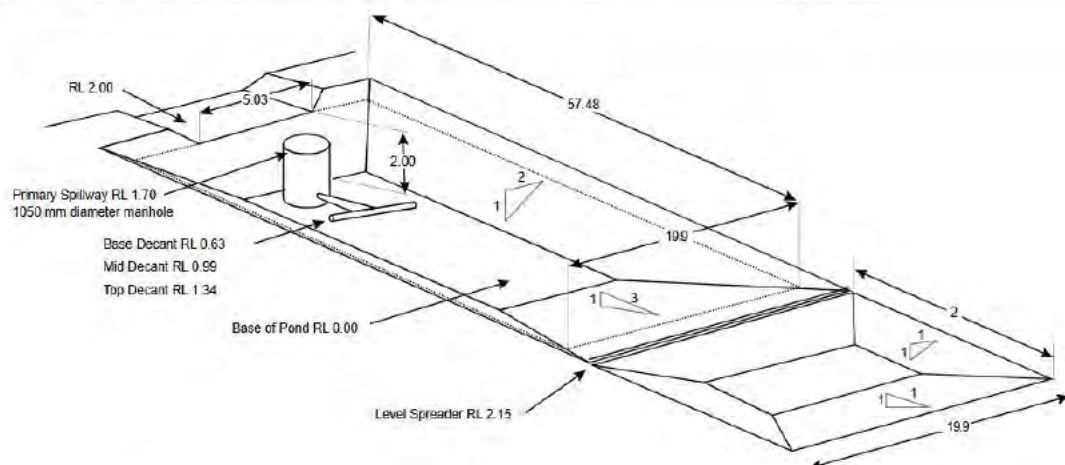


SRP-5A		
Storage Volume Criteria	3	%
Contributing Catchment	1.2	ha
Length Ratio	3:1	
Side Slopes	2:1	
Minimum Storage Volume	360	m ³
Dead Storage	108	m ³
Live storage	252	m ³
Length at Emergency Spillway Level	33.82	m
Width at Emergency Spillway Level	11.97	m
Emergency Spillway base width (300mm deep)	1.34	m
Primary Spillway diameter	150	mm
Number of decants	1	
Number of holes per decant	160	
Minimum outlet pipe diameter	150	mm
RL Emergency Spillway	2	m
RL Primary Spillway	1.7	m
RL Level Spreader (min)	2.15	m
RL Base Decant	0.78	m
Length at Base	23.82	m
Width at Base	3.97	m



SRP-6A		
Storage Volume Criteria	3	%
Contributing Catchment	1.7	ha
Length Ratio	3:1	
Side Slopes	2:1	
Minimum Storage Volume	510	m ³
Dead Storage	153	m ³
Live storage	357	m ³
Length at Emergency Spillway Level	38.63	m
Width at Emergency Spillway Level	13.58	m
Emergency Spillway base width (300mm deep)	1.9	m
Primary Spillway diameter	150	mm
Number of decants	2	
Number of holes per decant	113	
Minimum outlet pipe diameter	150	mm
RL Emergency Spillway	2	m
RL Primary Spillway	1.7	m
RL Level Spreader (min)	2.15	m

RL Emergency Spillway	2	m
RL Primary Spillway	1.7	m
RL Level Spreader (min)	2.15	m
RL Base Decant	0.63	m
RL Middle Decant	0.99	m
RL Top Decant	1.34	m
Length at Base	47.48	m
Width at Base	11.86	m
Forebay		
Depth (min. depth)	1.5	m
Width (full width of pond)	19.86	m
Length (min. length)	3	m



Appendix C – USLE Results

Universal Soil Loss Equation

Name	MPD Environmental Limited
Site	Belmont Quarry, Wellington

Job Number	
Date	Apr-26

Legend

Titles
Inputs
Calculations
Results

Stage 1 Earthworks

A = Soil Loss (tonnes/ha/year) =	R*K*L*S*C*P		
R = rainfall erosion index (I/Ha)	51.9		
K = Soil erodibility factor (tonnes/unit of R)	0.12	11% silt, 6% clay, 83% sand (from Nomograph)	
% of Organic Matter	0	Overburden from quarry	
Correction Factor for Organic Matter	0.06		
K corrected for Organic Content and Converted to Metric	0.2376		
C = Vegetation cover factor	1	Bare Soil	
P = Erosion control practice figure	0.9	Rough Irregular Surface	
Sediment delivery Ratio	0.7	Site Over 10% in gradient close to sensitive areas/waterways	
Sediment control efficiency	75%	Corresponding to a factor of 25% for loss	
Sediment control efficiency with flocculation	95%	Corresponding to a factor of 5% for loss	

24hr ARI Depth = 41.8

4	topsoil
-0.1	
0.3828	(Sandy Clayey Silt - 4% organic)
0.015	Existing Pasture and native vegetation mix
1	Existing Native Vegetation

Pre earthworked area using C factor of 0.015, 4% organic

K= 0.3828

Subcatchment	Area	Slope %	Length	LS (See table)	A T/ha/yr	Years	Gross Sediment Yield	Sediment Delivery Ratio	Sediment Control Efficiency	Net Sediment Loss
OBDA	21.44	15	550	5.6	1.67	1	35.772	0	0	35.772
							0.000	0	0	0.000

Earthworks - contour drains and flocc on SRP's, 0% organic content

K= 0.2376

Subcatchment	Area	Slope %	Length	LS	A T/ha/yr	Years	Gross Sediment Yield	Sediment Delivery Ratio	Sediment Control Efficiency	Net Sediment Loss
Stage 1 - Max open catchment at any time	2.5	11	168	2.7	29.96	0.5	37.448	0.7	95%	1.311
Topsoil stockpile area - Max open area at any one time	0.3	15	50	2	22.19	0.5	3.329	0.7	60%	0.932
Stage 1 Operational Area for Fines Disposal	1.8	5	50	0.8	8.88	0.5	7.989	0.5	0	3.994
Stage 2 - New areas cleared of vegetation for Overburden material	1.44	15	232	4.5	49.93	0.5	35.950	0.7	95%	1.258
Stage 3 - Continuation of fill placement from RL 210 - RL220	3	27	50	3.6	39.94	0.5	59.917	0.7	95%	2.097
Stage 4 - New areas cleared of vegetation for Overburden material and new topsoil stockpile	4.2	27	105	4.6	51.04	0.5	107.185	0.7	95%	3.751
Stage 5 - New areas cleared of vegetation for Overburden material	1.3	27	67	3.6	39.94	0.5	25.964	0.7	95%	0.389
Stage 6 - New areas cleared of vegetation for Overburden material	1.7	27	50	3.6	39.94	0.5	33.953	0.7	95%	0.509
Stage 7 - No additional areas cleared for this stage	1.7	27	50	3.6	39.94	0.5	33.953	0.7	95%	0.509
Stage 8 - New areas cleared of vegetation for Overburden material	1.1	27	50	3.6	39.94	0.5	21.970	0.7	95%	0.330
Stage 9 - No additional areas cleared for this stage	1.1	27	50	3.6	39.94	0.5	21.970	0.7	95%	0.330
Stage 10 - Rehabilitation to RL230	1.3	8	124	1.8	19.97	0.5	12.982	0.7	95%	0.195
Total Area	21.44						402.609			15.606

Appendix D – As Built Certification Sheets

As Built Certification Sheet: Sediment Retention Pond

This certification sheet confirms the as-built information of control(s) identified.

Comments		
SRP Name		
Contributing catchment area (Ha):		
Storage & Dimensions		
Dead Storage:	Volume (m ³):	Depth (m):
Live Storage:	Volume (m ³):	Depth (m):
Dimensions Set at Base:	Length (m):	Width (m):
Dimensions at Primary Spillway:	Length (m):	Width (m):
Dimensions at Embankment Height:	Length (m):	Width (m):
Embankment Compaction:		
Forebay Dimensions		
Forebay Storage (m ³)		
Inlet Batter Ratio:	3 : 1	Compliant: ☐ Yes ☐ No
Level Spreader Level:	☐ Yes	☐ No
Level Spreader Whole Width:	☐ Yes	☐ No
Level Spreader Haunched:	☐ Yes	☐ No
Discharge & Spillway		
Dimensions of Emergency Spillway:	Length (m):	Width (m):
Emergency Spillway Stabilisation:		
100-Year Event Spillway Capacity:	☐ Yes	☐ No
Pipe Diameter (mm):	Primary Spillway:	Outlet:
Discharge Point Stabilization:		
Anti-Seep Collars Installed:	☐ Yes	☐ No
Pond Length to Width Ratio:		Compliant: ☐ Yes ☐ No
Freeboard: Primary & Emergency:		
Number of Floating Decants:		Discharge Rate (L/s):
Decants can raise above Primary:	☐ Yes	☐ No
End caps installed on decant:	☐ Yes	☐ No
Weighted manhole riser:	☐ Yes	☐ No
Chemical Treatment		
Floc Box Installed & Dosing:	☐ Yes	☐ No
Floc Hose >5m above Inlet	☐ Yes	☐ No

Council-Approved Variations to this Device

I confirm that the as-built information on this certification sheet is accurate, and the device identified here has been constructed in accordance with the ESCP for this area and in line with The Guidelines or in accordance with any variations accepted by Greater Wellington Regional Council:

Name:		Position:	
Signature:		Date:	

Name:		Position:	
Signature:		Date:	

Attach ESCP drawing, surveyed drawing (if relevant) and images of the device below.

Appendix E – Example Inspection Sheets

Environmental Site Inspection

This inspection sheet is designed to be used for regular inspection of all ESC devices and after rainfall trigger events (25mm/24hrs and/or 15mm/1hr). Inspections after rainfall trigger events must occur within 24hrs. Where it is identified that any ESC measure has become ineffective and maintenance is required, the Environmental Manager or Site Manager for Belmont Quarry must be notified to contact Greater Wellington Regional Council.

Site Information			
Date:		Time:	
Work Area:			
Inspection By:			
Works at the Time of Inspection:			

Erosion and Sediment Controls
Critical Risks Identified
Actions Discussed or Raised

As per ESCP, check off controls as you inspect them:			
Control	Compliant	Non-Compliant	N/A
Stabilised Entryway	☐	☐	☐
Clean water diversions	☐	☐	☐
Dirty water diversions	☐	☐	☐
Silt fences	☐	☐	☐
Super silt fences	☐	☐	☐
Sumps	☐	☐	☐
Stabilisation requirements	☐	☐	☐
Actions Required (All non-compliant devices require an action point below)			

SRP Check			
Check off controls as you inspect them:			
SRP Name:			
Clarity >100mm at outlet	☐	☐	☐
Walls Batters not damaged. No evidence of shortcutting	☐	☐	☐
Forebay <Muck out required?	☐	☐	☐
Level Spreader Not damaged, no debris	☐	☐	☐
Pond body <Muck out required?	☐	☐	☐

Spillway <i>Not damaged or blocked</i>	☐	☐	☐
Outlet <i>Stabilised, not damaged</i>	☐	☐	☐
Floc box <i>Levels good, holes clear, hose 3-5m from inlet</i>	☐	☐	☐
Silt fences <i>Not damaged</i>	☐	☐	☐
CW & DW <i>Drains/bunds not damaged, no sediment</i>	☐	☐	☐
Actions needed - If any aspect of pond is not satisfied, see last page for remedials			

Comments and Photos

Remedials & Troubleshooting

Pond clarity

If the decant is not discharging and there is 100mm+ clarity, then no action required.

Is the SRP discharging sediment-laden water with a clarity of less than 100mm?

If yes, and is safe to do so, undertake immediate remedial actions including (but not limited to):

Raising the T-bars

Install additional downstream ESCs to protect nearby water courses.

Repairing any damaged or eroded areas

Check the floc box

Pond Walls

Are the pond batters free from damage or erosion?

If 'NO' then engineer assistance may be required to check the integrity and stability of the pond.

Possible fix is to poly, geotextile line the batter

Do not overload the pond with high water levels (i.e. lower decant, dewater pond if clarity 100mm+).

SRP Forebay

Is the forebay or drop out pit less than 50% full? If 'NO', organise a clean out

Level Spreader

Is the level spreader stabilised and free from erosion or damage? If not then clean debris off spreader, re-pin/replace poly/geo if required

SRP Main Body

Check markings on decant riser - is there less than 20% of accumulated sediment within the pond? If no, organise a clean out

Emergency Spillway

Is the emergency spillway stabilised and free from erosion or damage? If not then clean debris off spreader, re-pin/replace poly/geo if required

SRP Outlet

Is the SRP discharge point stabilised and free from erosion or damage? If not, consider rock lining or replace poly, geo

Floc Box

Check the floc box floc level (top up if low). Check and clear high, low flow hole in header tank as required. Ensure the floc hose is positioned 5m from the inlet channel AND dispatching floc on geo.

Silt Fences

Is the fencing around the SRP intact and free from any damage? Are any Silt Fences damaged, needing repair? Repair or replace sections required.

Dirty Water Bunds & Channels

Are the dirty water bunds/diversion channels entering the SRP free from damage or accumulated sediment? If no, organise a clean out

Think safety first when working near a body of water!

Appendix F – Decommissioning Form

Decommissioning Form: ESC Device

This decommissioning form confirms the details required to decommission/disestablish erosion and sediment control(s). No ESC devices shall be removed or decommissioned from site before that location is appropriately stabilised, and Greater Wellington Regional Council must be informed no less than 2 working days prior to removal. Removal of devices must be approved by the Environmental Manager or equivalent.

Device Details	
Work Area	
Name of Device (as per ESCP)	
Size of Catchment (Ha)	
Reason for Removal	

ESCP Drawing
Approved ESCP Drawing:

Stabilisation of Catchment			
Type of stabilisation			
80% stabilisation met?	☐ Yes	☐ No	☐ N/A
Will the device be replaced?	☐ Yes	☐ No	☐ N/A

Stabilisation of Catchment		
Environmental Manager: I have confirmed on site that the control can be removed in accordance with The Guidelines.		
Name:	Date:	Signature:

Statement of Approval			
I am satisfied that:			
- The control needs to be removed, and - There is adequate stabilisation of the catchment, or the replacement control has been designed as per best practice, and - Consultation with Greater Wellington Regional Council has taken place.			
Therefore, I give authority for the above control to be removed by the person named above.			
Name/Position:	Company:	Signature:	Date:

Appendix G – Glossary of Terms

Term	Definition
Dry Weather	When less than 5mm of rain has been recorded at the on-site rain gauge, over a 12 hour period.
Earthworks	The alteration or disturbance of land, including by moving, removing, placing, blading, cutting, contouring, filling or excavation of earth (or any matter constituting the land including soil, clay, sand and rock); but excludes gardening, cultivation, and disturbance of land for the installation of fence posts.
ESC Guide for Land Disturbing Activities in the Wellington Region	Means Revision 1 (February 2021) of the Erosion and Sediment Control Guide for Land Disturbing Activities in the Wellington Region. Reference as “The Guidelines”.
OBDA	Over Burden Disposal Area
Stabilised	Stabilised means inherently resistant to erosion or rendered resistant to erosion through the application of the proven methods of stabilisation specified in Section E3 of the ESC Guide for the Wellington Region, unless alternative methods are approved by the Manager. Where seeding, grassing or hydroseeding is used the surface is considered stabilised once a minimum of 80% vegetative cover has been established over the entire surface.

Appendix H – Experience and Qualifications (Megan Dredge)



MEGAN DREDGE

Director and Principal Environmental Consultant

BSc (Tech), CEnvP

14 YEARS OF EXPERIENCE

LOCATION

*Hamilton, Auckland, New
Plymouth & Christchurch*

TECHNICAL SKILLS

Erosion & Sediment Control

Stormwater Management

*Environmental Planning,
Permitting & Compliance*

Environmental sampling

Risk Management

Pre-Hospital Emergency Care

*Incident Management (Civil
Defence)*

MANAGEMENT SKILLS

Project Management

*Environmental Management
Systems (EMS)*

Team Management

ACCREDITATIONS

*Certified Environmental
Practitioner (CEnvP 1709) -
General Practice*

PROFESSIONAL ASSOCIATIONS

*International Erosion Control
Association (IECA) – Full Member*

PROFILE

Megan is a versatile and dedicated environmental specialist with a strong passion for protecting and enhancing our natural environments, while also providing for the needs and expectations of her clients. With a solid foundation in the construction industry, Megan brings proven expertise in environmental management, erosion and sediment control (ESC), ecology, environmental monitoring, consent management, and regulatory compliance. Megan is a Certified Environmental Professional - General Practice (#1704).

In recognition of Megan's leadership and work on the Mount Messenger Alliance project, she was honoured to receive IECA Australasia's Award for Environmental Excellence in October 2024, followed by winning the IECA Global Award for Environmental Excellence in 2025 in the US. Megan was also nominated for the IECA Emerging Leader Award (Global) for 2025. Megan was also invited to take part in the ESC Community of Practice for Auckland Council on the redevelopment of GD05.

EDUCATION

Bachelor of Science and Technology, Resource and Environmental Planning (REP) 2011

Graduate Certificate in Economics 2011

Currently studying towards a Bachelor of Laws

PROFESSIONAL EXPERIENCE

- **Fast Track Consenting (2025 – 2026): Multiple projects across Winstone Aggregates**

Project: Providing Erosion and Sediment Control Technical Reports which are required as part of the fast track consenting process.

- **Mt Cass Windfarm, Amberly, Canterbury, New Zealand (2025 – 2026): Erosion and Sediment Control (ESC) Consultant**

Project: Mt Cass Wind Farm is a 94.6 MW onshore wind project being developed on the Mt Cass range near Waipara in North Canterbury, designed to generate over 300 GWh of electricity annually. It will be the first wind farm in the Canterbury region and is now owned and being delivered by Yinson Renewables, with completion expected in 2028. The project includes 22 turbines.

Responsibilities: Providing full erosion and sediment control management to the Project during the start-up phase. Site specific erosion and sediment control plan design, implementation and management including flocculation management plans and advice, as built certification and monitoring of devices.

- **Mt Messenger Bypass Project, New Plymouth, Taranaki, New Zealand (2022 – 2026): Erosion and Sediment Control (ESC) Team Lead and Technical Lead**

Project: The Mt Messenger Bypass is a new resilient 6 km route that will bypass the current steep, narrow, and winding section of State Highway 3 (SH3) at Mt Messenger in North Taranaki. This project is being built in a greenfield operation with steep clay slopes. Erosion and sediment is a key risk for the project, along with the abundant Kiwi, lizards, and bats in the project footprint.

Responsibilities: Lead a 2 person team and directed a supervisor. Providing full erosion and sediment control management to the Project. Site specific erosion and sediment control plan

design, implementation and management including flocculation management plans and advice, as built certification and monitoring of devices. Consent compliance monitoring relating to ESC consents. Relationship interface management between the Alliance and local government. Maintained a 99% compliance score with Taranaki Regional Council for the Project.

- **Quarry ESC Support and Management (2021-2026)**

Projects: Multiple quarries across the North Island

Responsibilities: Provide erosion and sediment control advice and support for reconsenting, fast track consenting, erosion and sediment control plan updates and new operational areas.

- **Turitea Wind Farm, Palmerston North, Manawatū-Whanganui, New Zealand (2021-2022): Environmental Advisor/Environmental Consultant**

Project: Turitea Wind Farm is New Zealand's largest wind farm, a 222 MW project located in the Taranaki Ranges near Palmerston North and owned and operated by Mercury Energy. It consists of 60 Vestas V112 turbines.

Responsibilities: Managed the environmental controls and ensured compliance the Project EMS. This included the financial management of the environmental goods and services. Developed and initiated risk management strategies on the project in a collaborative in both a top-down and bottom-up approach. Designed the projects erosion and sediment control plans and centred the installation of the ESC measures.

- **Natural Habitats, Hamilton, Waikato, New Zealand (2020-2021): Environmental and Project Manager**

Responsibilities: Managed the logistics of project delivery on multiple landscape projects. Facilitated project programming for multiple projects including reporting on project deliverables and financial achievements. Provided leadership and project management when implementing project operations.

- **City Ege Alliance, Hamilton, Waikato, New Zealand (2018-2020): Environmental/Northern Zone Engineer**

Project: The Hamilton section of the Waikato Expressway is a 22-kilometre four-lane highway running from Ngāruawāhia to the Tamahere interchange, completing the final link in the 102-kilometre expressway network. It is the largest roading project in Waikato's history and was opened in July 2022, designed to improve safety, reduce congestion, and streamline travel between Auckland and the wider Waikato region.

Responsibilities: Drove the risk assessment process for the project when assessing risk to the environment. Provided onsite monitoring and insured compliance with a Construction Environmental Management Plan and all relevant regulatory requirements. Developed and implemented site erosion and sediment control plans. Managed sub-contractors completing ecological assessments.

PROFESSIONAL HISTORY

MPD Environmental Limited	2021 - Present
Downer NZ	2021 - 2022
Natural Habitats	2020 - 2021
Fletcher Construction	2016 – 2020
Mighty River Power (Mercury)	2010-2012



MEGAN DREDGE

Director and Principal Environmental Consultant

BSc (Tech), CEnvP

AWARDS

IECA Global Award for Environmental Excellence <i>To the Te Ara o Te Ata: Legacy Project Mouth Messenger Alliance where I contributed to as a Sr Erosion Sediment Control Advisor and IECA Member.</i>	2025
IECA Australasia Award for Environmental Excellence <i>Te Ara o Te Ata (Mt Messenger Bypass) Project</i>	2024
IECA Australasia Award for Innovation or Education to the Erosion and Sediment Control Industry <i>Highly Commended for the innovative approach to a Decanting Earth Bund design, which I contributed to the design and building of.</i>	2024
IECA Australasia Award for Environmental Excellence <i>Turitea Wind Farm Project</i>	2022