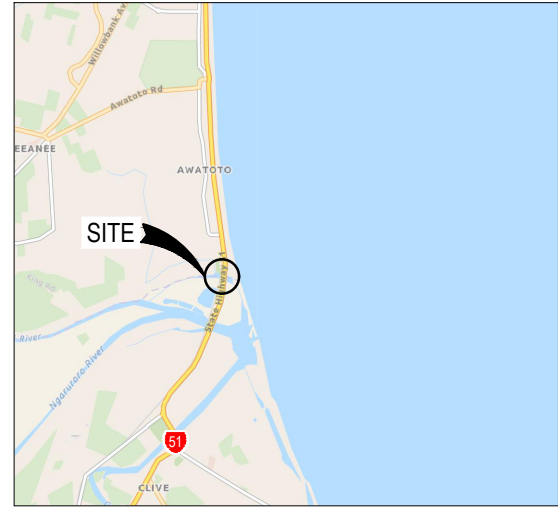


APPENDIX C Design Drawings and Management Plans



LOCALITY PLAN
N.T.S

LEGEND	
EXISTING KIWI RAIL TRACK	— — — — —
PROPERTY BOUNDARY	- - - - -
RAIL CHAINAGE	700

DRAWING LIST		
DWG No.	REV	DESCRIPTION
A0006-PL-000-00000-GE-DG-TREC-000001	1	COVER SHEET, LOCALITY PLAN AND DRAWING LIST
A0006-PL-000-00000-GE-DG-TREC-000002	1	BRIDGE REPAIRS - GENERAL NOTES AND SPECIFICATIONS - SHEET 1
A0006-PL-000-00000-GE-DG-TREC-000003	1	BRIDGE REPAIRS - GENERAL NOTES AND SPECIFICATIONS - SHEET 2
A0006-PL-000-00000-BR-DG-TREC-001001	1	BRIDGE REPAIRS - PROPOSED EARTHWORKS
A0006-PL-000-00000-BR-DG-TREC-003001	1	BRIDGE REPAIRS - EXISTING RAIL BRIDGE PLAN AND GEOLOGICAL LONG SECTIONS
A0006-PL-000-00000-BR-DG-TREC-003002	1	BRIDGE REPAIRS - GENERAL ARRANGEMENT PLAN AND ELEVATION
A0006-PL-000-00000-BR-DG-TREC-003003	1	BRIDGE REPAIRS - SPAN REPLACEMENT GENERAL ARRANGEMENT
A0006-PL-000-00000-BR-DG-TREC-003004	1	BRIDGE REPAIRS - REVETMENT PROTECTION - PLAN AND ELEVATION
A0006-PL-000-00000-BR-DG-TREC-003021	1	BRIDGE REPAIRS - REVETMENT PROTECTION - PLAN AND ELEVATION - SHEET 1
A0006-PL-000-00000-BR-DG-TREC-003022	1	BRIDGE REPAIRS - REVETMENT PROTECTION - PLAN AND ELEVATION - SHEET 2
A0006-PL-000-00000-BR-DG-TREC-004001	1	BRIDGE REPAIRS - SPAN REPLACEMENT STRUCTURAL DETAILS - SHEET 1
A0006-PL-000-00000-BR-DG-TREC-004002	1	BRIDGE REPAIRS - SPAN REPLACEMENT STRUCTURAL DETAILS - SHEET 2
A0006-PL-000-00000-BR-DG-TREC-004003	1	BRIDGE REPAIRS - SPAN REPLACEMENT STRUCTURAL DETAILS - SHEET 3
A0006-PL-000-00000-BR-DG-TREC-004004	1	BRIDGE REPAIRS - SPAN REPLACEMENT STRUCTURAL DETAILS - SHEET 4
A0006-PL-000-00000-BR-DG-TREC-004005	1	BRIDGE REPAIRS - SPAN REPLACEMENT STRUCTURAL DETAILS - SHEET 5
A0006-PL-000-00000-BR-DG-TREC-004006	1	BRIDGE REPAIRS - SPAN REPLACEMENT STRUCTURAL DETAILS - SHEET 6
A0006-PL-000-00000-BR-DG-TREC-004007	1	BRIDGE REPAIRS - REVETMENT PROTECTION DETAILS - SHEET 1
A0006-PL-000-00000-BR-DG-TREC-006001	1	BRIDGE REPAIRS - PROPOSED EARTHWORKS - DETAILED CROSS SECTIONS - SHEET 1
A0006-PL-000-00000-BR-DG-TREC-006002	1	BRIDGE REPAIRS - PROPOSED EARTHWORKS - DETAILED CROSS SECTIONS - SHEET 2
A0006-PL-000-00000-BR-DG-TREC-006003	1	BRIDGE REPAIRS - PROPOSED EARTHWORKS - DETAILED CROSS SECTIONS - SHEET 3
A0006-PL-000-00000-BR-DG-TREC-006004	1	BRIDGE REPAIRS - PROPOSED EARTHWORKS - DETAILED CROSS SECTIONS - SHEET 4

		Transport Rebuild East Coast		PROJECT		STATUS		TITLE		PROJECT INFORMATION	
ZONE A - RAIL COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16 ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED		REV 1 18/09/2025 ISSUED FOR CONSTRUCTION		APPROVED B.RYDER		ISSUED FOR CONSTRUCTION APPROVED B.RYDER		COVER SHEET, LOCALITY PLAN AND DRAWING LIST		BRIDGE 217 PNGL - 170.5031	
		REVISION DETAILS		APPROVED B.RYDER		APPROVED BY B.RYDER		DATE 18/09/2025		DOCUMENT CODE A0006-PL-00-00000-GE-DG-TREC-000001	
		APPROVED B.RYDER		APPROVED BY B.RYDER		DATE 18/09/2025		SCALE AS SHOWN		SIZE A1	
		APPROVED BY B.RYDER		DATE 18/09/2025		REFERENCE No. GE-000001		REV 1			

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- NOTES**
- REFER TO REMEDIAL WORKS SPECIFICATION DOCUMENT A0006-PL-00-17000-BR-SP-TREC-000001.
 - REFER TO GENERAL NOTES AND SPECIFICATIONS ON DRAWING SHEETS GE000002 AND GE-000003.
 - AERIAL IMAGERY HAS BEEN SUPPLIED BY TREC SURVEY TEAM. AERIAL DRONE FLOWN ON THE 15TH APRIL 2025.
 - EXISTING WETLANDS TO REMAIN UNDAMAGED DURING WORKS.

WETLANDS 6, 7, 8 TO BE DELINEATED ON SITE BY TREC ECOLOGY REPRESENTATIVE AND EARTHWORKS TO BE REDUCED TO NOT OCCUR WITHIN 1m OF THE WETLAND FEATURES

WETLAND 4 EARTHWORKS TO BE COMPLETED AS PER DESIGN, CONSTRUCTION SUPPORT I.E. HAUL ACCESS, EQUIPMENT AND TEMPORARY CUTS TO BE MINIMISED WITHIN THE DELINEATED WETLAND AREA. REFER TO OFFSET MITIGATION ON LANDSCAPE PLANS (TBC)

EXCAVATE FOR EMBANKMENT ROCK RIPRAP. REFER TO DRAWING BR-003004

EXISTING UNSEALED TRACK TO BE REINSTATED. ENSURE EDGE OF PATH IS MINIMUM 1.0m FROM RIPRAP FACE

EARTHWORKS TO PROCEED AS PLANNED WITH MINOR OFFSETTING

STORMWATER DETENTION BUND

WETLAND 8

WETLAND 4

EXCAVATE FOR PIER ROCK RIPRAP REFER TO DRAWING BR-003004

EXCAVATE FOR PIER ROCK RIPRAP REFER TO DRAWING BR-003004

TOP OF FORMATION RL 4.3m

WETLAND 1 TO BE DELINEATED ON SITE BY TREC ECOLOGY REPRESENTATIVE AND EARTHWORKS TO BE REDUCED TO NOT OCCUR WITHIN 2m OF THE WETLAND FEATURES BATTERS TO RL 1.2 TO BE 1:5

WETLAND 1

EXISTING GROUND TO BE LOWERED TO RL 1.2m

EXISTING GROUND TO BE LOWERED TO RL 1.2m

EXISTING UNSEALED TRACK TO BE REINSTATED. REFER TO DRAWING BR-003022

INDICATIVE VOLUMES NOTES

- INDICATED VOLUMES (SOLID VOLUMES) ARE BASED ON THE PROPOSED DESIGN SURFACE AND LIDAR OF APRIL 2025
 - VOLUME OF CUT TO DESIGN LEVELS:
 - A) TO RL 1.2m = 17,500m³
 - B) FOR RIPRAP = 2,200m³
 - VOLUME OF ROCK RIPRAP
 - A) AROUND PIERS = 1,700m³
 - B) EMBANKMENT WRAPPING = 930m³

CUT TABLE		
COLOUR	DEPTH FROM (m)	DEPTH TO (m)
Lightest Orange	0.0	0.5
Light Orange	0.5	1.0
Orange	1.0	1.5
Dark Orange	1.5	2.0
Red-Orange	2.0	2.5
Red	2.5	3.0
Dark Red	3.0	3.5
Dark Red	3.5	4.0

EXISTING PIPE FENCE TO BE REMOVED AND REINSTATED AS PER EXISTING WHERE AFFECTED BY EARTHWORKS

TRIM HIGH SPOTS UNDER ROAD BRIDGE TO RL 1.2m

APPROXIMATE EXTENT OF EARTHWORKS CUT DOWN TO RL 1.2m

WETLAND 3 TO BE DELINEATED ON SITE BY TREC ECOLOGY REPRESENTATIVE AND EARTHWORKS TO BE REDUCED TO NOT OCCUR WITHIN 1m OF THE WETLAND FEATURES. BATTERS TO BE AT 1:5 TO TIE IN

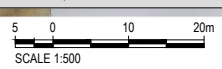
WETLAND 3

WETLAND 5 TO BE DELINEATED ON SITE BY TREC ECOLOGY REPRESENTATIVE AND PROTECTED FROM ALL WORKS INCLUDING ACCESS TRACKS

WETLAND 5

LEGEND

PROPOSED ROAD CENTRELINE	
CONTOUR MAJOR	
CONTOUR MINOR	
EX. BOUNDARY	
EX. KIWI RAIL PARCELS	
EX. CHORUS	
EX. POWERCO GAS	
EXISTING WETLANDS (TO REMAIN UNDAMAGED DURING WORKS)	



JOINLINE - SHEET 2

Transport Rebuild East Coast



REV	DATE	REVISION DETAILS	APPROVED
2	26/09/2025	MINOR MARK-UPS	B.RYDER
1	18/09/2025	ISSUED FOR CONSTRUCTION	B.RYDER

STATUS	TITLE	PROJECT INFORMATION
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APPROVED		DOCUMENT CODE
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APPROVED BY	DATE	SCALE
B.RYDER	26/09/2025	1:500

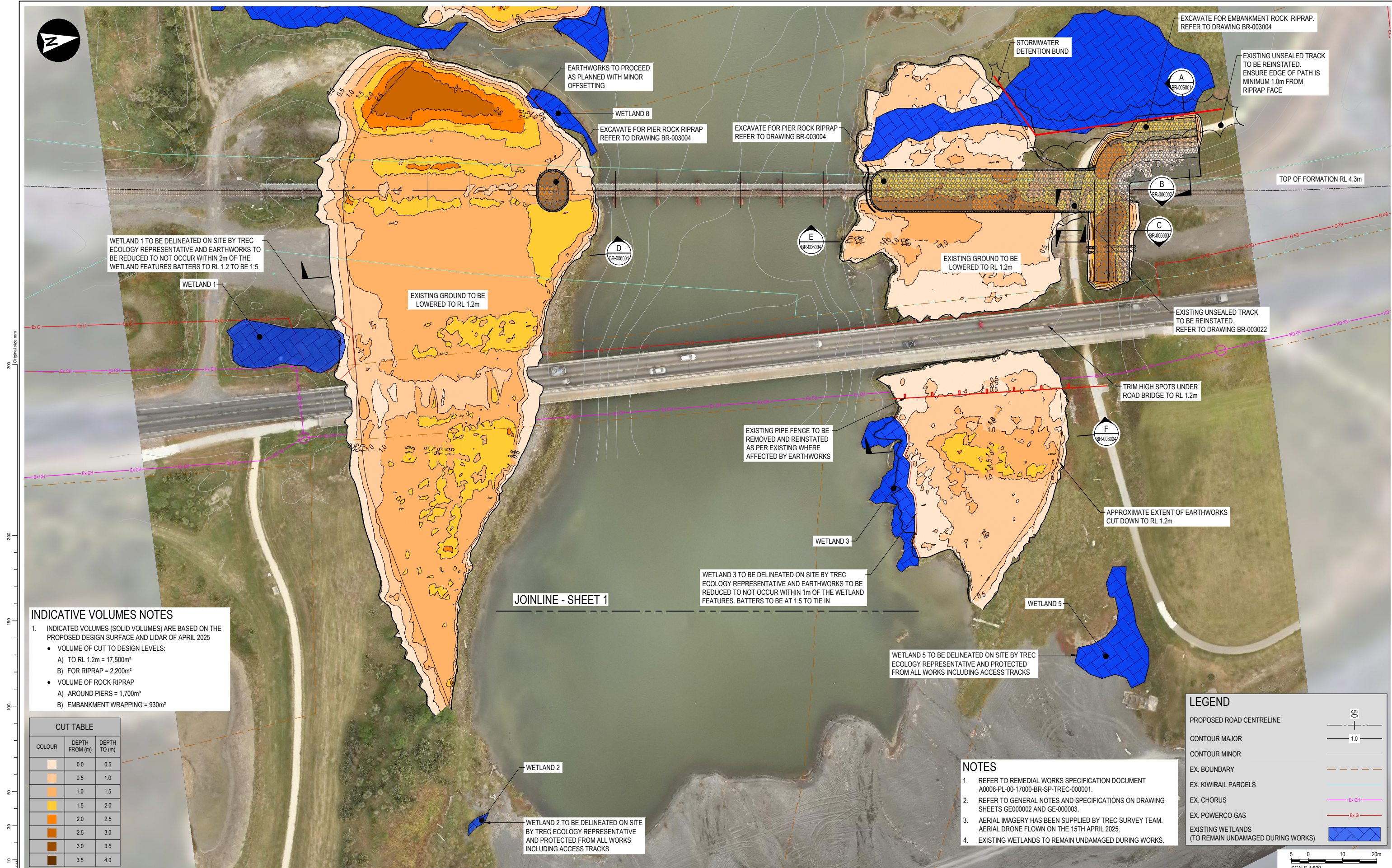
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ISSUED FOR CONSTRUCTION	BRIDGE 217 PROPOSED EARTHWORKS SHEET 1	BRIDGE 217 PNLG - 170.5031
APPROVED		DOCUMENT CODE
B.RYDER		A0006-PL-00-00000-BR-DG-TREC-001001
APPROVED BY	DATE	SCALE
B.RYDER	26/09/2025	1:500

STATUS	TITLE	PROJECT INFORMATION
ISSUED FOR CONSTRUCTION	BRIDGE 217 PROPOSED EARTHWORKS SHEET 1	BRIDGE 217 PNLG - 170.5031
APPROVED		DOCUMENT CODE
B.RYDER		A0006-PL-00-00000-BR-DG-TREC-001001
APPROVED BY	DATE	SCALE
B.RYDER	26/09/2025	1:500

STATUS	TITLE	PROJECT INFORMATION
ISSUED FOR CONSTRUCTION	BRIDGE 217 PROPOSED EARTHWORKS SHEET 1	BRIDGE 217 PNLG - 170.5031
APPROVED		DOCUMENT CODE
B.RYDER		A0006-PL-00-00000-BR-DG-TREC-001001
APPROVED BY	DATE	SCALE
B.RYDER	26/09/2025	1:500

ZONE A - RAIL
COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16
ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED

Plot Date: 9/26/2025 12:24 pm | Plotted By: David Santos | Original File: C:\12\SD\DATA\TREC\GNS\N\A0006_137200_DESIGN\203_DRAWINGS\A0006-BR-DG-TREC-001001.DWG | Tab: [001]



WETLAND 1 TO BE DELINEATED ON SITE BY TREC ECOLOGY REPRESENTATIVE AND EARTHWORKS TO BE REDUCED TO NOT OCCUR WITHIN 2m OF THE WETLAND FEATURES BATTERS TO RL 1.2 TO BE 1:5

WETLAND 1

EXISTING GROUND TO BE LOWERED TO RL 1.2m

EARTHWORKS TO PROCEED AS PLANNED WITH MINOR OFFSETTING

WETLAND 8

EXCAVATE FOR PIER ROCK RIPRAP REFER TO DRAWING BR-003004

EXCAVATE FOR PIER ROCK RIPRAP REFER TO DRAWING BR-003004

STORMWATER DETENTION BUND

EXCAVATE FOR EMBANKMENT ROCK RIPRAP. REFER TO DRAWING BR-003004

EXISTING UNSEALED TRACK TO BE REINSTATED. ENSURE EDGE OF PATH IS MINIMUM 1.0m FROM RIPRAP FACE

TOP OF FORMATION RL 4.3m

EXISTING GROUND TO BE LOWERED TO RL 1.2m

EXISTING UNSEALED TRACK TO BE REINSTATED. REFER TO DRAWING BR-003022

TRIM HIGH SPOTS UNDER ROAD BRIDGE TO RL 1.2m

EXISTING PIPE FENCE TO BE REMOVED AND REINSTATED AS PER EXISTING WHERE AFFECTED BY EARTHWORKS

APPROXIMATE EXTENT OF EARTHWORKS CUT DOWN TO RL 1.2m

WETLAND 3 TO BE DELINEATED ON SITE BY TREC ECOLOGY REPRESENTATIVE AND EARTHWORKS TO BE REDUCED TO NOT OCCUR WITHIN 1m OF THE WETLAND FEATURES. BATTERS TO BE AT 1:5 TO TIE IN

WETLAND 3

WETLAND 5 TO BE DELINEATED ON SITE BY TREC ECOLOGY REPRESENTATIVE AND PROTECTED FROM ALL WORKS INCLUDING ACCESS TRACKS

WETLAND 5

JOINLINE - SHEET 1

WETLAND 2

WETLAND 2 TO BE DELINEATED ON SITE BY TREC ECOLOGY REPRESENTATIVE AND PROTECTED FROM ALL WORKS INCLUDING ACCESS TRACKS

INDICATIVE VOLUMES NOTES

- INDICATED VOLUMES (SOLID VOLUMES) ARE BASED ON THE PROPOSED DESIGN SURFACE AND LIDAR OF APRIL 2025
 - VOLUME OF CUT TO DESIGN LEVELS:
 - A) TO RL 1.2m = 17,500m³
 - B) FOR RIPRAP = 2,200m³
 - VOLUME OF ROCK RIPRAP
 - A) AROUND PIERS = 1,700m³
 - B) EMBANKMENT WRAPPING = 930m³

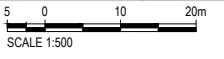
COLOUR	DEPTH FROM (m)	DEPTH TO (m)
[Lightest Orange]	0.0	0.5
[Light Orange]	0.5	1.0
[Orange]	1.0	1.5
[Dark Orange]	1.5	2.0
[Red-Orange]	2.0	2.5
[Red]	2.5	3.0
[Dark Red]	3.0	3.5
[Darkest Red]	3.5	4.0

LEGEND

- PROPOSED ROAD CENTRELINE
- CONTOUR MAJOR
- CONTOUR MINOR
- EX. BOUNDARY
- EX. KIWI RAIL PARCELS
- EX. CHORUS
- EX. POWERCO GAS
- EXISTING WETLANDS (TO REMAIN UNDAMAGED DURING WORKS)

NOTES

- REFER TO REMEDIAL WORKS SPECIFICATION DOCUMENT A0006-PL-00-17000-BR-SP-TREC-000001.
- REFER TO GENERAL NOTES AND SPECIFICATIONS ON DRAWING SHEETS GE000002 AND GE-000003.
- AERIAL IMAGERY HAS BEEN SUPPLIED BY TREC SURVEY TEAM. AERIAL DRONE FLOWN ON THE 15TH APRIL 2025.
- EXISTING WETLANDS TO REMAIN UNDAMAGED DURING WORKS.



PROJECT **Transport Rebuild East Coast**



REV	DATE	REVISION DETAILS	APPROVED
2	26/09/2025	MINOR MARK-UPS	B.RYDER
1	18/09/2025	ISSUED FOR CONSTRUCTION	B.RYDER

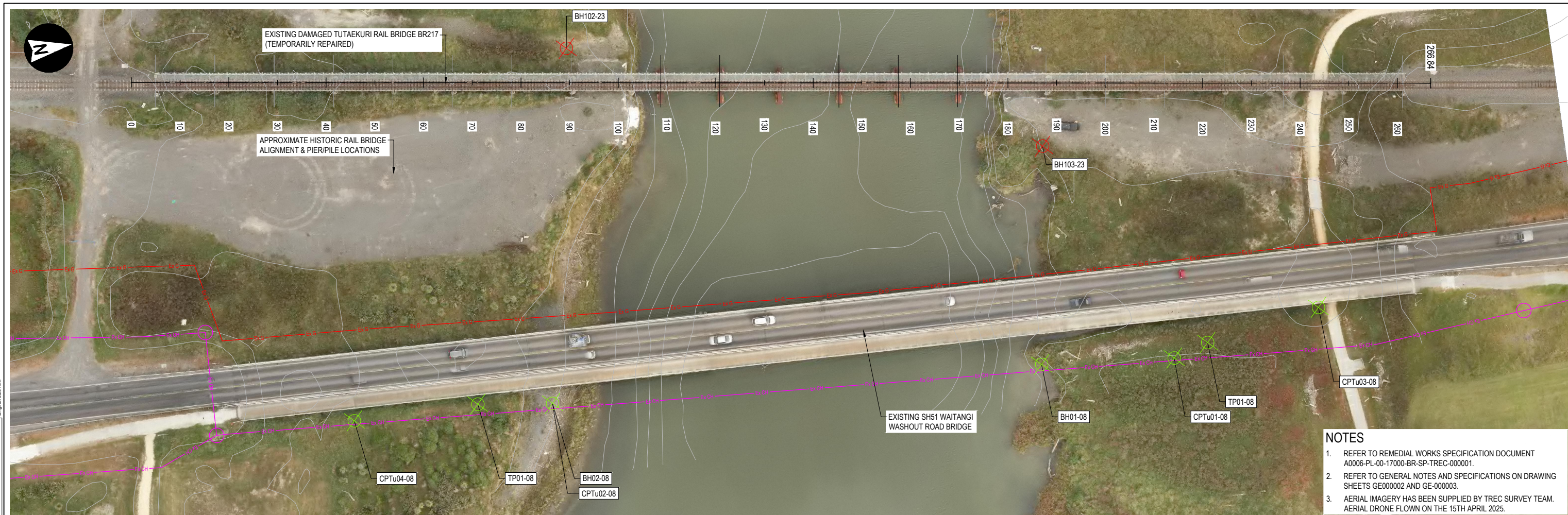
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APPROVED	
B.RYDER	
APPROVED BY	DATE
B.RYDER	26/09/2025

STATUS	TITLE
ISSUED FOR CONSTRUCTION	BRIDGE REPAIRS PROPOSED EARTHWORKS SHEET 2
APPROVED	
B.RYDER	
APPROVED BY	DATE
B.RYDER	26/09/2025

PROJECT INFORMATION
BRIDGE 217
PNGL - 170.5031
DOCUMENT CODE
A0006-PL-00-00000-BR-DG-TREC-001002
SCALE
1:500
SIZE
A1
REFERENCE No.
BR-001002
REV
2

ZONE A - RAIL
COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16
ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED

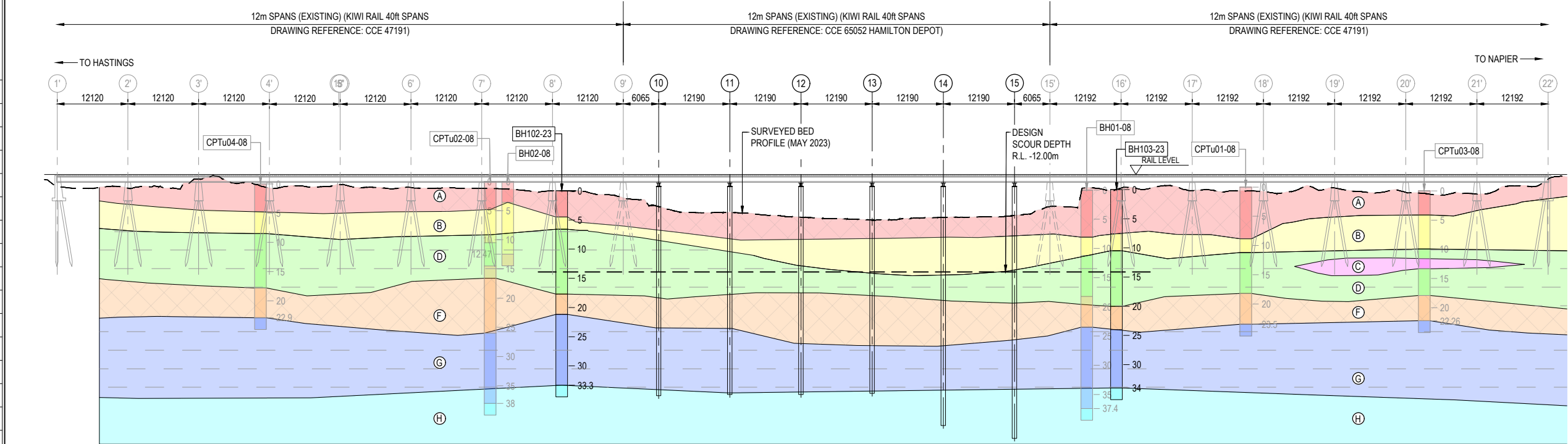
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- NOTES**
- REFER TO REMEDIAL WORKS SPECIFICATION DOCUMENT A0006-PL-00-17000-BR-SP-TREC-000001.
 - REFER TO GENERAL NOTES AND SPECIFICATIONS ON DRAWING SHEETS GE000002 AND GE-000003.
 - AERIAL IMAGERY HAS BEEN SUPPLIED BY TREC SURVEY TEAM. AERIAL DRONE FLOWN ON THE 15TH APRIL 2025.

PLAN - EXISTING GROUND INVESTIGATION LOCATIONS

1:400

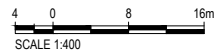


GEOLOGICAL LONG SECTION ON EXISTING RAIL BRIDGE

1:400

- LEGEND - SEISMIC BEHAVIOUR**
- POTENTIAL LIQUEFACTION
 - POTENTIAL LIQUEFACTION IN THINNER BANDS
 - POTENTIAL FOR CYCLIC SOFTENING

- LEGEND - GEOTECHNICAL UNITS**
- (A) SILTY SAND - SANDY SILT, DARK GREY TO BROWN, V. LOOSE TO LOOSE/VERY SOFT TO SOFT, MOIST, LOW PLASTICITY. SANDS ARE TYPICALLY FINE WITH SOME MEDIUM SIZE. UNIT CONTAINS SOME BANDS OF MEDIUM TO COARSE GRAVEL.
 - (B) GRAVEL - GRAVELLY SAND, MEDIUM DENSE TO DENSE, POORLY/GAP GRADED. MAINLY FINE GRAVEL TO COARSE SAND WITH COARSE ROUNDED GRAVELS. UPPER PART OF UNIT MAY HAVE SILT/CLAY MATRIX.
 - (C) FINE SAND WITH TRACE OF SILT, DARK GREY, MED. DENSE TO DENSE, UNIFORMLY GRADED.
 - (D) VERY FINELY (5-10mm) LAMINATED BAND OF FINE SAND AND SILT. UNIT IS HIGHLY VARIABLE AND MAY INCLUDE BANDS OF GRAVEL AND CLAYEY SILT.
 - (F) FINE SAND, DENSE, MOIST AND UNIFORMLY GRADED. UNIT MAY INCLUDE FINE BANDS OF CLAYEY SILT OF INDIVIDUAL COARSE GRAVELS.
 - (G) SILTY CLAY - CLAYEY SILT, LIGHT GREY, WET, SOFT TO FIRM, HIGHLY PLASTIC - AQUIFER CAP
 - (H) GRAVELLY SAND - AQUIFER



Transport Rebuild East Coast

NZ TRANSPORT AGENCY | **KiwiRail**

ZONE A - RAIL
 COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16
 ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED

REV	DATE	REVISION DETAILS	APPROVED
1	18/09/2025	ISSUED FOR CONSTRUCTION	B.RYDER

STATUS	TITLE
ISSUED FOR CONSTRUCTION	BRIDGE REPAIRS EXISTING RAIL BRIDGE
APPROVED	PNGL - 170.5031
B.RYDER	DOCUMENT CODE
APPROVED BY	A0006-PL-00-00000-BR-DG-TREC-003001
DATE	SCALE
18/09/2025	1:400
	SIZE
	A1
	REFERENCE No.
	BR-003001
	REV
	1

STATUS	TITLE
ISSUED FOR CONSTRUCTION	BRIDGE REPAIRS EXISTING RAIL BRIDGE
APPROVED	PNGL - 170.5031
B.RYDER	DOCUMENT CODE
APPROVED BY	A0006-PL-00-00000-BR-DG-TREC-003001
DATE	SCALE
18/09/2025	1:400
	SIZE
	A1
	REFERENCE No.
	BR-003001
	REV
	1

STATUS	TITLE
ISSUED FOR CONSTRUCTION	BRIDGE REPAIRS EXISTING RAIL BRIDGE
APPROVED	PNGL - 170.5031
B.RYDER	DOCUMENT CODE
APPROVED BY	A0006-PL-00-00000-BR-DG-TREC-003001
DATE	SCALE
18/09/2025	1:400
	SIZE
	A1
	REFERENCE No.
	BR-003001
	REV
	1

STATUS	TITLE
ISSUED FOR CONSTRUCTION	BRIDGE REPAIRS EXISTING RAIL BRIDGE
APPROVED	PNGL - 170.5031
B.RYDER	DOCUMENT CODE
APPROVED BY	A0006-PL-00-00000-BR-DG-TREC-003001
DATE	SCALE
18/09/2025	1:400
	SIZE
	A1
	REFERENCE No.
	BR-003001
	REV
	1

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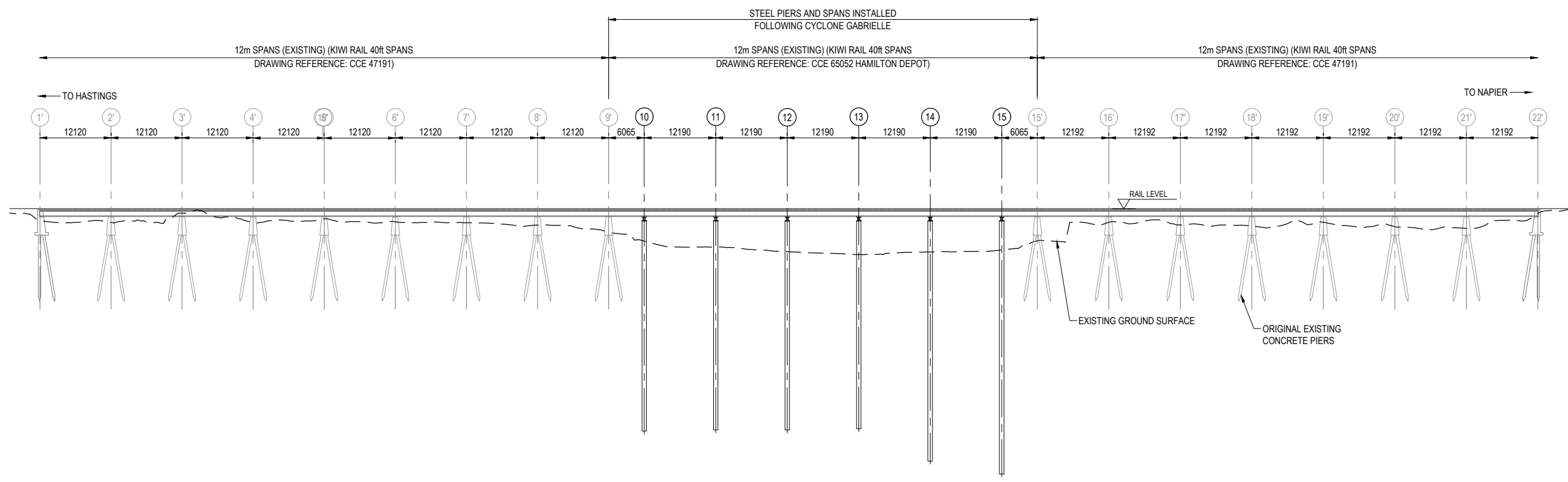


NOTES

1. REFER TO REMEDIAL WORKS SPECIFICATION DOCUMENT A0006-PL-00-17000-BR-SP-TREC-000001.
2. REFER TO GENERAL NOTES AND SPECIFICATIONS ON DRAWING SHEETS GE000002 AND GE-000003.
3. AERIAL IMAGERY HAS BEEN SUPPLIED BY TREC SURVEY TEAM. AERIAL DRONE FLOWN ON THE 15TH APRIL 2025.



PLAN - EXISTING RAIL BRIDGE
1:400



ELEVATION - EXISTING RAIL BRIDGE
1:400



Transport Rebuild East Coast



ZONE A - RAIL
COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16
ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED

REV	DATE	REVISION DETAILS
1	18/09/2025	ISSUED FOR CONSTRUCTION

APPROVED	STATUS
B.RYDER	ISSUED FOR CONSTRUCTION
	APPROVED
	B.RYDER
	APPROVED BY DATE
	B.RYDER 18/09/2025

STATUS	DATE
ISSUED FOR CONSTRUCTION	18/09/2025
APPROVED	18/09/2025
B.RYDER	18/09/2025
APPROVED BY	DATE
B.RYDER	18/09/2025

TITLE
BRIDGE REPAIRS GENERAL ARRANGEMENT PLAN AND ELEVATION

PROJECT INFORMATION			
BRIDGE 217 PNGL - 170.5031			
DOCUMENT CODE A0006-PL-00-00000-BR-DG-TREC-003002			
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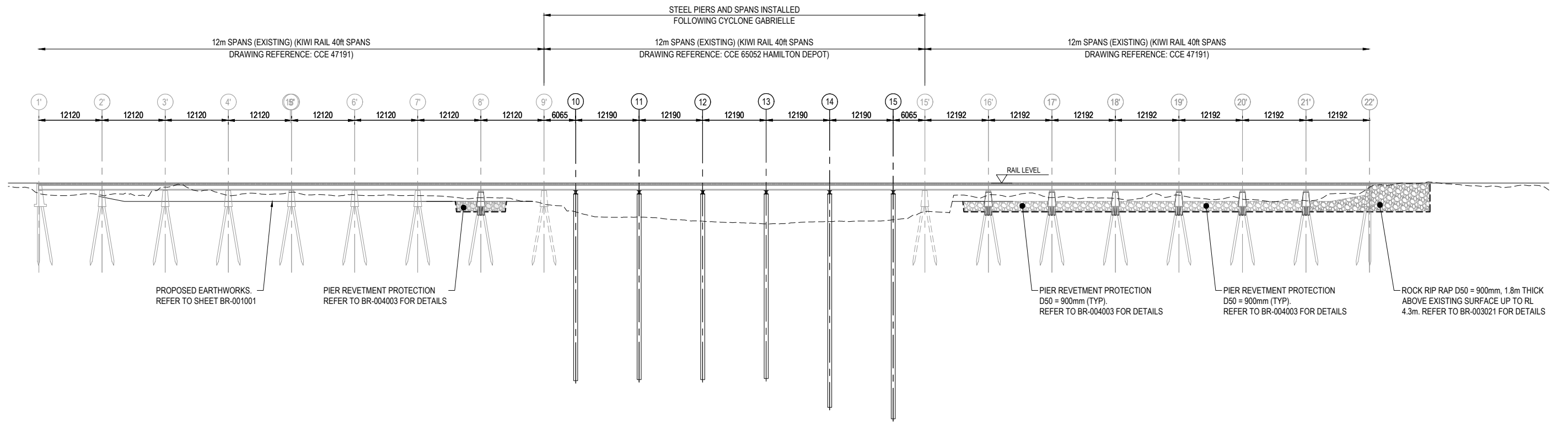
NOTES

1. REFER TO REMEDIAL WORKS SPECIFICATION DOCUMENT A0006-PL-00-17000-BR-SP-TREC-000001.
2. REFER TO GENERAL NOTES AND SPECIFICATIONS ON DRAWING SHEETS GE000002 AND GE-000003.
3. AERIAL IMAGERY HAS BEEN SUPPLIED BY TREC SURVEY TEAM. AERIAL DRONE FLOWN ON THE 15TH APRIL 2025.



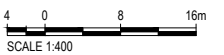
PLAN - REVETMENT PROTECTION

1:400



ELEVATION - REVETMENT PROTECTION

1:400



Transport Rebuild East Coast



REV	DATE	REVISION DETAILS
1	18/09/2025	ISSUED FOR CONSTRUCTION

APPROVED	STATUS
B.RYDER	ISSUED FOR CONSTRUCTION
	APPROVED
	B.RYDER
	APPROVED BY DATE
	B.RYDER 18/09/2025

PROJECT LEAD	DATE
B.RYDER	18/09/2025

TITLE
BRIDGE REPAIRS REVTMENT PROTECTION PLAN AND ELEVATION

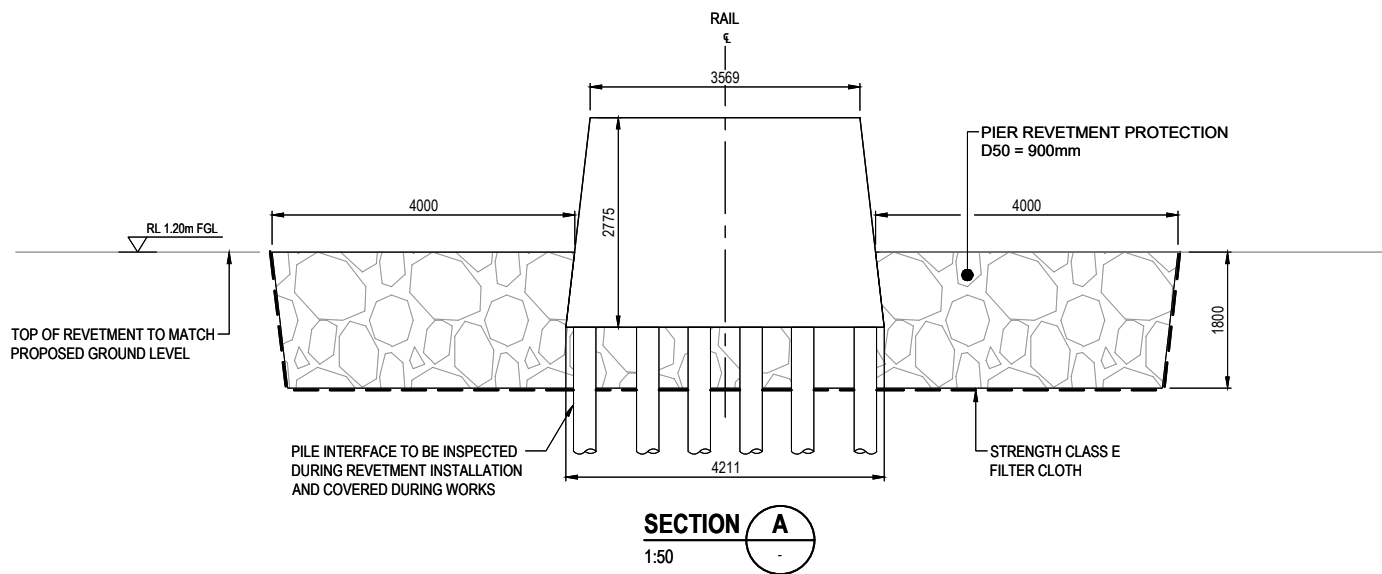
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ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED

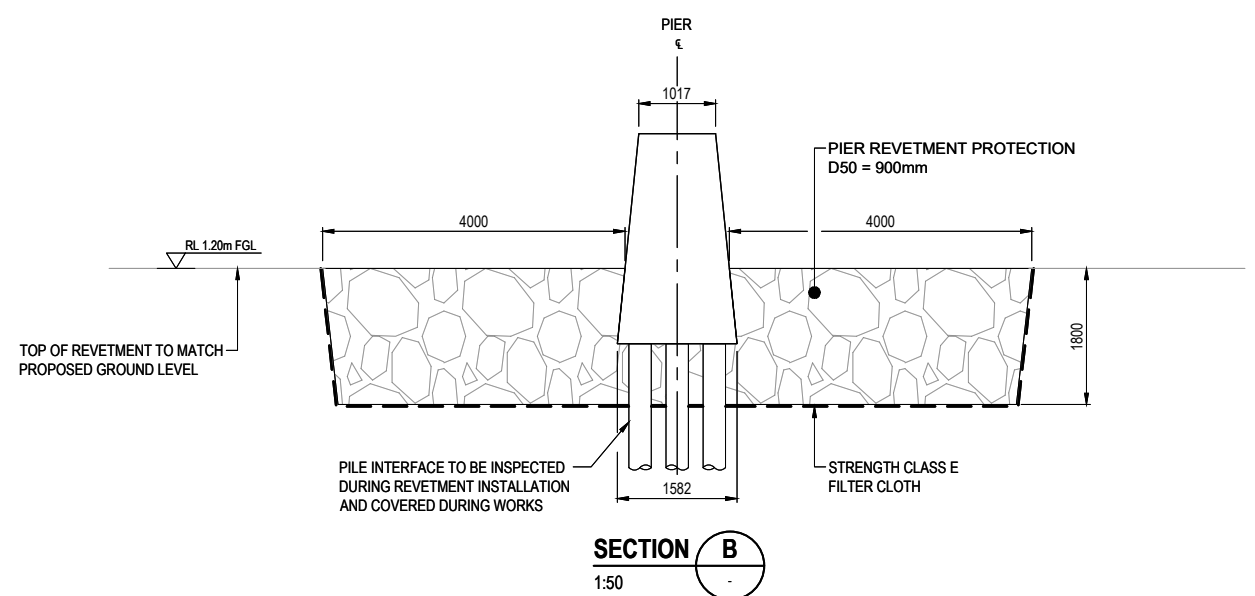
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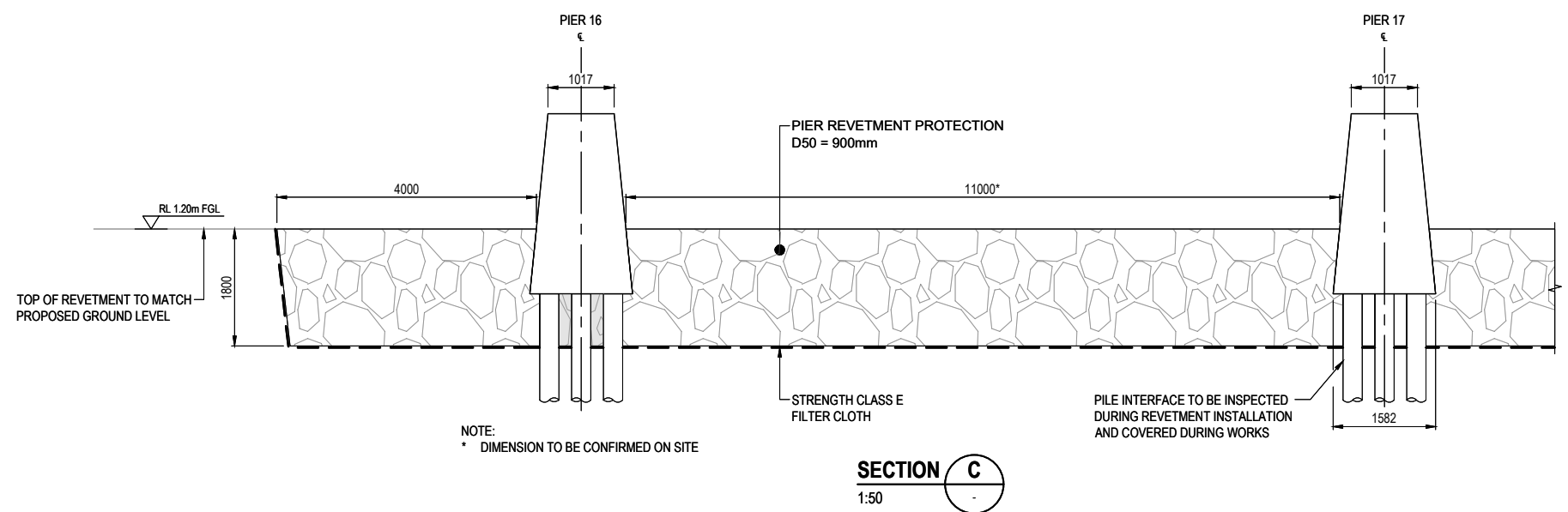
- REFER TO REMEDIAL WORKS SPECIFICATION DOCUMENT A0006-PL-00-17000-BR-SP-TREC-000001.
- REFER TO GENERAL NOTES AND SPECIFICATIONS ON DRAWING SHEETS GE000002 AND GE-000003.
- ROCK REVETMENT:
 - ROCK PRELIMINARY SIZE IS BASED ON AUSTRADS 1994 GUIDANCE.
 - REVETMENT DESIGN FOR A FLOOD VELOCITY OF 5m/s.



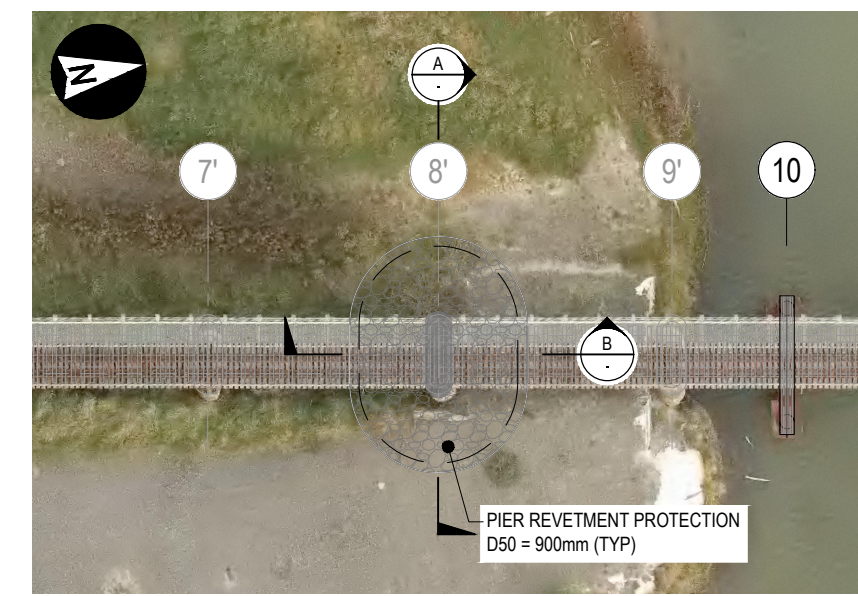
SECTION A
1:50



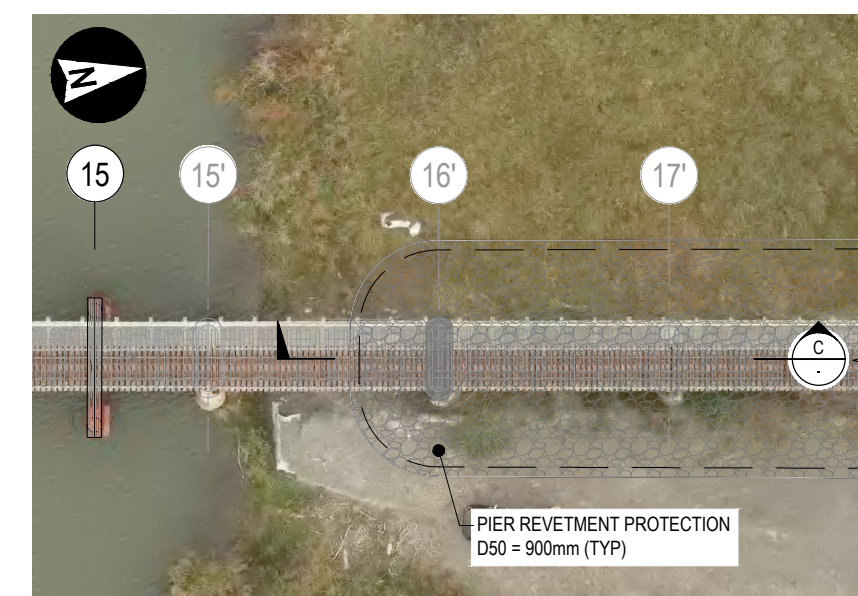
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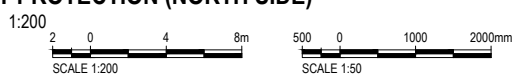
SECTION C
1:50



PLAN - PIER REVETMENT PROTECTION (SOUTH SIDE)
1:200



PLAN - PIER REVETMENT PROTECTION (NORTH SIDE)
1:200



Transport Rebuild East Coast

NZ TRANSPORT AGENCY | **KiwiRail**

ZONE A - RAIL
COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16
ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED

REV	DATE	REVISION DETAILS	APPROVED
1	18/09/2025	ISSUED FOR CONSTRUCTION	B.RYDER

	STATUS
DRAWN	J.LUAREZ
DRG CHECK	N.SALINAS
DESIGN	B.McINNES
VERIFIED	W.WANG
PROJECT LEAD	B.RYDER

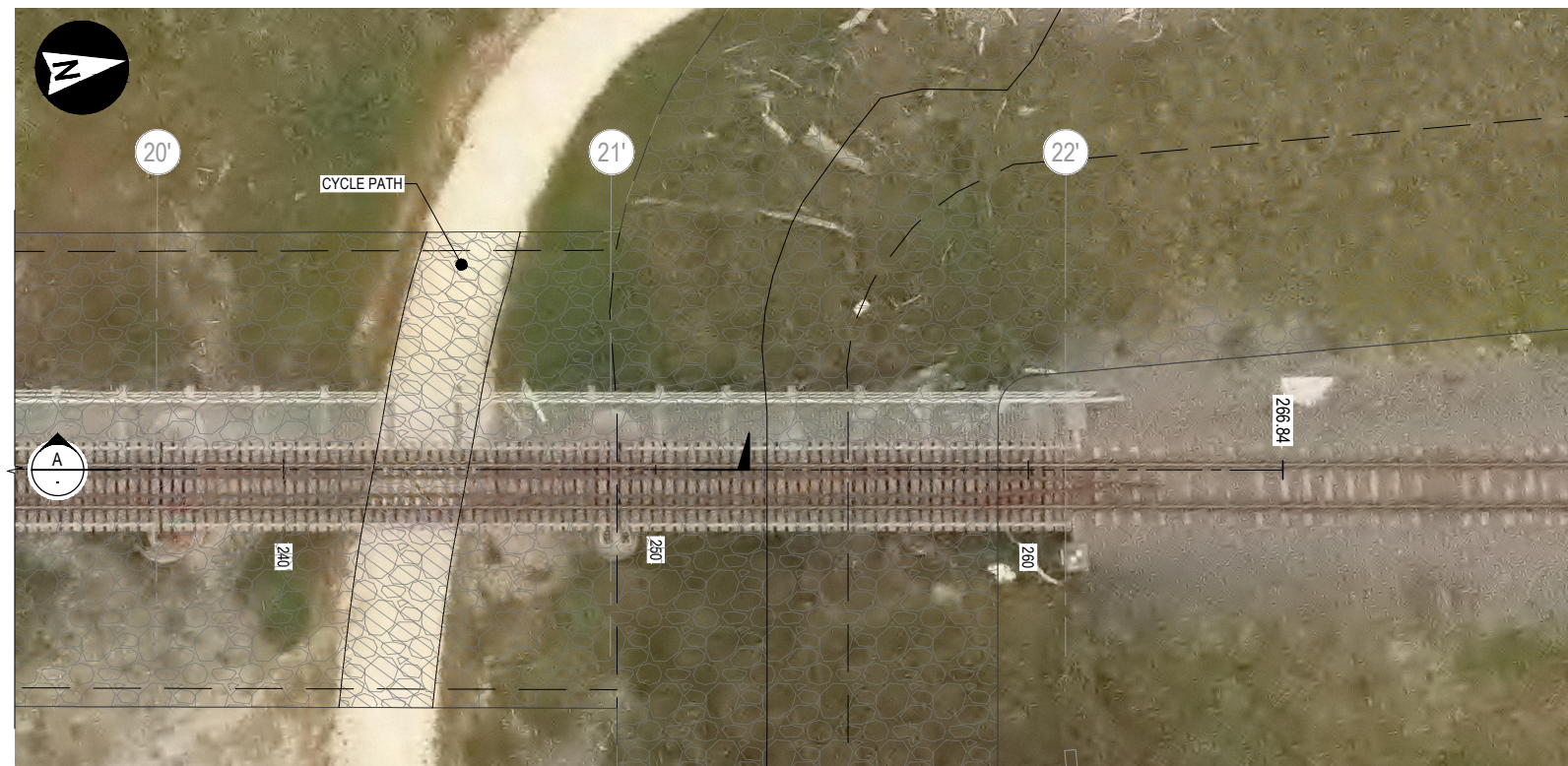
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ISSUED FOR CONSTRUCTION	B.RYDER
APPROVED	B.RYDER
APPROVED BY	B.RYDER
DATE	18/09/2025

TITLE	PROJECT INFORMATION
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	DOCUMENT CODE A0006-PL-00-00000-BR-DG-TREC-003021
	SCALE: AS SHOWN
	SIZE: A1
	REFERENCE No: BR-003021
	REV: 1

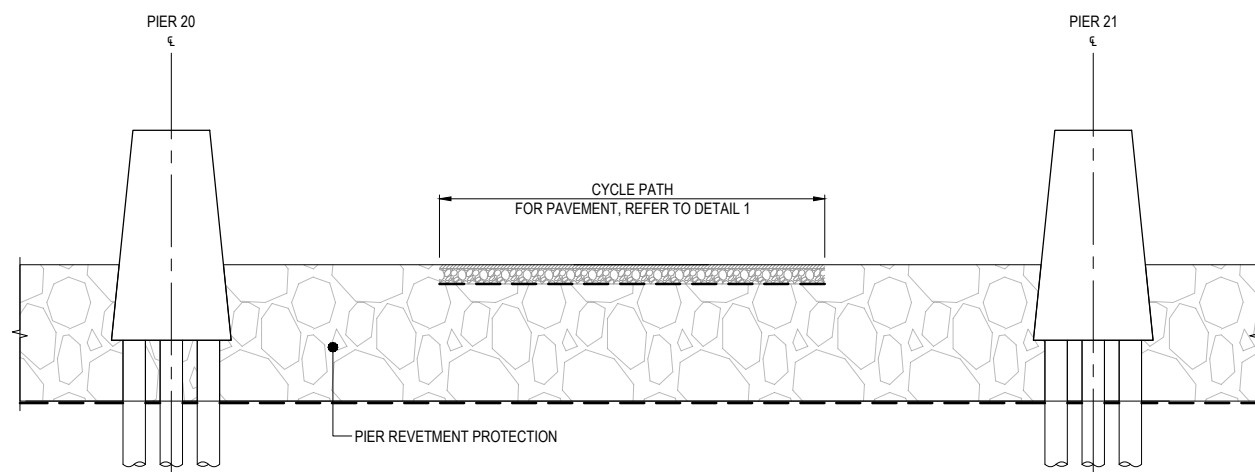
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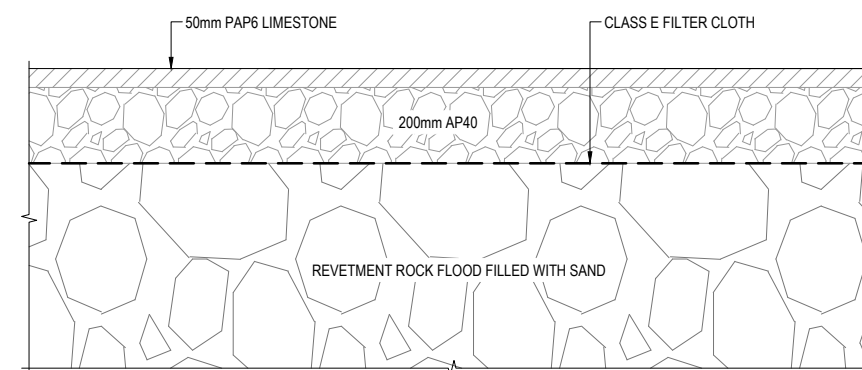
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2. REFER TO GENERAL NOTES AND SPECIFICATIONS ON DRAWING SHEETS GE000002 AND GE-000003.
3. ROCK REVETMENT:
 - ROCK PRELIMINARY SIZE IS BASED ON AUSTRROADS 1994 GUIDANCE.
 - REVETMENT DESIGN FOR A FLOOD VELOCITY OF 5m/s.



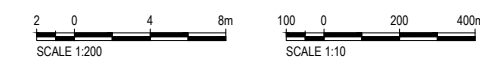
PLAN - PIER REVETMENT PROTECTION (NORTH SIDE)
1:200



SECTION A
1:50



DETAIL 1
1:10
CYCLE PATH PAVEMENT



Transport Rebuild East Coast



ZONE A - RAIL
COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16
ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED

REV	DATE	REVISION DETAILS	APPROVED
1	18/09/2025	ISSUED FOR CONSTRUCTION	B.RYDER

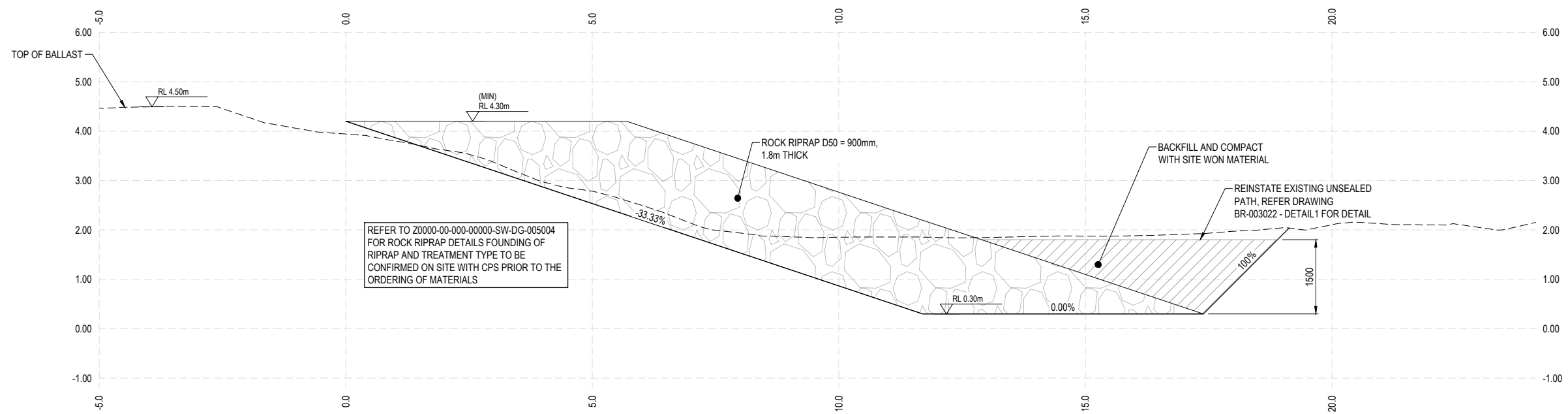
STATUS	DATE
ISSUED FOR CONSTRUCTION	18/09/2025
APPROVED	18/09/2025
B.RYDER	
APPROVED BY	DATE
B.RYDER	18/09/2025

STATUS	DATE
ISSUED FOR CONSTRUCTION	18/09/2025
APPROVED	18/09/2025
B.RYDER	
APPROVED BY	DATE
B.RYDER	18/09/2025

TITLE
BRIDGE REPAIRS REVETMENT PROTECTION SHEET 2

PROJECT INFORMATION			
BRIDGE 217 PNGL - 170.5031			
DOCUMENT CODE A0006-PL-00-00000-BR-DG-TREC-003022			
SCALE	SIZE	REFERENCE No.	REV
AS SHOWN	A1	BR-003022	1

LEGEND	
EXISTING SURFACE LEVEL	---
DESIGN SURFACE LEVEL	—
ROCK RIPRAP	
BACKFILL	



SECTION A
1:50
BR-001001



PROJECT
Transport Rebuild East Coast



ZONE A - RAIL
COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16
ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED

REV	DATE	REVISION DETAILS
1	18/09/2025	ISSUED FOR CONSTRUCTION

APPROVED	APPROVED BY	DATE
B.RYDER	B.RYDER	18/09/2025

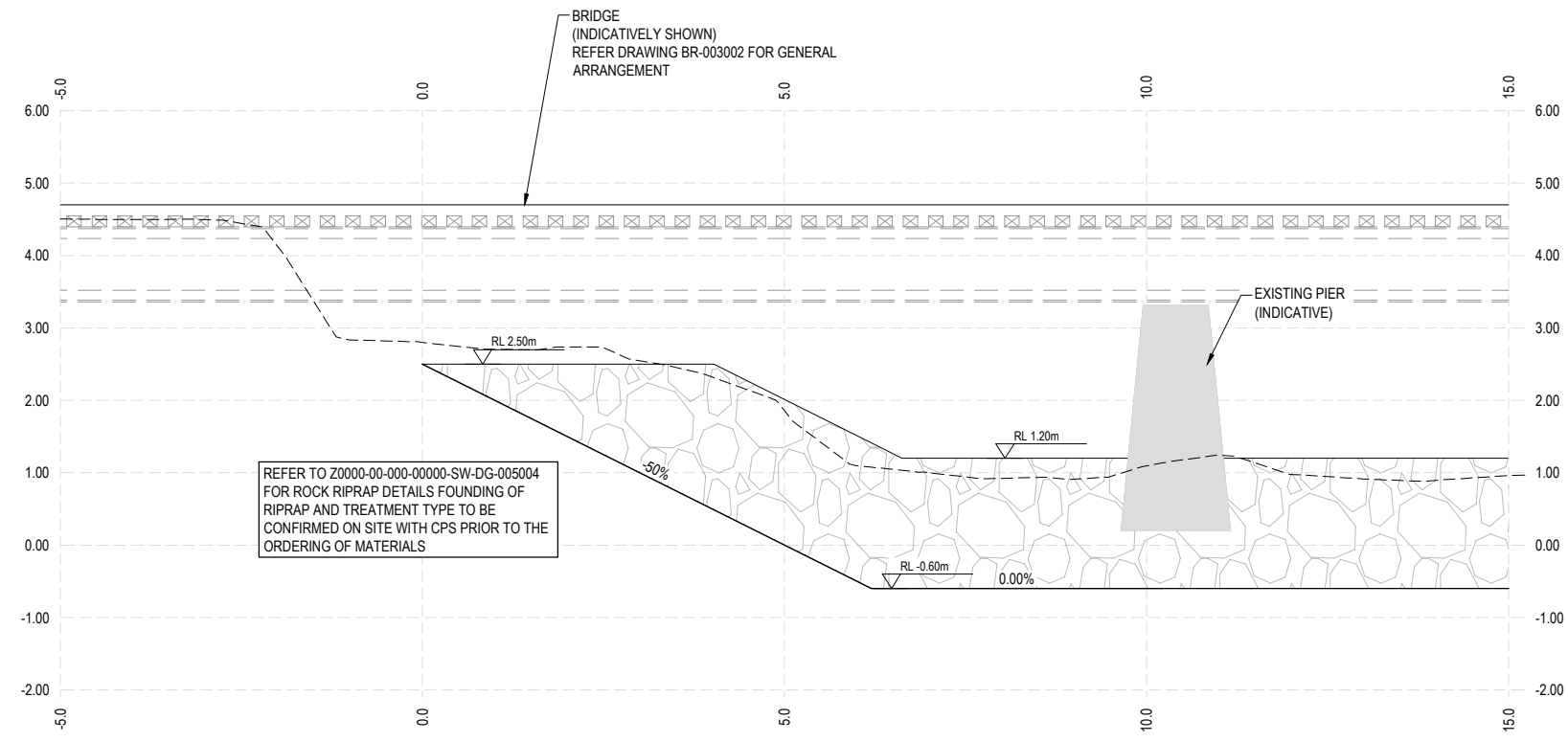
STATUS	APPROVED BY	DATE
ISSUED FOR CONSTRUCTION	B.RYDER	18/09/2025

TITLE
BRIDGE REPAIRS PROPOSED EARTHWORKS DETAILED CROSS SECTION SHEET 1

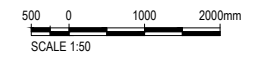
PROJECT INFORMATION			
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Plot Date: 9/16/2025 10:10 pm | Plotted By: David Santos | Original File: C:\12\SD\DATA\TREC\SG\N\A0006_137200_DESIGN\203_DRAWINGS\A0006-BR-DG-TREC-006001-003.DWG | Tab: 001

LEGEND	
EXISTING SURFACE LEVEL	---
DESIGN SURFACE LEVEL	—
ROCK RIPRAP	
BACKFILL	



SECTION B
1:50
BR-001001



Transport Rebuild East Coast

NZ TRANSPORT AGENCY
Kiwirail

ZONE A - RAIL
COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16
ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED

REV	DATE	REVISION DETAILS	APPROVED
1	18/09/2025	ISSUED FOR CONSTRUCTION	B.RYDER

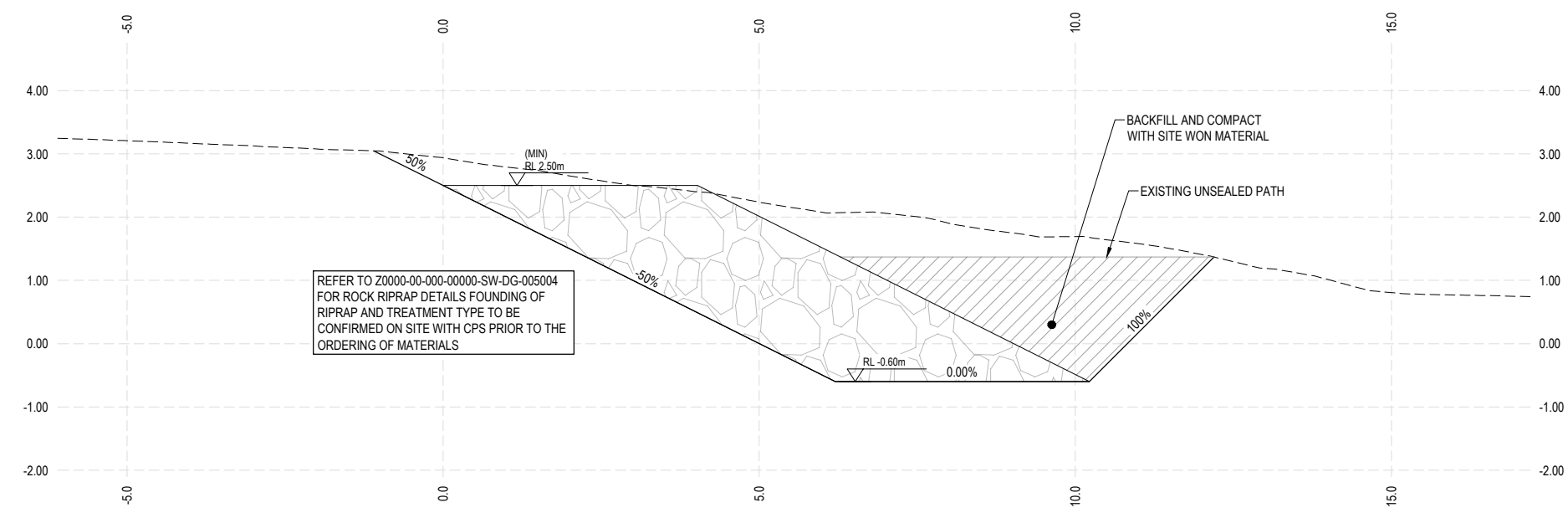
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J.LUAREZ	18/09/2025		ISSUED FOR CONSTRUCTION		
DRG CHECK			APPROVED		
N.SALINAS	18/09/2025		B.RYDER		
DESIGN			APPROVED BY		
B.McINNES	18/09/2025		DATE		
VERIFIED			B.RYDER		
W. WANG	18/09/2025		18/09/2025		
PROJECT LEAD			B.RYDER		
B.RYDER	18/09/2025				

TITLE	
BRIDGE REPAIRS PROPOSED EARTHWORKS DETAILED CROSS SECTION SHEET 2	

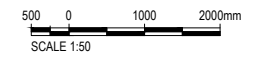
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Plot Date: 9/16/2025 10:10 pm | Plotted By: David Santos | Original File: C:\12\SD\DATA\TREC\SYN\A0006_137200_DESIGN\203_DRAWINGS\A0006-BR-DG-TREC-006001-003.DWG | Tab: 002

LEGEND	
EXISTING SURFACE LEVEL	-----
DESIGN SURFACE LEVEL	—————
ROCK RIPRAP	
BACKFILL	



SECTION C
1:50
BR-001001



Transport Rebuild East Coast

ZONE A - RAIL
COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16
ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED

REV	DATE	REVISION DETAILS	APPROVED
1	18/09/2025	ISSUED FOR CONSTRUCTION	B.RYDER

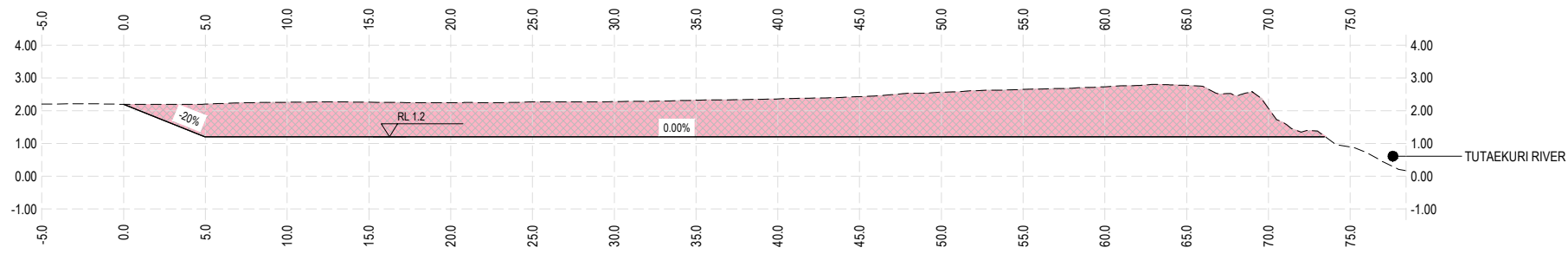
DRAWN			STATUS		
J.LUAREZ	18/09/2025	ISSUED FOR CONSTRUCTION	APPROVED B.RYDER		
N.SALINAS	18/09/2025	DRG CHECK			
B.McINNES	18/09/2025	DESIGN			
W. WANG	18/09/2025	VERIFIED	APPROVED BY DATE		
B.RYDER	18/09/2025	PROJECT LEAD	B.RYDER	18/09/2025	

TITLE	
BRIDGE REPAIRS PROPOSED EARTHWORKS DETAILED CROSS SECTION SHEET 3	

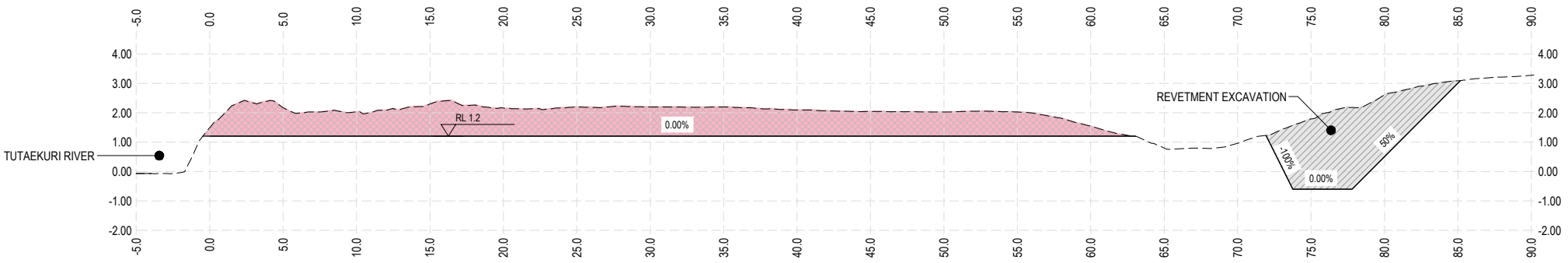
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BRIDGE 217 PNGL - 170.5031			
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Plot Date: 9/16/2025 10:10 pm | Plotted By: David Santos | Original File: C:\12\SD\DATA\TREC\SYN\A0006_137200_DESIGN\203_DRAWINGS\A0006-BR-DG-TREC-006001-003.DWG | Tab: [003]

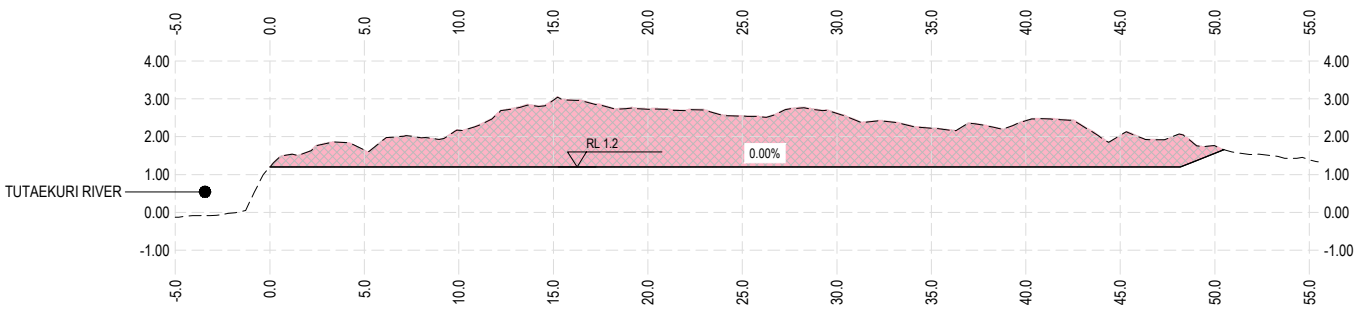
LEGEND	
EXISTING SURFACE LEVEL	---
DESIGN SURFACE LEVEL	—
EXTENT OF EXCAVATION	[Red shaded area]
BACKFILL	[Hatched area]



SECTION D
1:100 V, 1:200 H BR-001001



SECTION E
1:100 V, 1:200 H BR-001001



SECTION F
1:100 V, 1:200 H BR-001001



PROJECT
Transport Rebuild East Coast



ZONE A - RAIL
COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16
ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED

REV	DATE	REVISION DETAILS	APPROVED
1	18/09/2025	ISSUED FOR CONSTRUCTION	B.RYDER

APPROVED		
DRAWN	J.LUAREZ	18/09/2025
DRG CHECK	N.SALINAS	18/09/2025
DESIGN	B.McINNES	18/09/2025
VERIFIED	W. WANG	18/09/2025
PROJECT LEAD	B.RYDER	18/09/2025

STATUS	
ISSUED FOR CONSTRUCTION	
APPROVED	
B.RYDER	
APPROVED BY	DATE
B.RYDER	18/09/2025

TITLE	
BRIDGE REPAIRS PROPOSED EARTHWORKS DETAILED CROSS SECTION SHEET 4	

PROJECT INFORMATION			
BRIDGE 217 PNGL - 170.5031			
DOCUMENT CODE A0006-PL-00-00000-BR-DG-TREC-006004			
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Plot Date: 9/16/2025 10:10 pm | Plotted By: David Santos | Original File: C:\12\SDATA\TREC\SYN\A0006_137200_DESIGN\203_DRAWINGS\A0006-BR-DG-TREC-006004-DWG | Tab: [04]

1. GENERAL NOTES

- a. THE FOLLOWING DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE USER NOTES AND THE SPECIFICATION. THE MORE ONEROUS CONDITION OF THIS DRAWING OR THE SPECIFICATION SHALL APPLY.
- b. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT CODES OF PRACTICE AT THE TIME OF PREPARING THESE DRAWINGS, EXCEPT WHERE VARIED BY THE SPECIFICATION AND/OR DRAWINGS.
 - NZS 3404 STEEL STRUCTURES STANDARD PTS 1&2
 - AS/NZS 5131 STRUCTURAL STEELWORK FABRICATION AND ERECTION
 - AS/NZS 2980 QUALIFICATION OF WELDERS FOR FUSION WELDING OF STEELS
 - NZS 4781 CODE OF PRACTICE FOR SAFETY IN WELDING AND CUTTING
 - AS/NZS 1170 MINIMUM DESIGN LOADS ON STRUCTURES
 - AS/NZS 3679 HOT-ROLLED BARS AND SECTIONS PTS 1&2
 - AS 1163 STRUCTURAL STEEL HOLLOW SECTIONS
 - AS/NZS 4600 COLD-FORMED STEEL STRUCTURES
 - AS/NZS 1554 PART 1: WELDING OF STEEL STRUCTURES
 - AS/NZS 1554 PART 3: WELDING OF REINFORCING STEEL
 - AS/NZS 4671 STEEL REINFORCING MATERIALS
 - AS/NZS 4680 HOT DIP GALVANISED/COATINGS ON FABRICATED FERROUS ARTICLES
 - AS/NZS 2312 GUIDE TO THE PROTECTION OF IRON AND STEEL AGAINST EXTERIOR ATMOSPHERIC CORROSION
 - AS 5100.6 BRIDGE DESIGN PART 6 STEEL AND COMPOSITE CONSTRUCTION
 - NZS 3101 CONCRETE STRUCTURES PTS 1&2
 - NZS 3109 CONCRETE CONSTRUCTION CONCRETE
 - NZS 3114 SURFACE FINISHES SPECIFICATION FOR
 - NZS 3104 CONCRETE PRODUCTION CONCRETE
 - NZS 3106 STRUCTURES FOR STORING LIQUIDS
 - NZS 3111 METHODS OF TEST FOR WATER AND AGGREGATE FOR CONCRETE
 - NZS 3112 METHODS OF TEST FOR CONCRETE PT 1
 - NZS 3121 SPECIFICATION FOR WATER AND AGGREGATE FOR CONCRETE
 - NZS 3602 TIMBER AND WOOD-BASED PRODUCTS FOR USE IN BUILDING
 - NZS 3603 TIMBER STRUCTURES STANDARD
 - NZS 3605 TIMBER PILES AND POLES FOR USE IN BUILDING
 - NZS 3631 NZ TIMBER GRADING RULES
 - NZS 4702 METAL ARC WELDING OF GRADE 275 REINFORCING BAR
 - AS/NZS 3845 ROAD SAFETY BARRIER SYSTEMS
- c. ANY CODES OF PRACTICE AND OR STANDARDS REFERRED TO ON THE DRAWINGS AND/OR SPECIFICATION REFER TO THE LATEST ISSUE AND AMENDMENTS CURRENT AT THE TIME OF PREPARING THESE DRAWINGS UNLESS NOTED OTHERWISE.
- d. REQUIREMENTS FOR THE FOLLOWING ITEMS ARE INCLUDED IN THE SPECIFICATION:
 - SHOP DRAWINGS
 - PROPPING DOCUMENTATION
 - INSPECTION AND TESTING DOCUMENTS
 - MATERIAL SPECIFICATION
 - TOLERANCES
- e. SUBSTITUTION FOR OR AMENDMENT OF SPECIFIED DETAILS OR MATERIALS SHALL NOT BE CARRIED OUT WITHOUT APPROVAL OF THE DESIGNER.
- f. STABILITY OF THE STRUCTURE AND EMBANKMENTS DURING CONSTRUCTION IS THE CONTRACTORS RESPONSIBILITY, CONTRACTOR TO PROVIDE ANY TEMPORARY WORKS REQUIRED.
- g. CONSTRUCTOR SHALL MAKE SURE THAT BUILDING CONSENT OR EXEMPTION HAS BEEN ISSUED BEFORE CONSTRUCTION COMMENCES AND A COPY OF THE BUILDING CONSENT TO BE KEPT ON SITE AT ALL TIMES.
- h. CONSTRUCTION MUST ADHERE TO CONSENT CONDITIONS.

2. DIMENSIONS

- a. ALL DIMENSIONS ARE IN MILLIMETRES, ALL LEVELS ARE IN METRES RELATIVE TO DATUM, UNLESS NOTED OTHERWISE.
- b. THE CONTRACTOR SHALL CONFIRM ALL DIMENSIONS ON SITE PRIOR TO COMMENCEMENT OF WORK, ANY DISCREPANCIES SHALL BE REFERRED TO THE DESIGN ENGINEER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
- c. DO NOT SCALE THE DRAWINGS.

3. ABBREVIATIONS

ALT.	ALTERNATE	LV.	LENGTH VARIES
APPROX.	APPROXIMATE	MAX.	MAXIMUM
B.	BOTTOM	MIN.	MINIMUM
C.J.	CONSTRUCTION JOINT	M.S.	MILD STEEL
CL. ϵ	CENTRELINE	N.F.	NEAR FACE
COL.	COLUMN	NOM.	NOMINAL
CONC.	CONCRETE	N.T.S.	NOT TO SCALE
C.O.S.	CONFIRM ON SITE	O.S.A.	OR SIMILAR APPROVED
CPBW	COMPLETE PENETRATION BUTT WELD	P.C.D.	PITCH CIRCLE DIAMETER
CRS.	CENTRES	R	ROUND
C	CENTRAL	RB	BAR GRADE 300E REIDBAR
C.S.	CRITICAL SECTION	REF.	REFER
D	DEFORMED BAR GRADE 300E	REINF.	REINFORCEMENT
DIA. \emptyset	DIAMETER	S.	STRAIGHT
DWG.	DRAWING	STRPS	STIRRUPS
E.E.	EACH END	R.L.	REDUCED LEVEL
E.F.	EACH FACE	T	TOP
EQ.	EQUAL	T.B.C	TO BE CONFIRMED
E.V.	EVENLY SPACED	THK.	THICK
E.W.	EACH WAY	TRM.	TRIMMER
F.F.	FAR FACE	TYP.	TYPICAL
GL.	GROUND LEVEL	U.N.O.	UNLESS NOTED OTHERWISE
I.D.	INSIDE DIAMETER	HD	DEFORMED BAR GRADE 500E MA
I.L.	INVERT LEVEL	HR	ROUND BAR GRADE 500E MA

4. REINFORCED CONCRETE

4.1 CONCRETE FINISHES

WHERE NOT SPECIFIED AND NOT SHOWN ON DRAWINGS, SURFACE FINISHES SHALL BE AS FOLLOWS: (REFER NZS 3114 FOR DEFINITIONS)

- a. F1 CONCEALED FORMED SURFACES
- b. F3 EXPOSED FORMED SURFACES
- c. U3 EXPOSED UNFORMED SURFACES
- d. U1 CONCEALED UNFORMED SURFACES
- e. CORNERS TO BE RADIUSSED OR CHAMFERED UNLESS NOTED OTHERWISE.

4.2 CONCRETE STRENGTH, EXPOSURE AND COVER TO REINFORCEMENT

- a. CONCRETE STRENGTHS ARE 'SPECIFIED 28 DAY COMPRESSIVE STRENGTHS' AS DEFINED IN NZS3109. UNLESS SHOWN OTHERWISE, CONCRETE STRENGTH AND MINIMUM COVER SHALL BE AS SHOWN IN TABLE BELOW.

ELEMENT	28 DAY STRENGTH	MIN. COVER
INSITU CONCRETE	40 MPa	50mm
CONCRETE CAST AGAINST GROUND	-	75mm
BLINDING/MASS	10 MPa	-
CONCRETE PRECAST	50 MPa	40mm

- b. CONCRETE MIX TO ACHIEVE STRENGTHS LISTED ABOVE, WITH EITHER 30% FA OR 65% GBS REPLACEMENT OF OPC.

NOTES:

- (i) TOLERANCES ON COVERS SHALL BE IN ACCORDANCE WITH NZS3109, THE SPECIFICATION AND THE DRAWINGS AS APPROPRIATE.
- (ii) PRECAST IN THE CONTEXT OF THIS TABLE MEANS CONCRETE CAST UNDER PLANT CONTROL CONDITIONS, UTILISING RIGID FORMWORK AND INTENSE COMPACTION.
- (iii) TIES MAY INTRUDE 5mm MAXIMUM INTO THE SPECIFIED CONCRETE COVER

4.3 PLACING AND SPACING OF REINFORCEMENT

GRADE 500 REINFORCEMENT SHALL BE MICROALLOY (MA). THE USE OF QUENCHED AND TEMPERED (QT) IS NOT PERMITTED.

- a. SPLICING OF REINFORCEMENT, WHETHER BY LAPPING, WELDING OR MECHANICAL SPLICE, SHALL ONLY BE CARRIED OUT AS SHOWN ON THE DRAWINGS OR AS SPECIFICALLY APPROVED BY THE DESIGNER.
- b. ALL HOOKS ON STIRRUPS & TIES MUST FIT CLOSELY AROUND MAIN BARS U.N.O; FIRST STIRRUP TO BE PLACED NOT FURTHER THAN THE LESSER OF HALF THE STIRRUP SPACING OR 50mm FROM SUPPORT FACE.
- c. ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1 METRE CENTRES BOTH WAYS FOR BARS OR 750mm CENTRES FOR FABRIC. IN EXPOSURE CONDITION B2 OR C USE ONLY PLASTIC OR CONCRETE CHAIRS. BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS.

4.4 LAP SPLICES IN REINFORCEMENT

- a. LAP LENGTHS FOR DEFORMED BARS SHALL BE AS SHOWN IN THE FOLLOWING TABLES WHERE SPACING OF ADJACENT BARS IS EQUAL TO OR GREATER THAN 2.5 DB.
- b. LAP LENGTHS FOR PLAIN ROUND BARS SHALL BE TWICE THOSE SHOWN IN THE FOLLOWING TABLES.
- c. ALL BEAM MAIN REINFORCEMENT LAP SPLICES SHALL HAVE CRANKED LAPS UNLESS NOTED OTHERWISE.
- d. LAP LENGTHS ARE IN ACCORDANCE WITH NZS 3101.
- e. ALL LAPS SHALL BE STAGGERED.

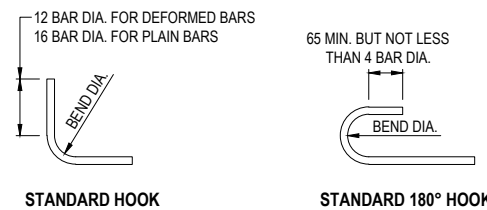
NOTES REGARDING USE OF FOLLOWING TABLES:

- TOP BAR FACTOR IS 1.0 FOR ALL VERTICAL BARS AND FOR HORIZONTAL BARS WITH LESS THAN 300mm OF FRESH CONCRETE CAST BENEATH BAR (TYPICALLY BEAM BOTTOM BARS AND SLAB BARS).
- TOP BAR FACTOR IS 1.3 FOR ALL HORIZONTAL BARS WITH MORE THAN 300mm OF FRESH CONCRETE CAST BENEATH BAR (TYPICALLY BEAM TOP BARS.)

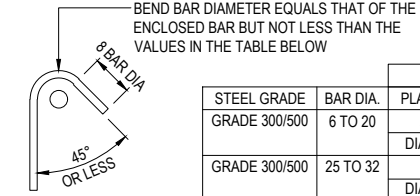
		BAR DIAMETER					
		10	12	16	20	25	32
CONCRETE	30 MPa	360	430	575	715	895	1140
STEEL GRADE	300 MPa	300	330	440	550	690	880
CONCRETE	40 MPa	310	375	495	620	775	990
STEEL GRADE	300 MPa	300	300	380	475	595	760
CONCRETE	50 MPa	300	335	445	555	690	885
STEEL GRADE	300 MPa	300	300	340	425	535	680
CONCRETE	30 MPa	595	715	950	1190	1485	1900
STEEL GRADE	500 MPa	460	550	735	915	1145	1485
CONCRETE	40 MPa	515	620	825	1030	1290	1645
STEEL GRADE	500 MPa	400	475	635	795	990	1270
CONCRETE	50 MPa	465	555	740	920	1150	1475
STEEL GRADE	500 MPa	355	425	570	710	885	1135

4.5 BENDING OF REINFORCEMENT

- a. BENDS FOR ALL BARS EXCEPT STIRRUPS AND TIES.



- b. BENDS FOR STIRRUPS AND TIES

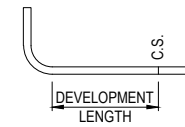


STANDARD STIRRUP & TIE HOOK

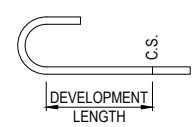
- c. BARS PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE SITE BENT UNLESS SHOWN ON THE DRAWINGS OR SPECIFICALLY APPROVED BY THE ENGINEER.

4.6 REINFORCEMENT ANCHORAGE WITH STANDARD HOOKS

- a. DEVELOPMENT LENGTH PAST CRITICAL SECTION (SHOWN CS ON DRAWING) FOR DEFORMED BARS SHALL BE AS PER TABLE BELOW.
- b. DEVELOPMENT LENGTHS FOR PLAIN ROUND BARS SHALL BE TWICE THOSE SHOWN IN THE FOLLOWING TABLE:

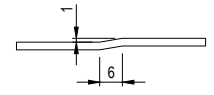


STANDARD HOOK



STANDARD 180° HOOK

STANDARD BAR CRANK: WHERE MAIN BARS ARE OFFSET, I.E FOR CRANKED LAPS, THE SLOPE OF THE INCLINED PORTION OF THE BAR SHALL NOT EXCEED 1 IN 6 THUS:-



STANDARD BAR CRANK

NOTES:
SIDE COVER FACTOR = 0.7 FOR SIDE COVER EQUAL TO OR GREATER THAN 60mm, WITH HOOK COVER NOT LESS THAN 40mm

SIDE COVER FACTOR = 1.0 IN ALL OTHER SITUATIONS

		BAR DIAMETER					
		10	12	16	20	25	32
CONCRETE	30 MPa	135	160	215	265	330	425
STEEL GRADE	300 MPa	95	115	150	185	235	295
CONCRETE	40 MPa	115	140	185	230	290	365
STEEL GRADE	300 MPa	85	100	130	165	205	260
CONCRETE	50 MPa	105	125	165	205	260	330
STEEL GRADE	300 MPa	85	100	130	165	205	260
CONCRETE	30 MPa	220	265	355	440	550	705
STEEL GRADE	500 MPa	155	185	250	310	385	495
CONCRETE	40 MPa	195	230	305	380	475	610
STEEL GRADE	500 MPa	135	160	215	270	335	430
CONCRETE	50 MPa	175	205	275	340	425	545
STEEL GRADE	500 MPa	120	145	195	240	300	385

NOTE: INTERPOLATE FOR CONCRETE STRENGTHS IN BETWEEN.

BAR BENDING SHAPES		
NAME	SHAPE CODE	DIAGRAM
STRAIGHT	S	
L-SHAPE (ONE 90° BEND)	L	
DOUBLE L-SHAPE (TWO 90° BENDS)	LL	
HOKED BAR (ONE 180° BEND)	H	
DOUBLE HOKED BAR (TWO 180° BENDS)	HH	
U-SHAPE (180° BEND ONLY)	U	
STIRRUP (FOR BEAMS - HOOKS IN)	SH	
135° HOKED TIE	HT	

PROJECT		REV	DATE	REVISION DETAILS	APPROVED	STATUS		TITLE	PROJECT INFORMATION			
Transport Rebuild East Coast		1	18/09/2025	ISSUED FOR CONSTRUCTION	B.RYDER	ISSUED FOR CONSTRUCTION		BRIDGE REPAIRS GENERAL NOTES AND SPECIFICATIONS SHEET 1	BRIDGE 217 PNGL - 170.5031			
						APPROVED B.RYDER			DOCUMENT CODE A0006-PL-00-00000-GE-DG-TREC-000002			
ZONE A - RAIL COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16 ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED						APPROVED BY DATE B.RYDER 18/09/2025			SCALE	SIZE	REFERENCE No.	REV
									N.T.S.	A1	GE-000002	1

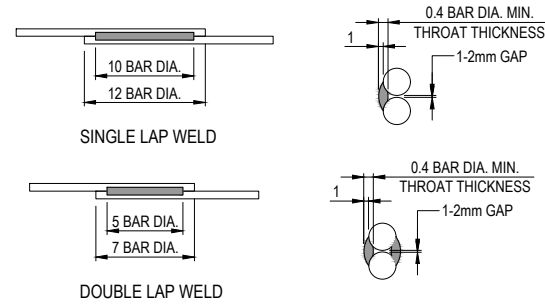
4.7 REINFORCEMENT NOTATION

12 - HD20 - 300 - T

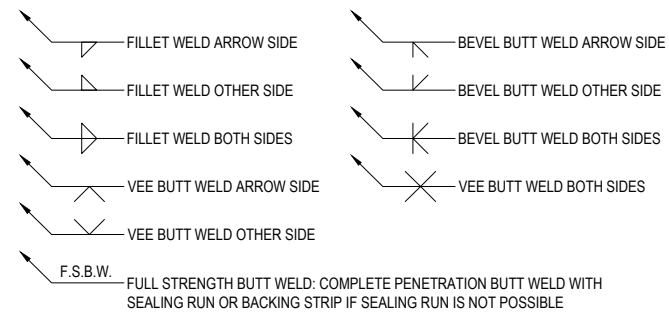
LOCATION DESCRIPTION	STEEL TYPE	GRADE	NOTATION
SPACING	HD	GRADE 500	DEFORMED
SIZE	HR	GRADE 500	PLAIN
TYPE	D	GRADE 300	DEFORMED
NUMBER OF BARS	R	GRADE 300	PLAIN

4.8 WELDING REINFORCEMENT

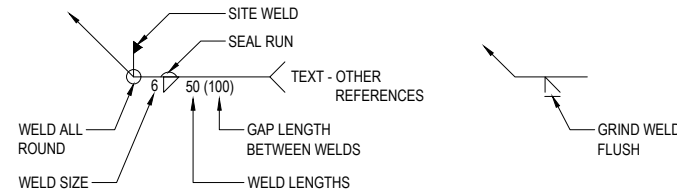
- WELDING OF REINFORCEMENT SHALL ONLY BE CARRIED OUT WITH THE EXPRESS APPROVAL OF THE DESIGNER.
- WELDING SHALL COMPLY WITH PACIFIC STEEL LIMITED PRODUCT TECHNICAL DATA 'PACIFIC STEEL SEISMIC REINFORCING BAR WELDING AND BENDING PROCEDURE' AND AS/NZS 1554.3 WELDING OF REINFORCING STEEL.
- WELDED SPLICES SHALL BE CLASS SP.
- WELDING ELECTRODES SHALL BE TO AS/NZS 1554.3.
- TACK WELDING OF REINFORCEMENT IS NOT PERMITTED.
- WELDED SPLICES MAY BE EITHER: GRADE 300 E OR GRADE 500 E).



5.1 COMMON WELDS



5.2 COMMON COMPLEMENTARY WELD SYMBOLS



5. STEELWORK

- SUPPLY MATERIALS, FABRICATE AND INSTALL IN ACCORDANCE WITH NZS 3404 PART 1 2009, AND AS/NZS 5131 TO CC3.
- HOT ROLLED STRUCTURAL STEEL OPEN SECTIONS, FLATS, PLATES AND FABRICATED SECTIONS SHALL BE GRADE 350L0 STEEL (UNLESS OTHERWISE INDICATED) IN ACCORDANCE WITH AS/NZS 3678 AND AS/NZS 3678.1 OR APPROVED EQUIVALENT.
- ALL WELDS SHALL BE 6mm FILLET WELDS UNLESS SHOWN OTHERWISE.
- ALL WELDING SHALL BE CLASS 'SP' COMPLY WITH AS/NZS 1554.1.
- ALL BOLTS SHALL BE CLASS 8.8/TF BOLTS AND COMPLETE WITH APPROPRIATE WASHER, NUTS AND LOCK NUTS. THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE.
- ALL JOINS BETWEEN STEEL MEMBER TF CONNECTIONS SHALL BE SEALED AFTER ASSEMBLY WITH SIKAFLEX 11FC (OR APPROVED EQUIVALENT).
- ALL BOLT HOLES SHALL BE 2mm OVERSIZE, UNLESS SHOWN OTHERWISE.
- COATING SPECS AS FOLLOWS:
 - ALL SURFACES TO BE TSZAL300S ZINC/ALUMINIUM (85/15) TO 300µm THICKNESS WITH EPOXY SEALER 10-30µm AND 250µm OVERCOAT.
 - ANTI-GRAFFITI ON EXPOSED FACES FACING ROAD TO BE TSZAL300S + Ep/Ur @250µm = 550µm.
 - TOP OF FLANGE (BELOW SLEEPERS) TSZAL300S + Ep @350µm = 650µm.
 - REFER TO SPECIFICATION DOCUMENT A0006-PL-00-17000-BR-SP-TREC-000001.
- ALL WELDING WORK SHALL BE INSPECTED AND CERTIFIED BY A QUALIFIED WELDING INSPECTOR.
- STRUCTURAL STEELWORK DRAWINGS SHOW THE STRUCTURAL DESIGN INTENT. SHOP FABRICATION DRAWINGS ARE THE CONTRACTORS RESPONSIBILITY.

Original size mm

PROJECT				REVISION DETAILS			STATUS		TITLE		PROJECT INFORMATION			
Transport Rebuild East Coast				REV 1	DATE 18/09/2025	ISSUED FOR CONSTRUCTION			ISSUED FOR CONSTRUCTION		BRIDGE 217 PNGL - 170.5031			
									APPROVED		DOCUMENT CODE			
									B.RYDER		A0006-PL-00-00000-GE-DG-TREC-000003			
									APPROVED BY	DATE	SCALE	SIZE	REFERENCE No.	REV
									B.RYDER	18/09/2025	N.T.S.	A1	GE-000003	1

ZONE A - RAIL
COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16
ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED

Plot Date: 9/17/2025 11:01 am | Plotted By: David Santos | Original File: C:\12\SD\DATA\TREC\SGN\A0006-137200_DESIGN\203_DRAWINGS\A0006-GE-DG-TREC-000002-003.DWG | Tab: [003]

LEGEND	
RIVERBED UNDER HBRC OWNERSHIP	
SECTION 57 BLOCK CLIVE SD RESERVE	
PART SECTION 52 BLOCK CLIVE SD RESERVE	
KIWIRAIL HOLDINGS LIMITED	
NZTA (STATE HIGHWAY 51)	
UPOKO PUBLIC CONSERVATION LAND	
HYDRO PARCEL	
SECTION 53 BLOCK CLIVE SD RESERVE	



300
200
150
100
50
10
0
Original size mm
A4
A3
A2
A1

PRIVILEGED FOR THE PURPOSE OF SEEKING OR ENABLING LEGAL ADVICE

PROJECT		REV	DATE	REVISION DETAILS	APPROVED	STATUS			TITLE	PROJECT INFORMATION			
Transport Rebuild East Coast		A.01	12/08/2025	ISSUED FOR INFORMATION	B.RYDER	SUITABLE FOR INFORMATION			TŪTAEKURĪ RIVER LAND OWNERSHIP MAP	BRIDGE 217 PNGL - 170.5031			
						APPROVED				DOCUMENT CODE			
										A0006-PL-00-00000-GE-DG-TREC-001001			
ZONE A - RAIL						APPROVED BY	DATE			SCALE	SIZE	REFERENCE No.	REV
COORDINATE SYSTEM: HAWKES BAY 2000, VERTICAL DATUM: NZVD16						B.RYDER	12/08/2025			1:1000	A1	GE-001001	A.01
ORIGINAL IN COLOUR DETAIL MAY BE LOST IF COPIED													

Plot Date: 8/12/2025 1:33 pm | Plotted By: David Santos | Original File: C:\TZSD\DATA\TREC\SN\A0006_1372001_DESIGN\2025_DRAWINGS\A006-GE-DG-TREC-001001.DWG | Tab: [001]

ACCESS/HAUL ROUTES AND INDICATIVE STOCKPILE LOCATIONS



Prepared By: Atarangi Thompson, Lisa Arnold	Reviewed By: Dathan Proudlove	Approved By: Dathan Proudlove	Date: 3/10/2025	Revision Draft 01
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Emergency Contacts	Environmental Advisors	Site Supervisor	Project Manager	Project / Site Engineer	Enviro. Compliance & Systems Lead	Head of Environment & Sustainability
	Atarangi Thompson & Lisa Arnold	Johan Schoultz	Patrick Doherty	Hariharan Palaniappan	Mel Pendly	Dathan Proudlove
			Click or tap here to enter text.	Click or tap here to enter text.	027 836 2813	027 839 2593

Scope
This EMP – Operational Summary applies to all activities, operations, staff and subcontractors working on this site in relation to Phase 3: Waterway Restoration works.

Requirements
All work undertaken by site personnel shall be undertaken in a manner which is compliant with:

- TREC Alliance requirements including management plans, operating procedures, work instructions, hazard controls.
- Legislative requirements including permitted activities and resource consents.

Working in accordance with the TREC Alliance Construction Environmental Management Plan (CEMP) and this EMP - Operational Summary will help you comply with these requirements.

Responsibilities

- Overall responsibility for Environment Management of this site rests with the Project Manager.
- Responsibility for the direction of onsite operations, including planning and management of the safety and environmental protection measures, rests with the Site Engineer / Project Engineer.
- Day to day management of the safety and environmental protection measures, inspections, monitoring and maintenance rests with the Site Supervisor / Site Foreman.

All personnel working on this site have a responsibility to undertake their work in compliance with environmental requirements.

Communication of Requirements
In addition to displaying this plan, this EMP needs to be communicated to all staff and subcontractors to inform them of the safety and environmental requirements of working on the above site, by the following means:

- Tailgate Meetings
- Inductions
- Pre-start Tailgates
- Audit Reports
- Stay Safe Engagements (SSE)
- Opportunity for Improvement (OFI) forms

Monitoring, Recording and Reporting
Monitoring, Recording and Reporting at the site shall be undertaken in accordance with the TREC Alliance CEMP.
Environmental inspections shall be undertaken on a Weekly basis. Those inspections shall be recorded on the TREC Environmental Site Inspection template on ProCore.
The following environmental compliance monitoring is required to meet legal requirements:

- Erosion and Sediment Control Inspection
- Environmental Site Inspection

 In addition to formal inspections and compliance monitoring, informal monitoring shall be conducted on a continued and ongoing basis through the likes of Environmental Observations on ProCore.
Any identified non-compliances/deficiencies in controls must be fixed before any environmental impact can occur.



- Ecology – Active lizard management / bird management required.
- A vegetation Clearance permit is required prior to any vegetation clearance.
- A High Environmental Risk Works Permit must be obtained prior to any habitat clearance or dewatering.
- Water produced through dewatering must be treated prior to discharge.
- Stabilise with hydroseed.
- Marine spill kits must be kept close to the waterways where works are occurring. To be moved around as works progress.
- See SSES CP for more detailed plan on erosion and sediment set-up

Incident Management and Emergency Response

- All environmental incidents shall be managed in accordance with the TREC Alliance CEMP.
- Immediate action will be taken to stabilise the situation where safe to do so (e.g., cease work, turn off or move machinery, deploy spill equipment, emergency bunding put in place, manage affected fauna, etc.)
- All Incidents are to be immediately reported by phone to the Environmental team and then logged on an incident report form to the Environmental team (via ProCore).
- Emergencies shall be managed in accordance with the site's Emergency Response Plan

Related Documents / Requirements
 The following documents / requirements are associated with this EMP Operational Summary (tick as appropriate, and attach to this plan):

<input checked="" type="checkbox"/> Site Specific Erosion and Sediment Control Plan	<input checked="" type="checkbox"/> High Environmental Risk Works Permit , covering:
<input checked="" type="checkbox"/> Emergency Spill Response Plan Poster	<input type="checkbox"/> Site Specific Archaeological requirements
<input checked="" type="checkbox"/> Permit to Discharge Water ("Pumping Permit")	<input type="checkbox"/> Site Specific Heritage requirements
<input checked="" type="checkbox"/> Archaeological Site Discovery Protocol Poster	<input type="checkbox"/> Site Specific Cultural monitoring requirements
<input type="checkbox"/> Site Specific Emulsion Sealing Plan	<input type="checkbox"/> Site Specific Protected Tree requirements
	<input type="checkbox"/> Site Specific Potable Water Protection
	<input checked="" type="checkbox"/> Site Specific Waterway / Wetland requirements
	<input checked="" type="checkbox"/> Site Specific Ecology requirements
	<input type="checkbox"/> Site Specific Contaminated Soil requirements

<p align="center">Erosion & Sediment Control</p> <p><i>This site has a Site-Specific ESCP which must also be referred to:</i> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Basic ESC Principles</p> <ul style="list-style-type: none"> ▪ Minimise ground disturbance to reduce the potential for run-off. ▪ Stage works to minimise the amount of disturbed area at any one time. ▪ Protect steep slopes from erosion. ▪ Protect watercourses from untreated dirty runoff. ▪ Stabilise exposed areas rapidly and progressively. ▪ Install perimeter controls to keep clean water out of site and untreated dirty water within site. ▪ Treat dirty runoff prior to discharge off-site. ▪ Assess and adjust the ESCP regularly. Inspect, monitor and maintain controls weekly (and before/after heavy rain). ▪ Monitor weather and prevailing weather conditions to undertake high risk works during optimal conditions. <p>Mud Tracking</p> <ul style="list-style-type: none"> ▪ Establish stabilised site access points and sweep regularly. ▪ Clean up material spilt on the road immediately. ▪ In high-risk areas, consider establishing a wheel wash point. <p>Pumping Water</p> <ul style="list-style-type: none"> ▪ Permit to Discharge Water required from Environmental team before any pumping commences. Follow the instructions on your permit. 	<p align="center">Works in Waterways</p> <ul style="list-style-type: none"> ▪ All works in waterways must be carried out in accordance with an SSESCP, approved methodology / construction sequence, Permit to Discharge Water, and ecologist instructions. ▪ Minimise sediment disturbance. ▪ Always wash down vehicles, machinery and equipment before entering a waterway and on departure to ensure that there is no spread of pests and weeds. ▪ An emergency response plan for significant rain and flood events must be in place. 	<p align="center">Dust Control</p> <p><i>Refer to Construction Air Quality Management Plan</i></p> <p>Dust Minimisation</p> <ul style="list-style-type: none"> ▪ Minimise disturbed areas. ▪ Reduce speed limits. <p>Dust Suppression:</p> <ul style="list-style-type: none"> ▪ Use a water cart to regularly dampen trafficked areas. ▪ Cover stockpiles in high-risk zones. ▪ Consider dust suppressant chemicals. <p>Dust Contingencies:</p> <p>Monitor weather and prevailing weather conditions to undertake high risk works during optimal conditions.</p>	<p align="center">Water Supply</p> <ul style="list-style-type: none"> ▪ The water supply for this site will be provided by the subcontractor. ▪ Where practicable, look to harvest rainwater or adopt water saving techniques. ▪ No water is to be taken from the waterway unless a water take permit is obtained through the environmental team. 	<p align="center">Vegetation</p> <p>Vegetation Clearance</p> <ul style="list-style-type: none"> ▪ Prior to the clearance of any vegetation, a Vegetation Clearance Permit must be obtained through the Environmental team. ▪ Vegetation clearance should be kept to a minimum. <p>Work around Trees</p> <ul style="list-style-type: none"> ▪ Trees to be retained should have delineated protection zones where possible (e.g. hurricane fencing). ▪ No equipment or stockpiles are to be stored under the dripline unless on a paved area. ▪ Works under the dripline of a tree, must have an arborist present on site. ▪ Cutting roots >25mm or any tree pruning must be done by an arborist.
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<p>Ecological Requirements</p> <p>Site Specific Requirements</p> <ul style="list-style-type: none"> Passive and active management strategies to be implemented at the discretion of project ecologists. <p>Bird management:</p> <ul style="list-style-type: none"> During bird breeding and nesting season, nest surveys must be undertaken within 7 days prior to starting habitat clearance works in accordance with the Bird Management Plan. <p>Lizard management:</p> <ul style="list-style-type: none"> Active lizard management is to be carried out prior to habitat clearance works in accordance with the Lizard Management Plan. <p>Wetlands:</p> <ul style="list-style-type: none"> Impacts to wetlands should be minimised as much as practicable. Construction methodology to be discussed with ecologist and hydrogeologist before finalising, along with any offsetting requirements. The SSES CP will outline controls to minimise impact to wetlands. <p>Prior to disturbance of any habitats, a High Environmental Risk Works Permit must be obtained through the Environmental team.</p> <p>Accidental Discovery Protocol</p> <p>In the event of discovery of a lizard, bird nest/eggs/chicks or evidence of birds expressing breeding behaviour:</p> <ul style="list-style-type: none"> Cease all works immediately within 30m radius and secure the site. The Environmental Advisor or Project Ecologist must be notified immediately. Do <u>not</u> recommence works until approval is received from the Project Ecologist. 	<p>Archaeology & Cultural Values</p> <p>Site Specific Requirements</p> <p>Temporary safety fencing system will be installed to exclude vehicles from the WWII pillbox area. The small length of fence will extend south of the pillbox onto the beach. A length of fence will also be on the outside of the cycle path (including small lengths to cut off the headland area) on the inside of the path.</p> <p>Discovery Protocol</p> <p>In the event of discovery of suspected archaeological material:</p> <ul style="list-style-type: none"> Cease all works immediately within 20m radius and secure the site. Notify Environmental Advisor and Project Manager. (Environmental Advisor will then contact archaeologist.) Do <u>not</u> recommence works until approval is received from archaeologist. 	<p>Contaminated Land</p> <p>Site Specific Requirements</p> <ul style="list-style-type: none"> Dockets / records must be kept proving correct disposal. <p>Unexpected Discovery Protocol</p> <p>If signs of contamination (<i>e.g. abnormal odour, discoloured soil, waste material / debris, oily substances / sheens</i>) are observed:</p> <ul style="list-style-type: none"> Cease all works immediately within 20m radius and secure the site. Notify Project Manager and Environmental team. Do not recommence works until approval is received from Environmental team. 	<p>Chemicals & Spills</p> <p>Chemical Storage:</p> <ul style="list-style-type: none"> Fuel / chemicals are to be stored securely and in secondary containment. <p>Spill Management:</p> <ul style="list-style-type: none"> Spills shall be managed in accordance with the TREC Alliance Emergency Spill Response Plan. All sites are to have an adequately sized spill kit available, with oil-only "marine" spill kits with floating oil booms required for all sites within 50m of a waterway. All spills are to be contained and cleaned up as soon as possible. All spills to land greater than 2 litres are to be reported within 24 hrs. Spills of any volume which discharge to waterways or stormwater must be reported immediately. <p>Refuelling:</p> <ul style="list-style-type: none"> Establish a site-specific refuelling location, with spill kit on hand. No refuelling within 20m of a waterway, stormwater sump or open excavation without a drip tray or equivalent. All re-fuelling or storage of fuel tanks to occur outside of the river bed. No unattended refuelling. 	<p>Site Housekeeping</p> <ul style="list-style-type: none"> All staff are to keep sites tidy. Check sites regularly and clean up any messy areas and remove unnecessary materials. Ensure site has an adequately sized rubbish bin or skip to prevent littering. 	
<p>Concrete, Cement and Lime</p> <ul style="list-style-type: none"> Concrete/cement/lime increases the pH of water and can lead to fish kill. High pH cannot be filtered out of water – full containment and disposal or ground soakage is the only viable option. Tools, pumps and chutes are only to be washed out into the site washout pit or lined skip. Concrete truck bowls should not be washed out on site. Concrete washwater, cutting water, and slurry is to be fully contained or discharged to land. Do not discharge to waterways or stormwater! Tremmie waste shall be captured and disposed of safely. Cement / lime stabilisation works are not to proceed if rain is forecast. All cement and cement products will be kept away from watercourses and stormwater when not in use. Cement products should be stored under cover to keep dry. 	<p>Emulsion</p> <p><i>Refer to Emulsion Sealing Plan</i></p> <ul style="list-style-type: none"> Bituminous emulsion must not be allowed to discharge to waterways or stormwater. Emulsion cannot be filtered out of water. Full containment and disposal are the only viable option. Undertake informed decision-making prior to applying emulsions which will include aspects such as; emulsion specifications, seasons, relative humidity, temperature, wind conditions and hours remaining of daylight once applied. Do not apply emulsions when rain is forecast prior to predicted curing or breaking times. 	<p>Spoil Disposal</p> <ul style="list-style-type: none"> The spoil disposal location for this site is: Click or tap here to enter text. Spoil from site is only to be disposed of at approved disposal sites, and in accordance with the relevant Site Management Plan and the disposal site's SSES CP. Spoil volumes must be tracked per site. 	<p>Waste Management</p> <p><i>Refer to Resource Efficiency and Waste Management Plan and site-specific Waste Management Plan</i></p> <p>Waste Minimisation Methods:</p> <ul style="list-style-type: none"> Follow the Waste Hierarchy: <p>Waste Storage and Disposal:</p> <ul style="list-style-type: none"> Waste is only to be disposed of at approved and licenced facilities. No burning of waste. 	<p>Noise & Vibration</p> <p><i>Refer Noise & Vibration Management Plan</i></p> <p>Working Hours:</p> <p>Normal working hours are 0700 – 1800 hrs, Monday – Saturday.</p> <p>Out of Hours Works:</p> <p>Night works and works on Sundays / public holidays require approval from client, and consultation with the Environmental team and Communications team.</p> <p>Noise & Vibration Minimisation Methods:</p> <ul style="list-style-type: none"> Keep noisy plant away from neighbours, or place sound barriers between them, where possible. Maintain plant regularly. Ensure mufflers and other noise controls are in working order. Keep engine doors / hoods closed. Shut down plant when not in use. Be considerate: avoid loud radios, slamming car doors, or yelling / swearing on site. Do not rattle excavator buckets to clean them (use a spade). Consider construction options to minimise vibration. 	<p>Queries & Complaints</p> <p>If a member of the public has a query or complaints, refer them to the Communication and Stakeholder Engagement Team 0800 80 TREC (0800 80 8730).</p> <p>If you receive a complaint on site, pass it on to your Project Manager and they will advise the Communication and/or Environmental teams to follow-up.</p>



Figure 1 – Location of proposed access (black dotted lines) near V21/258 (LINZ, ArchSite).