

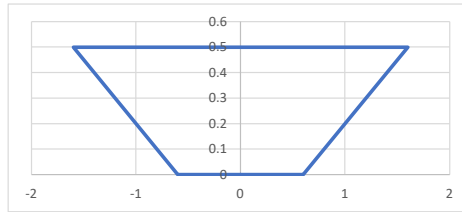
ESCP: Clean Water Diversion

Project: 27019, Koputaroa NE Levin Stormwater  
CWD for Attenuation Area 3, Stage 1

Target Flow: 1.5 m<sup>3</sup>/s

Trapezoidal Channel Calculation

Base of channel: 1.2 m  
Height of channel: 0.5 m  
Slide slope, 1: 2  
Channel Width at top: 3.2 m  
  
Mannings n 0.03  
Area of channel 1.1 m<sup>2</sup>  
Wetted Perimeter 3.4 m  
Hydraulic Radius 0.3 m  
Slope of bund 0.8%



**Channel Capacity 1.5 m<sup>3</sup>/s**

Channel Liner Required as more than 1 m/s

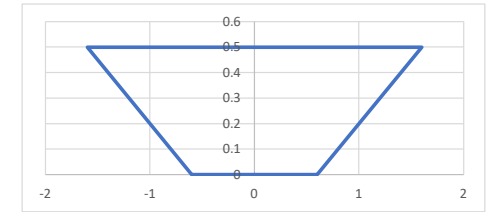
Elevations & Slope (Approx)

Channel Length 125  
GL at start 29  
Invert at start 28.5  
  
GL at end 28  
Invert at end 27.5  
  
Slope 0.80%

Target Flow: 3 m<sup>3</sup>/s

Trapezoidal Channel Calculation

Base of channel: 2 m  
Height of channel: 0.6 m  
Slide slope, 1: 2  
Channel Width at top: 4.4 m  
  
Mannings n 0.03  
Area of channel 1.92 m<sup>2</sup>  
Wetted Perimeter 4.7 m  
Hydraulic Radius 0.4 m  
Slope of bund 0.8%



**Channel Capacity 3.2 m<sup>3</sup>/s**

Channel Liner Required as more than 1 m/s

Elevations & Slope (Approx)

Channel Length 125  
GL at start 29  
Invert at start 28.4  
  
GL at end 28  
Invert at end 27.4  
  
Slope 0.80%

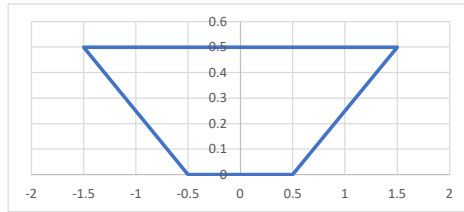
ESCP: Clean Water Diversion

Project: 27019, Koputaroa NE Levin Stormwater  
CWD for Attenuation Area 3, Stage 2

Target Flow: 1.5 m<sup>3</sup>/s

Trapezoidal Channel Calculation

Base of channel: 1 m  
Height of channel: 0.5 m  
Slide slope, 1: 2  
Channel Width at top: 3 m  
  
Mannings n 0.03  
Area of channel 1 m<sup>2</sup>  
Wetted Perimeter 3.2 m  
Hydraulic Radius 0.3 m  
Slope of bund 1.0%



**Channel Capacity 1.5 m<sup>3</sup>/s**

Channel Liner Required as more than 1 m/s

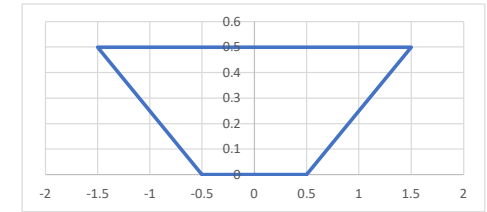
Elevations & Slope (Approx)

Channel Length 200  
GL at start 27.5  
Invert at start 27  
  
GL at end 25  
Invert at end 24.5  
  
Slope 1.25%

Target Flow: 3 m<sup>3</sup>/s

Trapezoidal Channel Calculation

Base of channel: 1.7 m  
Height of channel: 0.6 m  
Slide slope, 1: 2  
Channel Width at top: 4.1 m  
  
Mannings n 0.03  
Area of channel 1.74 m<sup>2</sup>  
Wetted Perimeter 4.4 m  
Hydraulic Radius 0.4 m  
Slope of bund 1.0%



**Channel Capacity 3.1 m<sup>3</sup>/s**

Channel Liner Required as more than 1 m/s

Elevations & Slope (Approx)

Channel Length 200  
GL at start 27.5  
Invert at start 26.9  
  
GL at end 25  
Invert at end 24.4  
  
Slope 1.25%

ESCP: Sediment Retention Pond

Project: 27019, Koputaroa NE Levin Stormwater

	<b>Attenuation Area 3</b>		<b>Stage 2, True Right</b>		<b>Stage 2, True Left</b>		<b>Attenuation Area 4</b>	
	<b>Stage 1</b>							
Contributing Catchment	0.3 ha		0.6 ha		0.8 ha		0.3 ha	
Slope of Earthworks	29% side slopes max (concept design)		29% side slopes max (concept design)		29% side slopes max (concept design)		29% side slopes max (concept design)	
Minimum volume of pond	3% of contributing catchment		3% of contributing catchment		3% of contributing catchment		3% of contributing catchment	
	<b>90 m2</b>		<b>180 m2</b>		<b>240 m2</b>		<b>90 m2</b>	
Dead Storage Volume	27 m2	30% of min volume	54 m2	30% of min volume	72 m2	30% of min volume	27 m2	30% of min volume
Live Storage	63 m2		126 m2		168 m2		63 m2	
Side slopes	2 :1		2 :1		2 :1		2 :1	
Length to Width Ratio	3 :1		3 :1		3 :1		3 :1	
Depth	1.25 m		1.25 m		1.25 m		1.25 m	
Width	4.5 m		7 m		8 m		4.5 m	
Length	13.5 m		21 m		24 m		13.5 m	
<b>Volume available</b>	<b>76 m2</b>		<b>184 m2</b>		<b>240 m2</b>		<b>76 m2</b>	
	Confirm, exceeds min volume required		Confirm, exceeds min volume required		Confirm, exceeds min volume required		Confirm, exceeds min volume required	
Decant flow required	3 L/s per ha		3 L/s per ha		3 L/s per ha		3 L/s per ha	
Max Flow per decant	4.5 L/s		4.5 L/s		4.5 L/s		4.5 L/s	
No. of decants required	0.2 round up	1 decant	0.4 round up	1 decant	0.5 round up	1 decant	0.2 round up	1 decant