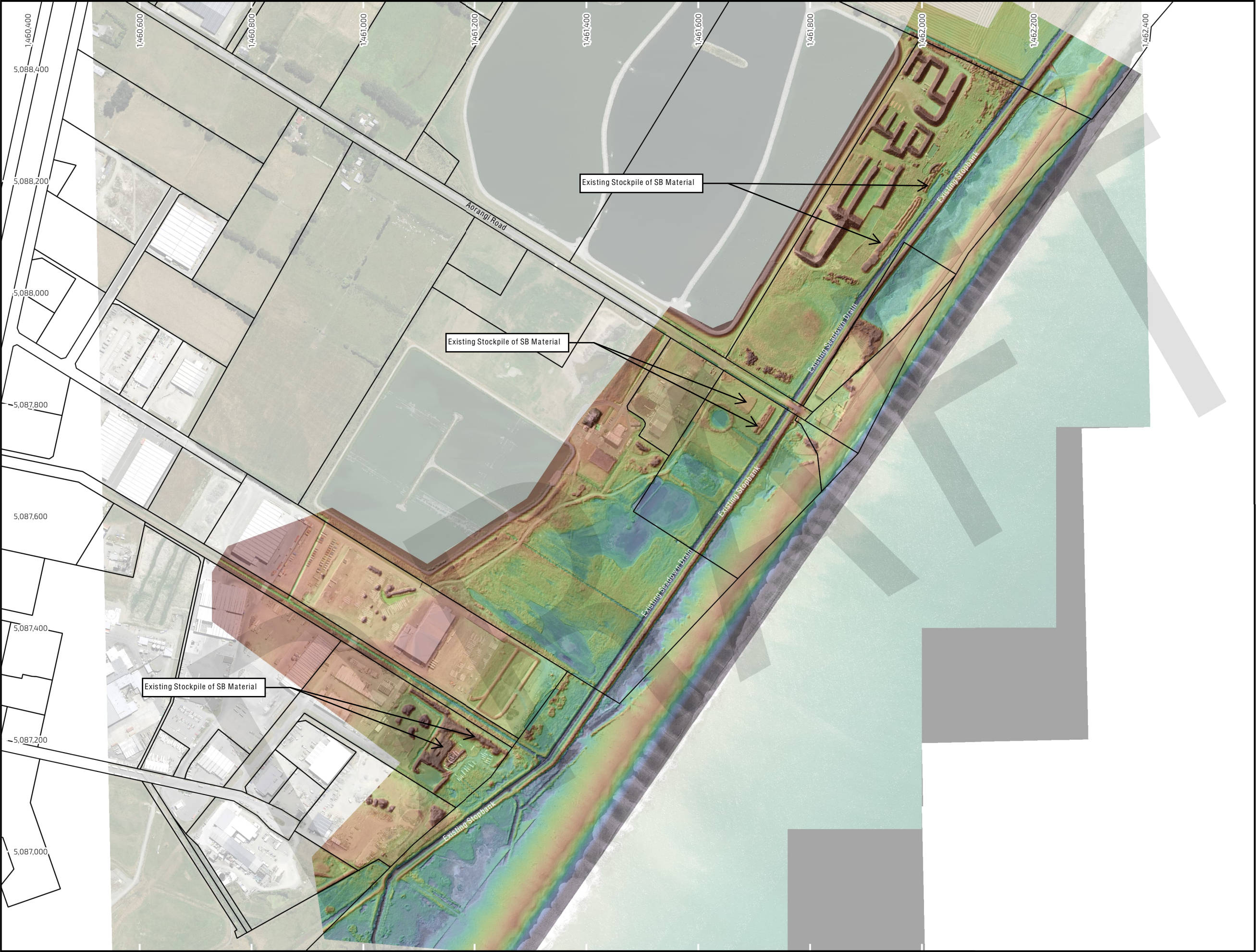


Appendix 13: Design drawings

RIF T1 WAITARAKAO WASHDYKE
SEADOWN STOPBANK &
CHANNEL WORKS - STAGE 1
- FOR RESOURCE CONSENT -
Environment Canterbury Regional Council
15/03/2025

Sheet No.	Drawing Title	Description
001	Planview of Existing Conditions	Plan showing existing topography and alignments, including stockpiled material.
002	Planview of Design Conditions	Plan showing new alignment for entire Stage 1 and partitions for remaining drawings.
003	Planview of Design Conditions - PSE & HH Area	Plan showing zoomed in area near outlet of new channel.
004	Planview of Design Conditions - No.1 Drain Outlet & D/S Wetland Area	Plan showing confluence of No.1 Drain with new channel, localised drainage, and grading of D/S wetland.
005	Planview of Design Conditions - TDC SW Treatment & Wetland Area	Plan showing grading of wetland area and new channel and SB alignment.
006	Planview of Design Conditions - ByProducts SW Treatment & Inland Track	Plan showing newly formed ByProduct SW attenuation pond and vegetated swale as well as raised inland track.
007	Planview of Design Conditions - Aorangi Road Level Modifications	Plan showing raised entrance to riffle range and ByProducts yard, new box culvert location, new car parking area, gates, and ramps over new SB.
008	Planview of Design Conditions - D/S End of Riffle Range	Plan showing SB and channel alignment at D/S end of riffle range.
009	Planview of Design Conditions - U/S End of Riffle Range	Plan showing SB and channel alignment at U/S end of riffle range and inlet connection of Stage 1 to existing Seadown Drain.
010	Typical Channel and Bank Cross Sections	Heights and Widths of typical cross sections for both new channel and stopbank.
011	Planview of Cut / Fill Depths	Plan showing the extent of cut and fill depths for the project as well as expected volumes.



Existing Stopbank & Channel Alignment

Project: RIF T1 Waitarakao Washdyke Seadown Stopbank and Channel Works - Stage 1

Client: Environment Canterbury Regional Council



Description: Planview of Existing Conditions

- Notes:**
- 1. All horizontal coordinates provided in NZTM 2000 unless stated otherwise.
 - 2. All vertical levels provided in NZVD2016 unless stated otherwise.
 - 3. Existing ground model as of Mar 2026, which includes stockpiled material for stopbank construction.

Mapped by: LKu
Date: 15-Mar-2026
Project No: 24006-01
Revision: 1.0
Status: For Consent (FC)
Sheet: 001

Legend

	NZ_Property_Titles		2.4 - 2.5
	Elevation		2.5 - 2.6
	Band 1 (Gray)		2.6 - 2.7
	<= 0.6		2.7 - 2.8
	0.6 - 0.7		2.8 - 2.9
	0.7 - 0.8		2.9 - 3.0
	0.8 - 0.9		3.0 - 3.1
	0.9 - 1.0		3.1 - 3.2
	1.0 - 1.1		3.2 - 3.3
	1.1 - 1.2		3.3 - 3.4
	1.2 - 1.3		3.4 - 3.5
	1.3 - 1.4		3.5 - 3.6
	1.4 - 1.5		3.6 - 3.7
	1.5 - 1.6		3.7 - 3.8
	1.6 - 1.7		3.8 - 3.9
	1.7 - 1.8		3.9 - 4.0
	1.8 - 1.9		4.0 - 4.1
	1.9 - 2.0		4.1 - 4.2
	2.0 - 2.1		4.2 - 4.3
	2.1 - 2.2		4.3 - 4.4
	2.2 - 2.3		> 4.4
	2.3 - 2.4		



Scale: 1 : 6500 for standard A3.
Vertical Datum: NZVD2016
Grid: NZGD2000 / New Zealand Transverse Mercator 2000

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Proposed Stopbank & Channel Alignment

Project: RIF T1 Waitarakao Washdyke
Seadown Stopbank and
Channel Works - Stage 1

Client: Environment Canterbury
Regional Council



Description: Planview of
Designed Conditions

- Notes:**
- 1. All horizontal coordinates provided in NZTM 2000 unless stated otherwise.
 - 2. All vertical levels provided in NZVD2016 unless stated otherwise.

Mapped by: LKu
Date: 15-Mar-2026
Project No: 24006-01
Revision: 1.0
Status: For Consent (FC)
Sheet: 002

Legend

	NZ_Property_Titles		2.4 - 2.5
	<= 0.6		2.5 - 2.6
	0.6 - 0.7		2.6 - 2.7
	0.7 - 0.8		2.7 - 2.8
	0.8 - 0.9		2.8 - 2.9
	0.9 - 1.0		2.9 - 3.0
	1.0 - 1.1		3.0 - 3.1
	1.1 - 1.2		3.1 - 3.2
	1.2 - 1.3		3.2 - 3.3
	1.3 - 1.4		3.3 - 3.4
	1.4 - 1.5		3.4 - 3.5
	1.5 - 1.6		3.5 - 3.6
	1.6 - 1.7		3.6 - 3.7
	1.7 - 1.8		3.7 - 3.8
	1.8 - 1.9		3.8 - 3.9
	1.9 - 2.0		3.9 - 4.0
	2.0 - 2.1		4.0 - 4.1
	2.1 - 2.2		4.1 - 4.2
	2.2 - 2.3		4.2 - 4.3
	2.3 - 2.4		4.3 - 4.4
	> 4.4		> 4.4

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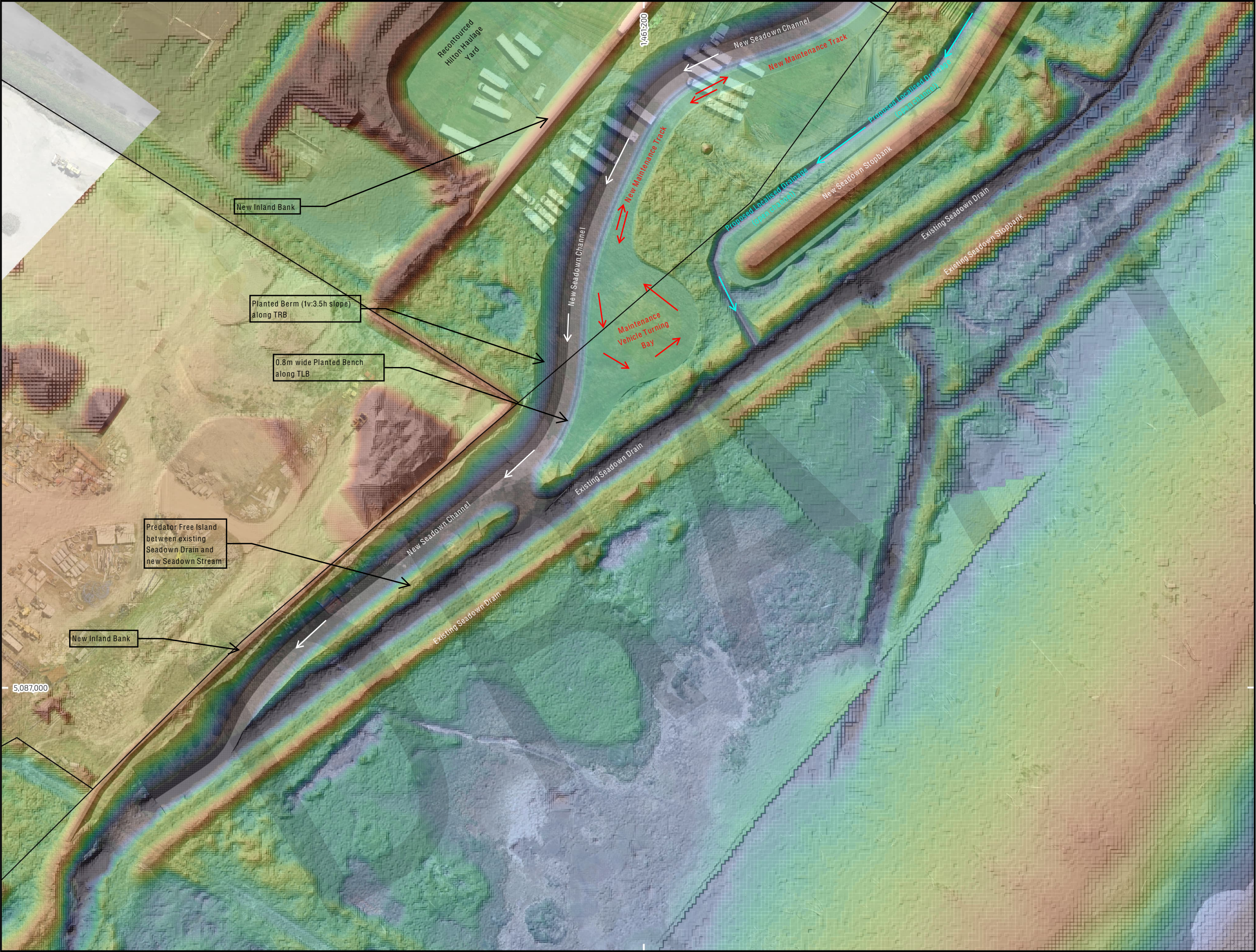
Contact: 021 247 4256



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Scale: 1 : 6500 for standard A3.
Vertical Datum: NZVD2016
Grid: NZGD2000 / New Zealand Transverse Mercator 2000



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Proposed Stopbank & Channel Alignment

Project: RIF T1 Waitarakao Washdyke Seadown Stopbank and Channel Works - Stage 1

Client: Environment Canterbury Regional Council



Description: Planview of Designed Conditions - PSE & HH Area

- Notes:**
- 1. All horizontal coordinates provided in NZTM 2000 unless stated otherwise.
 - 2. All vertical levels provided in NZVD2016 unless stated otherwise.
 - 3. Predator free island will be separated between existing channel and new Seadown Stream.
 - 4. Existing channel will remain open on D/S end.

Mapped by: LKu
Date: 15-Mar-2026
Project No: 24006-01
Revision: 1.0
Status: For Consent (FC)
Sheet: 003

Legend

	NZ_Property_Titles		2.4 - 2.5
	Elevation		2.5 - 2.6
	Band 1 (Gray)		2.6 - 2.7
	<= 0.6		2.7 - 2.8
	0.6 - 0.7		2.8 - 2.9
	0.7 - 0.8		2.9 - 3.0
	0.8 - 0.9		3.0 - 3.1
	0.9 - 1.0		3.1 - 3.2
	1.0 - 1.1		3.2 - 3.3
	1.1 - 1.2		3.3 - 3.4
	1.2 - 1.3		3.4 - 3.5
	1.3 - 1.4		3.5 - 3.6
	1.4 - 1.5		3.6 - 3.7
	1.5 - 1.6		3.7 - 3.8
	1.6 - 1.7		3.8 - 3.9
	1.7 - 1.8		3.9 - 4.0
	1.8 - 1.9		4.0 - 4.1
	1.9 - 2.0		4.1 - 4.2
	2.0 - 2.1		4.2 - 4.3
	2.1 - 2.2		4.3 - 4.4
	2.2 - 2.3		> 4.4
	2.3 - 2.4		

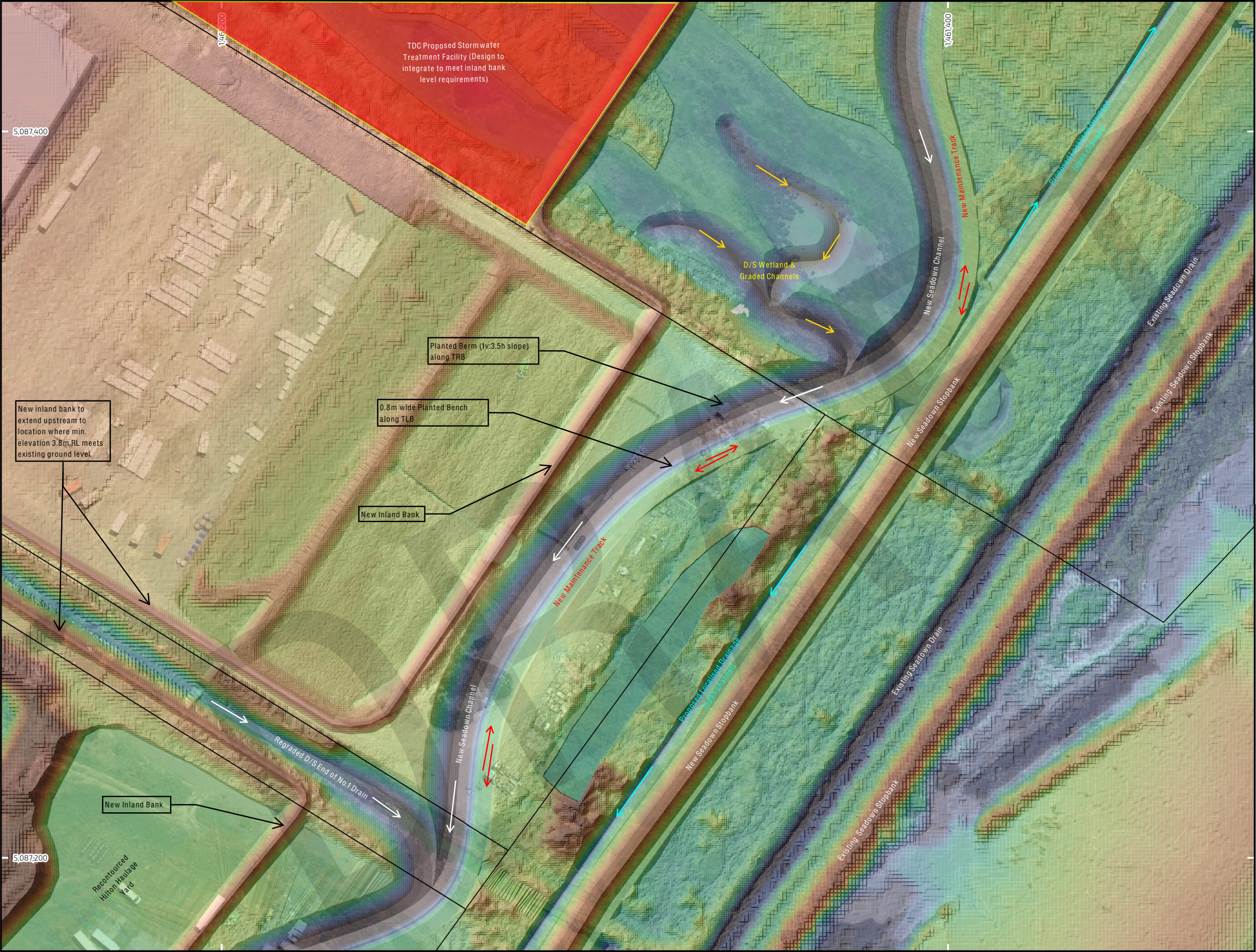


20 0 20 40 60 m
Scale: 1: 1000 for standard A3.
Vertical Datum: NZVD2016
Grid: NZGD2000 / New Zealand Transverse Mercator 2000



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Proposed Stopbank & Channel Alignment

Project: RIF T1 Waitarakao Washdyke Seadown Stopbank and Channel Works - Stage 1

Client: Environment Canterbury Regional Council



Description: Planview of Designed Conditions - No.1 Drain Outlet & D/S Wetland Area

- Notes:**
- 1. All horizontal coordinates provided in NZTM 2000 unless stated otherwise.
 - 2. All vertical levels provided in NZVD2016 unless stated otherwise.

Mapped by: LKu
Date: 15-Mar-2026
Project No: 24006-01
Revision: 1.0
Status: For Consent (FC)
Sheet: 004

Legend

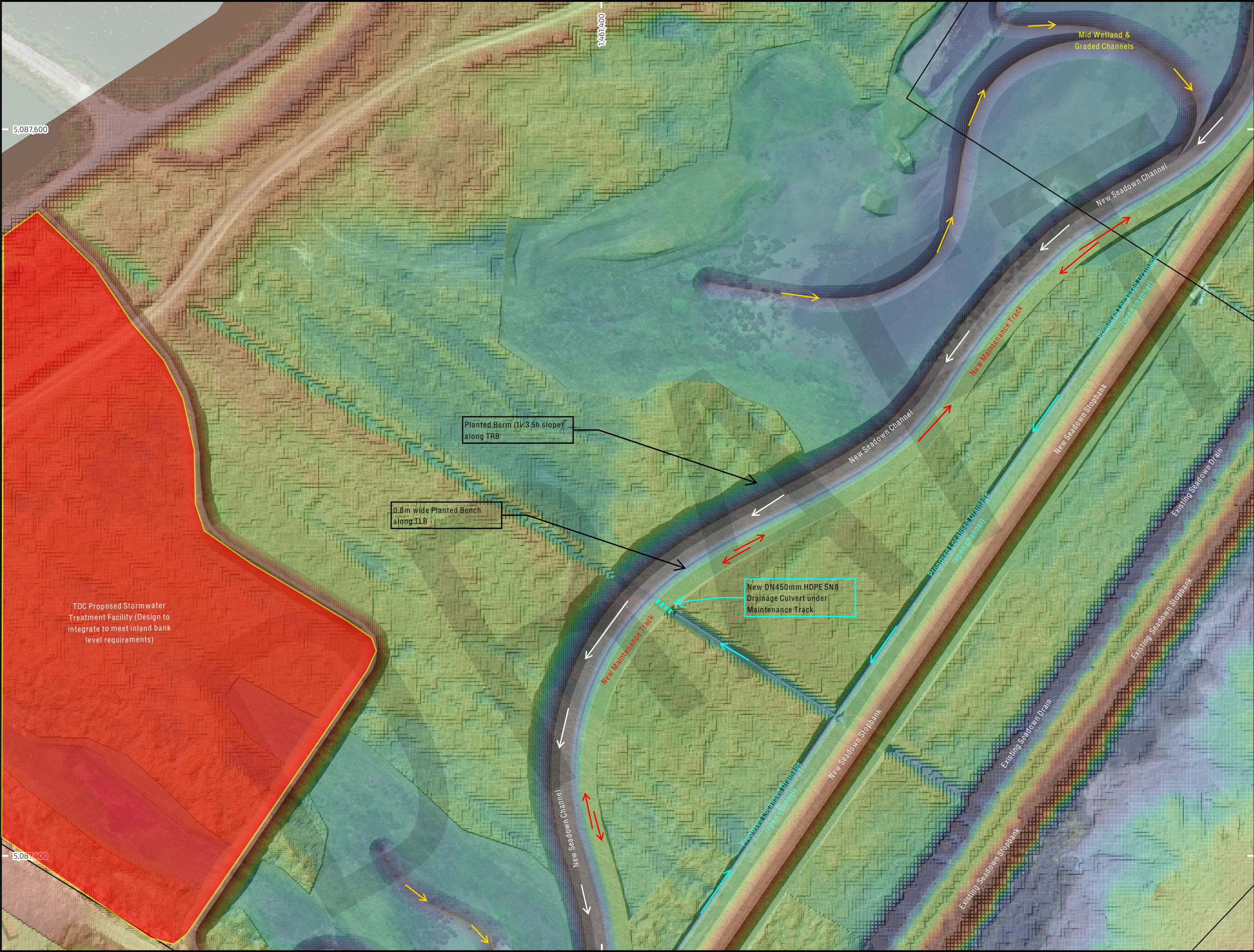
	NZ_Property_Titles		2.4 - 2.5
	Elevation		2.5 - 2.6
	Band 1 (Gray)		2.6 - 2.7
	<= 0.6		2.7 - 2.8
	0.6 - 0.7		2.8 - 2.9
	0.7 - 0.8		2.9 - 3.0
	0.8 - 0.9		3.0 - 3.1
	0.9 - 1.0		3.1 - 3.2
	1.0 - 1.1		3.2 - 3.3
	1.1 - 1.2		3.3 - 3.4
	1.2 - 1.3		3.4 - 3.5
	1.3 - 1.4		3.5 - 3.6
	1.4 - 1.5		3.6 - 3.7
	1.5 - 1.6		3.7 - 3.8
	1.6 - 1.7		3.8 - 3.9
	1.7 - 1.8		3.9 - 4.0
	1.8 - 1.9		4.0 - 4.1
	1.9 - 2.0		4.1 - 4.2
	2.0 - 2.1		4.2 - 4.3
	2.1 - 2.2		4.3 - 4.4
	2.2 - 2.3		> 4.4
	2.3 - 2.4		



Scale: 1 : 1000 for standard A3.
Vertical Datum: NZVD2016
Grid: NZGD2000 / New Zealand Transverse Mercator 2000

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Proposed Stopbank & Channel Alignment

Project: RIF T1 Waitarakao Washdyke Seadown Stopbank and Channel Works - Stage 1

Client: Environment Canterbury Regional Council



Description: Planview of Designed Conditions - TDC SW Treatment & Wetland Area

- Notes:**
- 1. All horizontal coordinates provided in NZTM 2000 unless stated otherwise.
 - 2. All vertical levels provided in NZVD2016 unless stated otherwise.

Mapped by: LKu
Date: 15-Mar-2026
Project No: 24006-01
Revision: 1.0
Status: For Consent (FC)
Sheet: 005

Legend

	NZ_Property_Titles		2.4 - 2.5
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	0.7 - 0.8		2.7 - 2.8
	0.8 - 0.9		2.8 - 2.9
	0.9 - 1.0		2.9 - 3.0
	1.0 - 1.1		3.0 - 3.1
	1.1 - 1.2		3.1 - 3.2
	1.2 - 1.3		3.2 - 3.3
	1.3 - 1.4		3.3 - 3.4
	1.4 - 1.5		3.4 - 3.5
	1.5 - 1.6		3.5 - 3.6
	1.6 - 1.7		3.6 - 3.7
	1.7 - 1.8		3.7 - 3.8
	1.8 - 1.9		3.8 - 3.9
	1.9 - 2.0		3.9 - 4.0
	2.0 - 2.1		4.0 - 4.1
	2.1 - 2.2		4.1 - 4.2
	2.2 - 2.3		4.2 - 4.3
	2.3 - 2.4		4.3 - 4.4
	> 4.4		> 4.4

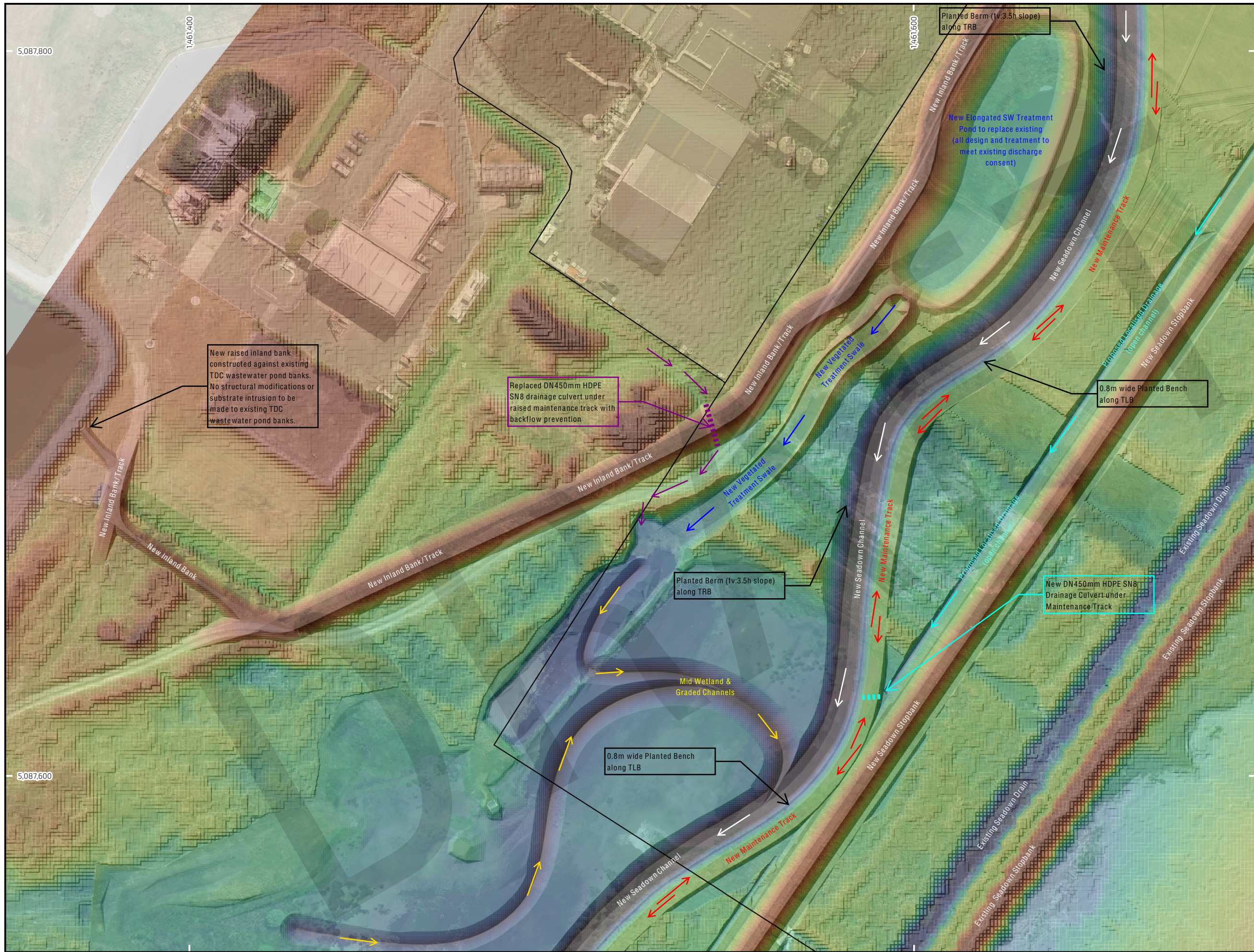


Scale: 1 : 1000 for standard A3.
Vertical Datum: NZVD2016
Grid: NZGD2000 / New Zealand Transverse Mercator 2000



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Proposed Stopbank & Channel Alignment

Project: RIF T1 Waitarakao Washdyke Seadown Stopbank and Channel Works - Stage 1

Client: Environment Canterbury Regional Council



Description: Planview of Designed Conditions - ByProducts SW Treatment & Inland Track

- Notes:**
1. All horizontal coordinates provided in NZTM 2000 unless stated otherwise.
 2. All vertical levels provided in NZVD2016 unless stated otherwise.

Mapped by: LKu
Date: 15-Mar-2026
Project No: 24006-01
Revision: 1.0
Status: For Consent (FC)
Sheet: 006

Legend

	NZ_Property_Titles		2.4 - 2.5
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	0.7 - 0.8		2.7 - 2.8
	0.8 - 0.9		2.8 - 2.9
	0.9 - 1.0		2.9 - 3.0
	1.0 - 1.1		3.0 - 3.1
	1.1 - 1.2		3.1 - 3.2
	1.2 - 1.3		3.2 - 3.3
	1.3 - 1.4		3.3 - 3.4
	1.4 - 1.5		3.4 - 3.5
	1.5 - 1.6		3.5 - 3.6
	1.6 - 1.7		3.6 - 3.7
	1.7 - 1.8		3.7 - 3.8
	1.8 - 1.9		3.8 - 3.9
	1.9 - 2.0		3.9 - 4.0
	2.0 - 2.1		4.0 - 4.1
	2.1 - 2.2		4.1 - 4.2
	2.2 - 2.3		4.2 - 4.3
	2.3 - 2.4		4.3 - 4.4
			> 4.4

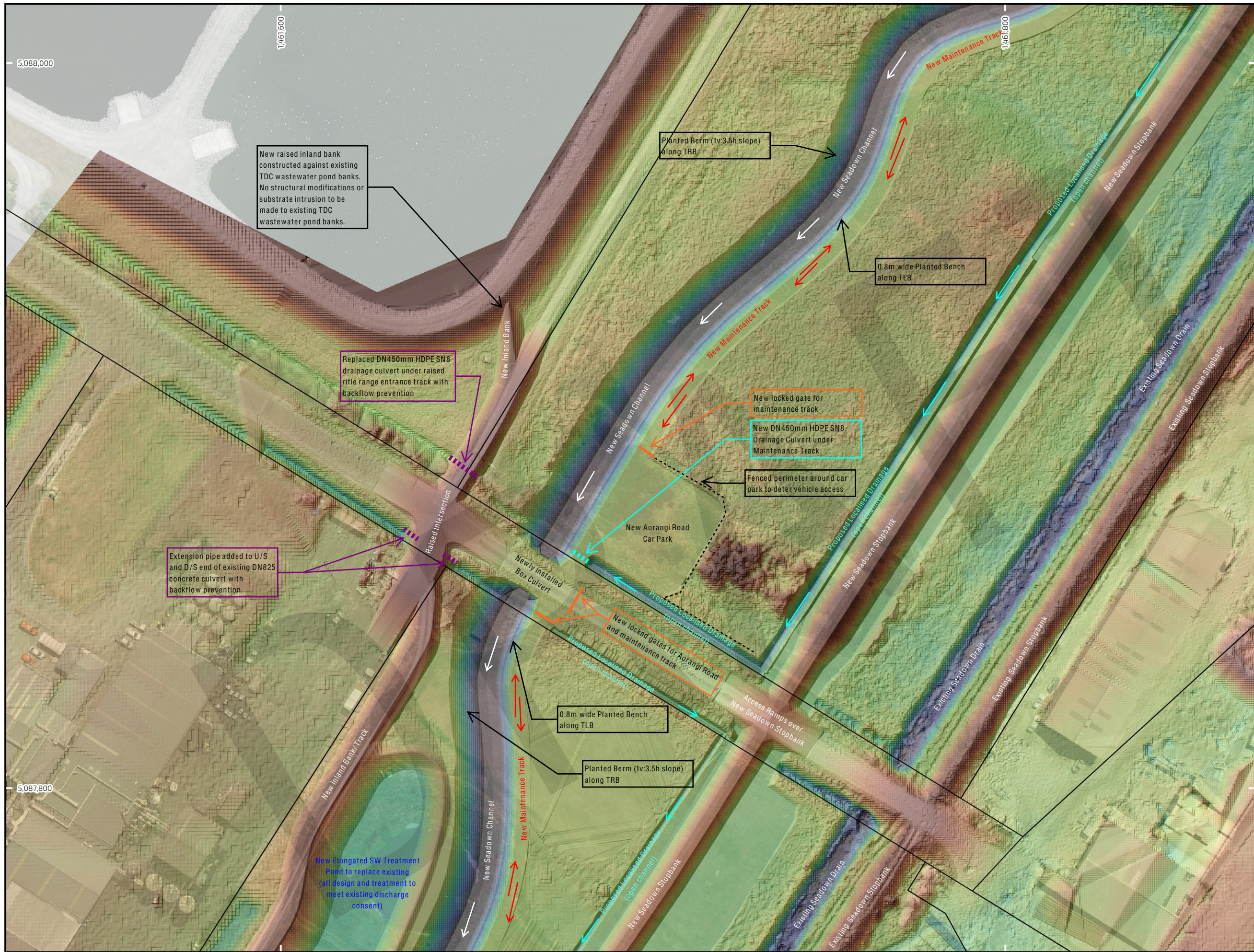
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Scale: 1 : 1000 for standard A3.
Vertical Datum: NZVD2016
Grid: NZGD2000 / New Zealand Transverse Mercator 2000

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Proposed Stopbank & Channel Alignment

Project: RIF T1 Waitarakao Washdyke Seadown Stopbank and Channel Works - Stage 1

Client: Environment Canterbury Regional Council



Description: Planview of Designed Conditions - Aorangi Road Level Modifications

- Notes:**
1. All horizontal coordinates provided in NZTM 2000 unless stated otherwise.
 2. All vertical levels provided in NZVD2016 unless stated otherwise.

Mapped by: LKu
Date: 15-Mar-2026
Project No: 24006-01
Revision: 1.0
Status: For Consent (FC)
Sheet: 007

Legend

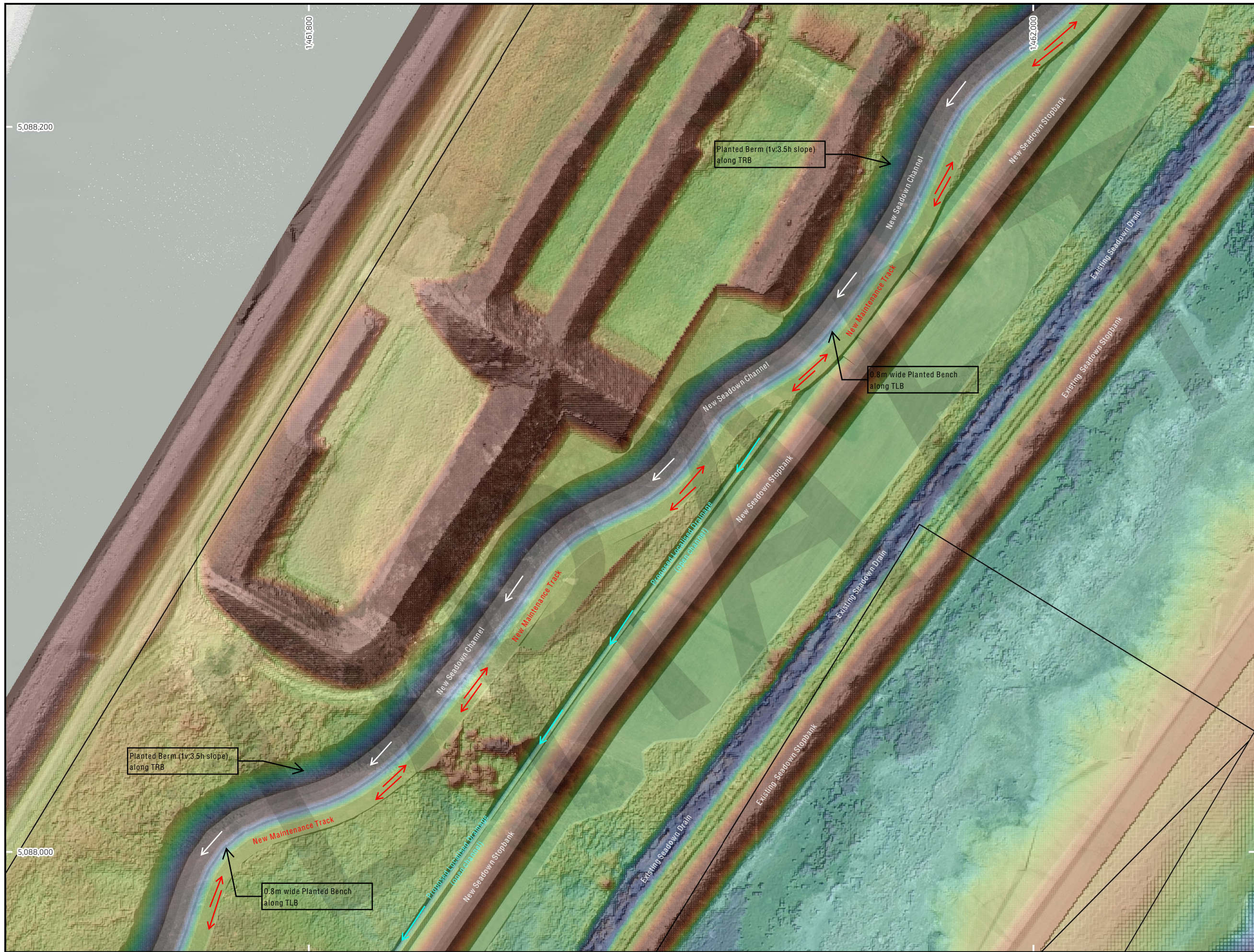
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	0.6 - 0.7		2.5 - 2.6
	0.7 - 0.8		2.6 - 2.7
	0.8 - 0.9		2.7 - 2.8
	0.9 - 1.0		2.8 - 2.9
	1.0 - 1.1		2.9 - 3.0
	1.1 - 1.2		3.0 - 3.1
	1.2 - 1.3		3.1 - 3.2
	1.3 - 1.4		3.2 - 3.3
	1.4 - 1.5		3.3 - 3.4
	1.5 - 1.6		3.4 - 3.5
	1.6 - 1.7		3.5 - 3.6
	1.7 - 1.8		3.6 - 3.7
	1.8 - 1.9		3.7 - 3.8
	1.9 - 2.0		3.8 - 3.9
	2.0 - 2.1		3.9 - 4.0
	2.1 - 2.2		4.0 - 4.1
	2.2 - 2.3		4.1 - 4.2
	2.3 - 2.4		4.2 - 4.3
			4.3 - 4.4
			> 4.4



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Proposed Stopbank & Channel Alignment

Project: RIF T1 Waitarakao Washdyke Seadown Stopbank and Channel Works - Stage 1

Client: Environment Canterbury Regional Council



Description: Planview of Designed Conditions - D/S End of Riffle Range

- Notes:**
- 1. All horizontal coordinates provided in NZTM 2000 unless stated otherwise.
 - 2. All vertical levels provided in NZVD2016 unless stated otherwise.

Mapped by: LKu
Date: 15-Mar-2026
Project No: 24006-01
Revision: 1.0
Status: For Consent (FC)
Sheet: 008

Legend

	NZ_Property_Titles		2.4 - 2.5
	<= 0.6		2.5 - 2.6
	0.6 - 0.7		2.6 - 2.7
	0.7 - 0.8		2.7 - 2.8
	0.8 - 0.9		2.8 - 2.9
	0.9 - 1.0		2.9 - 3.0
	1.0 - 1.1		3.0 - 3.1
	1.1 - 1.2		3.1 - 3.2
	1.2 - 1.3		3.2 - 3.3
	1.3 - 1.4		3.3 - 3.4
	1.4 - 1.5		3.4 - 3.5
	1.5 - 1.6		3.5 - 3.6
	1.6 - 1.7		3.6 - 3.7
	1.7 - 1.8		3.7 - 3.8
	1.8 - 1.9		3.8 - 3.9
	1.9 - 2.0		3.9 - 4.0
	2.0 - 2.1		4.0 - 4.1
	2.1 - 2.2		4.1 - 4.2
	2.2 - 2.3		4.2 - 4.3
	2.3 - 2.4		4.3 - 4.4
			> 4.4



Scale: 1 : 1000 for standard A3.
Vertical Datum: NZVD2016
Grid: NZGD2000 / New Zealand Transverse Mercator 2000

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Proposed Stopbank & Channel Alignment

Project: RIF T1 Waitarakao Washdyke Seadown Stopbank and Channel Works - Stage 1

Client: Environment Canterbury Regional Council



Description: Planview of Designed Conditions - U/S End of Riffle Range

- Notes:**
1. All horizontal coordinates provided in NZTM 2000 unless stated otherwise.
 2. All vertical levels provided in NZVD2016 unless stated otherwise.

Mapped by: LKu
Date: 15-Mar-2026
Project No: 24006-01
Revision: 1.0
Status: For Consent (FC)
Sheet: 009

Legend

	NZ_Property_Titles		2.4 - 2.5
	Elevation		2.5 - 2.6
	Band 1 (Gray)		2.6 - 2.7
	<= 0.6		2.7 - 2.8
	0.6 - 0.7		2.8 - 2.9
	0.7 - 0.8		2.9 - 3.0
	0.8 - 0.9		3.0 - 3.1
	0.9 - 1.0		3.1 - 3.2
	1.0 - 1.1		3.2 - 3.3
	1.1 - 1.2		3.3 - 3.4
	1.2 - 1.3		3.4 - 3.5
	1.3 - 1.4		3.5 - 3.6
	1.4 - 1.5		3.6 - 3.7
	1.5 - 1.6		3.7 - 3.8
	1.6 - 1.7		3.8 - 3.9
	1.7 - 1.8		3.9 - 4.0
	1.8 - 1.9		4.0 - 4.1
	1.9 - 2.0		4.1 - 4.2
	2.0 - 2.1		4.2 - 4.3
	2.1 - 2.2		4.3 - 4.4
	2.2 - 2.3		> 4.4
	2.3 - 2.4		

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Scale: 1 : 1000 for standard A3.
Vertical Datum: NZVD2016
Grid: NZGD2000 / New Zealand Transverse Mercator 2000

Channel & Bank
Section Details

Project: RIF T1 Waitarakao Washdyke
Seadown Stopbank and
Channel Works - Stage 1

Client: Environment Canterbury
Regional Council



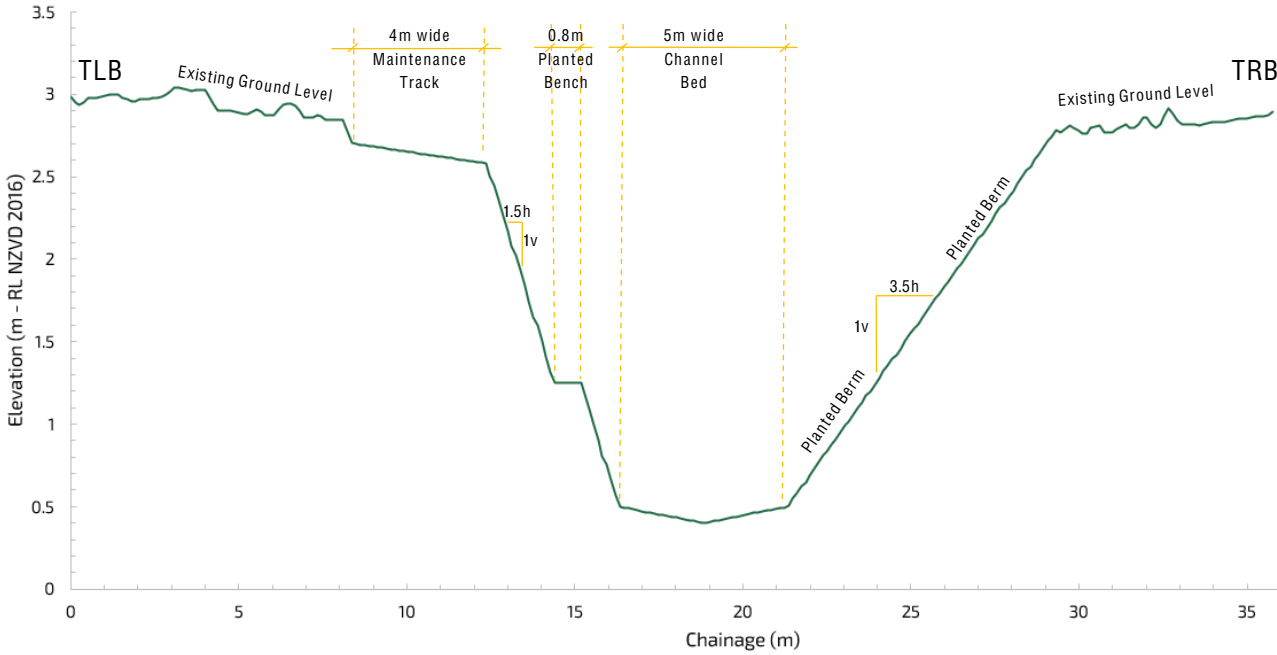
Description: Typical Channel and Bank
Cross Sections

Notes:

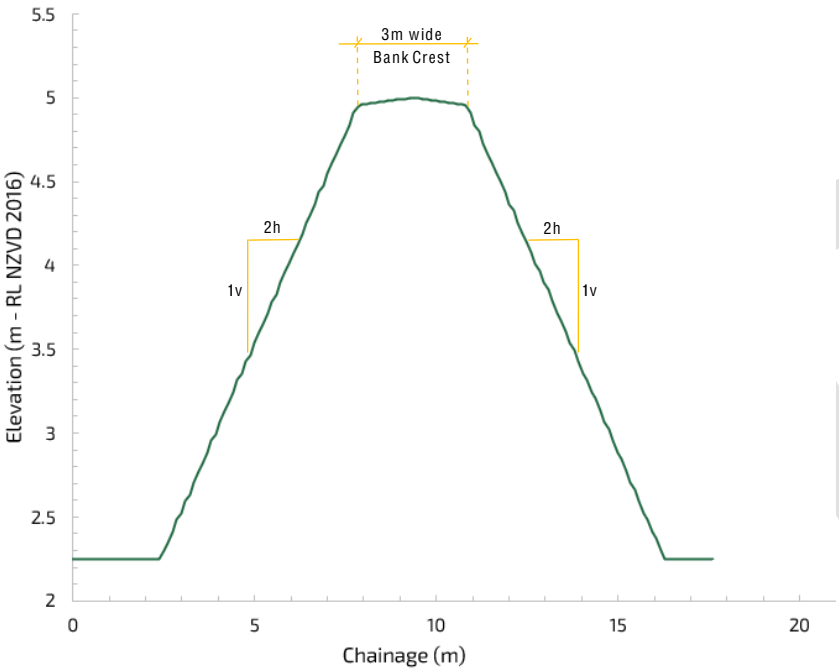
Mapped by: LKu
Date: 15-Mar-2026
Project No: 24006-01
Revision: 1.0
Status: For Consent (FC)
Sheet: 010

Legend

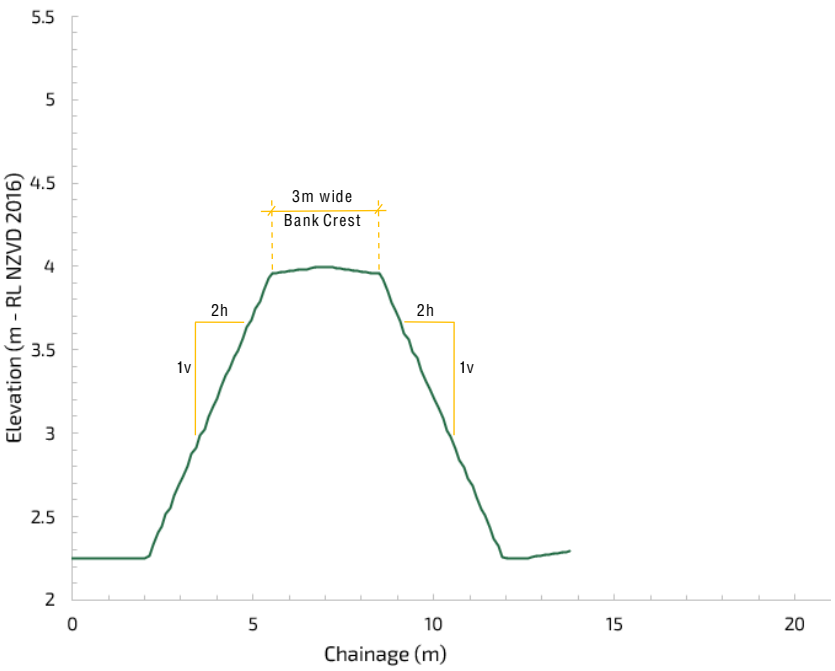
Typical Channel Cross Section for New Seadown Channel



Typical Cross Section for
New Seadown Stopbank U/S of Aorangi Road



Typical Cross Section for
New Seadown Stopbank D/S of Aorangi Road



Cut / Fill
Depths & Volumes

Project: RIF T1 Waitarakao Washdyke
Seadown Stopbank and
Channel Works - Stage 1

Client: Environment Canterbury
Regional Council



Description: Planview of
Cut / Fill Depths

Notes:
1. All horizontal coordinates provided in
NZTM 2000 unless stated otherwise.
2. All vertical levels provided in NZVD2016
unless stated otherwise.

Mapped by: LKu
Date: 15-Mar-2026
Project No: 24006-01
Revision: 1.0
Status: For Consent (FC)
Sheet: 011

Legend

Cut Depth (m)	Fill Depth (m)
<= -3.50	<= 0.25
-3.50 - -3.25	0.25 - 0.50
-3.25 - -3.00	0.50 - 0.75
-3.00 - -2.75	0.75 - 1.00
-2.75 - -2.50	1.00 - 1.25
-2.50 - -2.25	1.25 - 1.50
-2.25 - -2.00	1.50 - 1.75
-2.00 - -1.75	1.75 - 2.00
-1.75 - -1.50	2.00 - 2.25
-1.50 - -1.25	2.25 - 2.50
-1.25 - -1.00	2.50 - 2.75
-1.00 - -0.75	2.75 - 3.00
-0.75 - -0.50	3.00 - 3.25
-0.50 - -0.25	3.25 - 3.50
> -0.25	> 3.50

Stage 1 Volumes		
Cut	69,793.4	m ³
Fill	32,955.6	m ³
Net Excess	36,837.9	m ³



100 0 100 200 300 m
Scale: 1 : 6500 for standard A3.
Vertical Datum: NZVD2016
Grid: NZGD2000 / New Zealand Transverse Mercator 2000



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