



5 July 2021

Our Reference: 1664-1

The Planning Collective
PO Box 591
Warkworth 0941

Attention: Burnette O'Connor

Dear Burnette,

RE: RESOURCE CONSENT ENGINEERING DESIGN REPORT FOR A PRIVATE PLAN CHANGE AND PROPOSED 16 LOT RESIDENTIAL SUBDIVISION AT 751 & 787 KAIPARA COAST HIGHWAY, KAUKAPAKAPA FOR RIVERVIEW PROPERTIES LTD

Aspire Consulting Engineers Limited have been engaged by Riverview Properties Ltd to prepare an engineering design report for the proposed 16 lot rural/residential subdivision at the above site to accompany an application for Private Plan Change and Resource Consent addressing the key infrastructure requirements with respect to the following:

- Earthworks
- Access
- Stormwater
- Water Supply and fire fighting

1.0 Introduction and Proposal:

It is proposed to rezone 5.7 hectares from Rural – Countryside Living Zone to Residential-Rural and Coastal Settlement Zone. It is also proposed to subdivide the property into 16 lots. The lots range in size from 2,500 m² to 2,696 m².

The site currently gains access from Kaipara Coast Highway via MacLennan Farm Lane.

Auckland Councils GIS database (see fig. 1) outlines that there are no existing public wastewater and/or water supply available to the site.

ASPIRE CONSULTING ENGINEERS LIMITED

Po Box 581, OREWA 0946

Ph: 09 426 6552

Fig. 1
Auckland Council
GIS Data

Existing
wastewater and
water supply
are not
available to the
site.



Fig. 2
Proposed 16 lot
residential
subdivision
scheme plan.



2.0 Earthworks:

It is proposed to undertake cut and fill earthworks to create suitable the subgrade formation for the JOAL's. Cut and fill earthworks modelling has been completed for the development with approximate cut and fill volumes of 200 m³ and 75 m³ respectively over an area of approximately 3,150 m².

No earthworks are proposed on the lots.

Erosion and sediment controls are to be installed prior to the commencement of any earthworks on the site and maintained for the full duration of the works. Erosion and sediment control plans have been prepared refer appendix A for details. Typical silt control measures will be utilised including silt fences, topsoil bunding, clean water diversion bunds and decanting earthbunds in accordance with Auckland Council GD05. Final design details will be approved by Auckland Council at engineering design stage.

A geotechnical investigation report has been prepared by CMW Geosciences for the site. The earthworks will be undertaken under the observation of CMW Geosciences and certified upon completion.

Water carts and other dust suppression methods will be utilised to avoid dust nuisance.

The earthworks methodology is likely to be as follows:

- Install erosion and sediment controls
- Strip topsoil to stockpile or waste
- Undertake cut to fill
- Progressively metal or respread topsoil, grass and straw mulch as earthworks areas are completed
- Remove erosion and sediment controls when the site is stabilised.

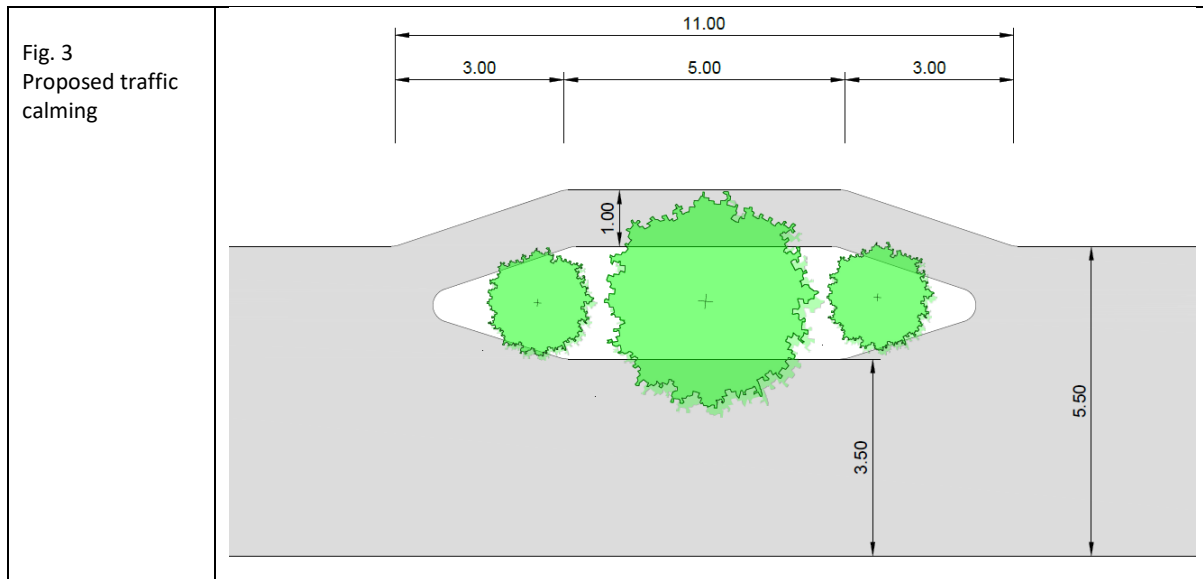
3.0 Access:

The site will gain access from Awatiro Drive and MacLennan Farm Lane and then Kaipara Coast Highway (SH16) via an existing intersection.

The existing intersection has been designed in accordance with Austroads and MOTSAM. It included dedicated right turn bay and left turn lane into MacLennan Farm Lane. It was designed for a speed of 100 km/hr although the speed limit is now 80 km/hr.

The proposed JOAL's will be formed in 150mm thick 20MPa exposed aggregate concrete with 8kg/m³ black oxide. The JOAL's will vary from 3.5m - 5.5m wide.

The JOAL will be a shared space. Planting and traffic calming is proposed to keep vehicle speed down. Where there is narrowing's and planting, pedestrians can safety walk behind the plants on a 1.0, wide concrete path.



For further information on access and traffic matters, refer to Stantec Transport Assessment.

4.0 Stormwater:

The site currently discharges stormwater via an existing 450 mm dia public stormwater pipe in the southern corner of the site and to existing roadside swales. It is proposed to extend the stormwater network (which was installed and vested as part of stage 1) to provide stormwater connections to Lots 7 – 15. Lots 1 – 6 & 16 and the JOAL's will discharge to the existing roadside swales.

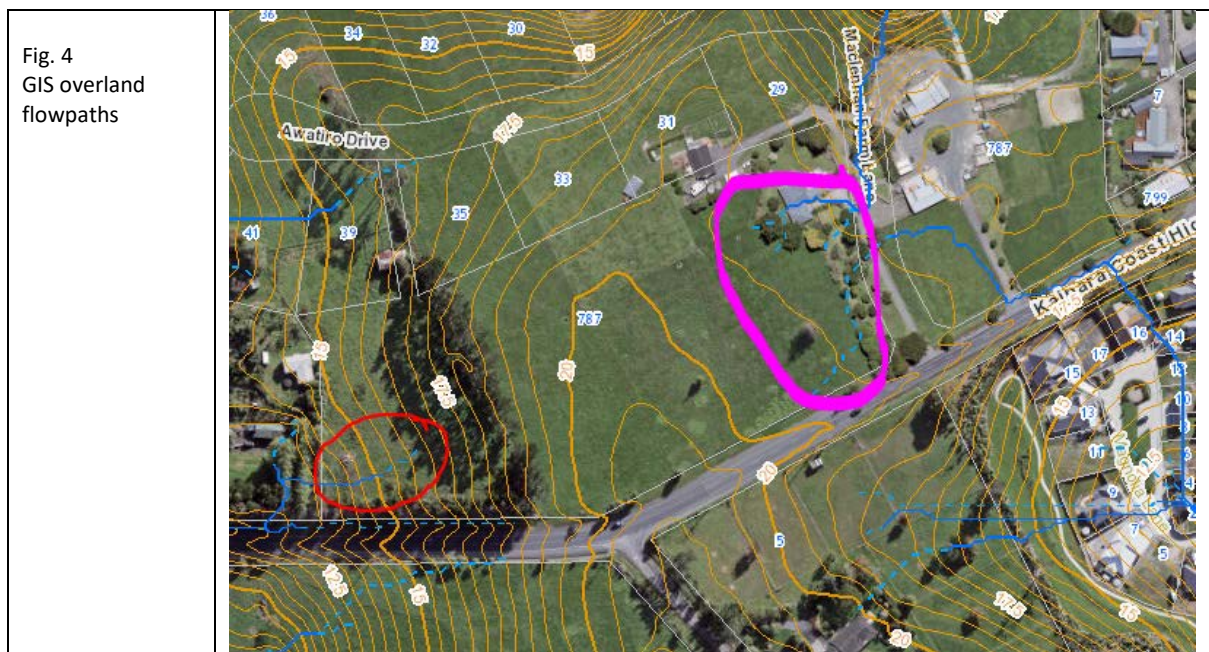
Although there is downstream flooding, the site is in the lower reaches of the catchment and if stormwater attenuation was implemented, flooding could worsen. Therefore, as with the stage 1, 36 lot residential development, no attenuation was required.

Stormwater treatment from the proposed JOAL will be via grassed swales. There is no treatment of stormwater required from individual lots. Calculations in accordance with TP 108 and TP 10 are attached in appendix B. The swales will discharge into a proposed stormwater network and/or existing roadside swales. An indicative pipe layout is included in the plans.

The proposed dwellings will have rainwater collection and storage in roof water tanks. Tank overflows will discharge to the stormwater connection.

Detailed engineering design details of the proposed stormwater drainage will be submitted to Auckland Council for approval at engineering design stage. All design detailing will be in accordance with Auckland Council Engineering Design specifications.

Below is the Auckland Council GIS Overland flowpaths.



We note that the overland flowpath circled in red is incorrect. The contours show the stormwater would be sheet flow and not concentrated in an overland flowpath. The overland flowpaths circled in magenta, were modified as part of stage 1 when MacLennan Farm Lane was constructed. Therefore, all actual overland flowpaths will generally remain unchanged and no dwellings will be proposed in overland flowpaths.

5.0 Water Supply:

Public mains water supply is not available to the site. The proposed development will utilise onsite storage tanks with collection from roof water for potable and non-potable supply.

The Country Side Living Tool Box for Stormwater Management Design has been adopted for the development. Refer Country Side Living Tool Box, Chapter 4.6, table C12 below:

The Rodney District Council has minimum water tank sizes for household water supply where the tank is the only water supply to the home. Table C12 provides the tank size needs for variable roof areas and number of bedrooms.

Usable Roof Area (m ²)	Bedrooms				
	1	2	3	4	5
100	20	50			
120	15	35	75		
140	10	30	60		
160		20	50		
180			45	75	
200			35	65	
220			30	55	90
240			30	50	80
260				45	70
280				40	65
300				35	60

Colours indicate units of 25 cubic metres (5,000 gallons):



Detailed design of the water supply for each lot should be detailed, designed and approved with Auckland Council at building consent stage.

It is proposed to provide dedicated fire fighting water tanks as part of the development. They will have minimum storage of 45 m³ and the locations are shown on drawing 1664 – RC – WS501.

We believe this report covers the engineering requirements outlined for resource consent. Please feel free to contact the undersigned if you have any questions.

Report prepared by:



Phil Fairgray
DIRECTOR

ATTACHMENTS:

- APPENDIX A: RESOURCE CONSENT DESIGN DRAWINGS
- APPENDIX B: SWALE CALCULATIONS

ASPIRE CONSULTING ENGINEERS LIMITED

Po Box 581, OREWA 0946

Ph: 09 426 6552



APPENDIX A: RESOURCE CONSENT DESIGN DRAWINGS



APPENDIX B: SWALE CALCULATIONS

GD01 Design Sheet - Swales

For use with GD01 - Stormwater Guidelines for the Auckland Region

Date:

Address:

Project: Reviewer:

INITIAL PARAMETERS

			Input
Impervious area contributing to device	<input type="text" value="646"/>	m ²	Calculation
Pervious area contributing to device	<input type="text" value="304"/>	m ²	Results
Total area contributing to device	<input type="text" value="950"/>	m ²	

CONTROL DATA

10% AEP peak rainfall	<input type="text" value="170.0"/>	mm	[1]							
10% AEP peak flow rate	<input type="text" value="115.3"/>	mm/hr								
10% AEP runoff	<input type="text" value="0.02257"/>	m ³ /s								
Water quality flow rate	<input type="text" value="10.0"/>	mm/hr		<table border="1"> <thead> <tr> <th colspan="2">Runoff Coefficients</th> </tr> </thead> <tbody> <tr> <td>Impervious</td> <td>0.95</td> </tr> <tr> <td>Pervious</td> <td><input type="text" value="0.3"/></td> </tr> </tbody> </table>	Runoff Coefficients		Impervious	0.95	Pervious	<input type="text" value="0.3"/>
Runoff Coefficients										
Impervious	0.95									
Pervious	<input type="text" value="0.3"/>									
Water quality runoff	<input type="text" value="0.00170"/>	m ³ /s	[2]							

SWALE SPECIFICATIONS

Swale type	<input type="text" value="Grassed"/>			
Longitudinal slope (i)	<input type="text" value="1%"/>	%		
Swale side slope (z)	<input type="text" value="3.0"/>	1V:zH		
Base width	<input type="text" value="0.30"/>	m		
Freeboard	<input type="text" value="110"/>	mm		
Effective length	<input type="text" value="65.00"/>	m		
Manning's for Water Quality Flow	<input type="text" value="0.25"/>			
Manning's for 10% AEP	<input type="text" value="0.03"/>	[3]		
Hydraulic residence time	<input type="text" value="19.73"/>	min	[6]	
Eff. length to achieve 9 min HRT	<input type="text" value="29.65"/>	m		
Total swale depth	<input type="text" value="200"/>	mm		
Total swale width	<input type="text" value="1500"/>	mm		

Flow depth [4]	
WQF	<input type="text" value="70.0"/>
10%	<input type="text" value="90.0"/>

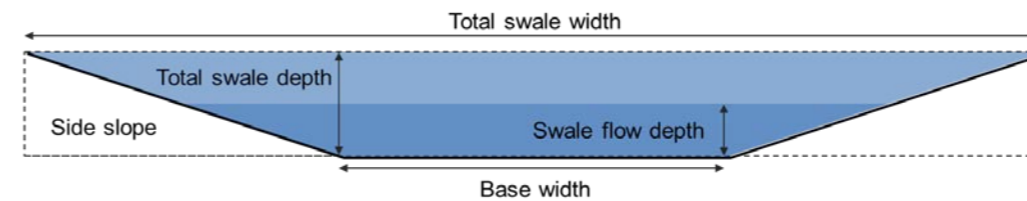
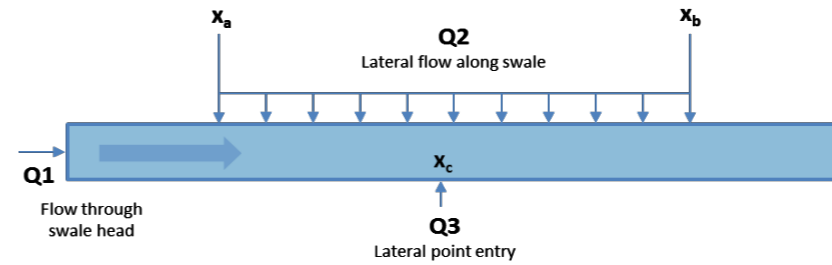
Check	WQF	10% AEP
Swale capacity greater than runoff into swale?	OK	OK
Swale velocity below threshold?	OK	OK

Notes:

- [1] Peak 10-min flow from 10% AEP event is calculated as 6 x 11.3% of 24 hour rainfall depth (TP108)
- [2] Runoff from pervious surfaces is ignored for the water quality flow.
- [3] Manning's for grassed and vegetated swales based on GD01.
- [4a] In instances where 10% AEP flow depth is less than WQF depth, check for supercritical flow conditions. A faster flow speed will cause a shallower depth. In these instances, Manning's may not be suitable for calculation.
- [4b] If solver results in 0.00, manually enter estimate depths, then re-click solver button
- [5] Target time of 9 minutes must be achieved for adequate water quality treatment.

Variable	WQF	Unit	10% AEP
Water surface width	0.72	m	0.84
Cross-sectional area	0.036	m ²	0.051
Hydraulic Radius	0.048	m	0.059
Swale Velocity	0.055	m/s	0.525
Swale flow	0.002	m ³ /s	0.027

Effective Length Calculator				
	Flow		Location	
Q1	0%	0.000000	Total Length	130
Q2	100%	0.001705	x _a	0
			x _b	130
Q3	0%	0.000000	x _c	
Total	100%	0.00170	Eff. Length	65.0



RIVERVIEW PROPERTIES LIMITED

PROPOSED DEVELOPMENT

MacLENNAN FARM LANE

KAUKAPAKAPA

RESOURCE CONSENT DESIGN DRAWINGS:

PRELIMINARY & GENERAL

- PG101 COVER AND CONTENTS PAGE
- PG102 EXISTING SITE PLAN

EARTHWORKS

- EW201 PROPOSED CONTOUR PLAN
- EW202 PROPOSED CUT & FILL DEPTH CONTOUR PLAN
- EW203 EROSION & SEDIMENT CONTROL PLAN
- EW204-206 EROSION & SEDIMENT CONTROL DETAILS

ROADING

- RD301 PROPOSED JOAL PLAN
- RD302 TYPICAL JOAL X-SECTION
- RD303 TYPICAL JOAL NARROWING

STORMWATER

- SW401 PRELIMINARY STORMWATER LAYOUT
- SW402 SWALE CATCHMENT PLAN

FIRE FIGHTING WATER SUPPLY

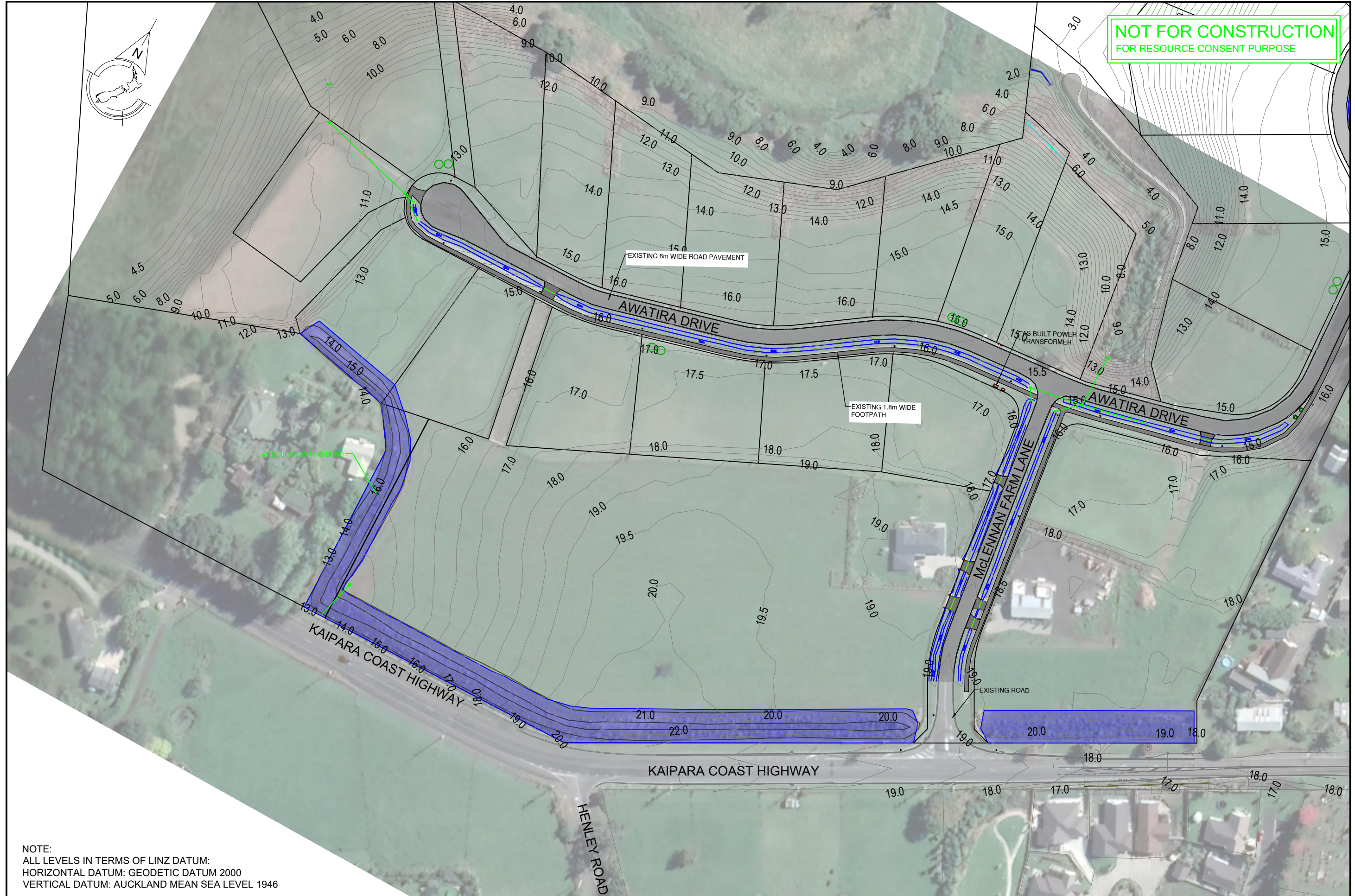
- WS501 FIRE FIGHTING WATER SUPPLY



REV.	DESCRIPTION	CHECK	APP'D	DATE	SCALE	NTS AT A3	NAME	DATE	CLIENT	SITE ADDRESS	DRAWING NUMBER	DATE	REVISION
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							DRAWING CHECK	PF	06.21				
							DESIGN CHECK	PF	06.21				
							APPROVED	PF	06.21				
							Conditions of Use: These drawings shall only be used for the purpose for which they were supplied. Do not measure off this drawing. If doubt please contact Engineer.						
DRAWING TITLE										COVER AND CONTENTS PAGE		JUNE 2021	



NOT FOR CONSTRUCTION
FOR RESOURCE CONSENT PURPOSE



NOTE:
ALL LEVELS IN TERMS OF LINZ DATUM:
HORIZONTAL DATUM: GEODETIC DATUM 2000
VERTICAL DATUM: AUCKLAND MEAN SEA LEVEL 1946

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SITE ADDRESS
**MacLENNAN FARM LANE
KAUKAPAKAPA**

DRAWING TITLE
EXISTING SITE PLAN

DRAWING NUMBER
1664 - RC - PG102

DATE
JUNE 2021

REVISION
-

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Web: www.aspeng.co.nz

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NOTE:
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VERTICAL DATUM: AUCKLAND MEAN SEA LEVEL 1946

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					APPROVED	PF 06.21

CLIENT	RIVERVIEW PROPERTIES LTD
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SITE ADDRESS	MacLENNAN FARM LANE KAUKAPAKAPA
DRAWING TITLE	PROPOSED CONTOUR PLAN

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DATE	JUNE 2021
REVISION	-


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
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LEGEND

TOTAL EARTHWORKS AREA: 3,150m²

 CUT VOLUME: 200m³

 FILL VOLUME: 75 m³



NOTE:
ALL LEVELS IN TERMS OF LINZ DATUM:
HORIZONTAL DATUM: GEODETIC DATUM 2000
VERTICAL DATUM: AUCKLAND MEAN SEA LEVEL 1946

REV.	DESCRIPTION	CHECK	APP'D	DATE	SCALE	1:1250 AT A3
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	APPROVED	PF		06.21		

CLIENT	RIVERVIEW PROPERTIES LTD
SITE ADDRESS	MacLENNAN FARM LANE KAUKAPAKAPA
DRAWING TITLE	PROPOSED CUT TO FILL CONTOUR PLAN

DRAWING NUMBER	1664 - RC - EW202
DATE	JUNE 2021
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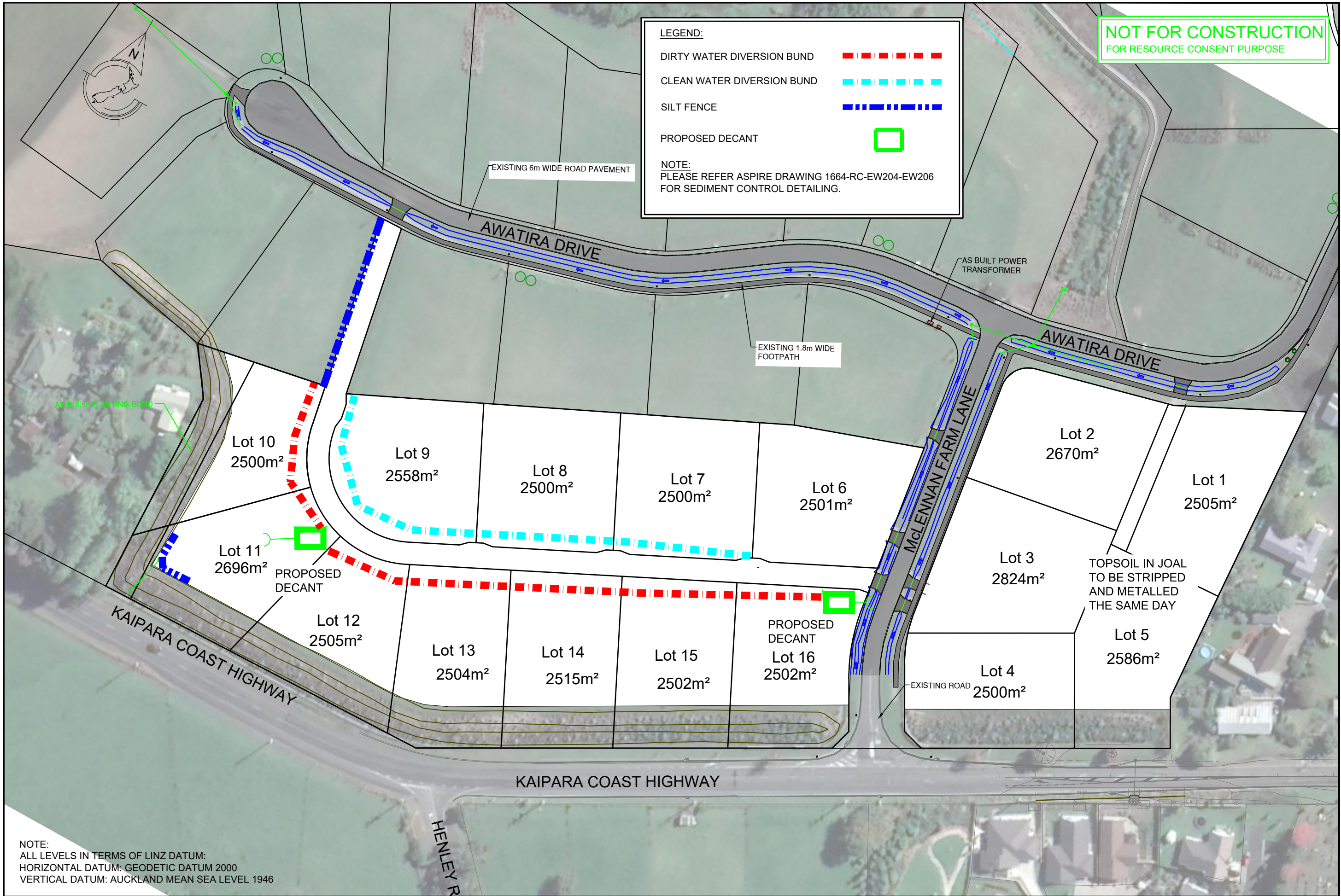
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LEGEND:

- DIRTY WATER DIVERSION BUND - - - - -
- CLEAN WATER DIVERSION BUND - - - - -
- SILT FENCE - - - - -
- PROPOSED DECANT □

NOTE:
PLEASE REFER ASPIRE DRAWING 1664-RC-EW204-EW206 FOR SEDIMENT CONTROL DETAILING.



NOTE:
ALL LEVELS IN TERMS OF LINZ DATUM:
HORIZONTAL DATUM: GEODETIC DATUM 2000
VERTICAL DATUM: AUCKLAND MEAN SEA LEVEL 1946

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					APPROVED	PF 06.21

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SITE ADDRESS
**MacLENNAN FARM LANE
KAUKAPAKAPA**

DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN

DRAWING NUMBER
1664 - RC - EW203

DATE
JUNE 2021

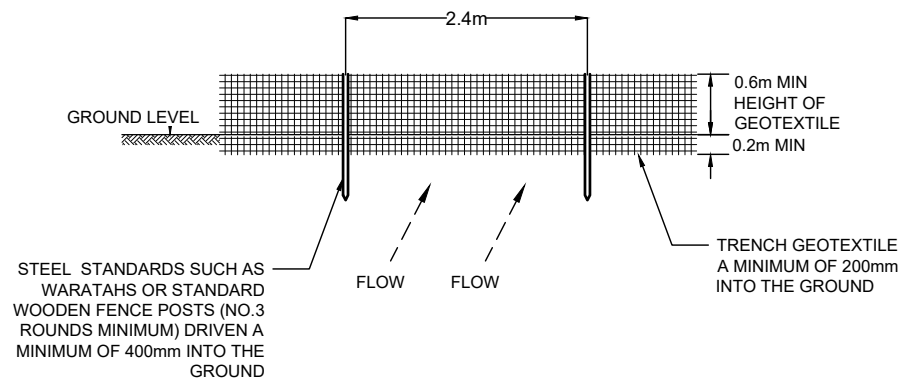
REVISION
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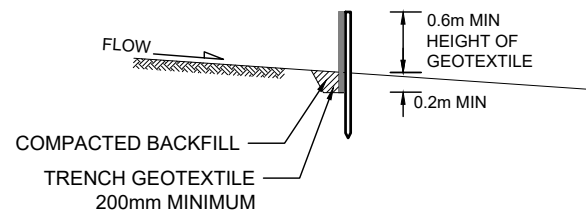
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Slope steepness %	Slope length (m) (maximum)	Spacing of returns (m)	Silt fence length (m) (maximum)
Flatter than 2%	Unlimited	N/A	Unlimited
2 – 10%	40	60	300
10 – 20%	30	50	230
20 – 33%	20	40	150
33 – 50%	15	30	75
> 50%	6	20	40

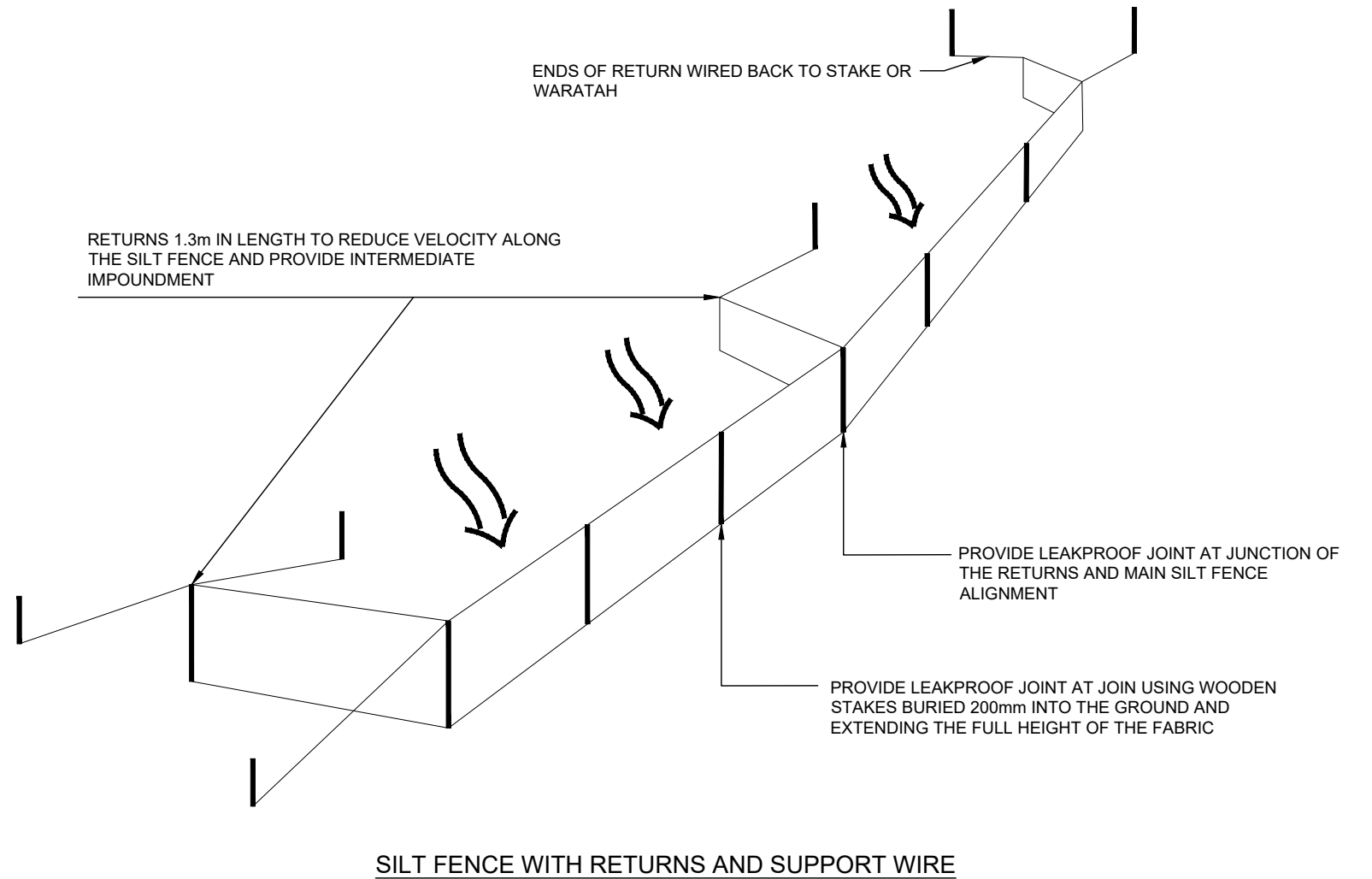
SILT FENCE DESIGN CRITERIA TABLE



SILT FENCE ELEVATION



SILT FENCE CROSS-SECTION



SILT FENCE WITH RETURNS AND SUPPORT WIRE

REV.	DESCRIPTION	CHECK	APP'D	DATE	SCALE	1:75 AT A3
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					DRAWN	PF 06.21
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					APPROVED	PF 06.21

CLIENT	RIVERVIEW PROPERTIES LTD
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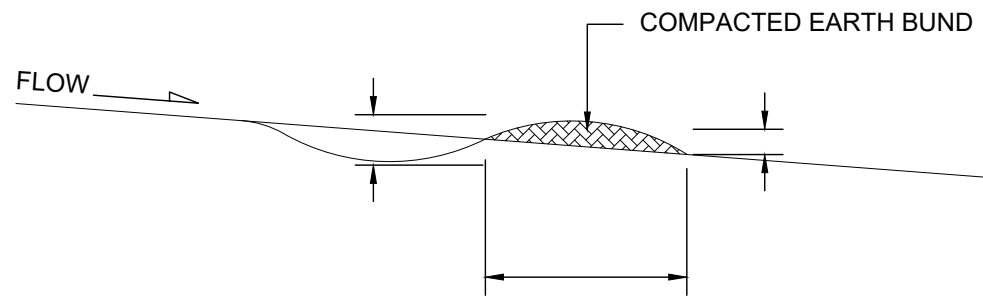
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DRAWING TITLE	EROSION & SEDIMENT CONTROL DETAILS

DRAWING NUMBER	1664 - RC - EW204
DATE	JUNE 2021
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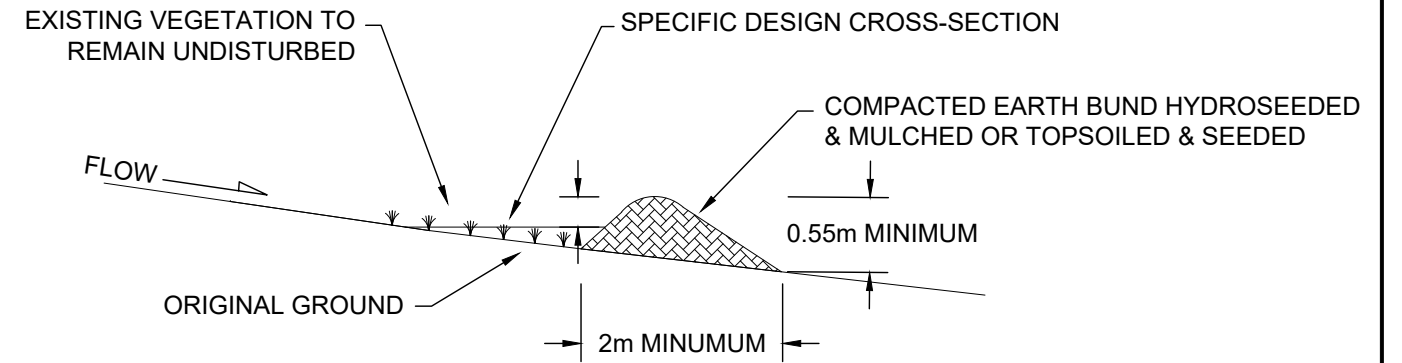
CONTOUR DRAIN SPACING	
SLOPE OF SITE (%)	SPACING (m) OF CONTOUR DRAINS
LESS THAN 5%	50
5 - 10%	40
10 - 15%	30
15 - 30%	20



CONTOUR DRAIN CROSS-SECTION

NOTE:

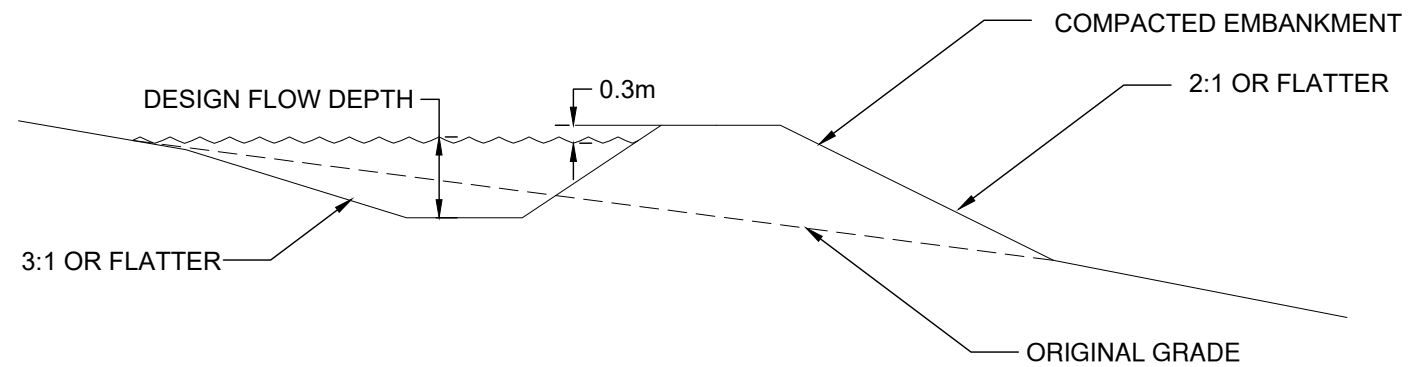
- THE DIVERSION CHANNELS SHOULD BE PARABOLIC OR TRAPEZOIDAL IN SHAPE
- ENSURE INTERNAL SIDES OF THE BUND ARE NO STEEPER THAN 3:1, AND EXTERNAL SIDES NO STEEPER THAN 2:1, AS OUTLINED BELOW



CLEAN WATER DIVERSION CROSS-SECTION

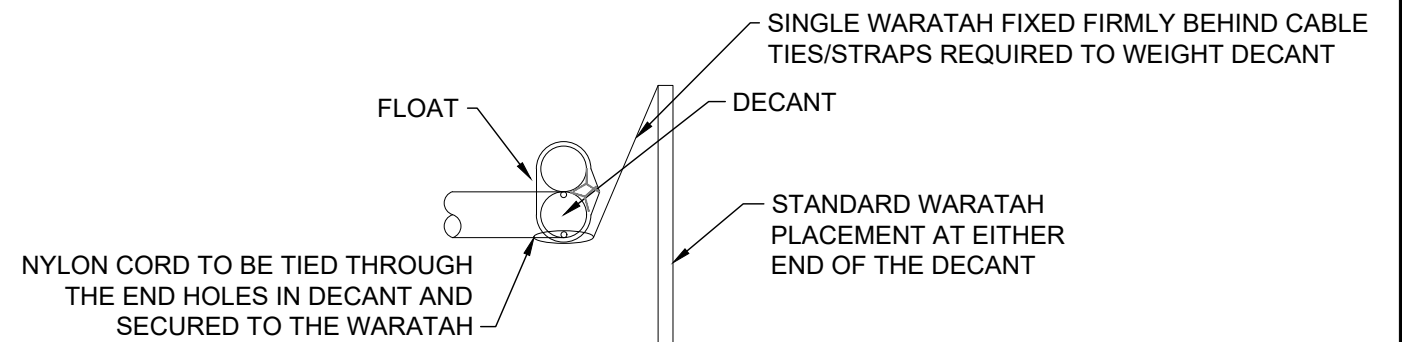
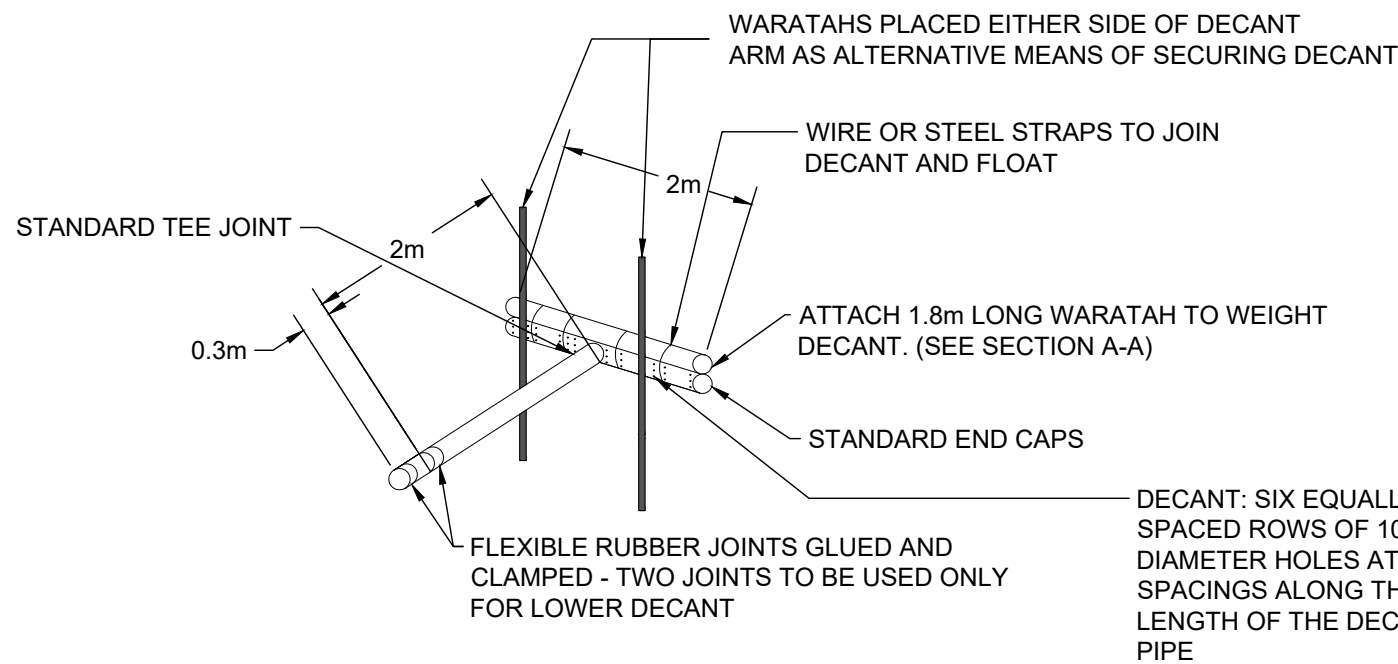
DIRTY WATER DIVERSION FOR CONSTRUCTION AND OPERATION OF DIRTY WATER DIVERSION CHANNELS AND BUNDS:

- PLAN AND CONSTRUCT ALL DIRTY WATER DIVERSION WORKS AS PART OF THE INITIAL SITE ESTABLISHMENT/ DEVELOPMENT ACTIVITIES
- DEFINE THE ROUTE AND SURVEY IT TO ACHIEVE THE CORRECT GRADIENT
- CONSTRUCT DRAINS WITH A UNIFORM GRADE ALONG THE INVERT, AS SUDDEN DECREASES MAY CAUSE SEDIMENT TO ACCUMULATE CAUSING THE BANK TO OVERTOP
- ENSURE THE BUNDS ASSOCIATED WITH THE DIVERSIONS ARE WELL COMPACTED AND STABILISED. IN SOME INSTANCES, THIS MAY REQUIRE SPECIFIC GEOTECHNICAL DESIGN TO ENSURE THE STABILITY AND INTEGRITY OF THE STRUCTURE
- MONITOR DIVERSIONS FOR EROSION. SUBJECT TO THE SOILS ON SITE IT IS LIKELY THAT EROSION CONTROL WILL BE NEEDED WHERE THE GRADIENTS ARE GREATER THAN 2% OR WHERE THE DESIGN VELOCITIES EXCEED 1m/SEC
- ENSURE THE FINISHED CROSS-SECTION MEETS ALL DESIGN REQUIREMENTS
- PROVIDE AN ADEQUATE OUTLET FOR EACH DIVERSION (i.e DIRTY WATER TO A SEDIMENT CONTROL DEVICE).



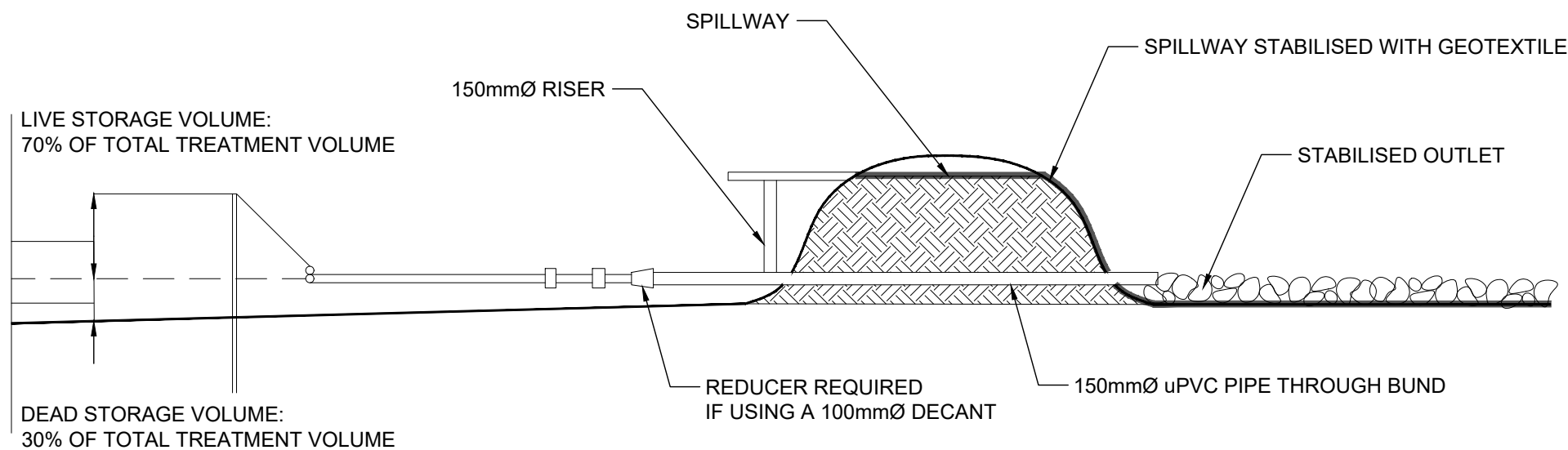
DIRTY WATER DIVERSION CROSS-SECTION

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					DRAWN	PF			REVISION
					DRAWING CHECK	PF			JUNE 2021
					DESIGN CHECK	PF			-
					APPROVED	PF			
							Conditions of Use: These drawings shall only be used for the purpose for which they were supplied. Do not measure off this drawing. If doubt please contact Engineer.	DRAWING TITLE	ASPIRE CONSULTING ENGINEERS
								EROSION & SEDIMENT CONTROL DETAILS	Ph: 09 426 6552 Web: www.aspeng.co.nz



DECANTING DEVICE SIZING:		
CONTRIBUTING AREA	STORAGE VOLUME	
	<18% & <200m (1.0%)	>18% & or 200m (2.0%)
200m ²	2m ³	4m ³
400m ²	4m ³	8m ³
600m ²	6m ³	12m ³
800m ²	8m ³	16m ³
1000m ²	10m ³	20m ³
1200m ²	12m ³	24m ³
1400m ²	14m ³	28m ³
1600m ²	16m ³	32m ³
1800m ²	18m ³	36m ³
2000m ²	20m ³	40m ³
2200m ²	22m ³	44m ³
2400m ²	24m ³	48m ³
2600m ²	26m ³	52m ³
2800m ²	28m ³	56m ³
3000m ² MAXIMUM	30m ³	60m ³

STANDARD T-BAR DESIGN SCHEMATIC



DECANTING EARTH BUND CROSS-SECTION

DEB SIZING:

- DEB SIZING IS BASED ON CONTRIBUTING CATCHMENT AREA
- ON EARTHWORKS SITES WITH SLOPES LESS THAN 18% AND LESS THAN 200m IN LENGTH, CONSTRUCT DEB WITH A MINIMUM VOLUME OF 1% OF THE CONTRIBUTING CATCHMENT AREA (10m³ FOR EACH 1,000m²).
- ON EARTHWORK SITES WITH SLOPES GREATER THAN 18% OR GREATER THAN 200m IN LENGTH, CONSTRUCT DEB WITH A MINIMUM VOLUME OF 2% OF THE CONTRIBUTING CATCHMENT AREA (20m³ FOR EACH 2,000m²)
- THE SLOPE ANGLE IS DETERMINED BY THE SLOPE IMMEDIATELY ABOVE THE DEB, OR BY THE AVERAGE SLOPE OVER THE CONTRIBUTING CATCHMENT, WHICHEVER IS GREATER. THE SLOPE ANGLE SHOULD ALSO BE THE GREATER OF THE PRE- OR POST- CONSTRUCTION SLOPE.
- THE ABOVE CALCULATION DEFINES THE TOTAL STORAGE VOLUME WHICH IS MEASURED FROM THE BASE OF THE DEB TO THE TOP OF THE PRIMARY SPILLWAY.

REV.	DESCRIPTION	CHECK	APP'D	DATE	SCALE	1:100 AT A3	CLIENT	SITE ADDRESS	DRAWING NUMBER	
							RIVERVIEW PROPERTIES LTD	MacLENNAN FARM LANE KAUKAPAKAPA	1664 - RC - EW206	
							Conditions of Use: These drawings shall only be used for the purpose for which they were supplied. Do not measure off this drawing. If doubt please contact Engineer.	DRAWING TITLE	DATE	REVISION
								EROSION & SEDIMENT CONTROL DETAILS	JUNE 2021	-

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NOTE:
ALL LEVELS IN TERMS OF LINZ DATUM:
HORIZONTAL DATUM: GEODETIC DATUM 2000
VERTICAL DATUM: AUCKLAND MEAN SEA LEVEL 1946

REV.	DESCRIPTION	CHECK	APP'D	DATE	SCALE	1:1250 AT A3
	DESIGN	PF		06.21		
	DRAWN	PF		06.21		
	DRAWING CHECK	PF		06.21		
	DESIGN CHECK	PF		06.21		
	APPROVED	PF		06.21		

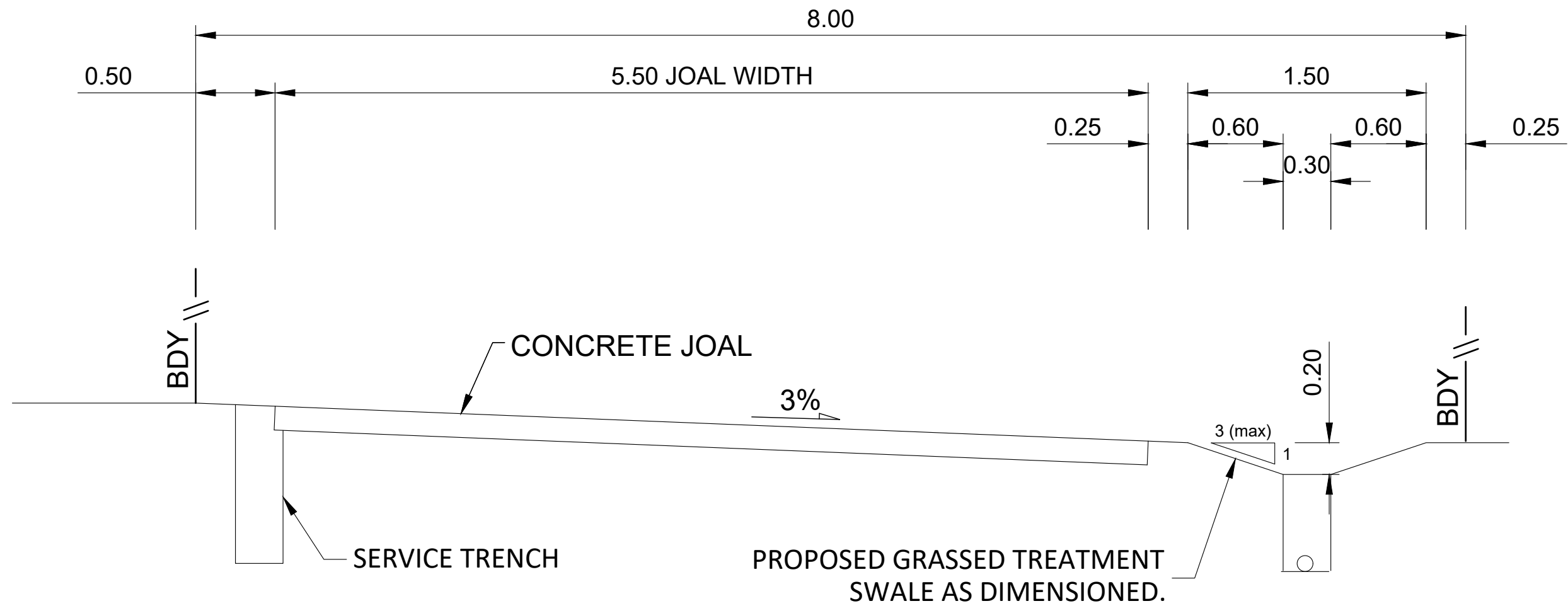
CLIENT	RIVERVIEW PROPERTIES LTD
Conditions of Use: These drawings shall only be used for the purpose for which they were supplied. Do not measure off this drawing. If doubt please contact Engineer.	

SITE ADDRESS	MacLENNAN FARM LANE KAUKAPAKAPA
DRAWING TITLE	PROPOSED JOAL PLAN

DRAWING NUMBER	1664 - RC - RD301
DATE	JUNE 2021
REVISION	-


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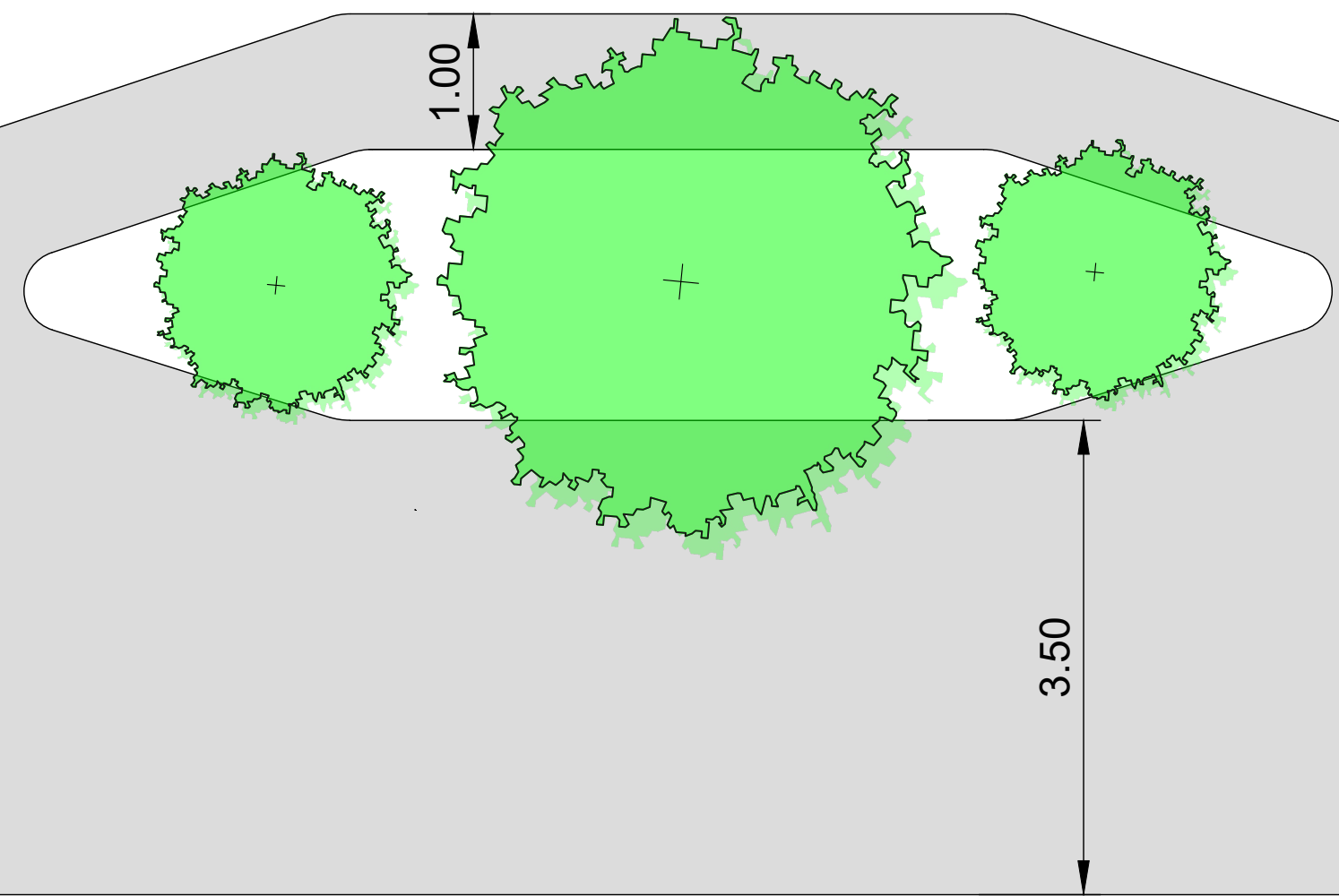
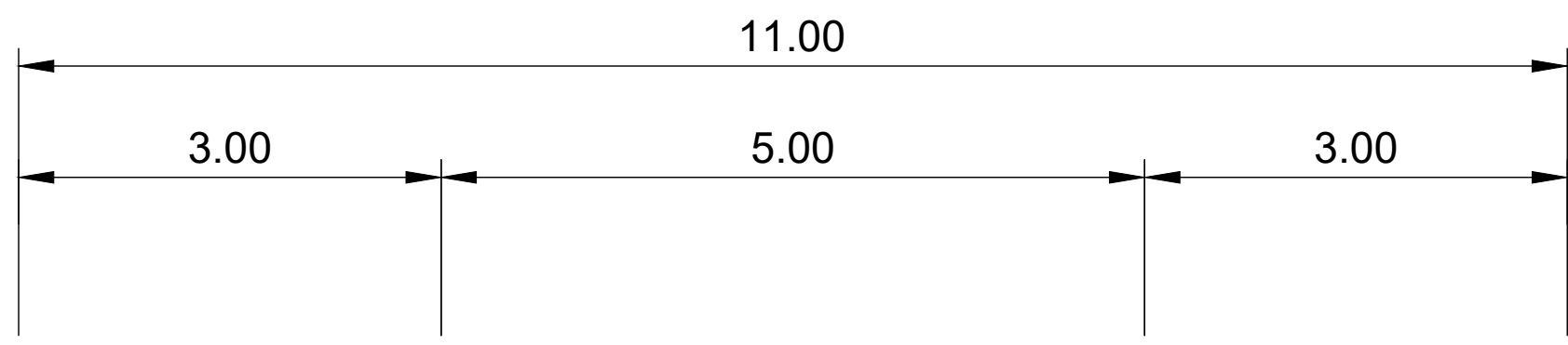
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TYPICAL 5.5m JOAL CROSS SECTION - WITH SWALE

NOTE:
 ALL LEVELS IN TERMS OF LINZ DATUM:
 HORIZONTAL DATUM: GEODETIC DATUM 2000
 VERTICAL DATUM: AUCKLAND MEAN SEA LEVEL 1946

REV.	DESCRIPTION	CHECK	APP'D	DATE	SCALE	1:30 AT A3		CLIENT	SITE ADDRESS	DRAWING NUMBER	
						NAME	DATE	RIVERVIEW PROPERTIES LTD	MacLENNAN FARM LANE KAUKAPAKAPA	1664 - RC - RD302	
					DESIGN	PF	06.21			DATE	REVISION
					DRAWN	PF	06.21			JUNE 2021	-
					DRAWING CHECK	PF	06.21			 Ph: 09 426 6552 Web: www.aspeng.co.nz	
					DESIGN CHECK	PF	06.21				
					APPROVED	PF	06.21	Conditions of Use: These drawings shall only be used for the purpose for which they were supplied. Do not measure off this drawing. If doubt please contact Engineer.		DRAWING TITLE TYPICAL JOAL X-SECTION	



NOTE:
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 VERTICAL DATUM: AUCKLAND MEAN SEA LEVEL 1946

REV.	DESCRIPTION	CHECK	APP'D	DATE	SCALE	1:50 AT A3	CLIENT	SITE ADDRESS	DRAWING NUMBER	
							RIVERVIEW PROPERTIES LTD	MacLENNAN FARM LANE KAUKAPAKAPA	1664 - RC - RD303	
					DESIGN	PF				06.21
					DRAWN	PF				06.21
					DRAWING CHECK	PF				06.21
					DESIGN CHECK	PF				06.21
					APPROVED	PF				06.21
							Conditions of Use: <i>These drawings shall only be used for the purpose for which they were supplied. Do not measure off this drawing. If doubt please contact Engineer.</i>	DRAWING TITLE	DATE	REVISION
								TYPICAL JOAL NARROWING	JUNE 2021	-

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HORIZONTAL DATUM: GEODETIC DATUM 2000
VERTICAL DATUM: AUCKLAND MEAN SEA LEVEL 1946

NOTE:
LOTS 1 - 6 & 16 TO
DISCHARGE TO THE EXISTING
ROADSIDE SWALES

REV.	DESCRIPTION	CHECK	APP'D	DATE	SCALE	1:1250 AT A3	CLIENT	SITE ADDRESS	DRAWING NUMBER
							RIVERVIEW PROPERTIES LTD	MacLENNAN FARM LANE KAUKAPAKAPA	1664 - RC - SW401
							<p>Conditions of Use: These drawings shall only be used for the purpose for which they were supplied. Do not measure off this drawing. If doubt please contact Engineer.</p>	<p>DRAWING TITLE PRELIMINARY STORMWATER LAYOUT</p>	DATE
						JUNE 2021			
						REVISION			
						-			

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NOTE:
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 HORIZONTAL DATUM: GEODETIC DATUM 2000
 VERTICAL DATUM: AUCKLAND MEAN SEA LEVEL 1946

REV.	DESCRIPTION	CHECK	APP'D	DATE	SCALE 1:1250 AT A3		
					NAME	DATE	
	DESIGN			06.21	PF		
	DRAWN			06.21	PF		
	DRAWING CHECK			06.21	PF		
	DESIGN CHECK			06.21	PF		
	APPROVED			06.21	PF		

CLIENT	RIVERVIEW PROPERTIES LTD
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SITE ADDRESS	MacLENNAN FARM LANE KAUKAPAKAPA
DRAWING TITLE	SWALE CATCHMENT PLAN

DRAWING NUMBER	1664 - RC - SW402
DATE	JUNE 2021
REVISION	-

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NOTE:
ALL LEVELS IN TERMS OF LINZ DATUM:
HORIZONTAL DATUM: GEODETIC DATUM 2000
VERTICAL DATUM: AUCKLAND MEAN SEA LEVEL 1946

REV.	DESCRIPTION	CHECK	APP'D	DATE	SCALE	1:1250 AT A3
	DESIGN		PF	06.21		
	DRAWN		PF	06.21		
	DRAWING CHECK		PF	06.21		
	DESIGN CHECK		PF	06.21		
	APPROVED		PF	06.21		

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SITE ADDRESS	MacLENNAN FARM LANE KAUKAPAKAPA
DRAWING TITLE	FIRE FIGHTING WATER SUPPLY PLAN

DRAWING NUMBER	1664 - RC - WS501
DATE	JUNE 2021
REVISION	-

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