

100mm
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

0



KEY	
	LEGAL BOUNDARY
	SITE LIMITS



ORIGINAL DRAWING
IN COLOUR

No	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

Original Scale (A3)	1:2500	Design	LB	Approved For Construction*	
		Drawn	AA	Date	
		Dwg Verifier	MH		
		Dwg Check	MH		

* Refer to Revision 1 for Original Signature



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: OVERALL PLAN

Status:	TENDER
Drawing No:	SR2011 - 00 - CE - 1003
Rev:	0



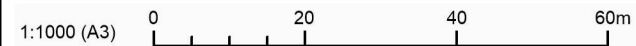
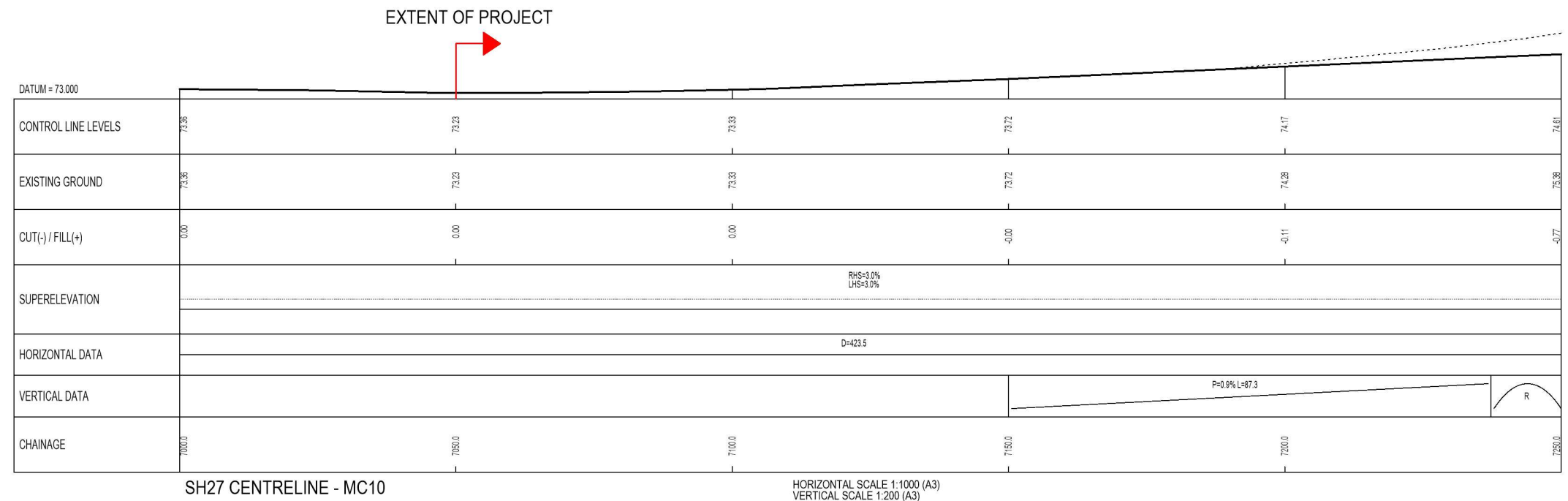
KEY: GENERAL ARRANGEMENT

- LEGAL BOUNDARY
- - - EXISTING FENCES
- - - PROPOSED DESIGN
- DESIGN CENTRELINE
- FILL BATTER
- CUT BATTER
- CONCRETE BARRIER NHCRP TL-5
- W-SECTION BARRIER MASH TL-3
- POST & 3-RAIL FENCE
- POST & 4-RAIL FENCE
- POST & 7-WIRE FENCE
- HEADLIGHT GLARE SCREEN
- PAVEMENT REMOVAL
- PROPOSED DESIGNATION

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

100mm

0



No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

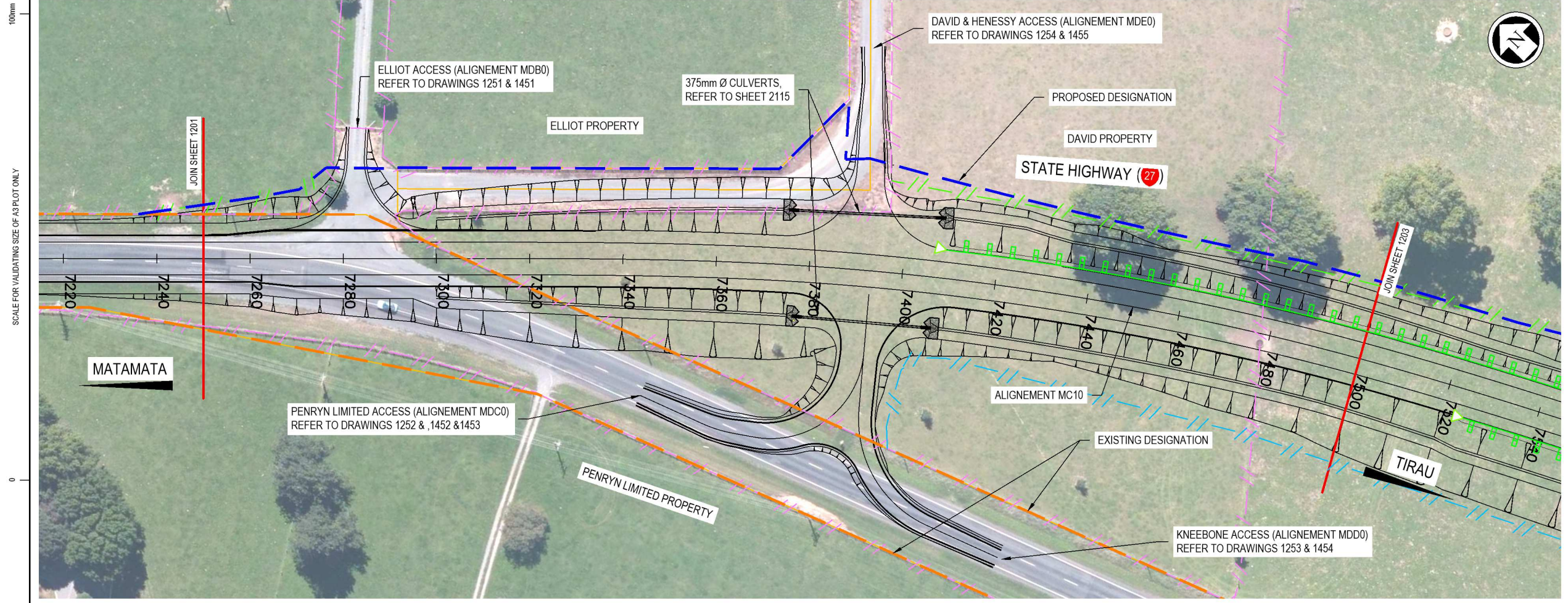
Original Scale (A3)	1:1000	Design	LB	Drawn	AA	Dig Verifier	MH	Dig Check	MH	Approved For Construction*	Date
* Refer to Revision 1 for Original Signature											



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: GENERAL ARRANGEMENT AND LONGSECTION MC10 SHEET 1

Status: TENDER	Rev: 0
Drawing No: SR2011-00-CE-1201	

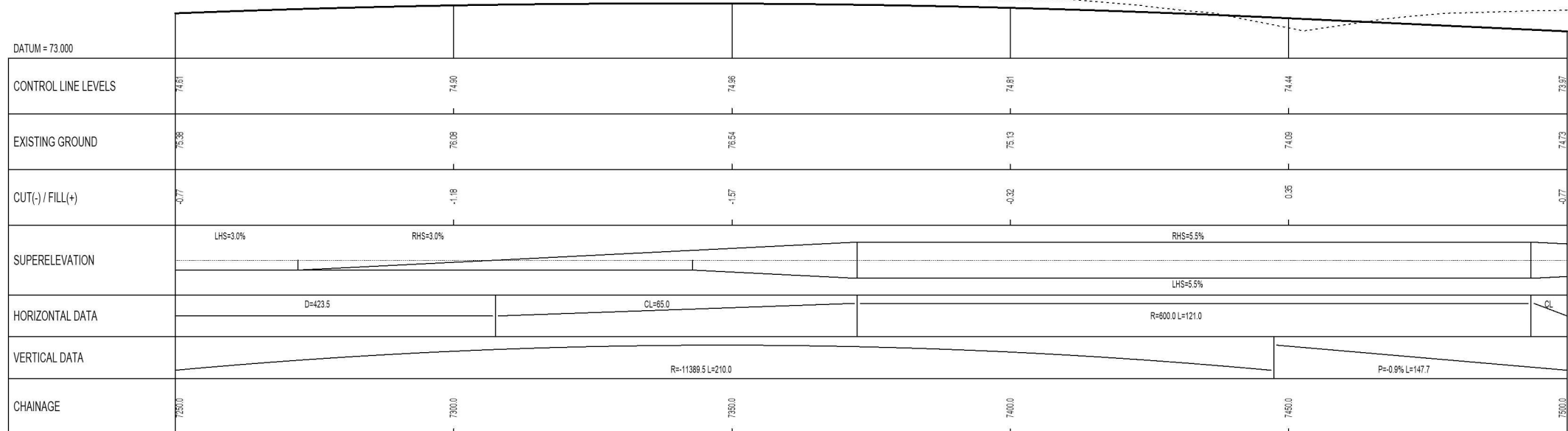


KEY: GENERAL ARRANGEMENT

- LEGAL BOUNDARY
- EXISTING FENCES
- PROPOSED DESIGN
- DESIGN CENTRELINE
- FILL BATTER
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- CONCRETE BARRIER NHCRP TL-5
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- POST & 4-RAIL FENCE
- POST & 7-WIRE FENCE
- HEADLIGHT GLARE SCREEN
- PAVEMENT REMOVAL
- PROPOSED DESIGNATION

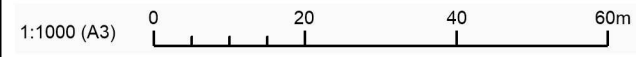
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

0



SH27 CENTRELINE - MC10

HORIZONTAL SCALE 1:1000 (A3)
VERTICAL SCALE 1:200 (A3)



0	ISSUED FOR TENDER	LB	MH	JS	21.09.20
No.	Revision	By	Chk	Appd	Date

Original Scale (A3)	Design	LB	Approved For Construction*
1:1000	Drawn	AA	
	Dig Verifier		
	Dig Check	MH	Date

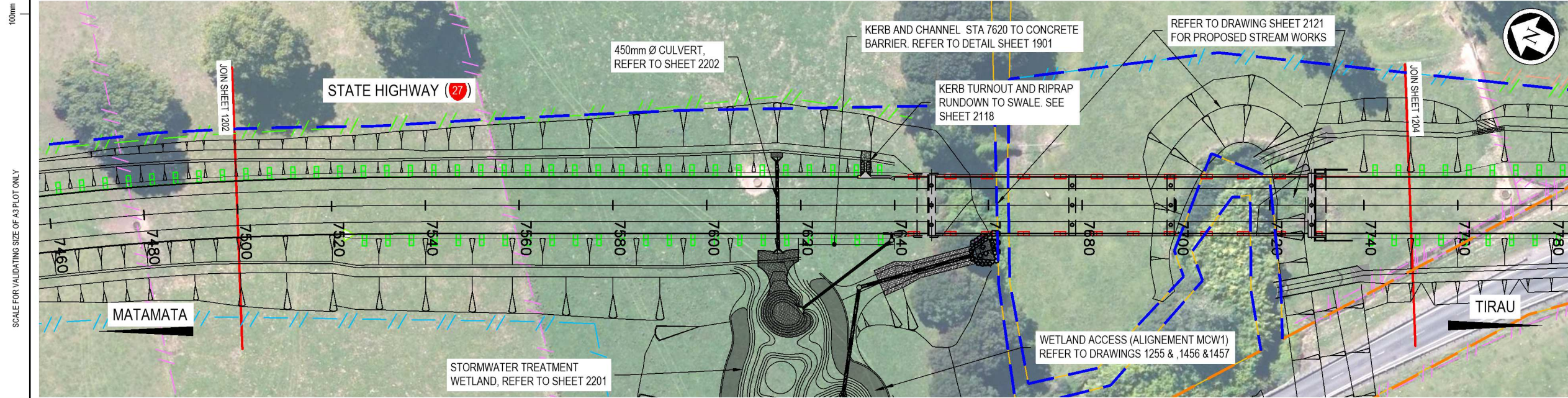
* Refer to Revision 1 for Original Signature



Project: SH27 MANGAWHERO STREAM BRIDGE

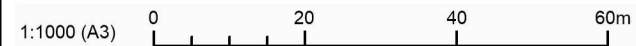
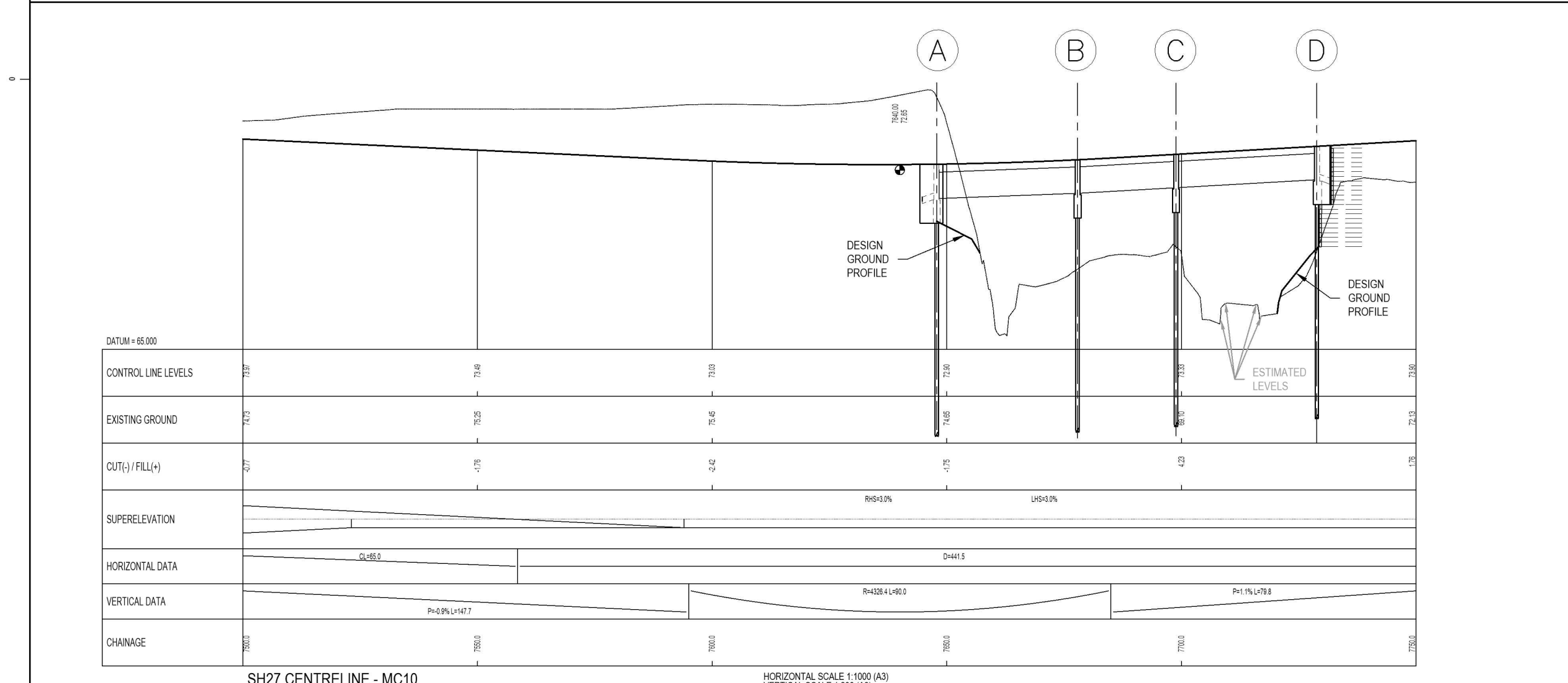
Title: GENERAL ARRANGEMENT AND LONGSECTION MC10 SHEET 2

Status:	TENDER
Drawing No:	SR2011 - 00 - CE - 1202
Rev:	0



KEY: GENERAL ARRANGEMENT

- LEGAL BOUNDARY
- EXISTING FENCES
- PROPOSED DESIGN
- DESIGN CENTRELINE
- FILL BATTER
- CUT BATTER
- CONCRETE BARRIER NHCRP TL-5
- W-SECTION BARRIER MASH TL-3
- POST & 3-RAIL FENCE
- POST & 4-RAIL FENCE
- POST & 7-WIRE FENCE
- HEADLIGHT GLARE SCREEN
- PAVEMENT REMOVAL
- PROPOSED DESIGNATION



No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

Original Scale (A3)	1:1000	Design	LB	Approved For Construction*
		Drawn	AA	Date
		Dwg Checker	MH	

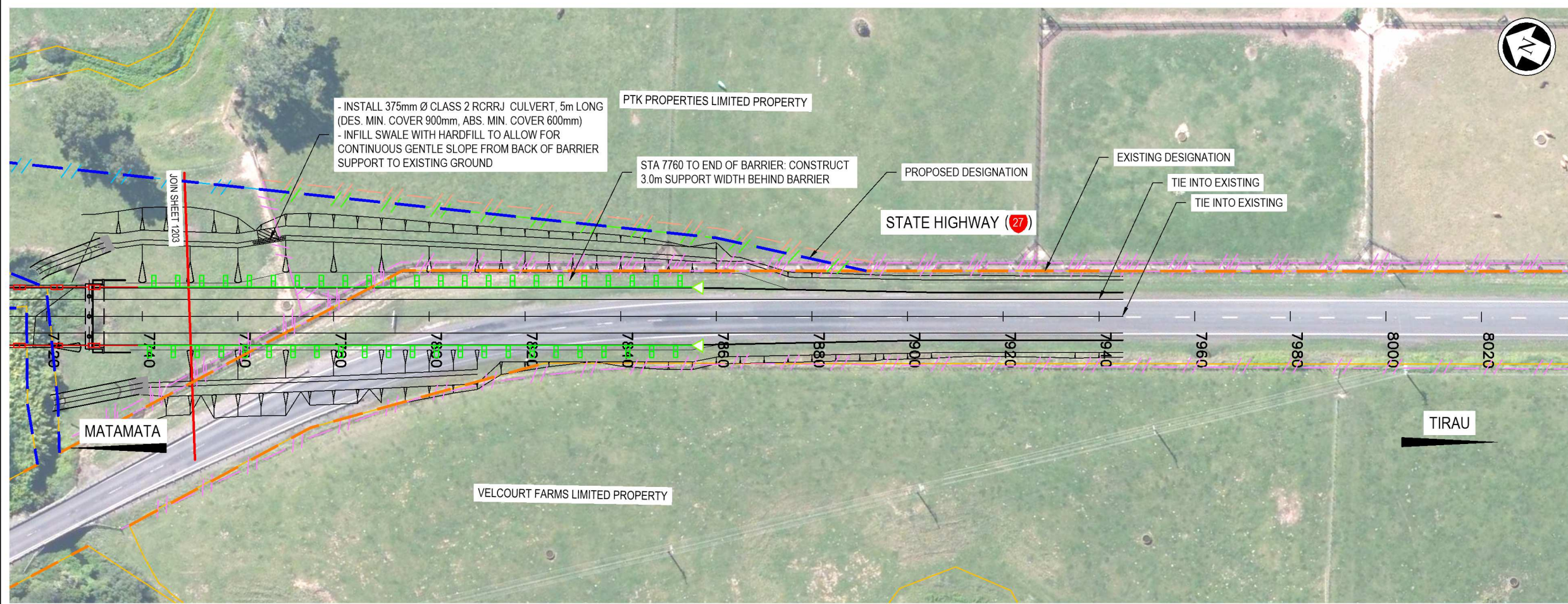


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: GENERAL ARRANGEMENT AND LONGSECTION MC10 SHEET 3

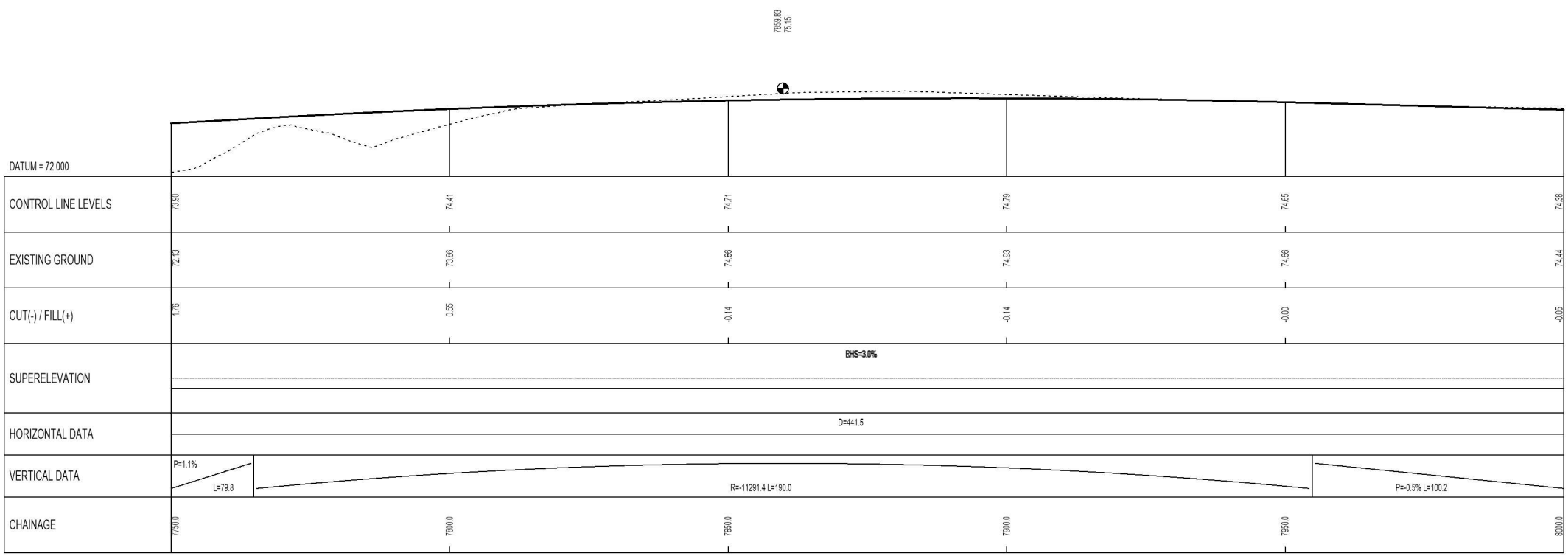
Status	TENDER
Drawing No.	SR2011 - 00 - CE - 1203
Rev.	0

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



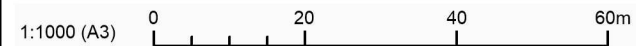
KEY: GENERAL ARRANGEMENT

- LEGAL BOUNDARY
- EXISTING FENCES
- PROPOSED DESIGN
- DESIGN CENTRELINE
- FILL BATTER
- CUT BATTER
- CONCRETE BARRIER NHCRP TL-5
- W-SECTION BARRIER MASH TL-3
- POST & 3-RAIL FENCE
- POST & 4-RAIL FENCE
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- HEADLIGHT GLARE SCREEN
- PAVEMENT REMOVAL
- PROPOSED DESIGNATION



SH27 CENTRELINE - MC10

HORIZONTAL SCALE 1:1000 (A3)
VERTICAL SCALE 1:200 (A3)



0	ISSUED FOR TENDER	LB	MH	JS	21.09.20
No	Revision	By	Chk	Appd	Date

Original Scale (A3)	Design	LB	Approved For Construction*
1:1000	Drawn	AA	Date
	Dig Verifier		
	Dig Check	MH	

* Refer to Revision 1 for Original Signature

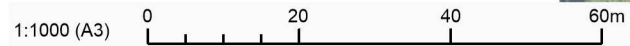
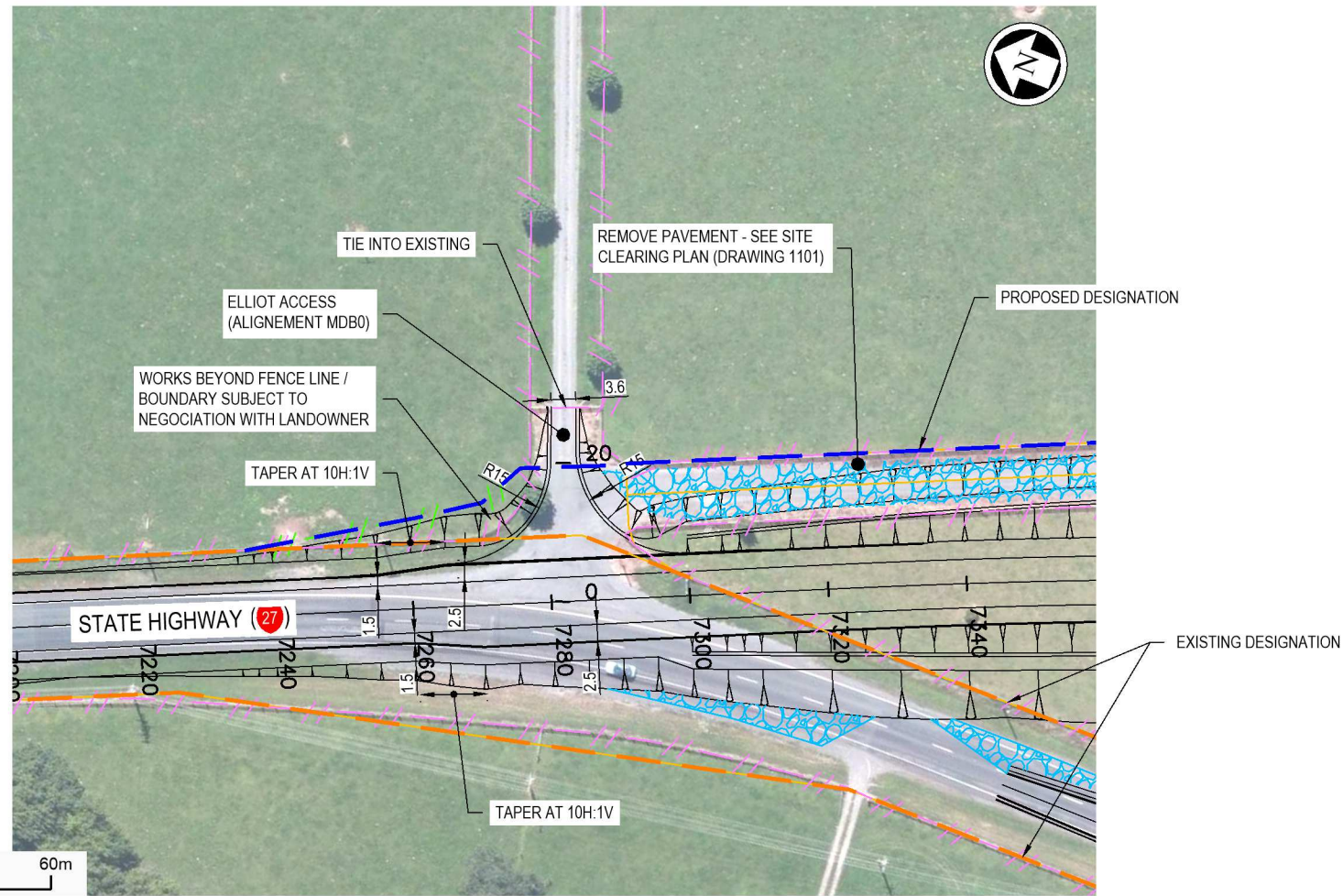


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: GENERAL ARRANGEMENT AND LONGSECTION MC10 SHEET 4

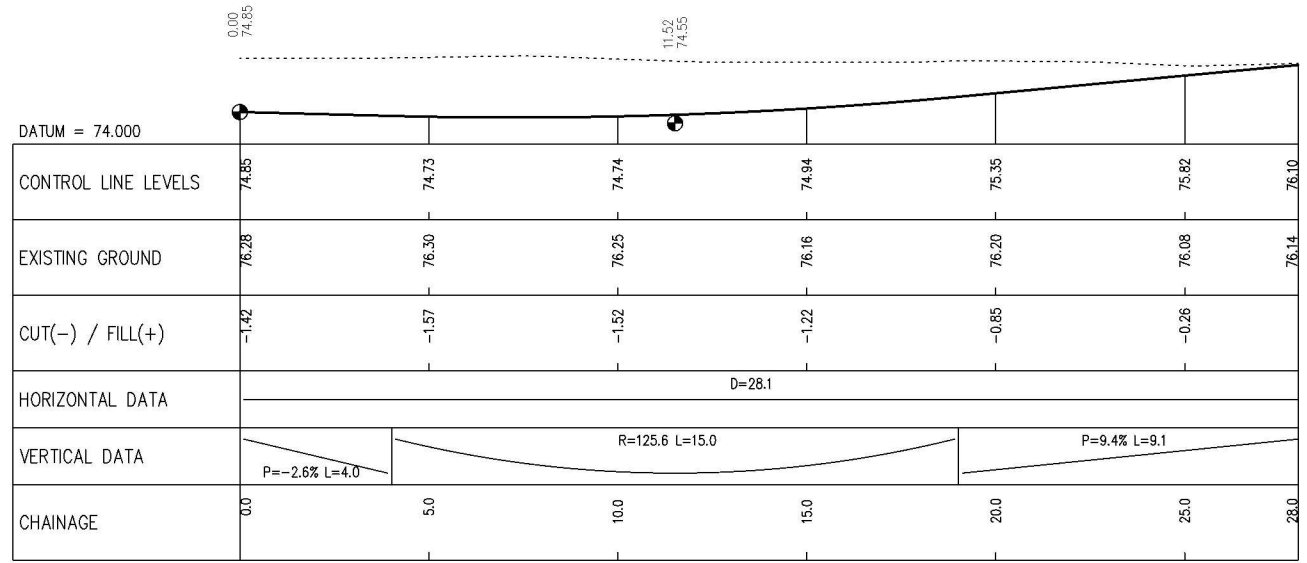
Status:	TENDER	
Drawing No:	SR2011 - 00 - CE - 1204	Rev: 0

100mm
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



KEY: GENERAL ARRANGEMENT

- LEGAL BOUNDARY
- - - EXISTING FENCES
- - - PROPOSED DESIGN
- DESIGN CENTRELINE
- FILL BATTER
- CUT BATTER
- CONCRETE BARRIER NHCRP TL-5
- W-SECTION BARRIER MASH TL-3
- POST & 3-RAIL FENCE
- POST & 4-RAIL FENCE
- POST & 7-WIRE FENCE
- HEADLIGHT GLARE SCREEN
- PAVEMENT REMOVAL
- PROPOSED DESIGNATION



HORIZONTAL SCALE 1:200 (A3)

VERTICAL SCALE 1:200 (A3)

MDBO



0	ISSUED FOR TENDER	LB	MH	JS	21.09.20
No	Revision	By	Chk	Appd	Date

Original Scale (A3)	1:1000	Design	LB	Approved For Construction*
		Drawn	AA	Date
		Dwg Verifier		
		Dwg Check	MH	

* Refer to Revision 1 for Original Signature

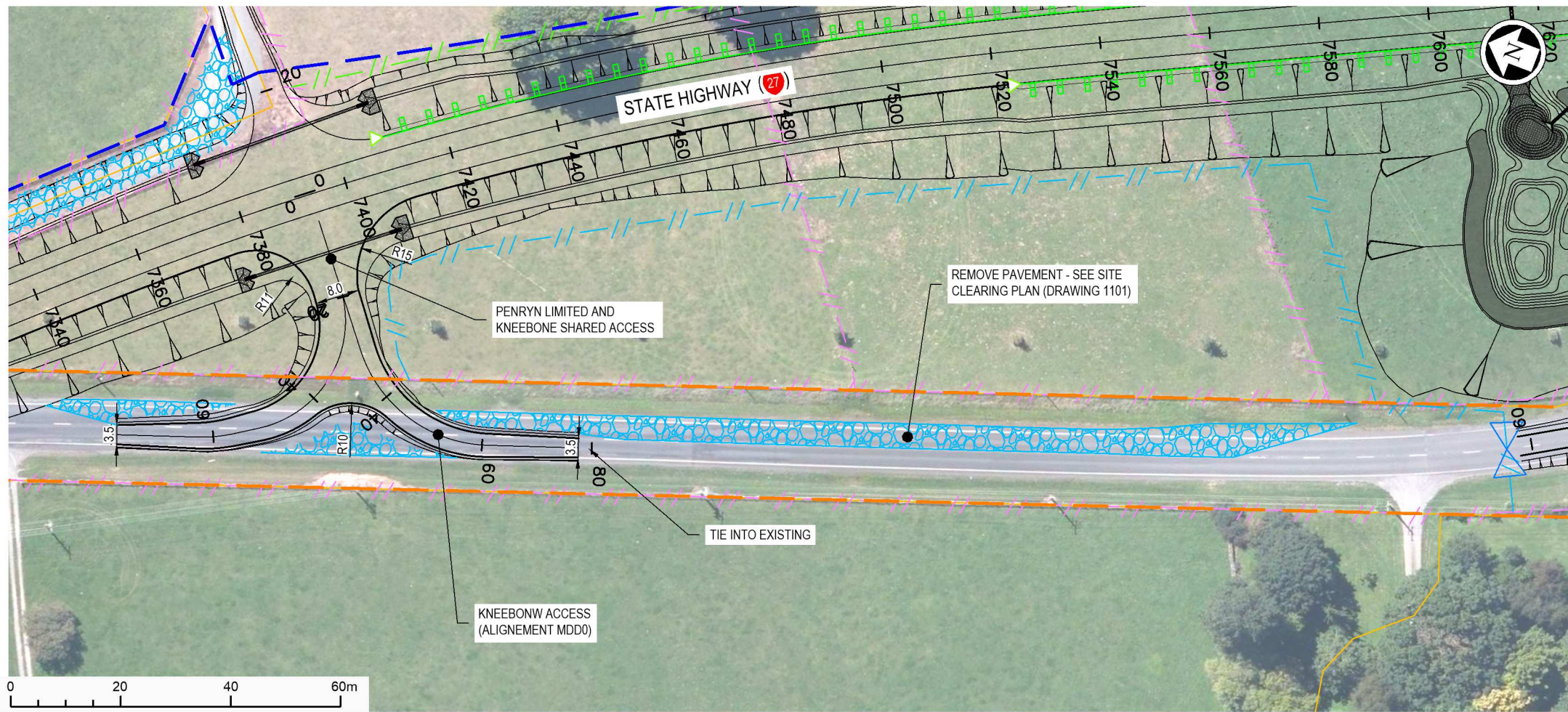


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: GENERAL ARRANGEMENT AND LONGSECTION ELLIOT ACCESS

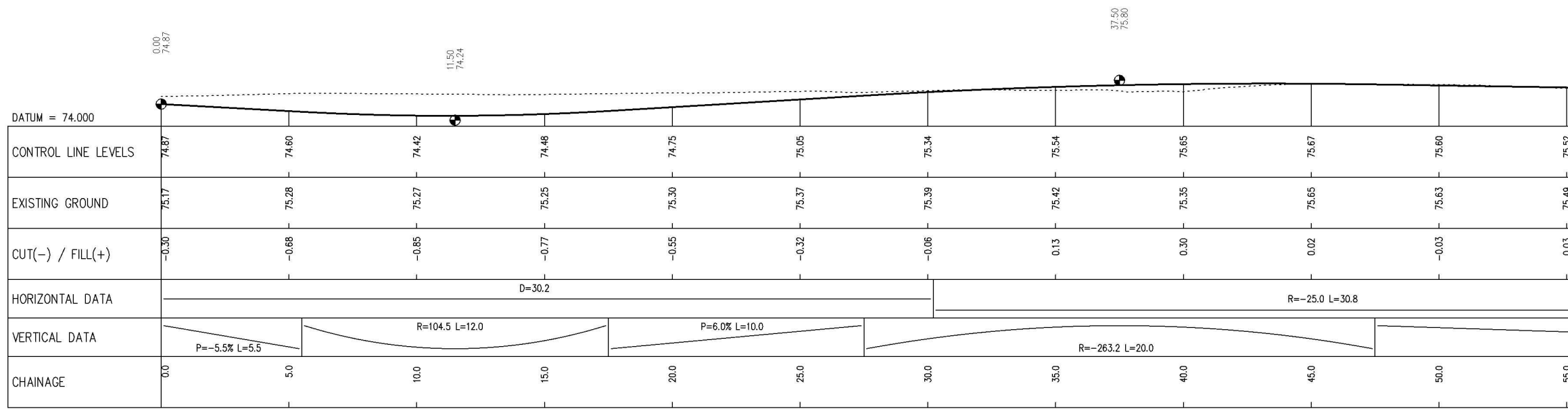
Status	TENDER
Drawing No.	SR2011 - 00 - CE - 1251
Rev.	0

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



KEY: GENERAL ARRANGEMENT

- LEGAL BOUNDARY
- - - EXISTING FENCES
- - - PROPOSED DESIGN
- DESIGN CENTRELINE
- / / FILL BATTER
- \ \ CUT BATTER
- CONCRETE BARRIER NHCPR TL-5
- W-SECTION BARRIER MASH TL-3
- / / POST & 3-RAIL FENCE
- / / POST & 4-RAIL FENCE
- / / POST & 7-WIRE FENCE
- / / HEADLIGHT GLARE SCREEN
- [] PAVEMENT REMOVAL
- PROPOSED DESIGNATION



HORIZONTAL SCALE 1:200 (A3)
VERTICAL SCALE 1:200 (A3)



No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

Original Scale (A3)	Design	Drawn	Checked	Approved For Construction
1:1000	LB	AA	MH	
	Dig Verifier	Dig Check		Date

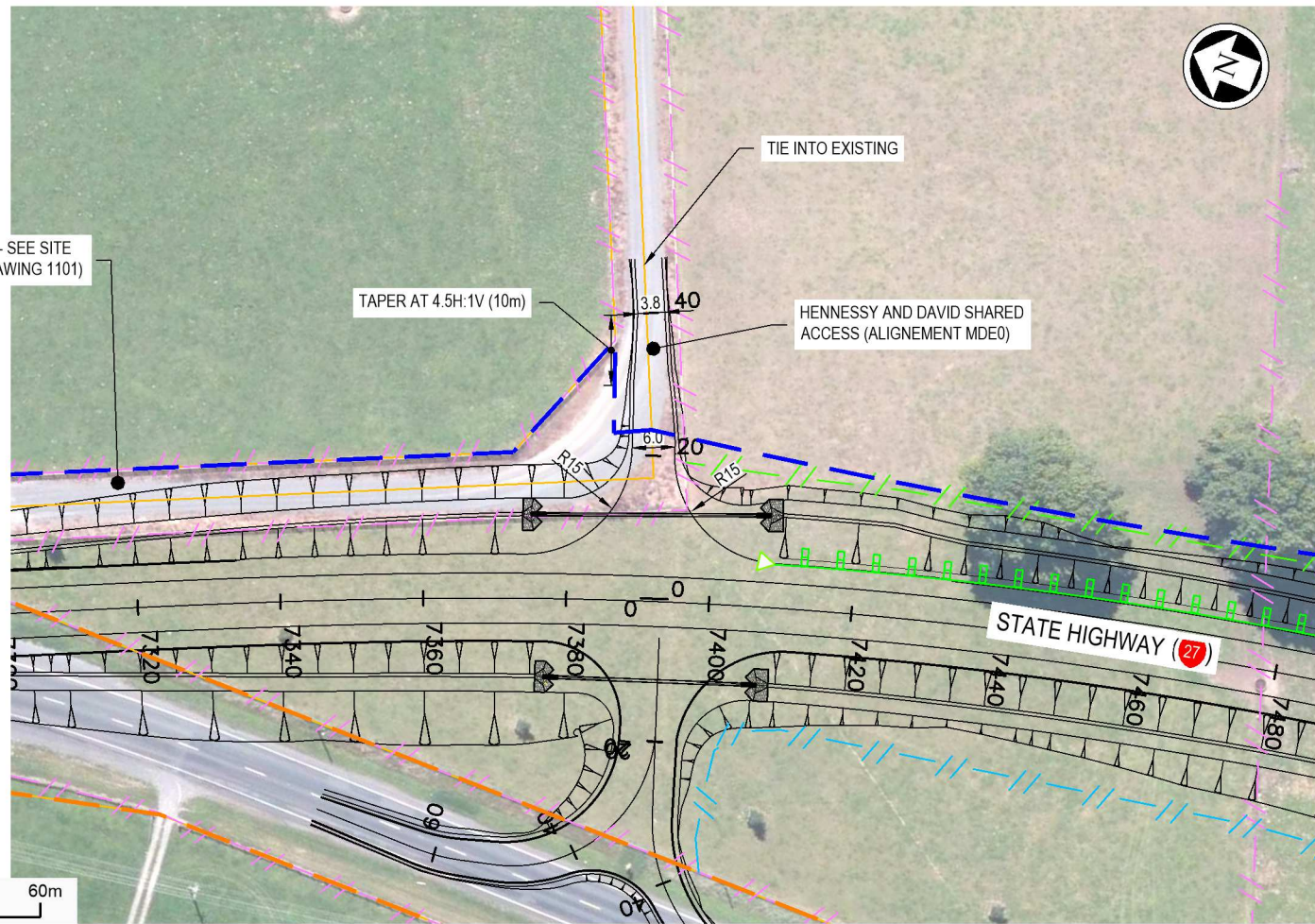


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: GENERAL ARRANGEMENT AND LONGSECTIONS KNEEBONE ACCESS

Status	TENDER
Drawing No.	SR2011 - 00 - CE - 1253
Rev.	0

100mm
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



REMOVE PAVEMENT - SEE SITE CLEARING PLAN (DRAWING 1101)

TAPER AT 4.5H:1V (10m)

TIE INTO EXISTING

HENNESSY AND DAVID SHARED ACCESS (ALIGNMENT MDE0)

STATE HIGHWAY 27

1:1000 (A3) 0 20 40 60m

KEY: GENERAL ARRANGEMENT

- LEGAL BOUNDARY
- EXISTING FENCES
- PROPOSED DESIGN
- DESIGN CENTRELINE
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- W-SECTION BARRIER MASH TL-3
- POST & 3-RAIL FENCE
- POST & 4-RAIL FENCE
- POST & 7-WIRE FENCE
- HEADLIGHT GLARE SCREEN
- PAVEMENT REMOVAL
- PROPOSED DESIGNATION



No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

Original Scale (A3)	Design	LB	Approved For Construction*
1:1000	Drawn	AA	
	Design Verifier	MH	Date
	Design Check	MH	

* Refer to Revision 1 for Original Signature

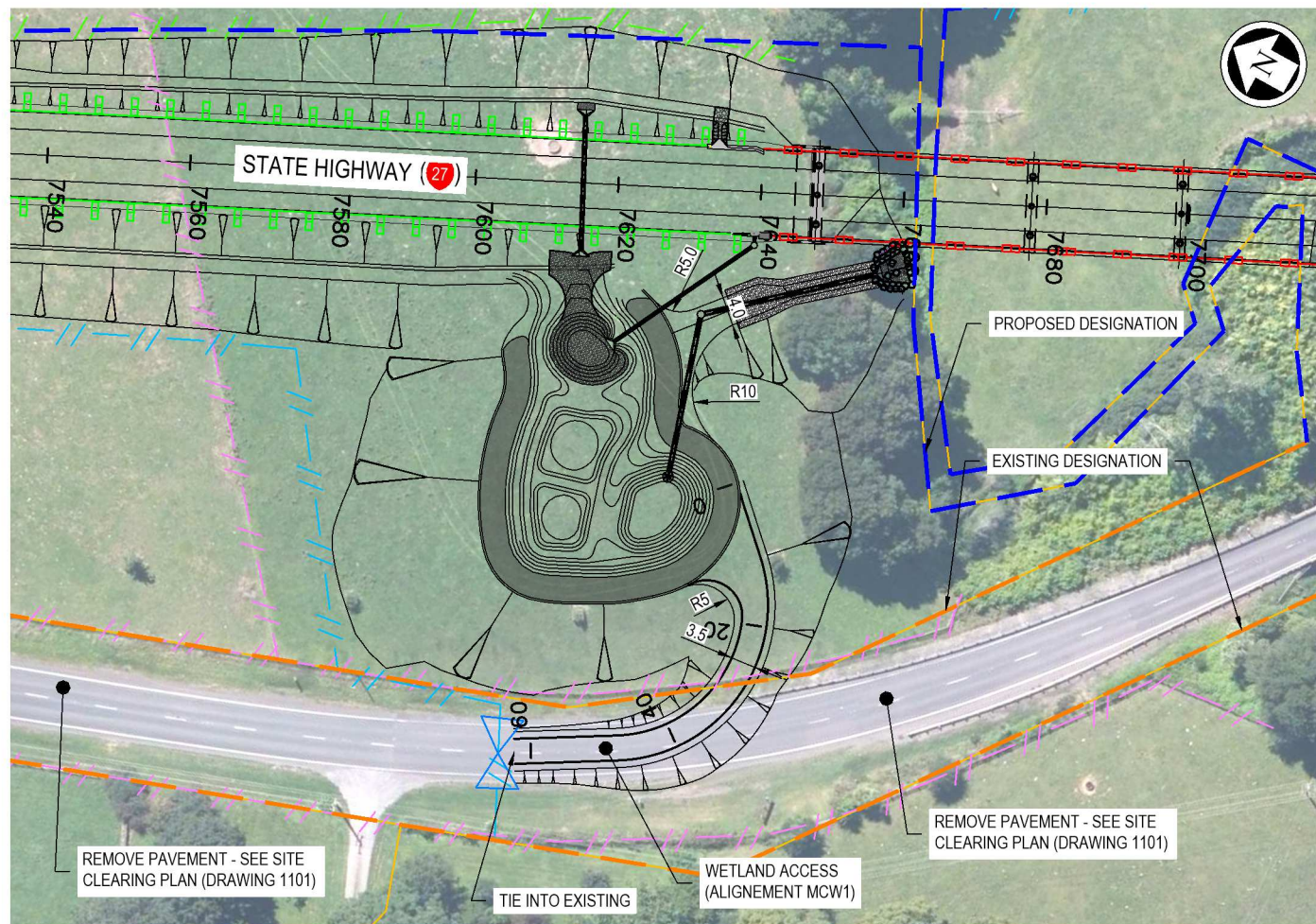


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: GENERAL ARRANGEMENT AND LONGSECTIONS HENNESSY AND DAVID ACCESS

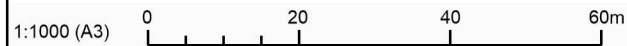
Status: **TENDER**
Drawing No: SR2011 - 00 - CE - 1254
Rev: 0

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



KEY: GENERAL ARRANGEMENT

- LEGAL BOUNDARY
- // EXISTING FENCES
- - - PROPOSED DESIGN
- DESIGN CENTRELINE
- / / / FILL BATTER
- \ \ \ CUT BATTER
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- W-SECTION BARRIER MASH TL-3
- // POST & 3-RAIL FENCE
- // POST & 4-RAIL FENCE
- // POST & 7-WIRE FENCE
- // HEADLIGHT GLARE SCREEN
- PAVEMENT REMOVAL
- PROPOSED DESIGNATION



0	ISSUED FOR TENDER	LB	MH	JS	21.09.20
No.	Revision	By	Chk	Appd	Date

Original Scale (A3)	1:1000	Design	LB	Approved For Construction*
Drawn	AA	Design Verifier	MH	Date
* Refer to Revision 1 for Original Signature				



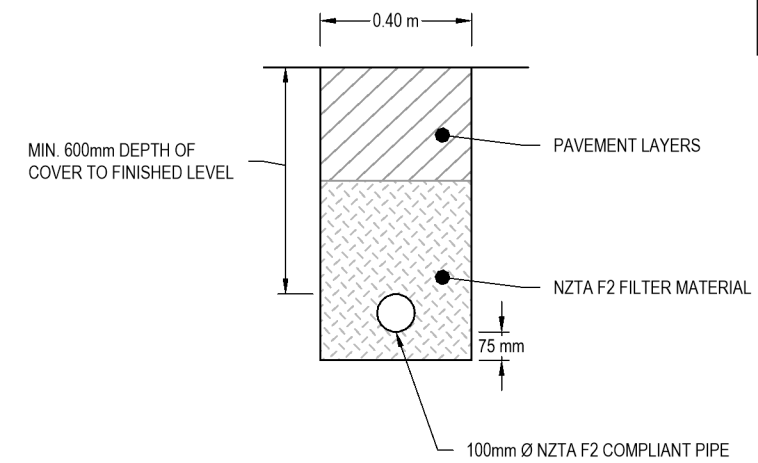
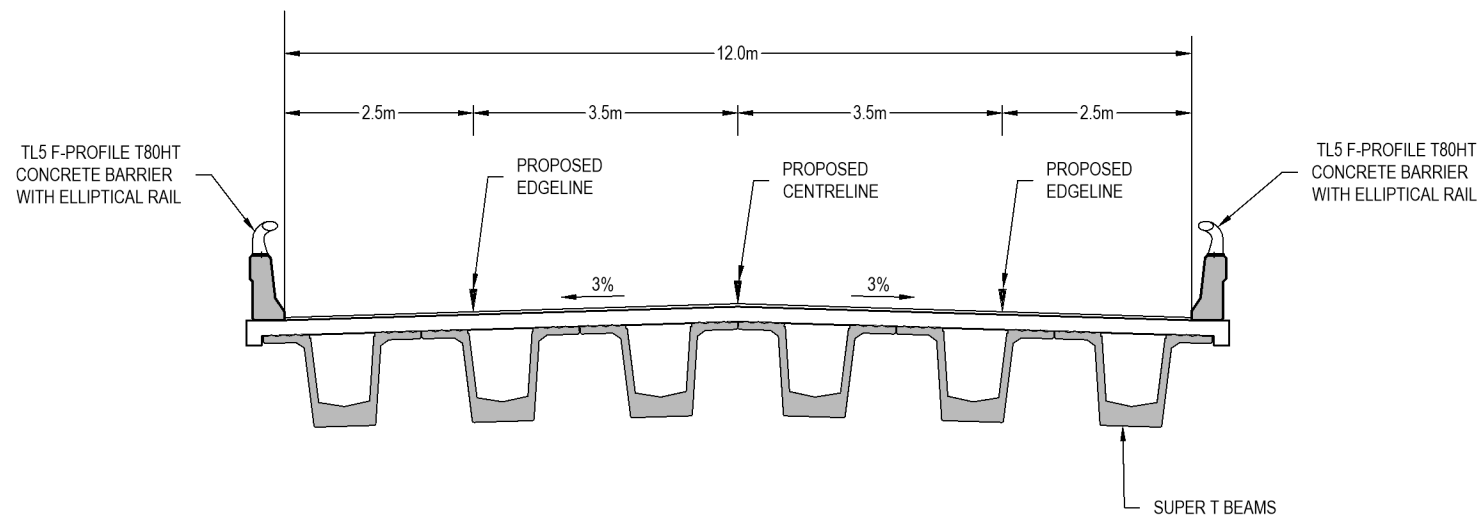
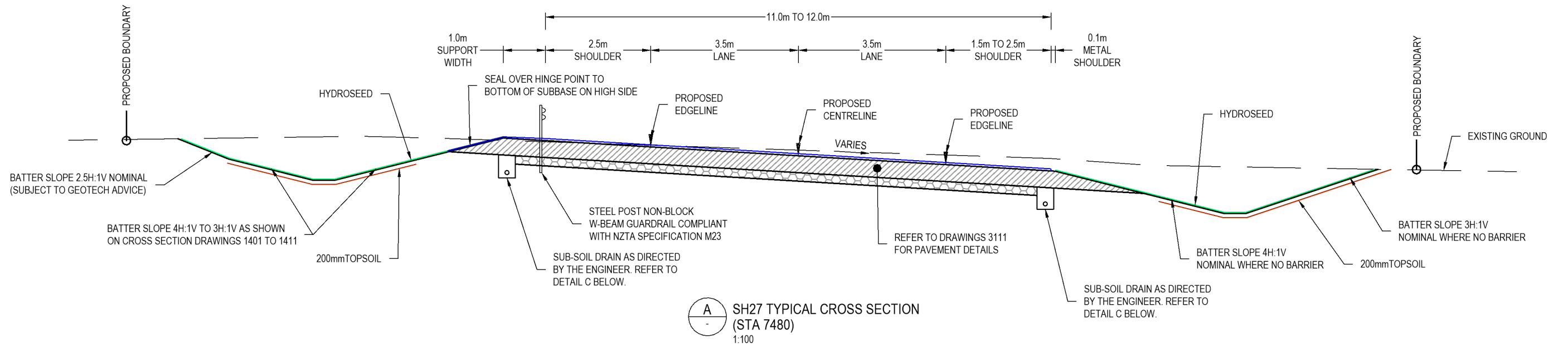
Project: SH27 MANGAWHERO STREAM BRIDGE

Title: GENERAL ARRANGEMENT AND LONGSECTIONS WETLAND ACCESS

Status	TENDER
Drawing No.	SR2011 - 00 - CE - 1255
Rev.	0



100mm
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



NOTES
1. REFER TO CROSS SECTION DRAWINGS 1401 TO 1411 FOR SHOULDER WIDTHS.

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

Original Scale (A3):	1:100
Design	LB
Drawn	AA
Dwg Verifier	
Dwg Check	MH
* Refer to Revision 1 for Original Signature	
Approved For Construction*	
Date	



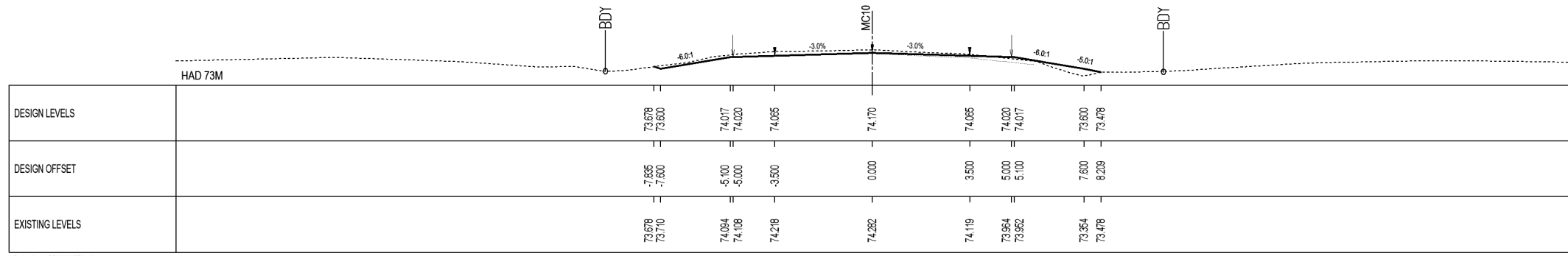
Project: SH27 MANGAWHERO STREAM BRIDGE

Title: TYPICAL SECTIONS

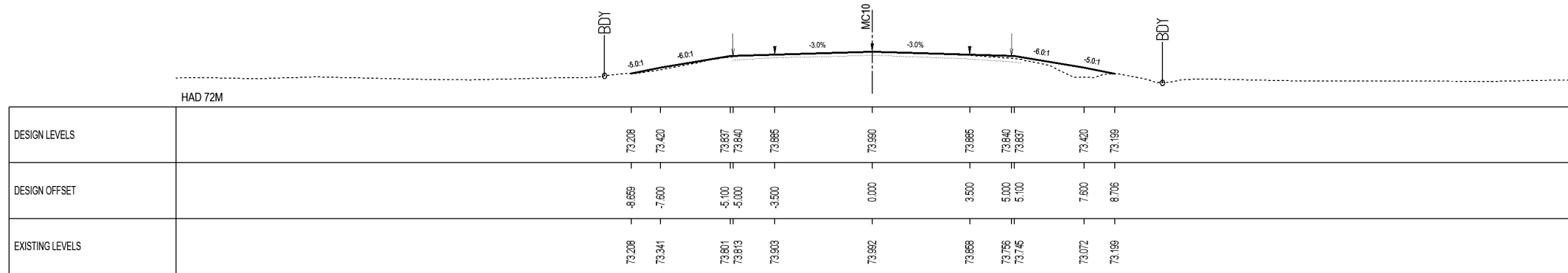
Status: **TENDER**
Drawing No: SR2011 - 00 - CE - 1301
Rev: 0

100mm
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

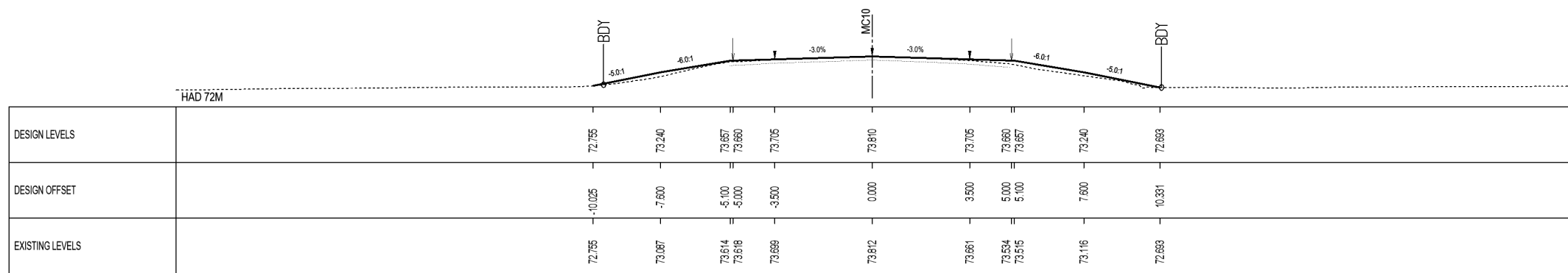
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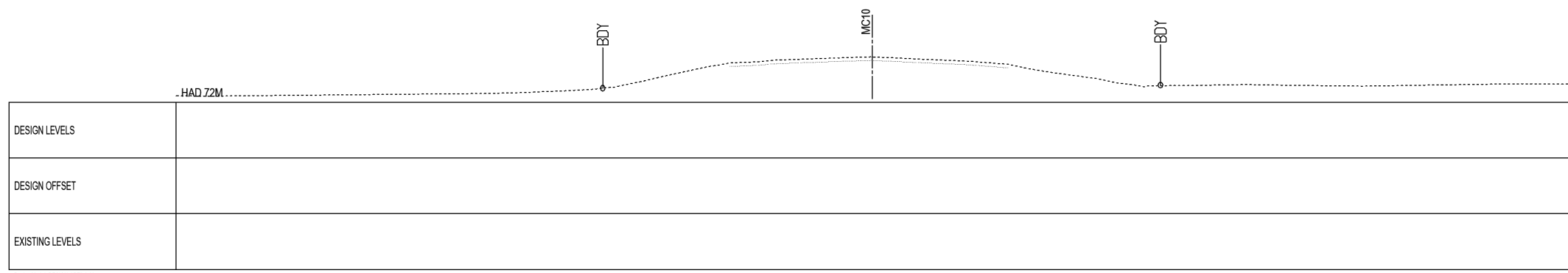
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Sta. 7180.0



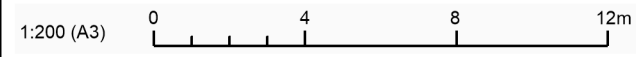
Sta. 7160.0



Sta. 7140.0

KEY:

— CENTRELINE	— MC10	— PROPOSED EDGELINE	↑
- - - EXISTING GROUND	- - - EXISTING BOUNDARY	- - - EXISTING PAVEMENT	○ BDY
— PROPOSED GROUND	— PROPOSED BOUNDARY	—	← 0 BDY



Original Scale (A3): 1:200	Design: LB	Approved For Construction: [Signature]
Drawn: AA	Checked: MH	Date: [Date]
Design Verifier: MH	* Refer to Revision 1 for Original Signature	
No. 0	Revision	By: LB, MH, JS
		Chk: []
		Appd: []
		Date: 21.09.20

Design: LB	Approved For Construction: [Signature]
Drawn: AA	Date: [Date]
Checked: MH	* Refer to Revision 1 for Original Signature



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: CROSS SECTION PLAN SHEET 1

Status: **TENDER**

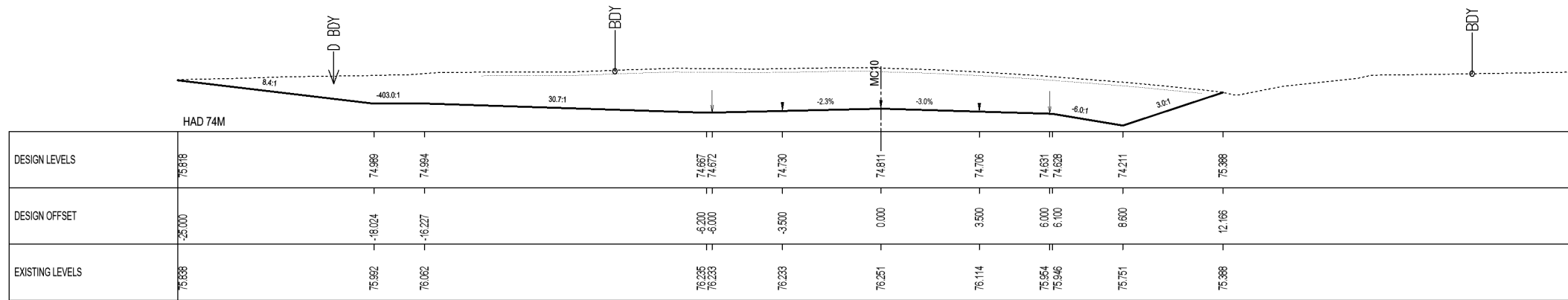
Drawing No: SR2011-00-CE-1401

Rev: 0

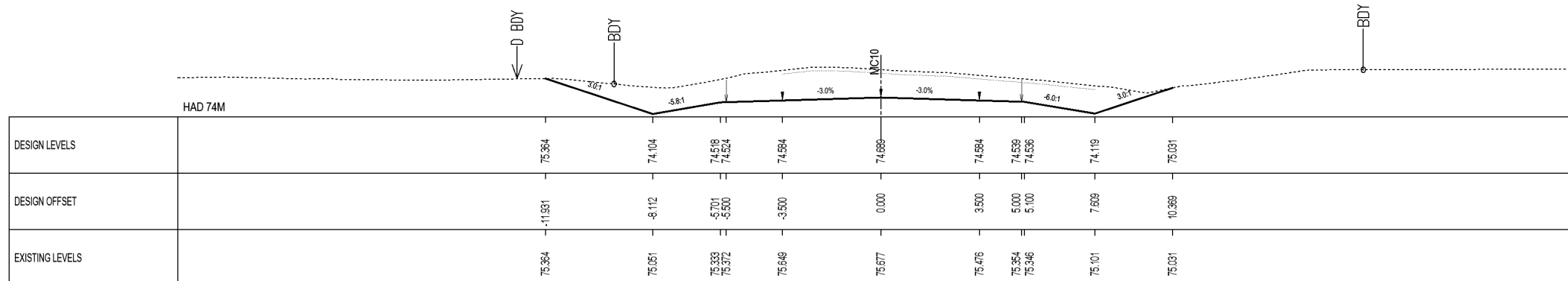


100mm
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

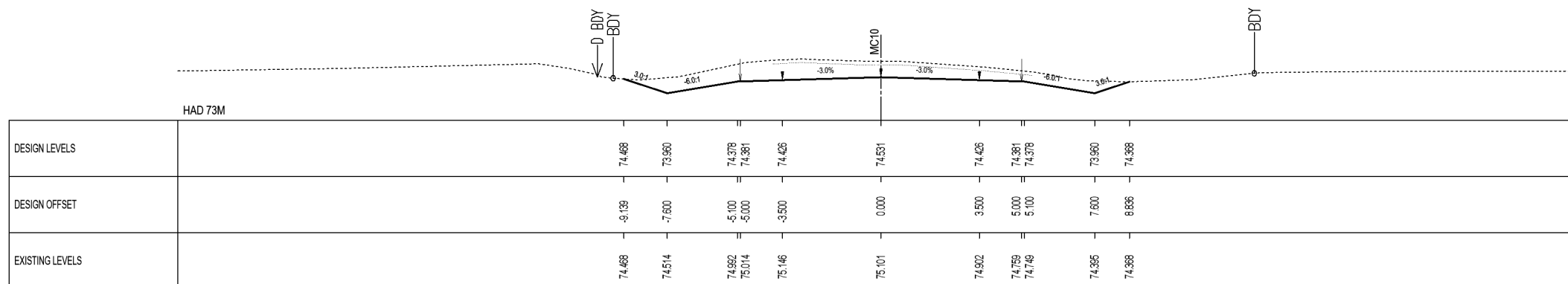
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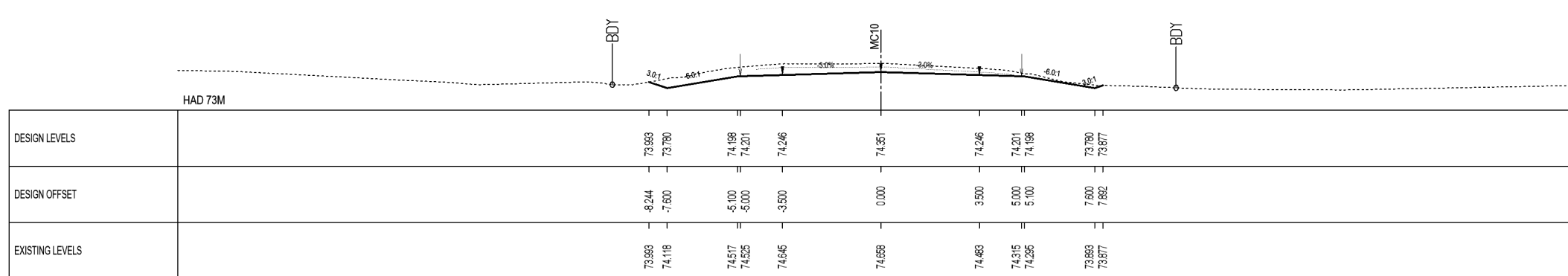
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Sta. 7260.0



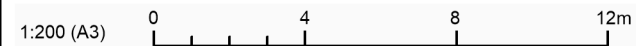
Sta. 7240.0



Sta. 7220.0

KEY:

- CENTRELINE
- EXISTING GROUND
- EXISTING PAVEMENT
- PROPOSED GROUND
- MC10
- PROPOSED EDGELINE
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- BDY
- D BDY



Original Scale (A3): 1:200	Design: LB	Drawn: AA	Approved For Construction: [Signature]
0 ISSUED FOR TENDER	LB	MH	JS
No. Revision	By	Chk	Appd
			Date

Design: LB	Drawn: AA	Approved For Construction: [Signature]
Dig Verifier: MH	Dag Check: MH	Date:



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: CROSS SECTION PLAN SHEET 2

Status: **TENDER**

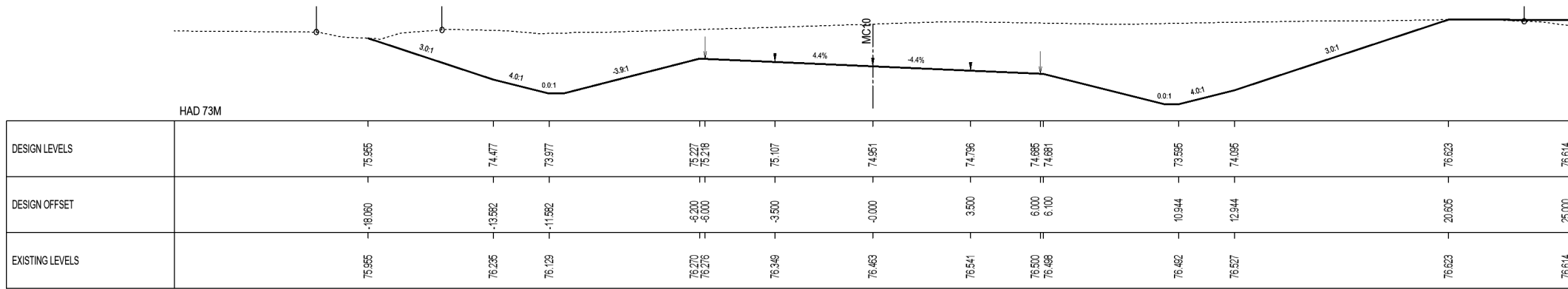
Drawing No: SR2011-00-CE-1402

Rev: 0

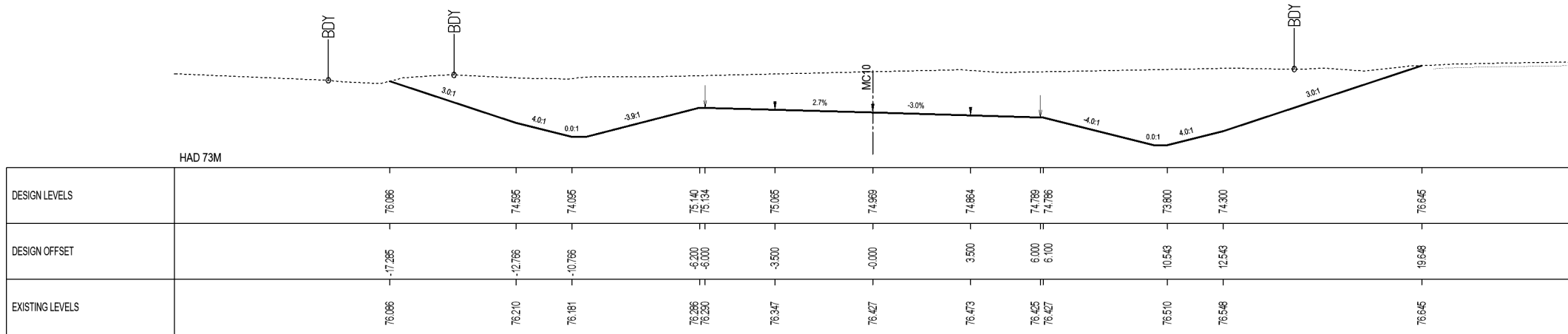


100mm
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

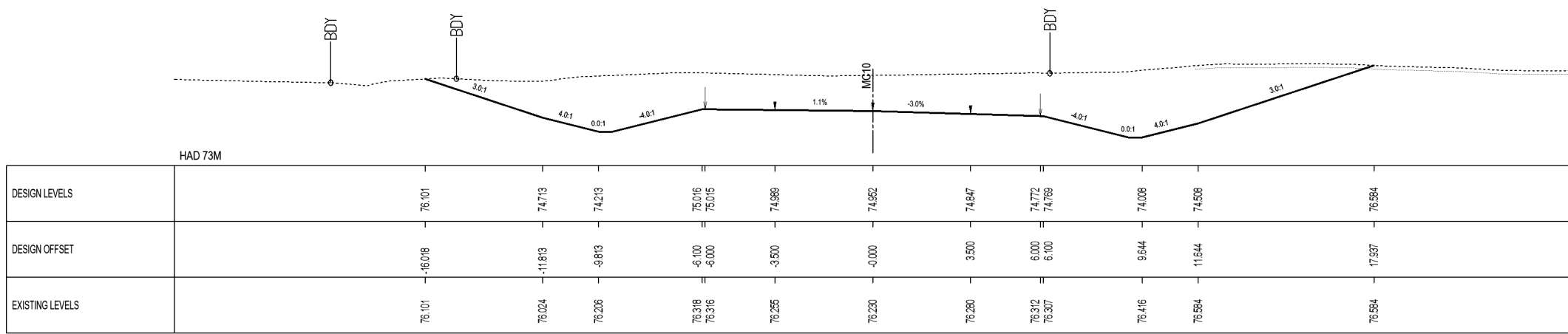
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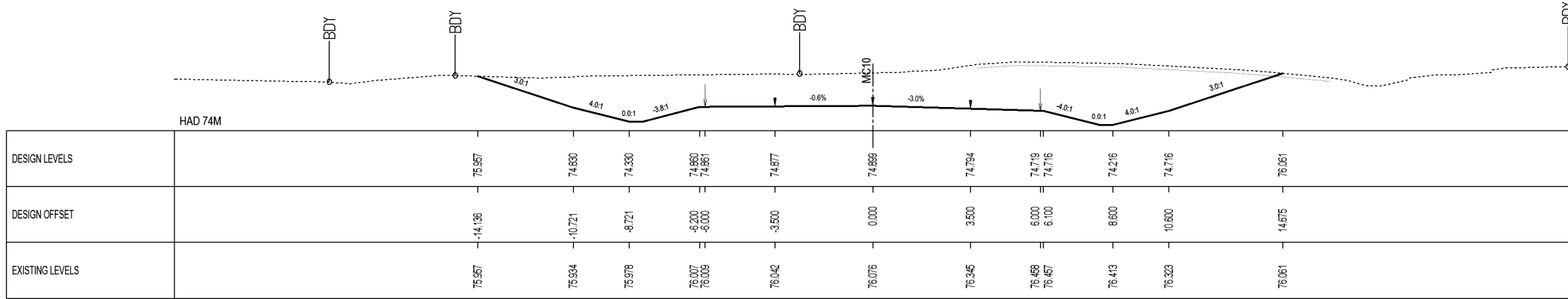
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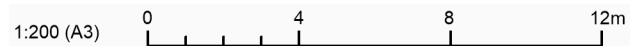
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Sta. 7300.0

KEY:

- CENTRELINE
- EXISTING GROUND
- EXISTING PAVEMENT
- PROPOSED GROUND
- MC10
- PROPOSED EDGELINE
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- BDY
- BDY



0	ISSUED FOR TENDER	LB	MH	JS	21.09.20
No	Revision	By	Chk	Appd	Date

Original Scale (A3): 1:200	Design: LB	Approved For Construction*
	Drawn: AA	Date
	Dig Verifier:	
	Dag Check: MH	
* Refer to Revision 1 for Original Signature		



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: CROSS SECTION PLAN SHEET 3

Status: **TENDER**

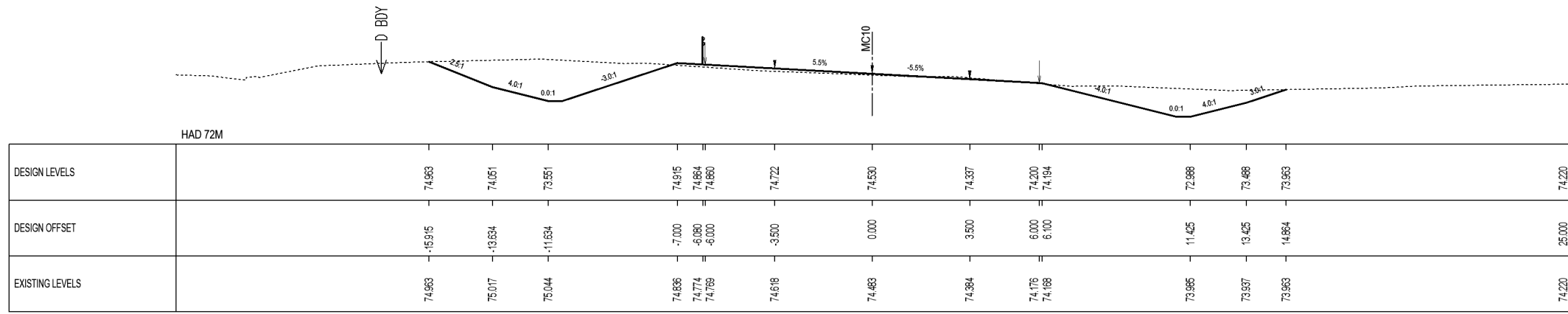
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Rev: 0

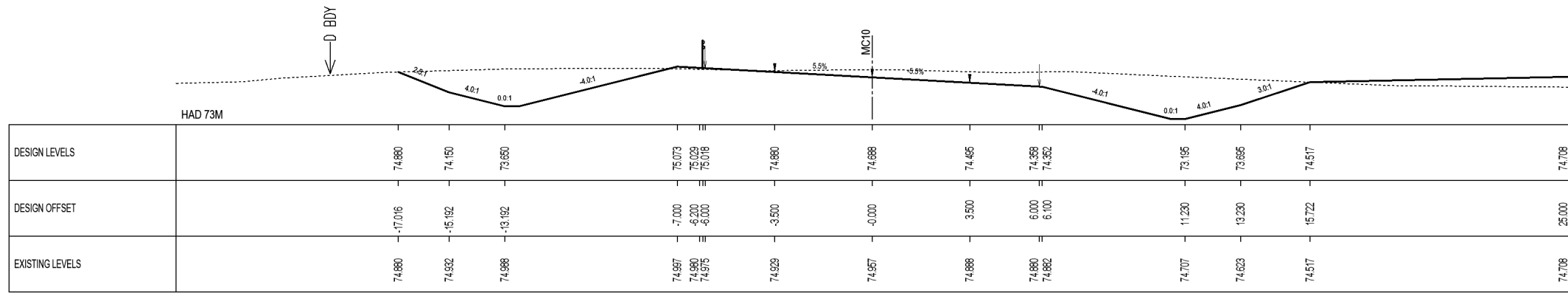


SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

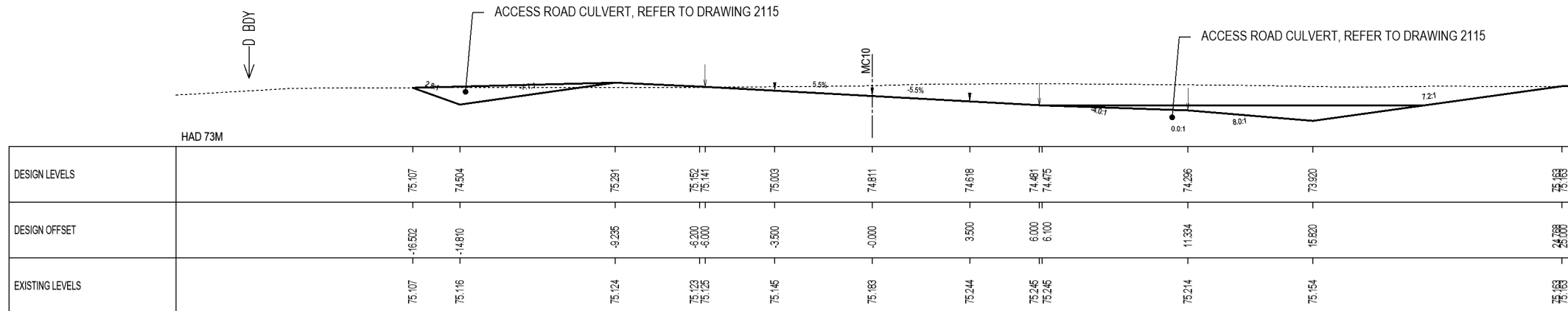
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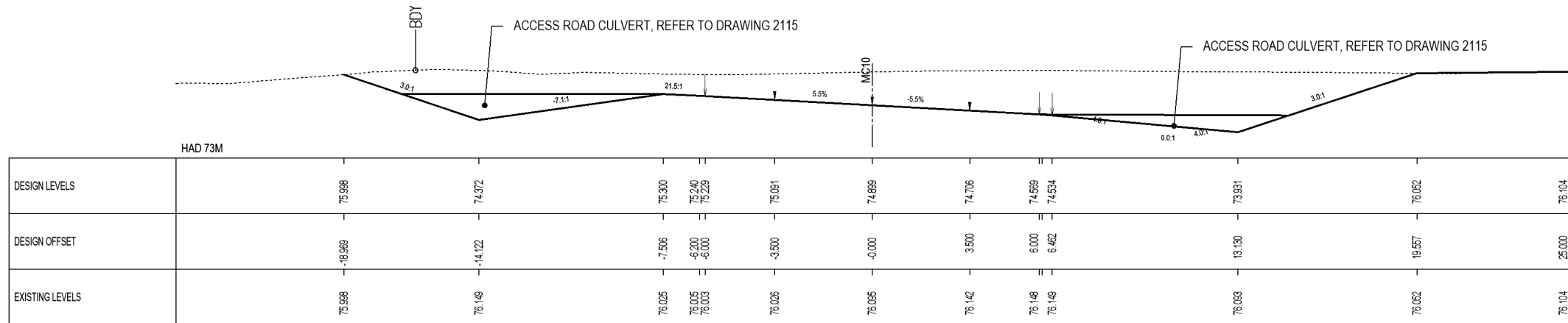
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Sta. 7420.0



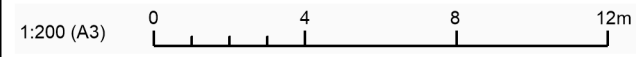
Sta. 7400.0



Sta. 7380.0

KEY:

- CENTRELINE
- EXISTING GROUND
- EXISTING PAVEMENT
- PROPOSED GROUND
- MC10
- PROPOSED EDGELINE
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- BOY
- D BOY



0	ISSUED FOR TENDER	LB	MH	JS	21.09.20
No.	Revision	By	Chk	Appd	Date

Original Scale (A3): 1:200	Design: LB	Approved For Construction*
Drawn: AA	Checked: MH	Date:
* Refer to Revision 1 for Original Signature		



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: CROSS SECTION PLAN SHEET 4

Status: **TENDER**

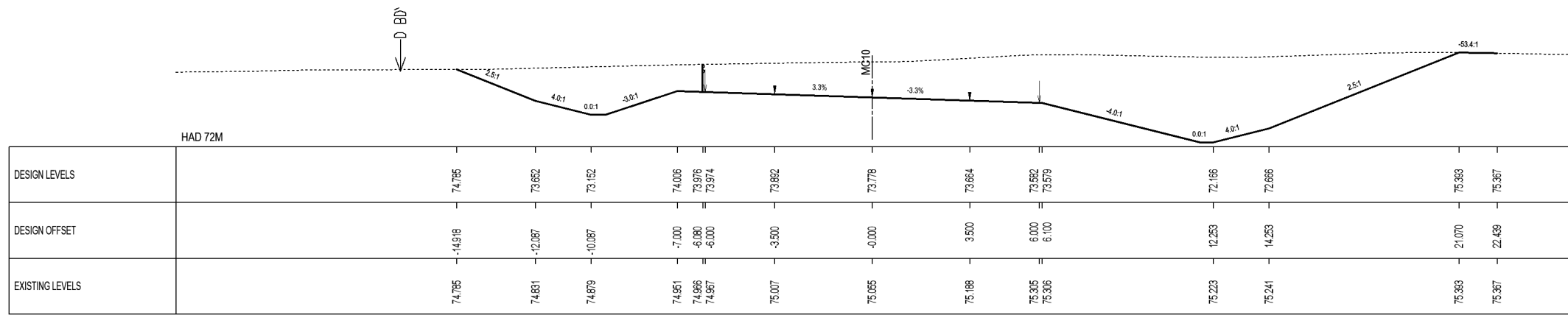
Drawing No: SR2011-00-CE-1404 Rev: 0

Document No. S:\Waka Kotahi Bay of Plenty\SH27 - Mangawhero Stream Bridge\00 Drawings\SR2011-00-CE-1404.dwg

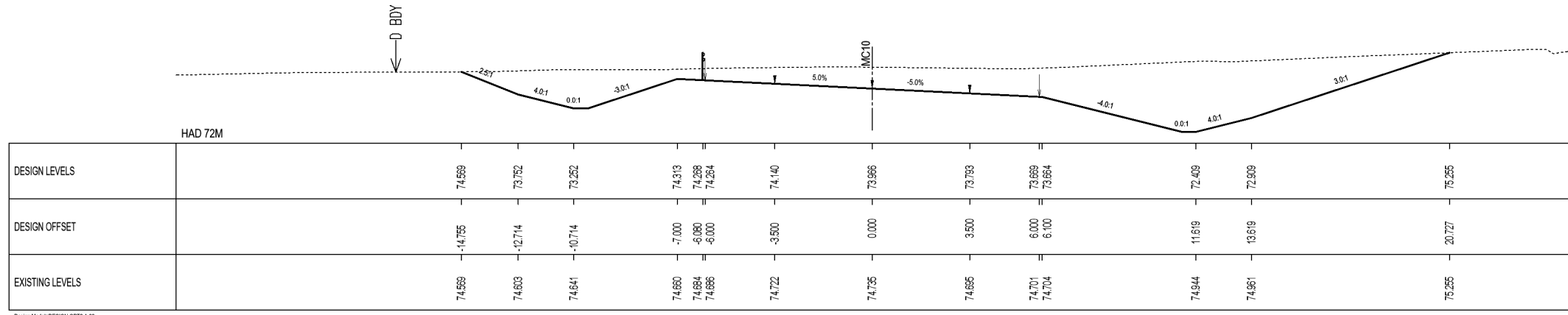
IF IN DOUBT ASK

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

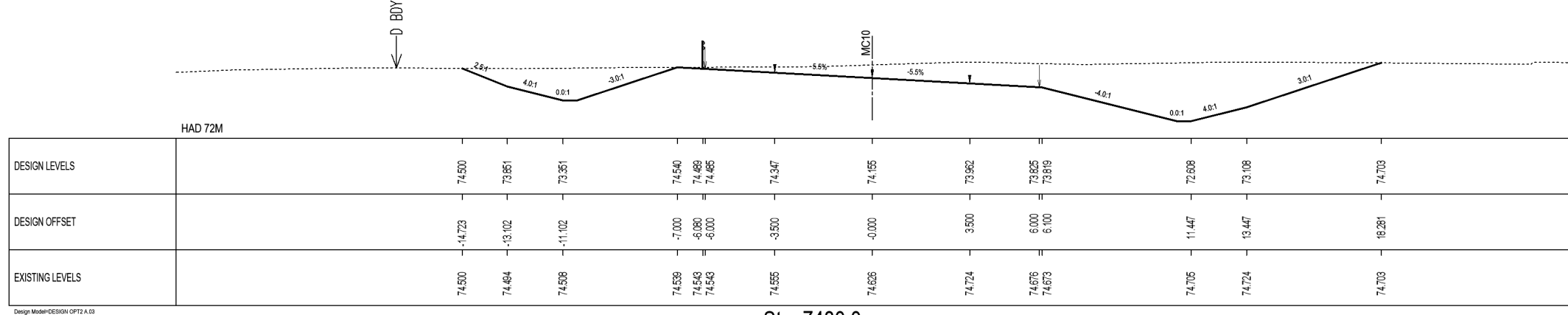
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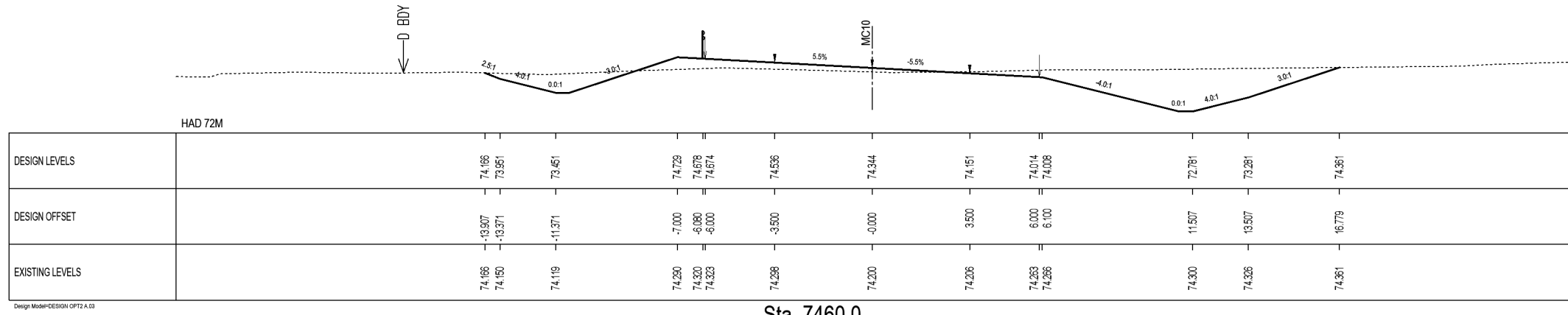
Sta. 7520.0



Sta. 7500.0



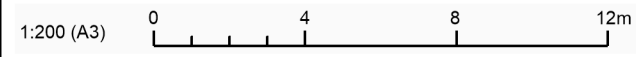
Sta. 7480.0



Sta. 7460.0

KEY:

—	CENTRELINE	—	PROPOSED EDGELINE
---	EXISTING GROUND	---	EXISTING BOUNDARY
---	EXISTING PAVEMENT	---	PROPOSED BOUNDARY
---	PROPOSED GROUND	MC10	↑
			← D BDY



No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

Original Scale (A3):	1:200	Design:	LB	Approved For Construction:
Drawn:	AA	Drawn:	AA	Date:
Dig Verifier:		Dig Check:	MH	



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: CROSS SECTION PLAN SHEET 5

Status: **TENDER**

Drawing No: SR2011-00-CE-1405

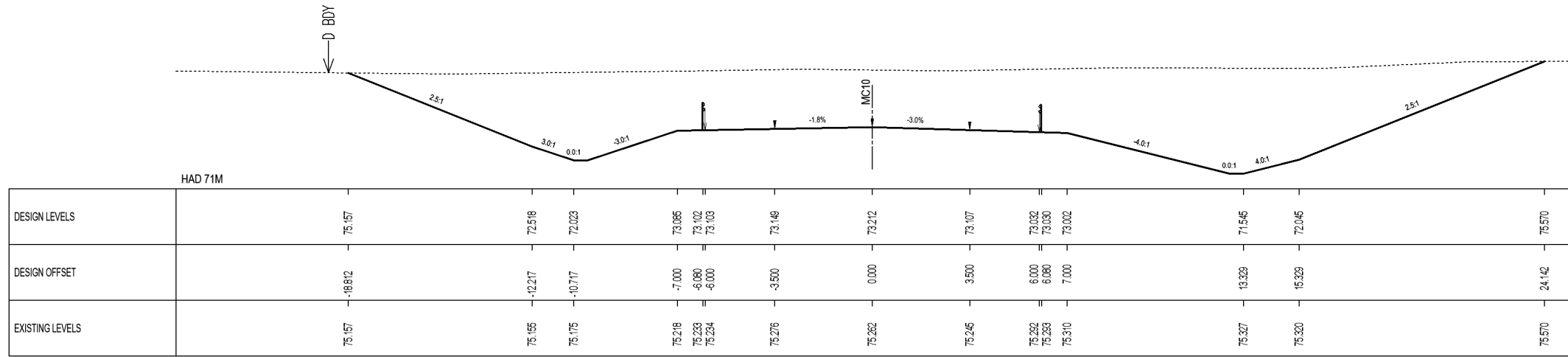
Rev: 0



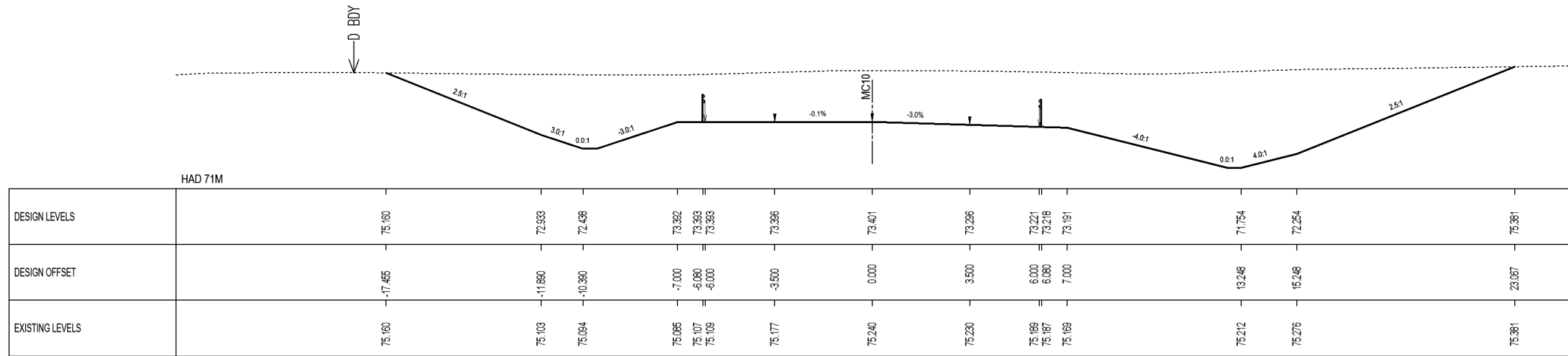
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

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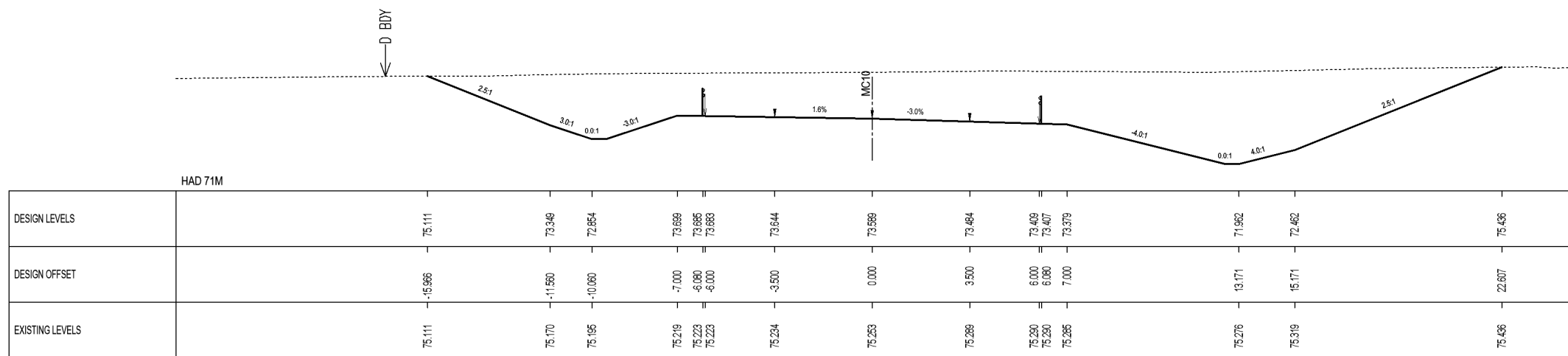
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Sta. 7580.0



Sta. 7560.0



Sta. 7540.0

KEY:

—	CENTRELINE	—	PROPOSED EDGELINE
.....	EXISTING GROUND	EXISTING BOUNDARY
.....	EXISTING PAVEMENT	.....	PROPOSED BOUNDARY
.....	PROPOSED GROUND	.....	↑
			←

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

Original Scale (A3):	1:200	Design:	LB	Approved For Construction:	
		Drawn:	AA	Date:	
		Dwg Check:	MH		



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: CROSS SECTION PLAN SHEET 6

Status: **TENDER**

Drawing No: SR2011-00-CE-1406

Rev: 0

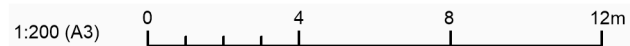
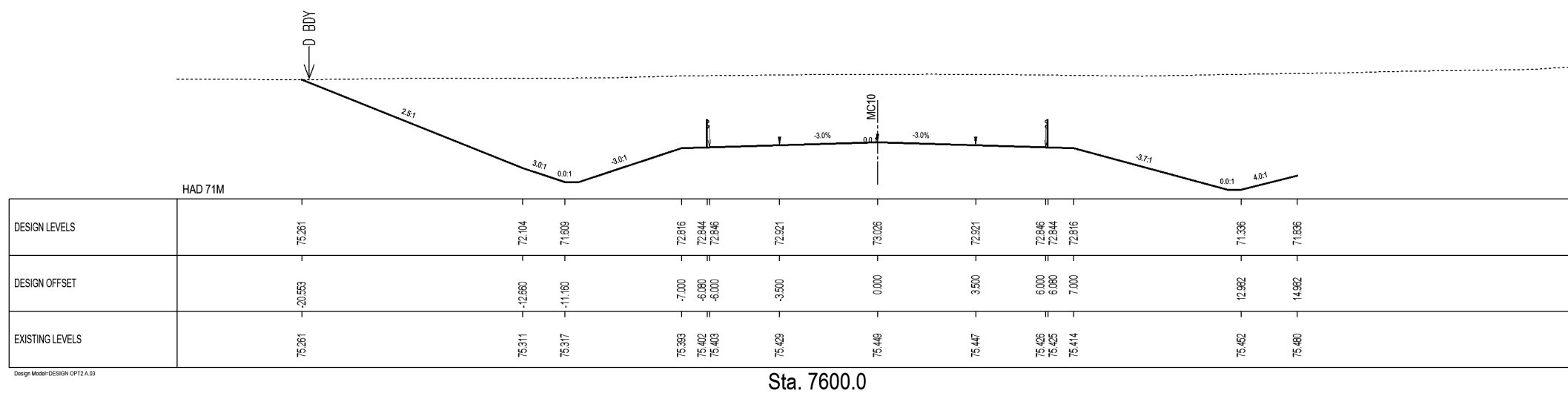
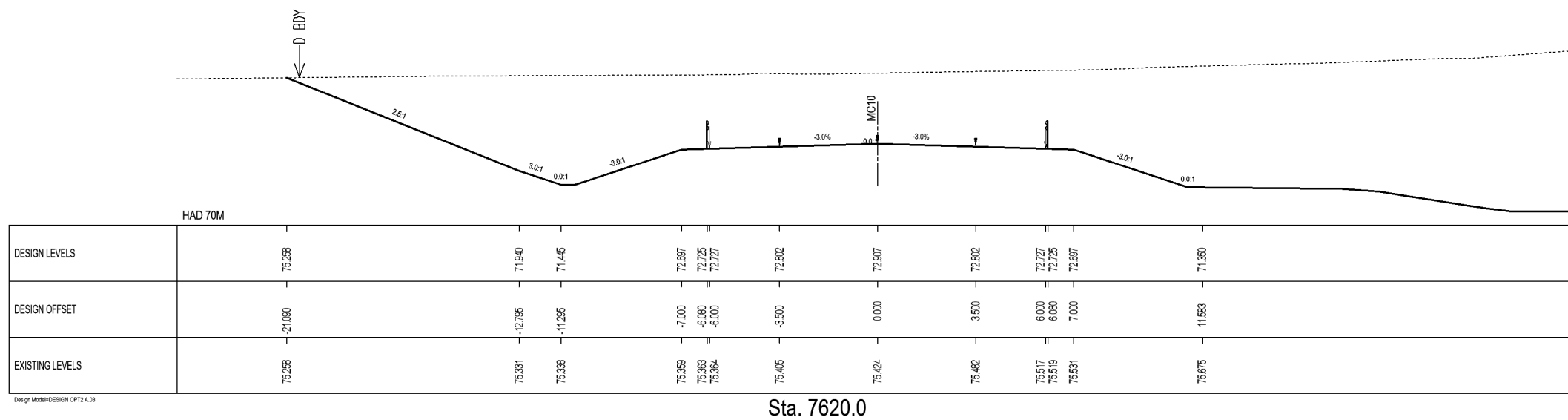
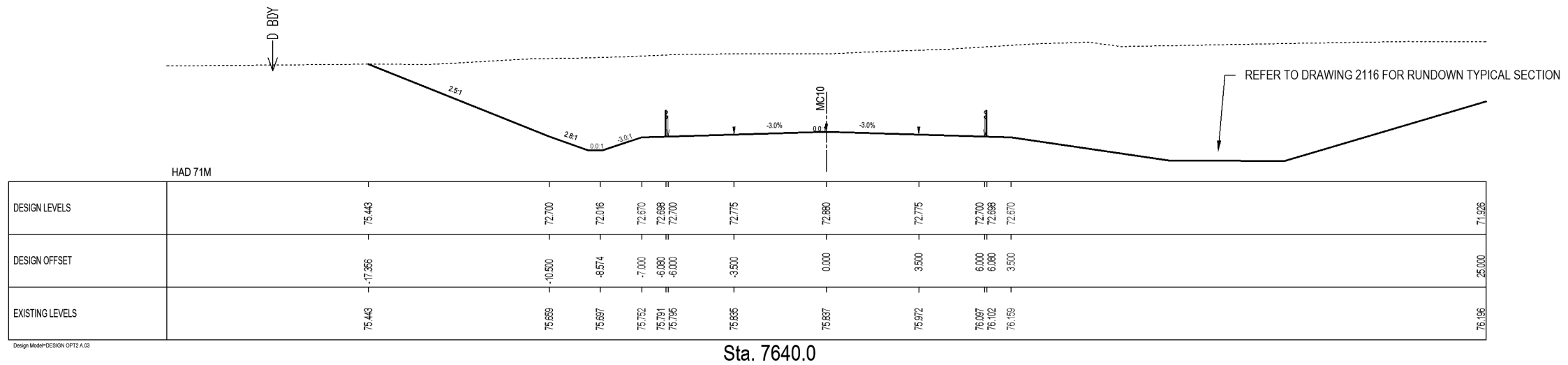
DO NOT SCALE

IF IN DOUBT ASK

Document No. S:\Waka-Bay of Plenty\SH27 - Mangawhero Stream Bridge\00 Drawings\SR2011-00-CE-1406.dwg



100mm
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



KEY:	CENTRELINE	— MC10	PROPOSED EDGELINE	↑
	EXISTING GROUND	.....	EXISTING BOUNDARY	○ BDY
	EXISTING PAVEMENT	.....	PROPOSED BOUNDARY	← D BDY
	PROPOSED GROUND	.....	

0	ISSUED FOR TENDER	LB	MH	JS	21.09.20
No	Revision	By	Chk	Appd	Date

Original Scale (A3): 1:200	Design: LB	Approved For Construction:
	Drawn: AA	Date:
	Dwg Check: MH	
* Refer to Revision 1 for Original Signature		



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: CROSS SECTION PLAN SHEET 7

Status: **TENDER**

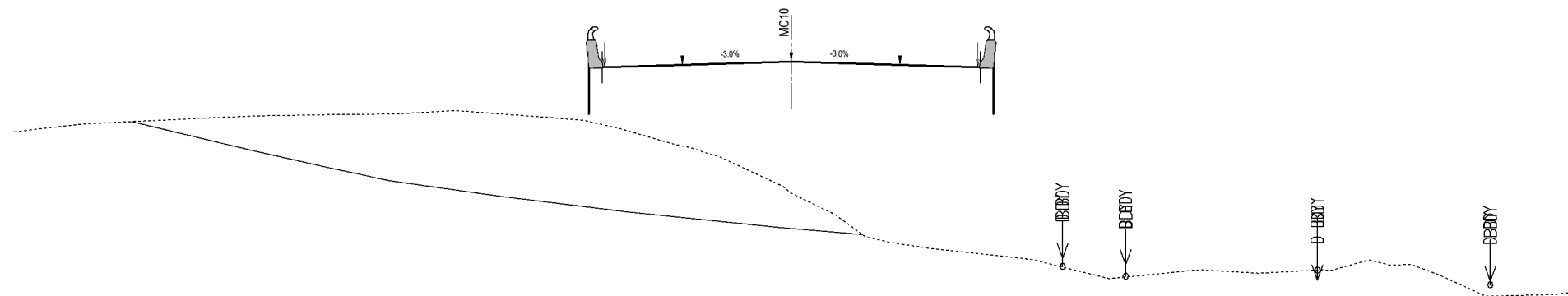
Drawing No: SR2011-00-CE-1407

Rev: 0



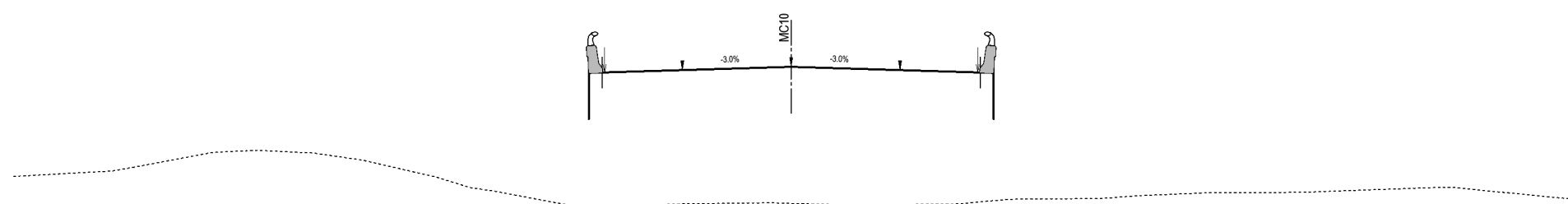
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SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

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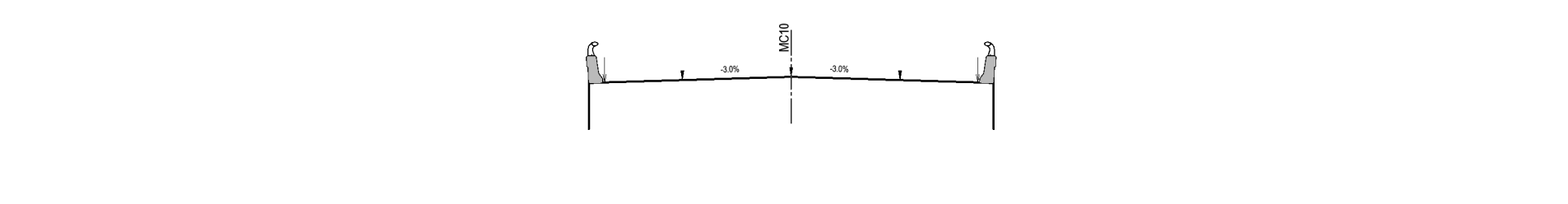
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DESIGN OFFSET		-6.080	-6.000	-3.500	0.000	3.500	6.000	6.080
EXISTING LEVELS		71.308	71.230	70.620	69.101	67.467	67.157	67.146

Sta. 7700.0



HAD 67M								
DESIGN LEVELS		72.922	72.924	72.999	73.104	72.999	72.924	72.922
DESIGN OFFSET		-6.080	-6.000	-3.500	0.000	3.500	6.000	6.080
EXISTING LEVELS		66.636	66.636	66.700	66.712	66.672	66.755	66.752

Sta. 7680.0

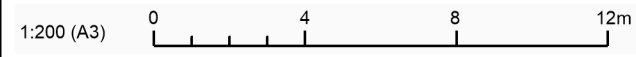


HAD 66M								
DESIGN LEVELS		72.754	72.756	72.841	72.946	72.841	72.756	72.754
DESIGN OFFSET		-6.080	-6.000	-3.500	0.000	3.500	6.000	6.080
EXISTING LEVELS		66.601	66.598	66.229	66.539	67.004	67.317	67.316

Sta. 7660.0

KEY:

CENTRELINE	— MC10	PROPOSED EDGELINE	—
EXISTING GROUND	.....	EXISTING BOUNDARY	○ BDY
EXISTING PAVEMENT	—	PROPOSED BOUNDARY	◁ BDY
PROPOSED GROUND	—		



Original Scale (A3): 1:200	Design: LB	Approved For Construction: []
Drawn: AA	Design Checker: MH	Date: []
Dwg Verifier: []	By: LB	Chk: MH
Date: 21.09.20	Appd: JS	

Design: LB	Approved For Construction: []
Drawn: AA	Date: []
Dwg Verifier: []	
Date: 21.09.20	



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: CROSS SECTION PLAN SHEET 8

Status: **TENDER**
 Drawing No: SR2011-00-CE-1408
 Rev: 0

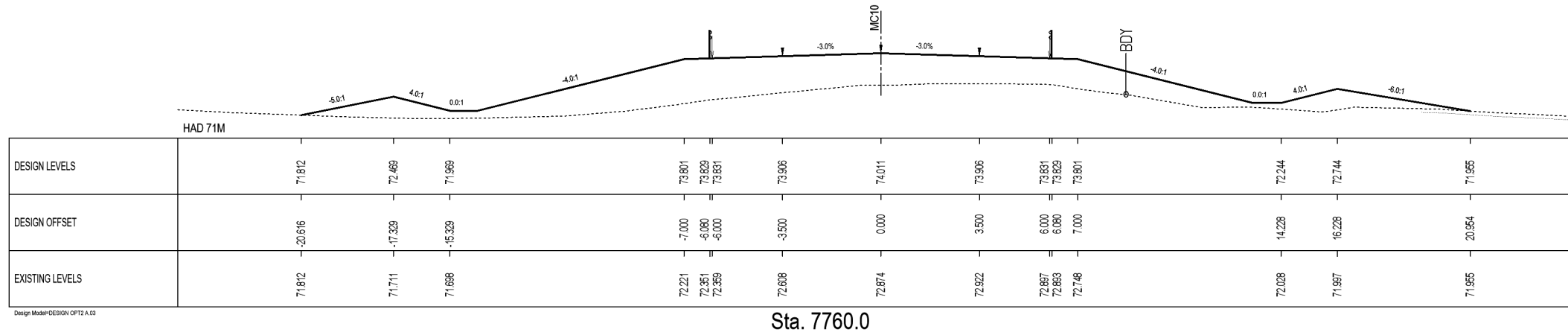


Document No. S:\Waka Kotahi Bay of Plenty\SH27 - Mangawhero Stream Bridge\00 Drawings\SR2011-00-CE-1408.dwg

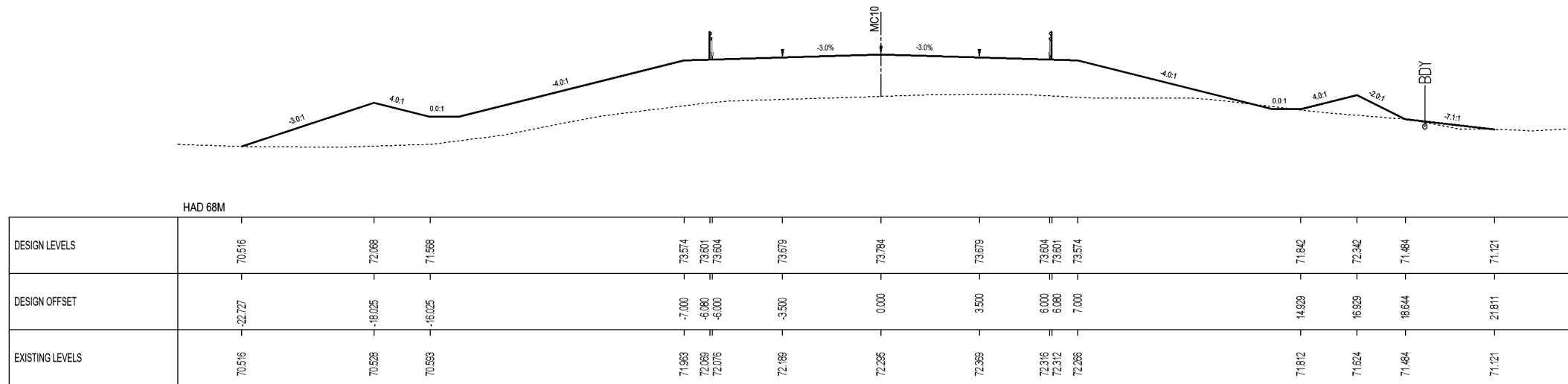
DO NOT SCALE

IF IN DOUBT ASK

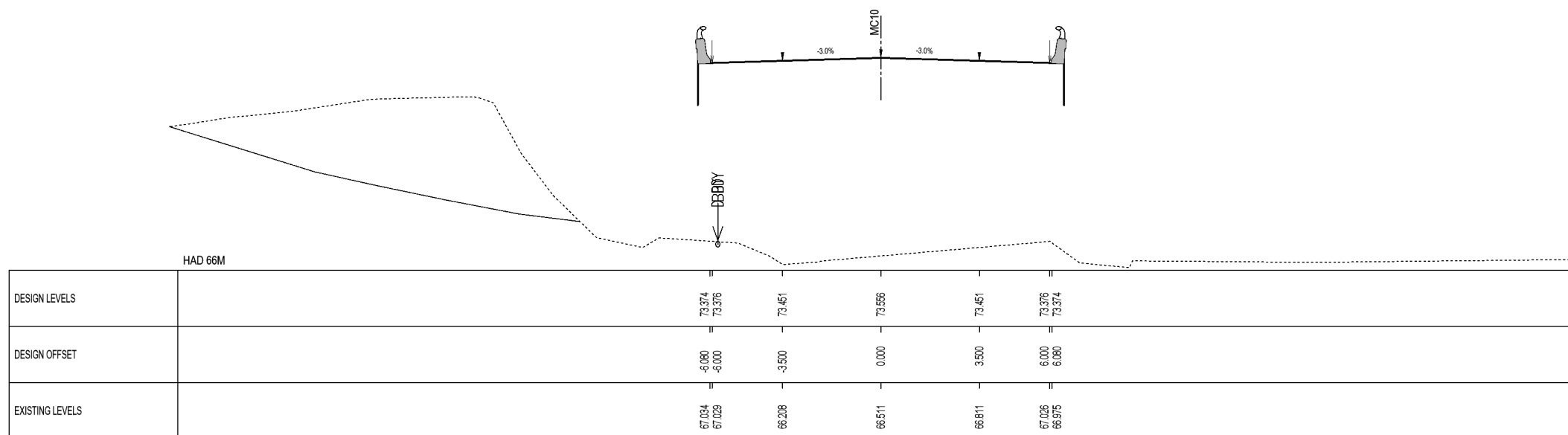
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SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



Sta. 7760.0



Sta. 7740.0

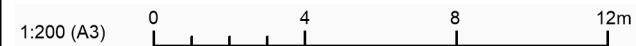


Sta. 7720.0

KEY:

- CENTRELINE
- EXISTING GROUND
- EXISTING PAVEMENT
- PROPOSED GROUND
- PROPOSED EDGELINE
- EXISTING BOUNDARY
- PROPOSED BOUNDARY

MC10
 BDY



No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

Original Scale (A3)	1:200
Design	LB
Drawn	AA
Design Check	MH
Approved For Construction	
Date	

* Refer to Revision 1 for Original Signature



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: CROSS SECTION PLAN SHEET 9

Status: **TENDER**

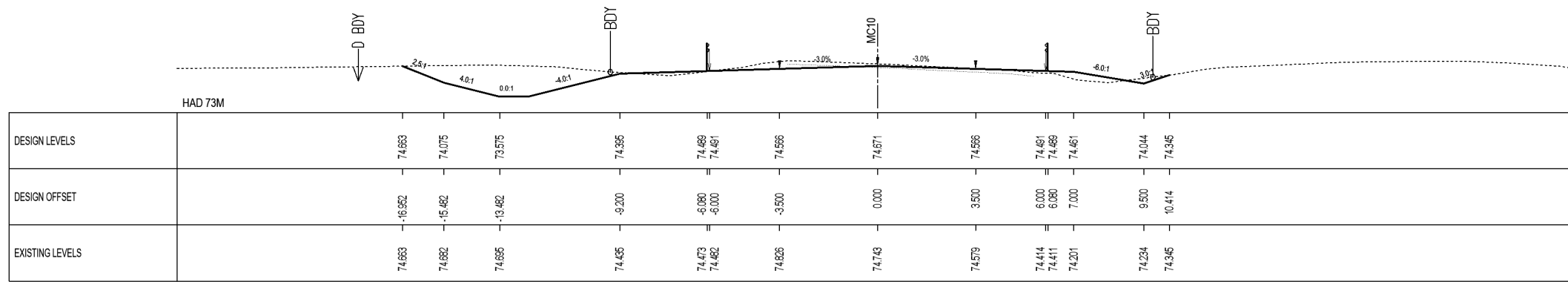
Drawing No: SR2011-00-CE-1409

Rev: 0

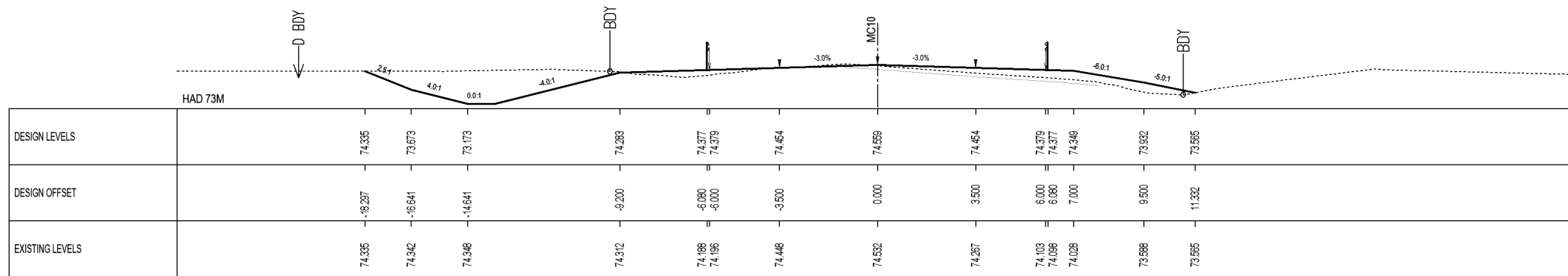
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100mm
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

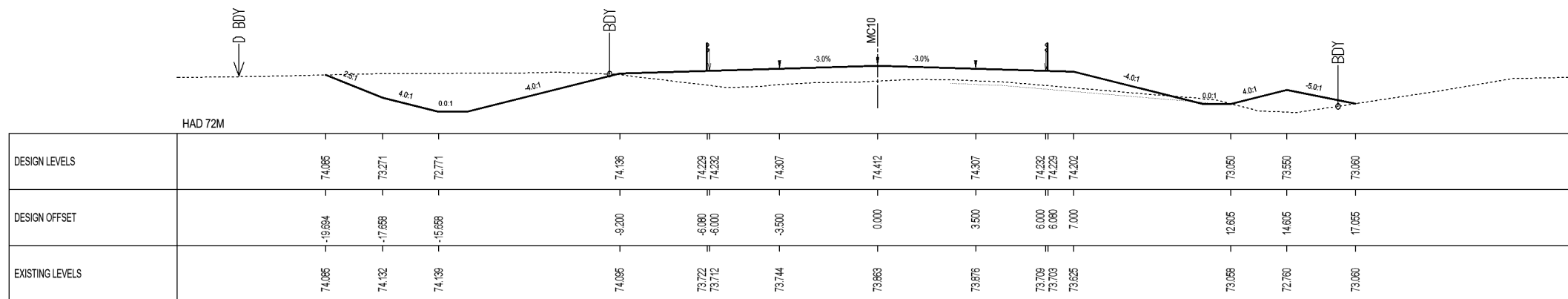
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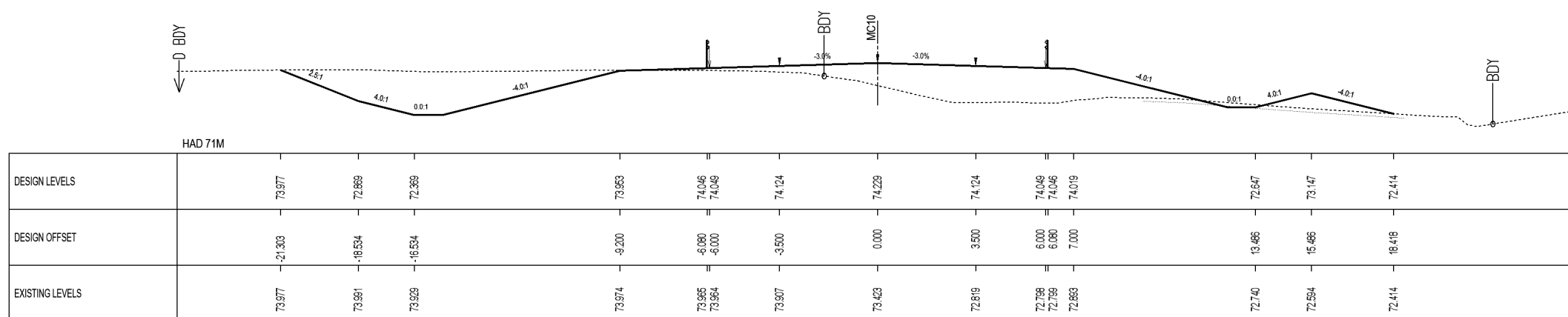
Sta. 7840.0



Sta. 7820.0



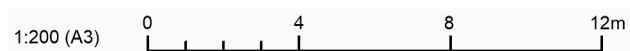
Sta. 7800.0



Sta. 7780.0

KEY:

— CENTRELINE	— MC10	— PROPOSED EDGELINE	↑
- - - EXISTING GROUND	— EXISTING BOUNDARY	- - - EXISTING PAVEMENT	○ BDY
— PROPOSED GROUND	— PROPOSED BOUNDARY		← D BDY



No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

Original Scale (A3): 1:200	Design: LB	Approved For Construction: [Signature]
	Drawn: AA	Date: [Date]
	Dig Verifier: [Signature]	
	Dag Check: MH	

* Refer to Revision 1 for Original Signature



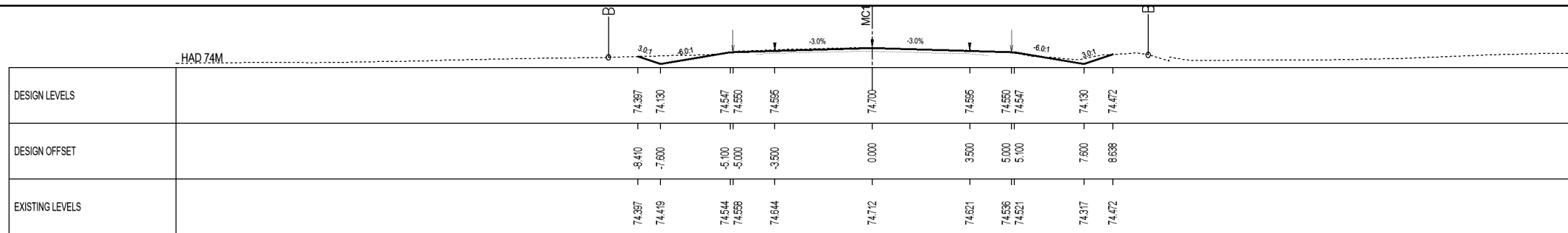
Project: SH27 MANGAWHERO STREAM BRIDGE

Title: CROSS SECTION PLAN SHEET 10

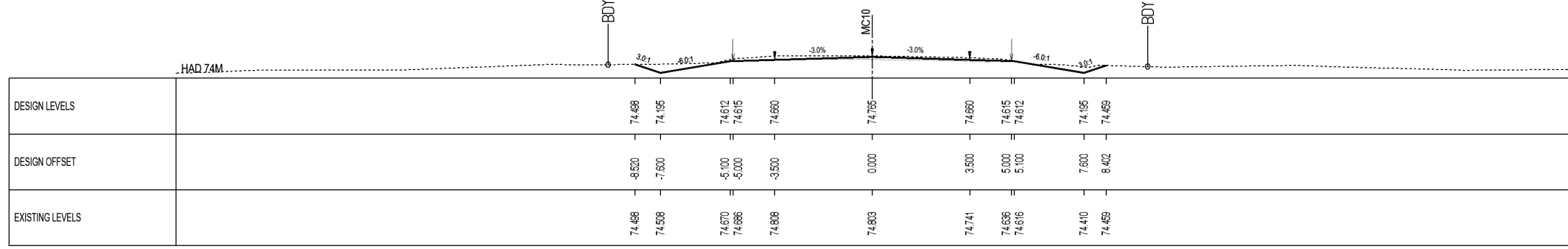
Status: TENDER	Rev: 0
Drawing No: SR2011-00-CE-1410	



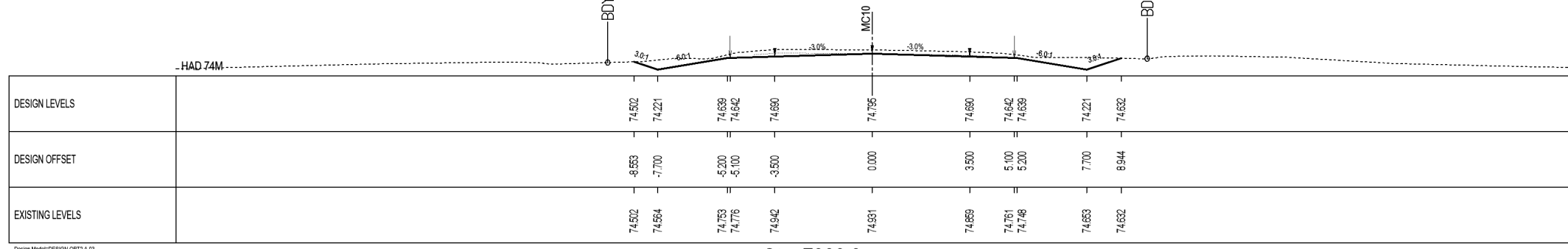
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SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



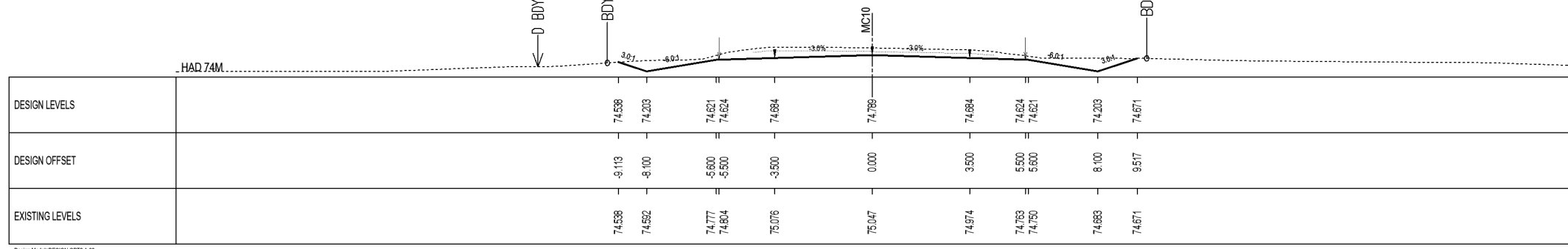
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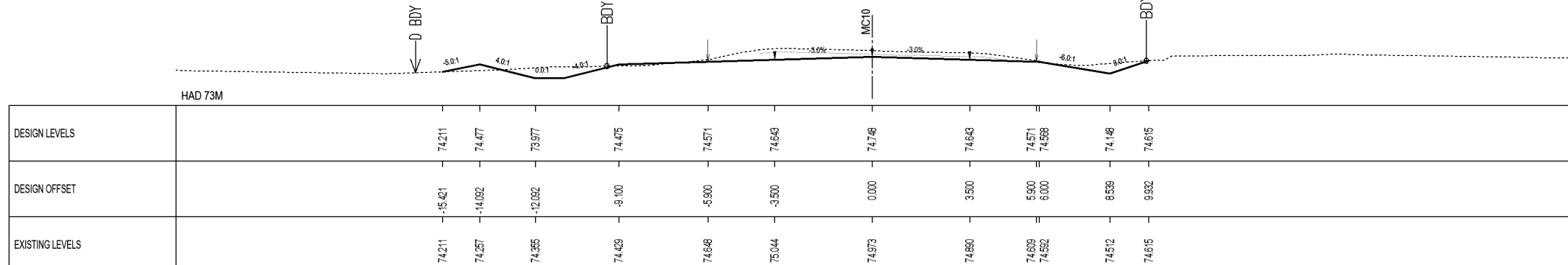
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Sta. 7900.0



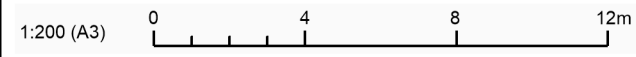
Sta. 7880.0



Sta. 7860.0

KEY:

- CENTRELINE
- EXISTING GROUND
- EXISTING PAVEMENT
- PROPOSED GROUND
- MC10
- PROPOSED EDGELINE
- EXISTING BOUNDARY
- PROPOSED BOUNDARY
- ↑ BDY
- ← D BDY



Original Scale (A3): 1:200	Design: LB	Drawn: AA	Checked: JS	Approved For Construction: JS
	Design Check: MH	Drawn: JS	Checked: JS	Approved For Construction: JS
	Design Check: MH	Drawn: JS	Checked: JS	Approved For Construction: JS
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Original Scale (A3): 1:200	Design: LB	Drawn: AA	Checked: JS	Approved For Construction: JS
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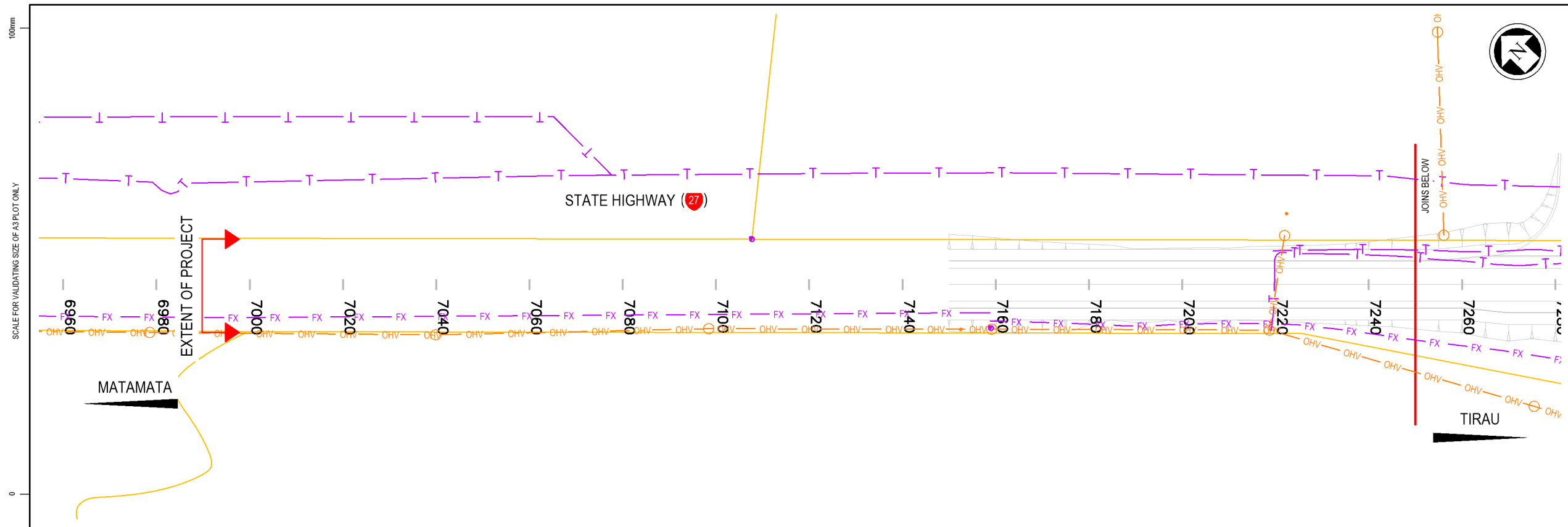


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: CROSS SECTION PLAN SHEET 11

Status: TENDER
Drawing No: SR2011-00-CE-1411
Rev: 0

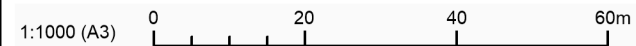
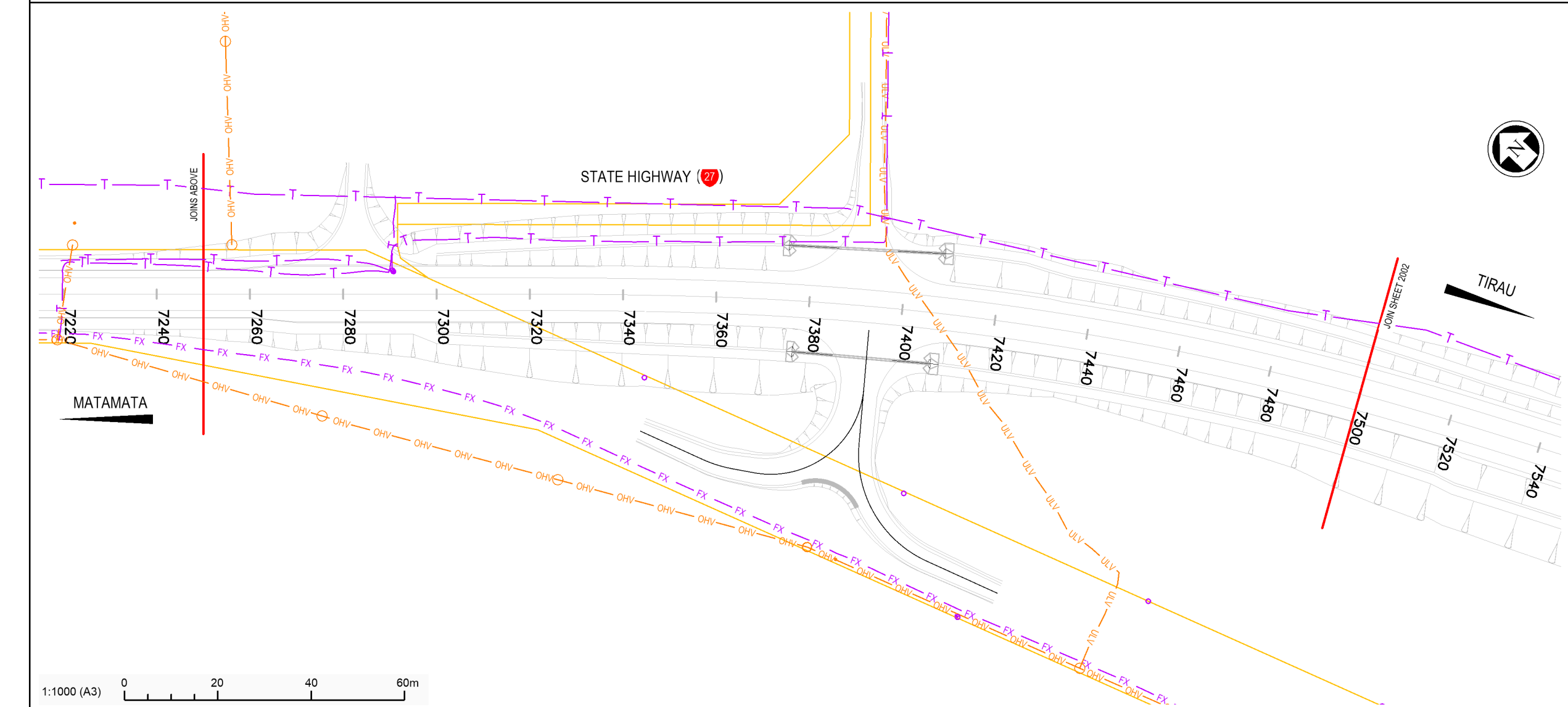
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



KEY: EXISTING SERVICES

- LEGAL BOUNDARY
- FX OPTICAL FIBRE (VOCUS)
- T- UNDERGROUND TELECOM (CHORUS)
- TELECOM POLE (CHORUS)
- ULV UNDERGROUND POWER (POWERCO)
- OHV OVERHEAD POWER
- POWER POLE

DISCLAIMER:
 THE LOCATIONS OF ALL SERVICES HAVE BEEN DIGITISED FROM EXISTING RECORDS PROVIDED BY LOCAL AUTHORITIES AND SERVICE PROVIDERS. SAFE ROADS ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THIS INFORMATION. THE LOCATION OF ALL UNDERGROUND SERVICES AND ALL DIMENSIONS SHALL BE VERIFIED PRIOR TO THE COMMENCEMENT OF ANY WORK.



No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

Original Scale (A3)	Design	LB	Approved For Construction*
1:1000	Drawn	AA	Date
	Dig Verifier		
	Dig Check	MH	

* Refer to Revision 1 for Original Signature

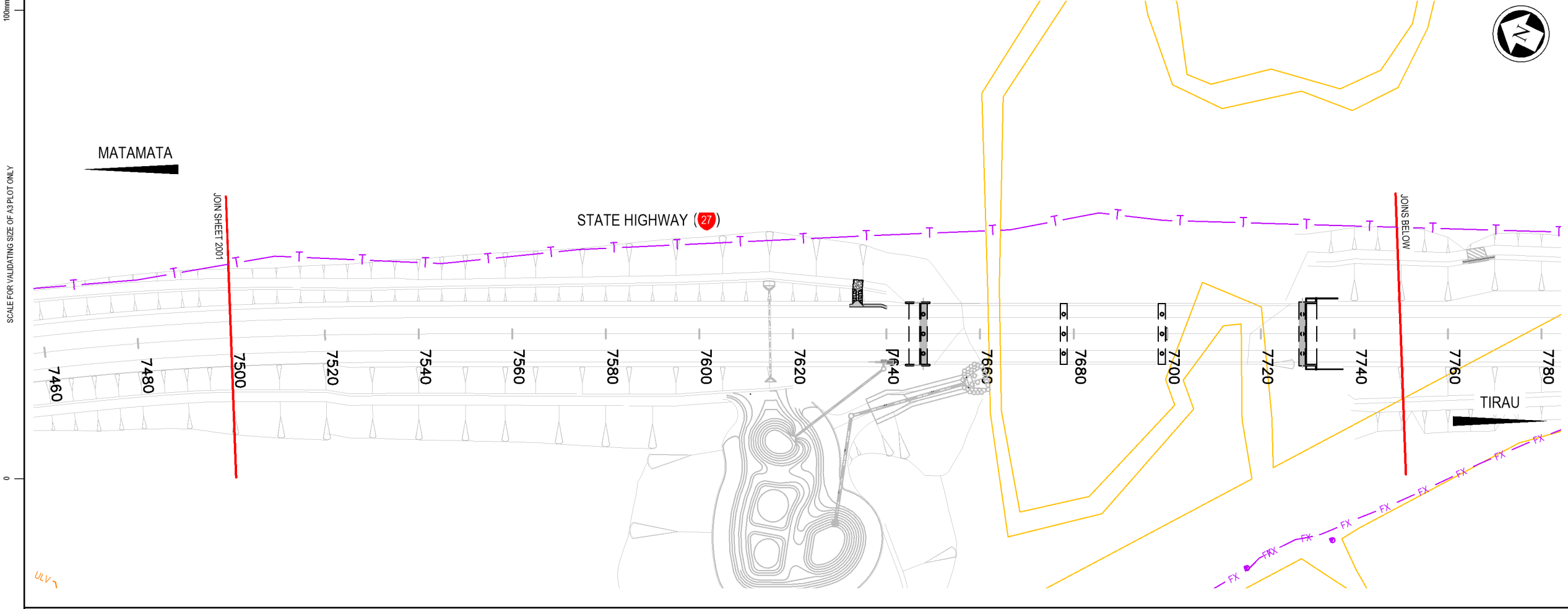


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: EXISTING SERVICES SHEET 1

Status:	TENDER
Drawing No:	SR2011 - 00 - CE - 2001
Rev:	0

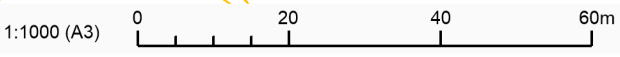
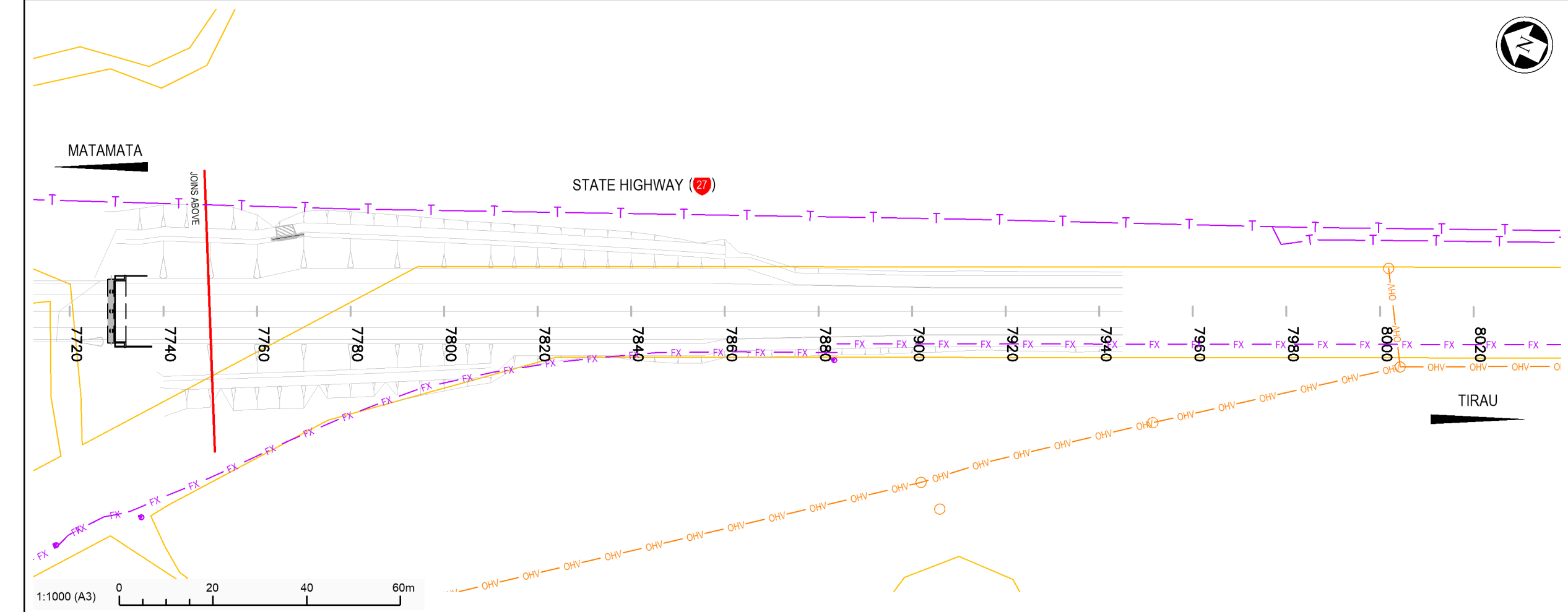
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



KEY: EXISTING SERVICES

- LEGAL BOUNDARY
- FX OPTICAL FIBRE (VOCUS)
- T — UNDERGROUND TELECOM (CHORUS)
- TELECOM POLE (CHORUS)
- ULV UNDERGROUND POWER (POWERCO)
- OHV OVERHEAD POWER
- POWER POLE

DISCLAIMER:
 THE LOCATIONS OF ALL SERVICES HAVE BEEN DIGITISED FROM EXISTING RECORDS PROVIDED BY LOCAL AUTHORITIES AND SERVICE PROVIDERS. SAFE ROADS ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THIS INFORMATION. THE LOCATION OF ALL UNDERGROUND SERVICES AND ALL DIMENSIONS SHALL BE VERIFIED PRIOR TO THE COMMENCEMENT OF ANY WORK.



0	ISSUED FOR TENDER	LB	MH	JS	21.09.20
No	Revision	By	Chk	Appd	Date

Original Scale (A3)	Design	LB	Approved For Construction*
1:1000	Drawn	AA	Date
	Dig Verifier	MH	
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* Refer to Revision 1 for Original Signature



Project: SH27 MANGAWHERO STREAM BRIDGE

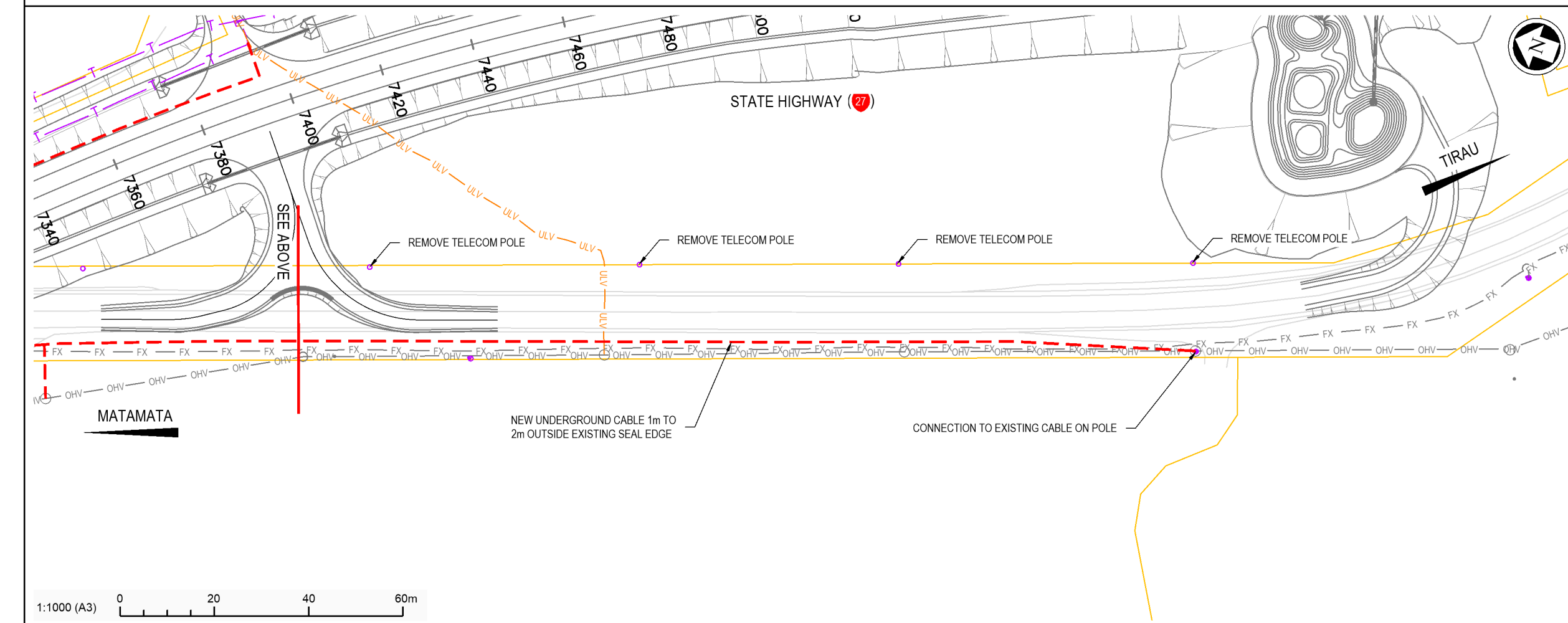
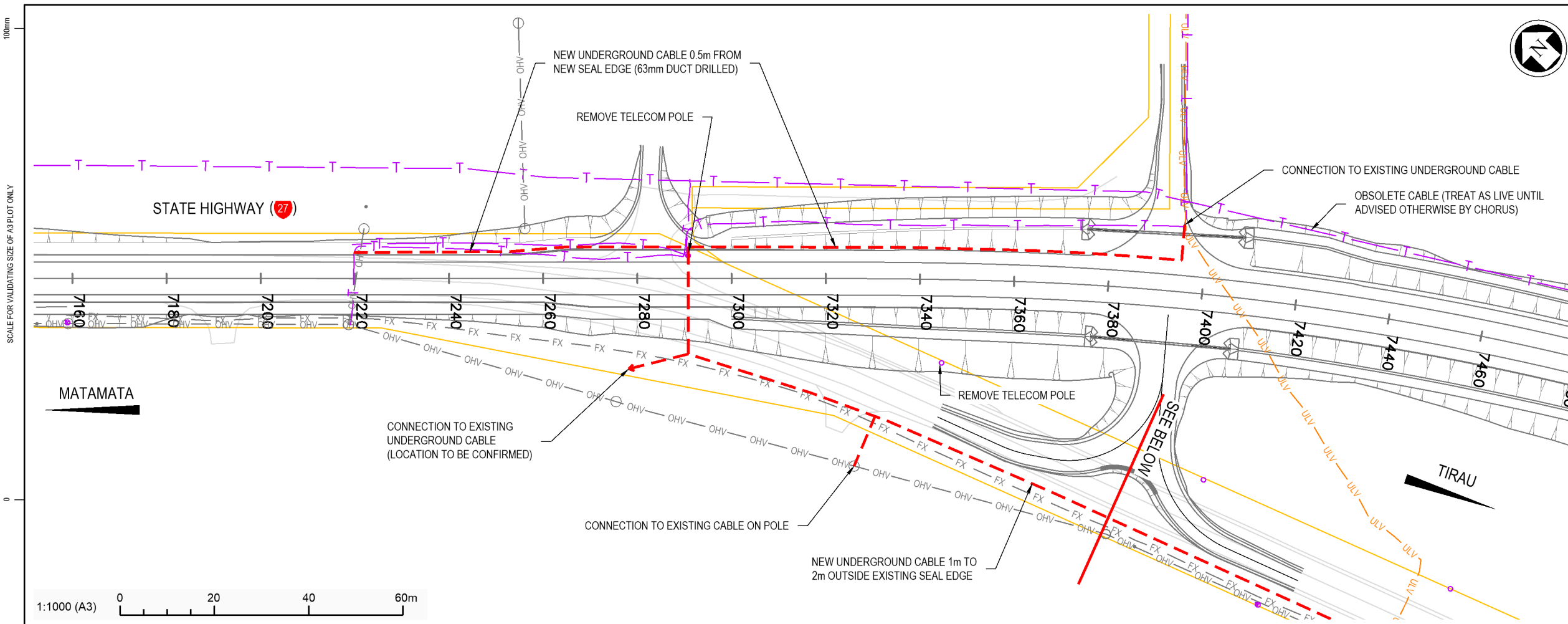
Title: EXISTING SERVICES SHEET 2

Status:	TENDER
Drawing No:	SR2011 - 00 - CE - 2002
Rev:	0

DO NOT SCALE

IF IN DOUBT ASK

Document No. S:\Waka Kotahi Bay of Plenty\SH27 - Mangawhero Stream Bridge\00 Drawings\SR2011-00-CE-2002.dwg



KEY: SERVICES RELOCATION

PROPOSED DESIGN

- NEW UNDERGROUND CABLE
- DESIGN

EXISTING FEATURES

- LEGAL BOUNDARY
- EXISTING MARKINGS, SEAL EDGE AND METAL EDGE
- FX OPTICAL FIBRE (VOCUS)
- UNDERGROUND TELECOM (CHORUS)
- TELECOM POLE (CHORUS)
- UNDERGROUND POWER (POWERCO)
- ULV
- OHV OVERHEAD POWER
- POWER POLE

DISCLAIMER:
 THE LOCATIONS OF ALL SERVICES HAVE BEEN DIGITISED FROM EXISTING RECORDS PROVIDED BY LOCAL AUTHORITIES AND SERVICE PROVIDERS. SAFE ROADS ACCEPT NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THIS INFORMATION. THE LOCATION OF ALL UNDERGROUND SERVICES AND ALL DIMENSIONS SHALL BE VERIFIED PRIOR TO THE COMMENCEMENT OF ANY WORK.

- NOTES**
1. THE CONTRACTOR SHALL CONTACT AND COORDINATE RELOCATION WORKS WITH CHORUS.
 2. NEW UNDERGROUND CABLE TO BE SUPPLIED AND INSTALLED BY CHORUS.
 3. REMOVAL OF REDUNDANT TELECOM POLES AND CABLE TO BE APPROVED BY THE ENGINEER FOLLOWING COMMISSIONING OF NEW UNDERGROUND CABLES.
 4. CONTRACTOR TO CONTACT CHORUS TO CUT AND ISOLATE OBSOLETE CABLE AT EACH END OF THE PROJECT. THE CABLE SHALL BE REMOVED BY THE CONTRACTOR WHERE IT IS EXPOSED BY WORKS.

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

Original Scale (A3)	Design	LB	Approved For Construction*
1:1000	Drawn	AA	
	Dig Verifier		
	Dig Check	MH	Date

* Refer to Revision 1 for Original Signature

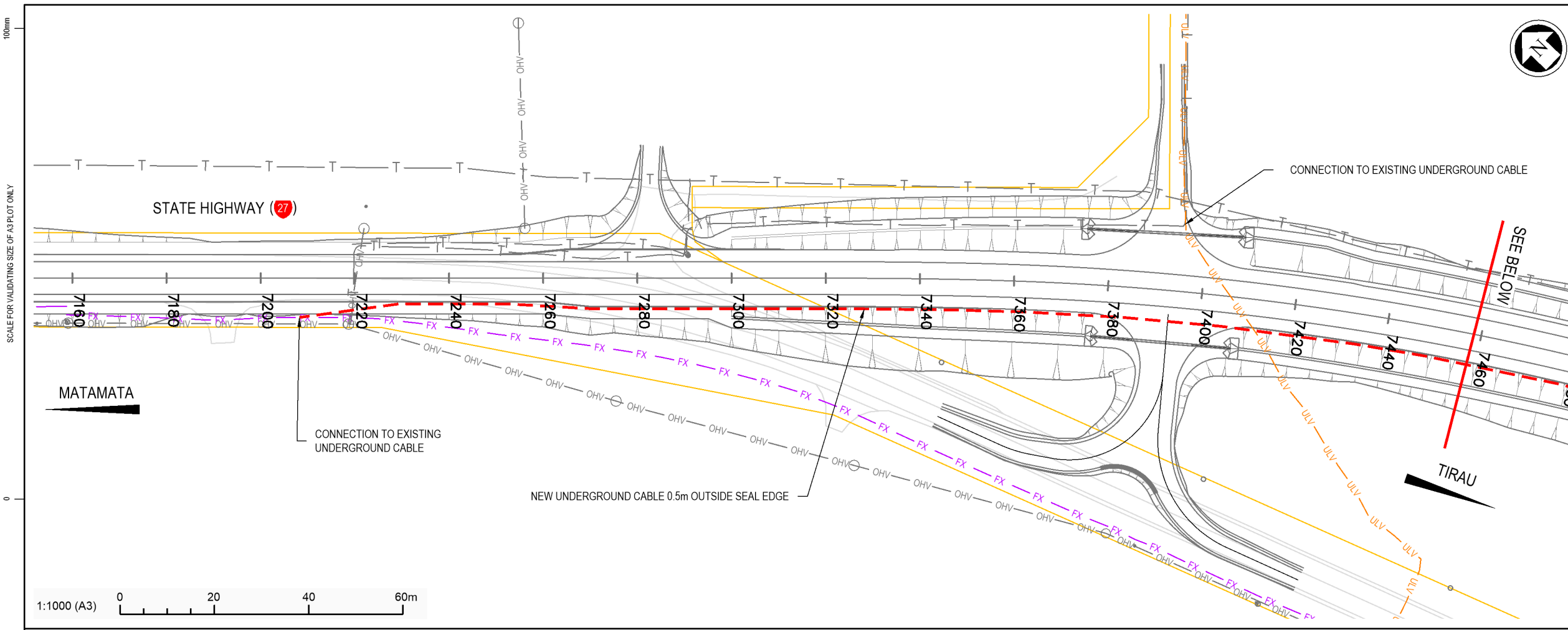


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: SERVICES RELOCATION PLAN TELECOM (CHORUS)

Status: TENDER	Rev: 0
Drawing No: SR2011-00-CE-2051	





KEY: SERVICES RELOCATION

PROPOSED DESIGN

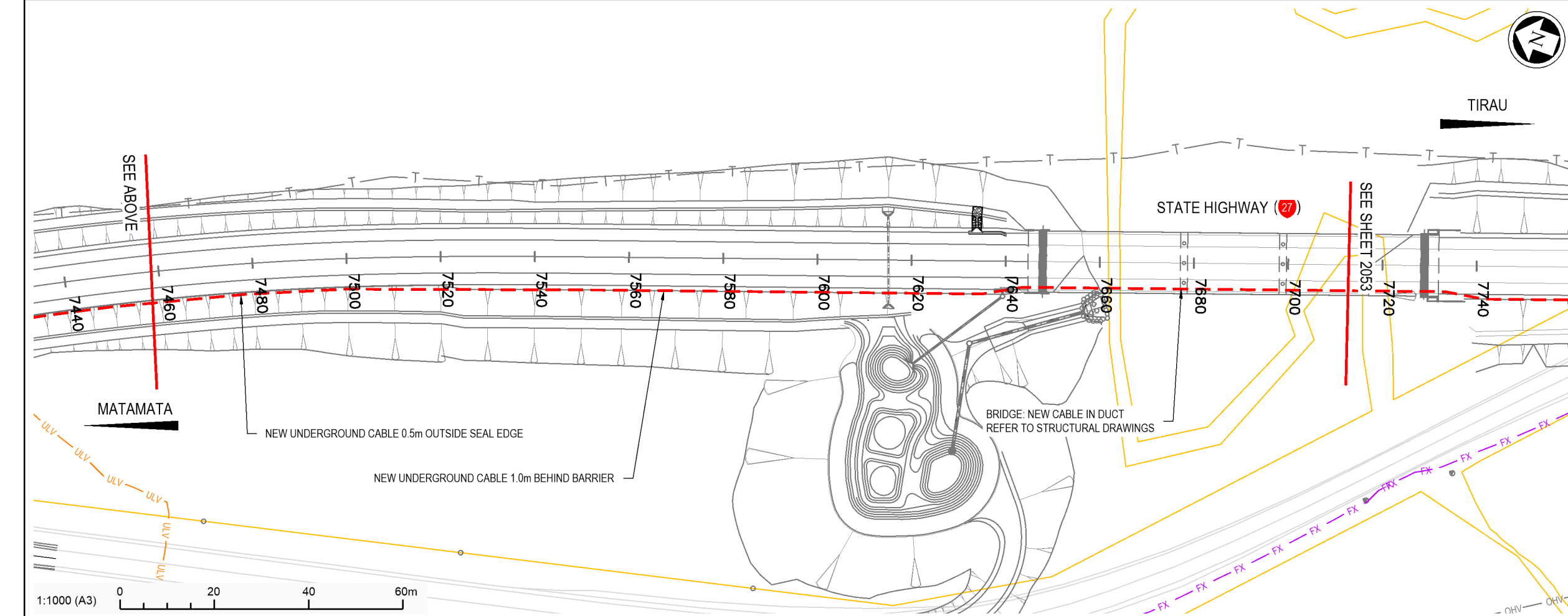
- NEW UNDERGROUND CABLE
- DESIGN

EXISTING FEATURES

- LEGAL BOUNDARY
- EXISTING MARKINGS, SEAL EDGE AND METAL EDGE
- FX OPTICAL FIBRE (VOCUS)
- UNDERGROUND TELECOM (CHORUS)
- TELECOM POLE (CHORUS)
- UNDERGROUND POWER (POWERCO)
- OVERHEAD POWER
- POWER POLE

DISCLAIMER:
 THE LOCATIONS OF ALL SERVICES HAVE BEEN DIGITISED FROM EXISTING RECORDS PROVIDED BY LOCAL AUTHORITIES AND SERVICE PROVIDERS. SAFE ROADS ACCEPT NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THIS INFORMATION. THE LOCATION OF ALL UNDERGROUND SERVICES AND ALL DIMENSIONS SHALL BE VERIFIED PRIOR TO THE COMMENCEMENT OF ANY WORK.

- NOTES**
- THE CONTRACTOR SHALL CONTACT AND COORDINATE RELOCATION WORKS WITH VOCUS.
 - NEW UNDERGROUND CABLE, 50mm STICK DUCTS AND MANHOLES AT CONNECTION OF NEW CABLE TO EXISTING TO BE SUPPLIED AND INSTALLED BY VOCUS.
 - THE CONTRACTOR SHALL CONSTRUCT THE TRENCH WHERE THE DUCT IS TO BE LAYED.



No	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

Original Scale (A3)	Design	Approved For Construction*
1:1000	LB	
	Drawn	AA
	Dig Verifier	
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* Refer to Revision 1 for Original Signature		Date

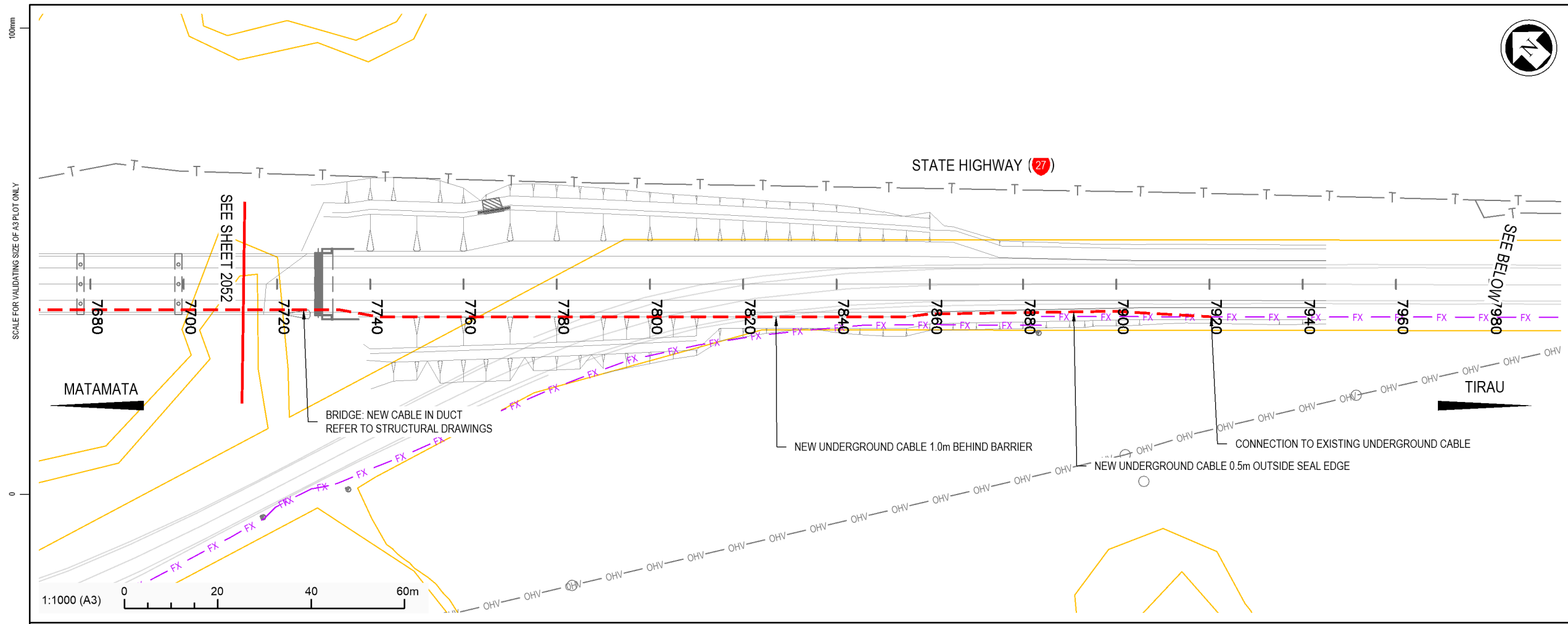


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: SERVICES RELOCATION PLAN TELECOM (VOCUS)

Status	TENDER
Drawing No	SR2011 - 00 - CE - 2052
Rev	0





KEY: SERVICES RELOCATION

PROPOSED DESIGN

- NEW UNDERGROUND CABLE
- DESIGN

EXISTING FEATURES

- LEGAL BOUNDARY
- EXISTING MARKINGS, SEAL EDGE AND METAL EDGE
- FX OPTICAL FIBRE (VOCUS)
- UNDERGROUND TELECOM (CHORUS)
- TELECOM POLE (CHORUS)
- UNDERGROUND POWER (POWERCO)
- OVERHEAD POWER
- POWER POLE

DISCLAIMER:
 THE LOCATIONS OF ALL SERVICES HAVE BEEN DIGITISED FROM EXISTING RECORDS PROVIDED BY LOCAL AUTHORITIES AND SERVICE PROVIDERS. SAFE ROADS ACCEPT NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THIS INFORMATION. THE LOCATION OF ALL UNDERGROUND SERVICES AND ALL DIMENSIONS SHALL BE VERIFIED PRIOR TO THE COMMENCEMENT OF ANY WORK.

- NOTES**
1. THE CONTRACTOR SHALL CONTACT AND COORDINATE RELOCATION WORKS WITH VOCUS.
 2. NEW UNDERGROUND CABLE, 50mm STICK DUCTS AND MANHOLES AT CONNECTION OF NEW CABLE TO EXISTING TO BE SUPPLIED AND INSTALLED BY VOCUS.
 3. THE CONTRACTOR SHALL CONSTRUCT THE TRENCH WHERE THE DUCT IS TO BE LAYED.

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY
 1:1000 (A3)
 0 20 40 60m

1:1000 (A3)
 0 20 40 60m

Original Scale (A3)	Design	LB	Approved For Construction*
1:1000	Drawn	AA	Date
	Dig Verifier		
	Dig Check	MH	
* Refer to Revision 1 for Original Signature			

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

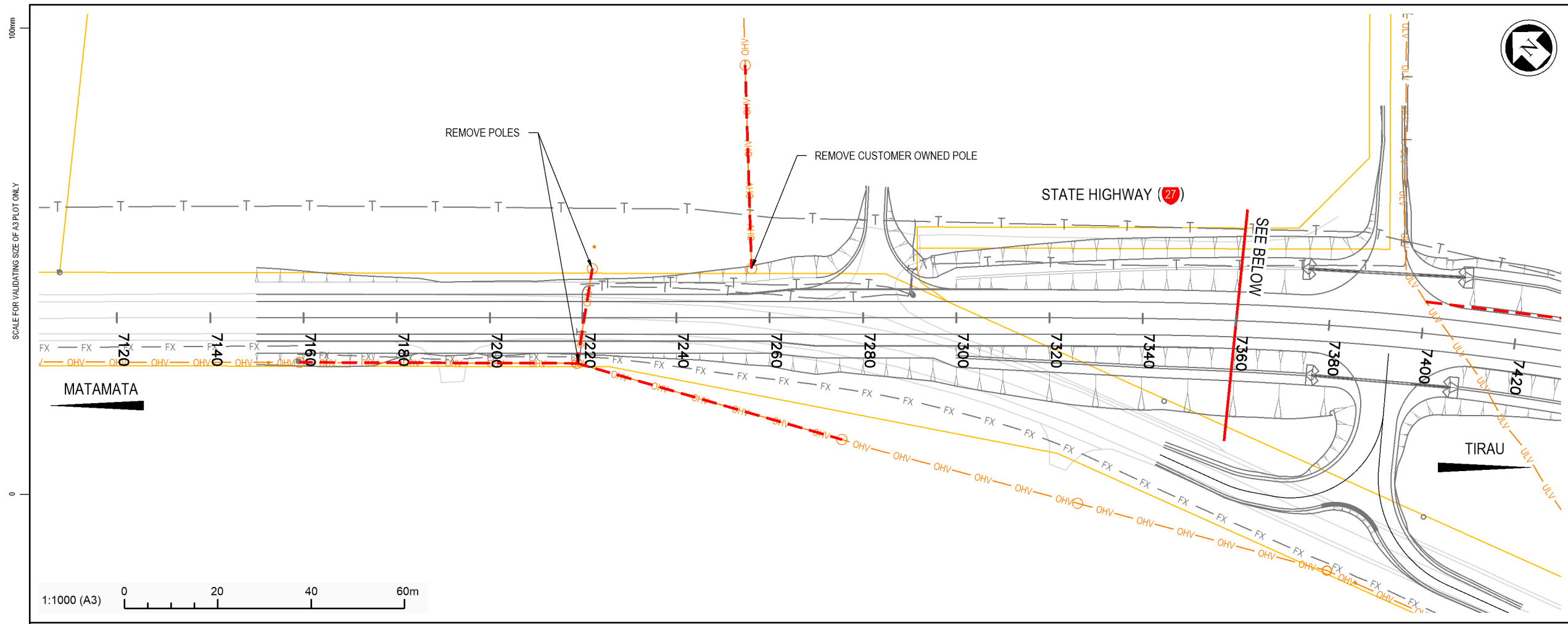


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: SERVICES RELOCATION PLAN TELECOM (VOCUS)

Status:	TENDER
Drawing No:	SR2011 - 00 - CE - 2053
Rev:	0





KEY: SERVICES RELOCATION

PROPOSED DESIGN

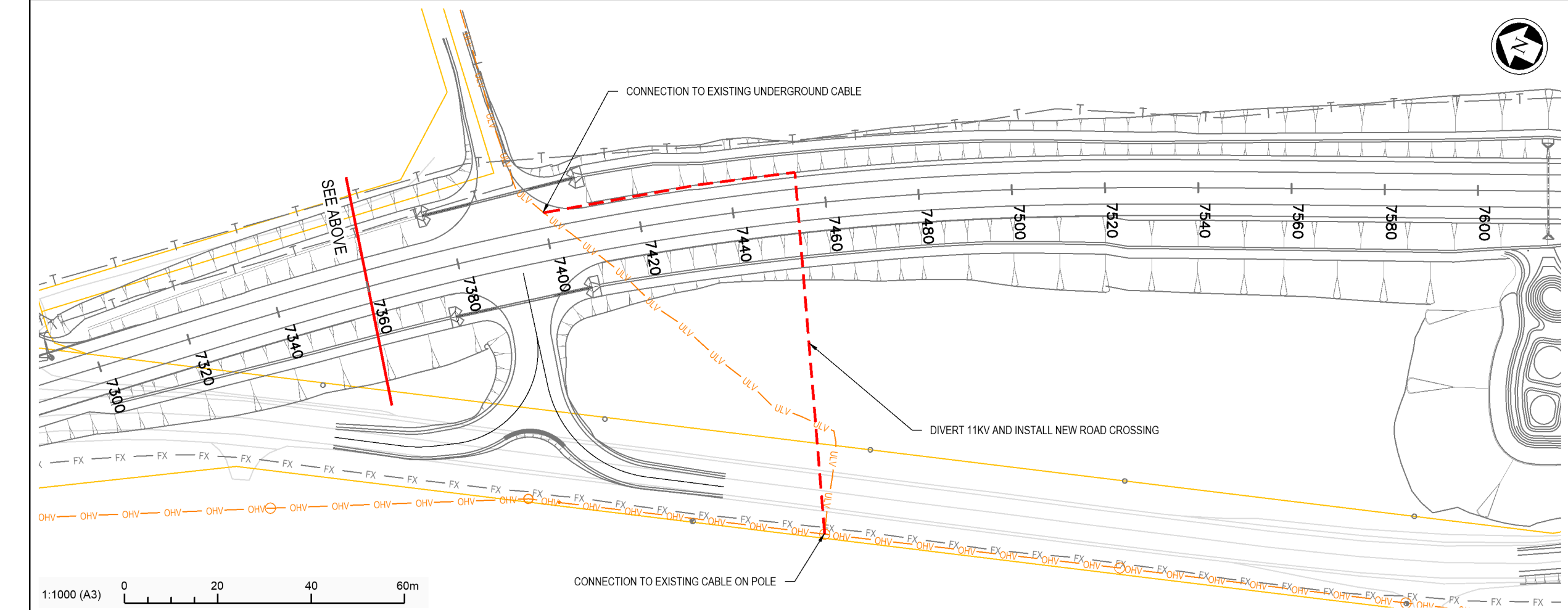
- NEW UNDERGROUND CABLE
- DESIGN

EXISTING FEATURES

- LEGAL BOUNDARY
- EXISTING MARKINGS, SEAL EDGE AND METAL EDGE
- FX OPTICAL FIBRE (VOCUS)
- UNDERGROUND TELECOM (CHORUS)
- TELECOM POLE (CHORUS)
- UNDERGROUND POWER (POWERCO)
- OVERHEAD POWER
- POWER POLE

DISCLAIMER:
 THE LOCATIONS OF ALL SERVICES HAVE BEEN DIGITISED FROM EXISTING RECORDS PROVIDED BY LOCAL AUTHORITIES AND SERVICE PROVIDERS. SAFE ROADS ACCEPT NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THIS INFORMATION. THE LOCATION OF ALL UNDERGROUND SERVICES AND ALL DIMENSIONS SHALL BE VERIFIED PRIOR TO THE COMMENCEMENT OF ANY WORK.

- NOTES**
- THE CONTRACTOR SHALL CONTACT AND COORDINATE RELOCATION WORKS WITH POWERCO.
 - NEW UNDERGROUND CABLE TO BE SUPPLIED AND INSTALLED BY POWERCO.
 - REMOVAL OF REDUNDANT POWER POLES AND CABLE TO BE APPROVED BY THE ENGINEER FOLLOWING COMMISSIONING OF NEW UNDERGROUND CABLES.
 - ALL RELOCATION WORKS TO BE CONFIRMED BY THE ENGINEER PRIOR TO POWERCO COMMENCING RELOCATIONS



No	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	LB	MH	JS	21.09.20

Original Scale (A3)	Design	LB	Approved For Construction*
1:1000	Drawn	AA	Date
	Dig Verifier		
	Dig Check	MH	

* Refer to Revision 1 for Original Signature



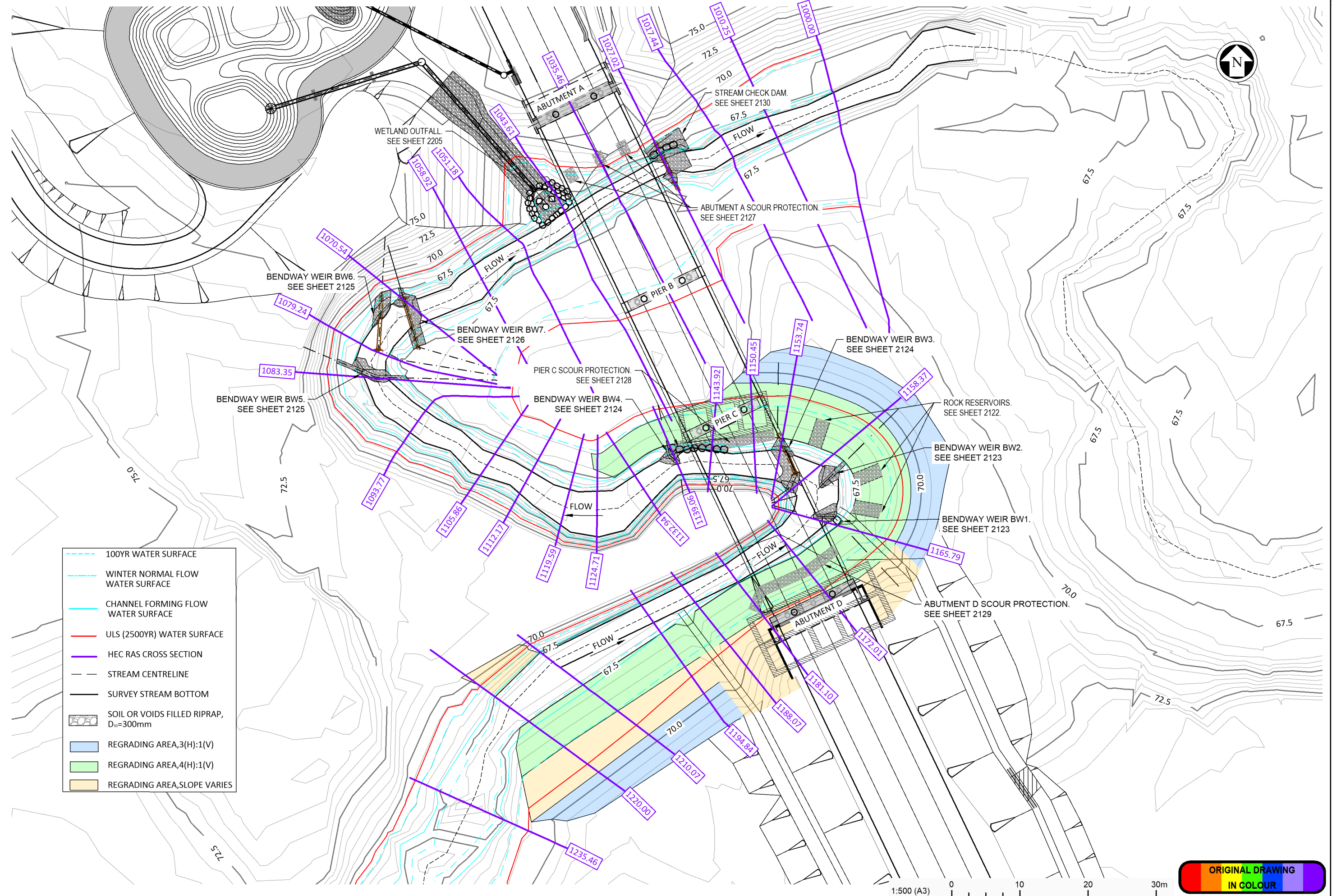
Project: SH27 MANGAWHERO STREAM BRIDGE

Title: SERVICES RELOCATION PLAN POWER (POWERCO)

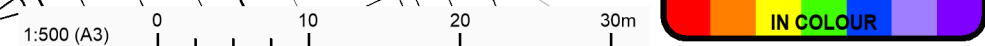
Status	TENDER
Drawing No.	SR2011 - 00 - CE - 2054
Rev	0



100mm
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



- 100YR WATER SURFACE
- WINTER NORMAL FLOW WATER SURFACE
- CHANNEL FORMING FLOW WATER SURFACE
- ULS (2500YR) WATER SURFACE
- HEC RAS CROSS SECTION
- STREAM CENTRELINE
- SURVEY STREAM BOTTOM
- SOIL OR VOIDS FILLED RIPRAP, D₅₀=300mm
- REGRADING AREA, 3(H):1(V)
- REGRADING AREA, 4(H):1(V)
- REGRADING AREA, SLOPE VARIES



0	ISSUED FOR TENDER	ZX	EV	JS	21.09.20
No	Revision	By	Chk	Appd	Date

Original Scale (A3):	1:500	Design:	EV, ZX	Approved For Construction:	
		Drawn:	ZX		
		Dwg Verifier:			
		Dwg Check:	EV	Date:	

* Refer to Revision 1 for Original Signature



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: STREAM OVERALL PLAN

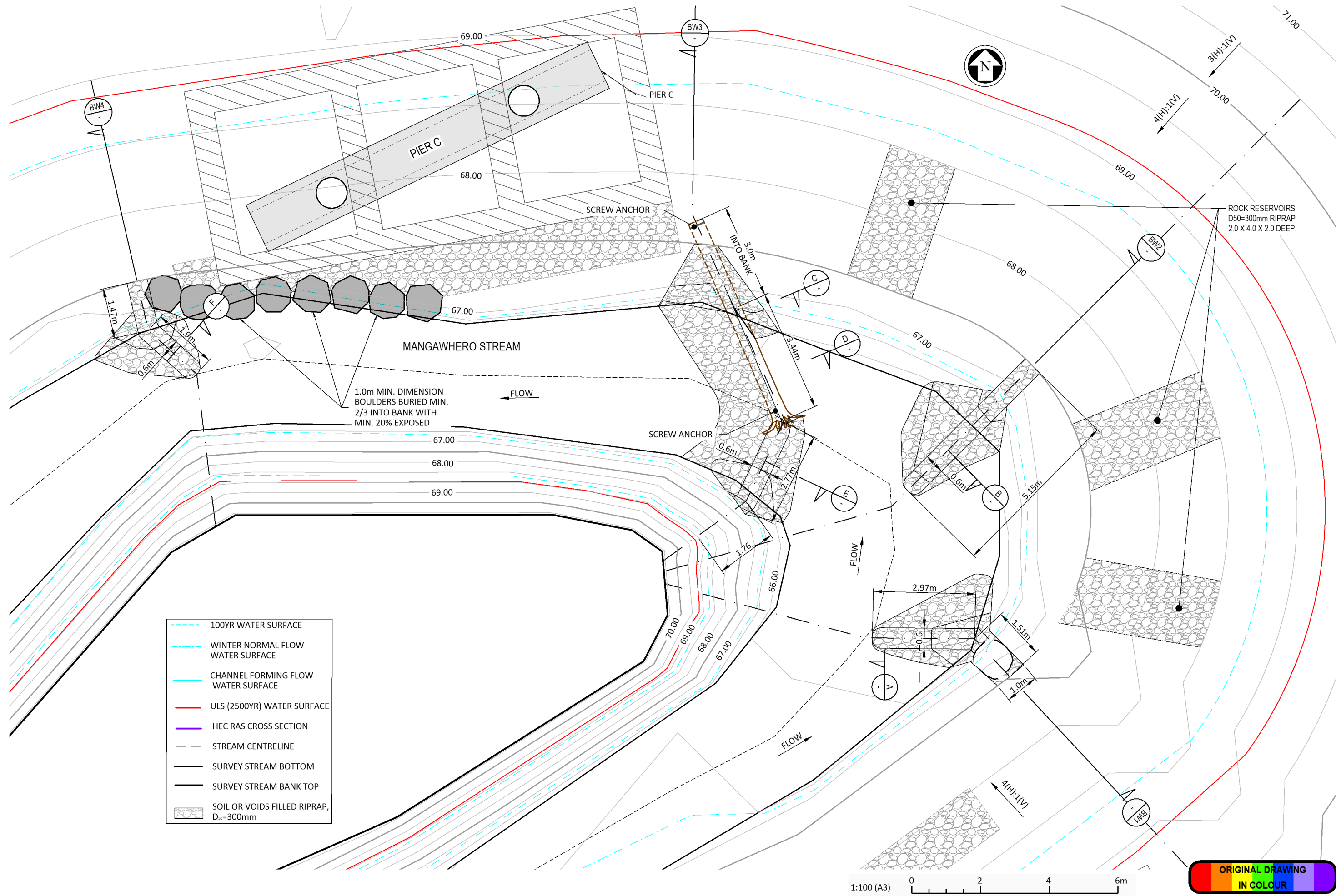
Status:	TENDER
Drawing No:	SR2011 - 00 - CE - 2121
Rev:	0

Document No. S:\Waka Kotahi Bay of Plenty\SH27 - Mangawhero Stream Bridge\00 Drawings\SR2011-00-CE-2121.dwg

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

0

100mm



No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	ZX	EV	JS	21.09.20

Original Scale (A3):	1:100
Design:	EV, ZX
Drawn:	ZX
Dwg Checker:	EV
Approved For Construction:	
Date:	



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: BENDWAY WEIRS NEARBY REGRADED BANK. PLAN

Status:	TENDER
Document No.:	SR2011-00-CE-2122
Rev:	0

Document No. S:\Waka Kotahi Bay of Plenty\SH27 - Mangawhero Stream Bridge\00 Drawings\SR2011-00-CE-2122.dwg

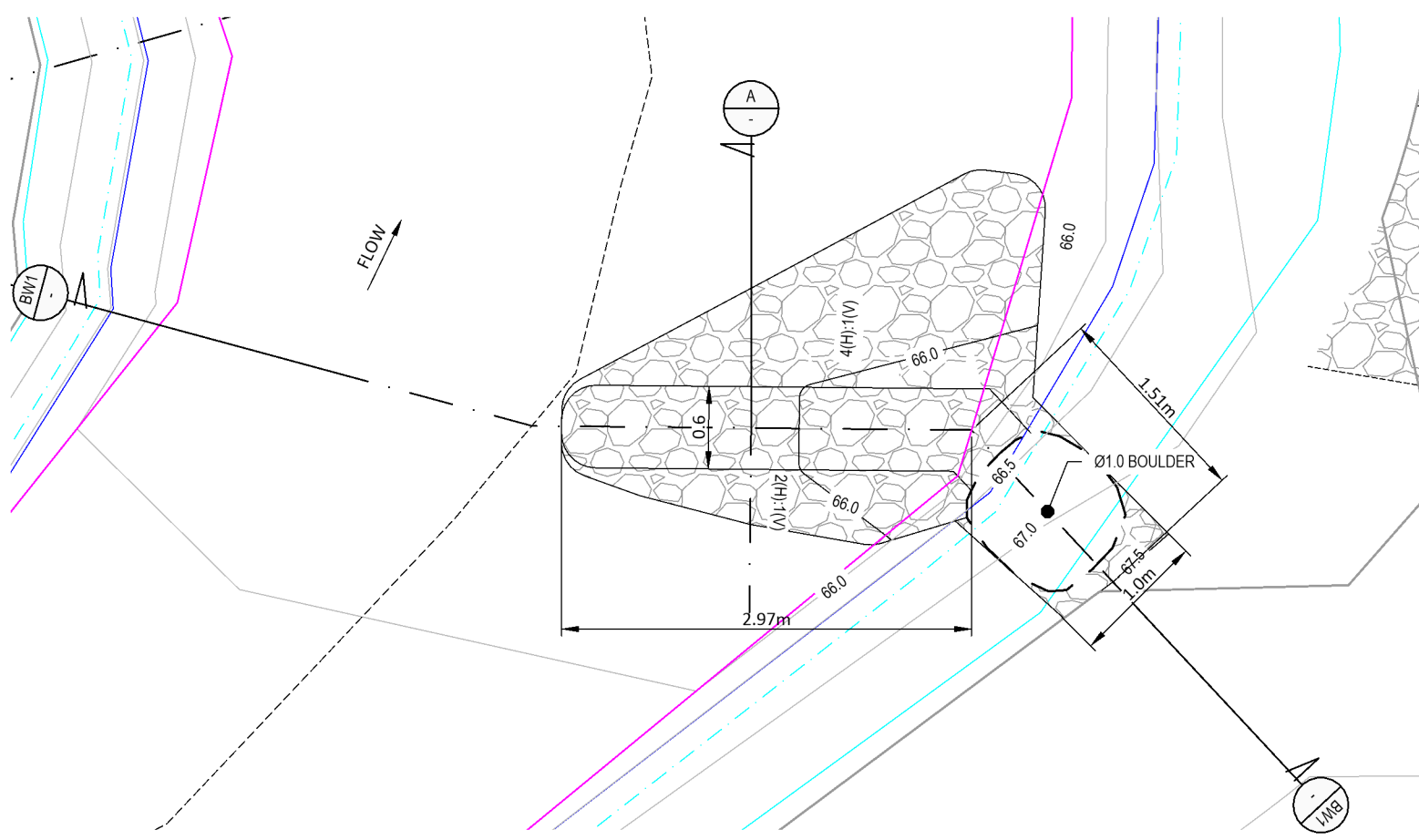
DO NOT SCALE

IF IN DOUBT ASK

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

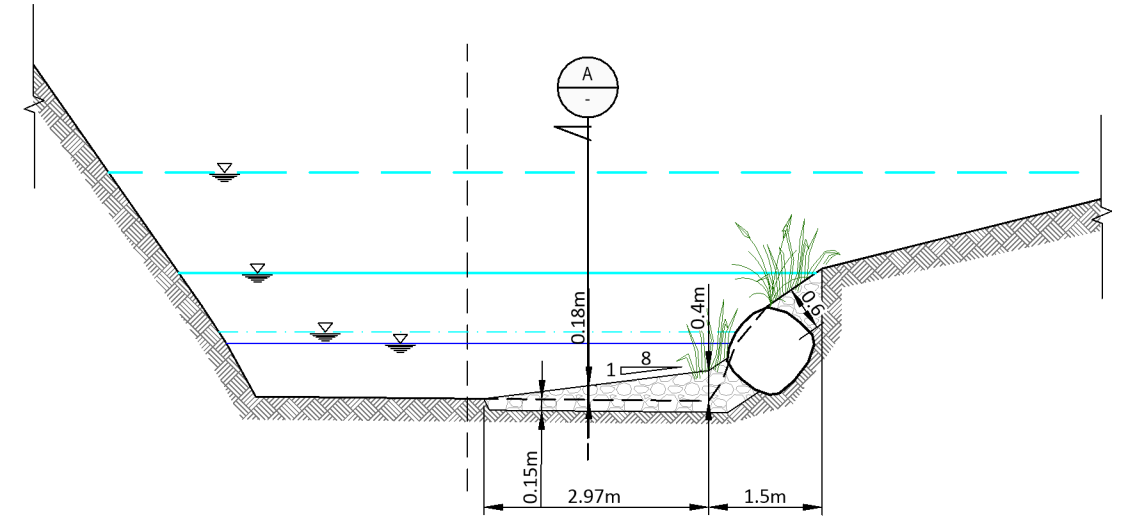
0

100mm

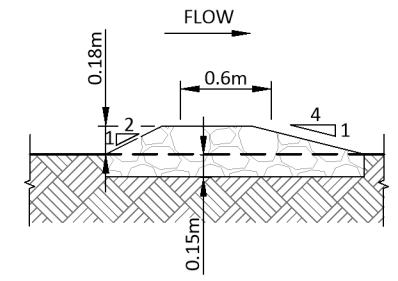


STREAM PLAN WITH BENDWAY WEIR BW1
1:50

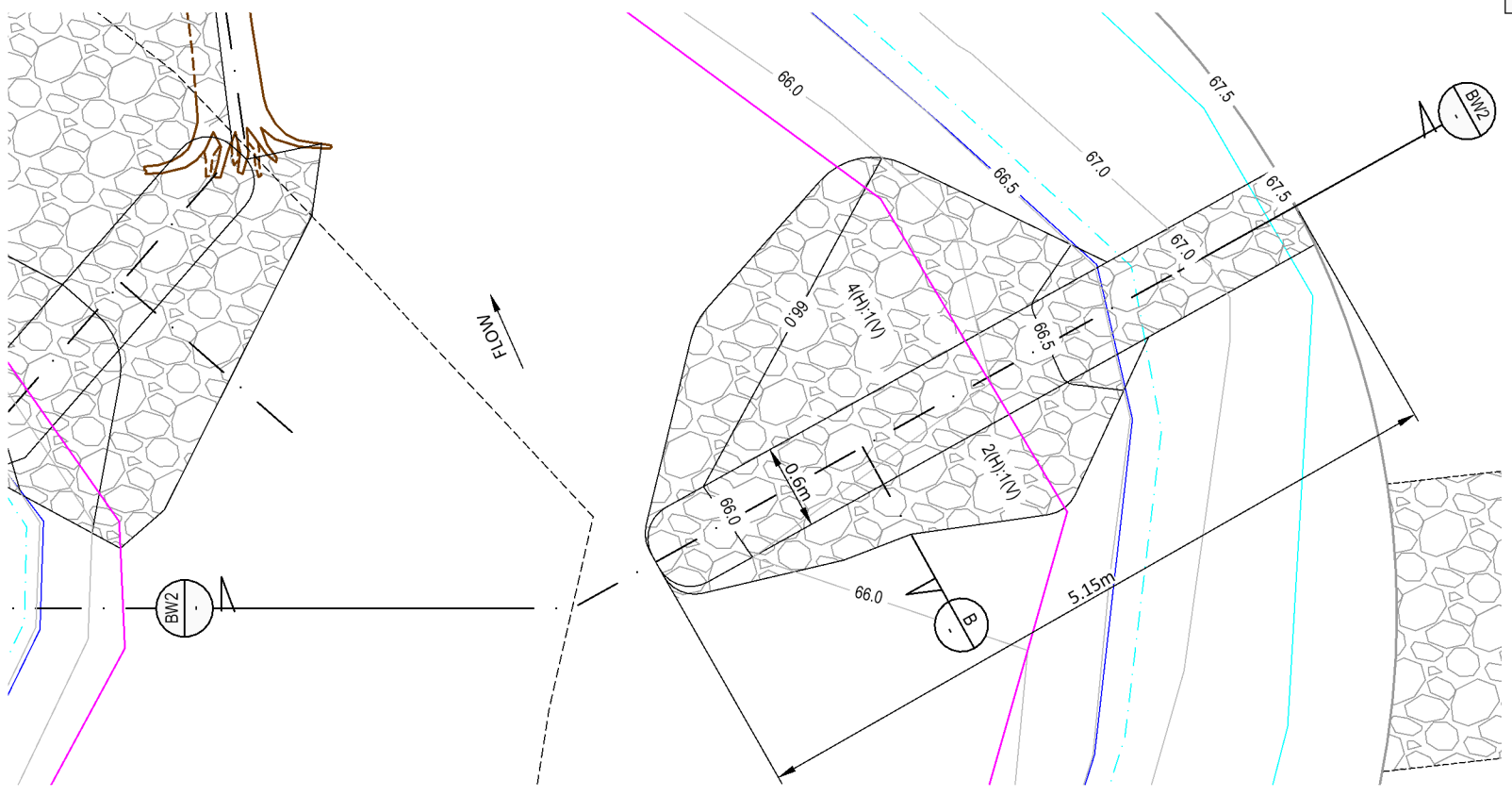
- 100YR WATER SURFACE
- 1/2 2YR WATER SERVICE
- WINTER NORMAL FLOW
- SUMMER NORMAL FLOW
- TOPO CHANNEL BOTTOM
- STREAM CENTRELINE
- STREAM CROSS SECTION
- VOID-FILLED RIPRAP, D₅₀=300mm
- SOIL RIPRAP, D₅₀=300mm



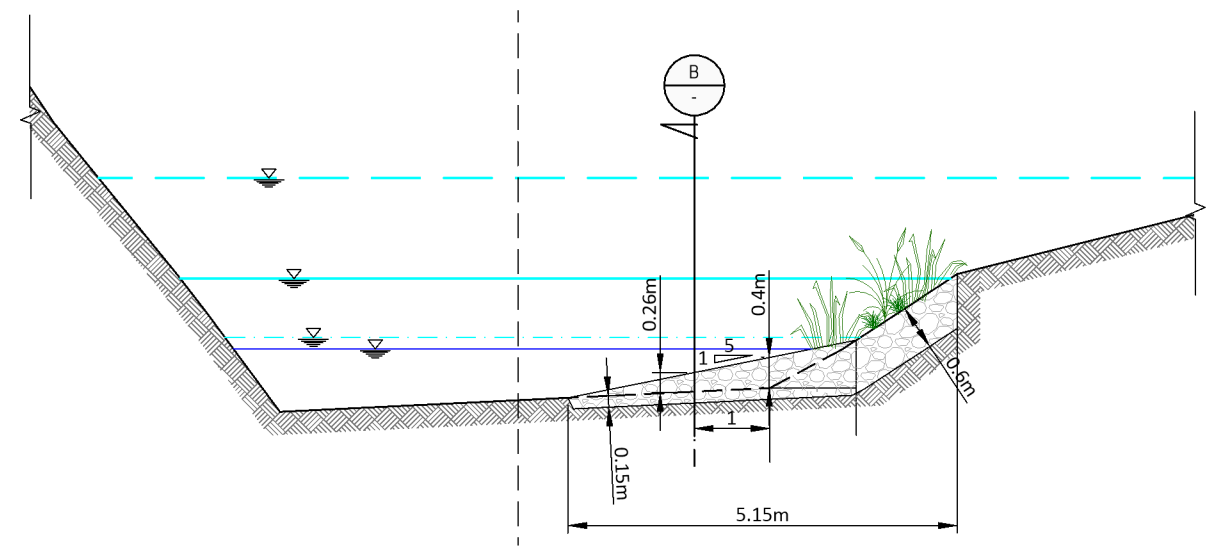
BW1 **STREAM CROSS SECTION WITH BENDWAY WEIR BW1**
1:100



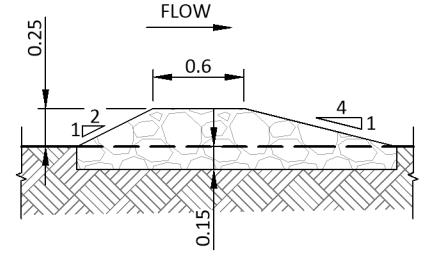
A **BENDWAY WEIR BW1 CROSS SECTION**
1:50



STREAM PLAN WITH BENDWAY WEIR BW2
1:50



BW2 **STREAM CROSS SECTION WITH BENDWAY WEIR BW2**
1:100



B **BENDWAY WEIR BW2 CROSS SECTION**
1:50



No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	ZX	EV	JS	21.09.20

Original Scale (A3)	AS SHOWN	Design	EV, ZX	Approved For Construction*	
		Drawn	ZX		
		Dwg Checker	EV		
		* Refer to Revision 1 for Original Signature			Date

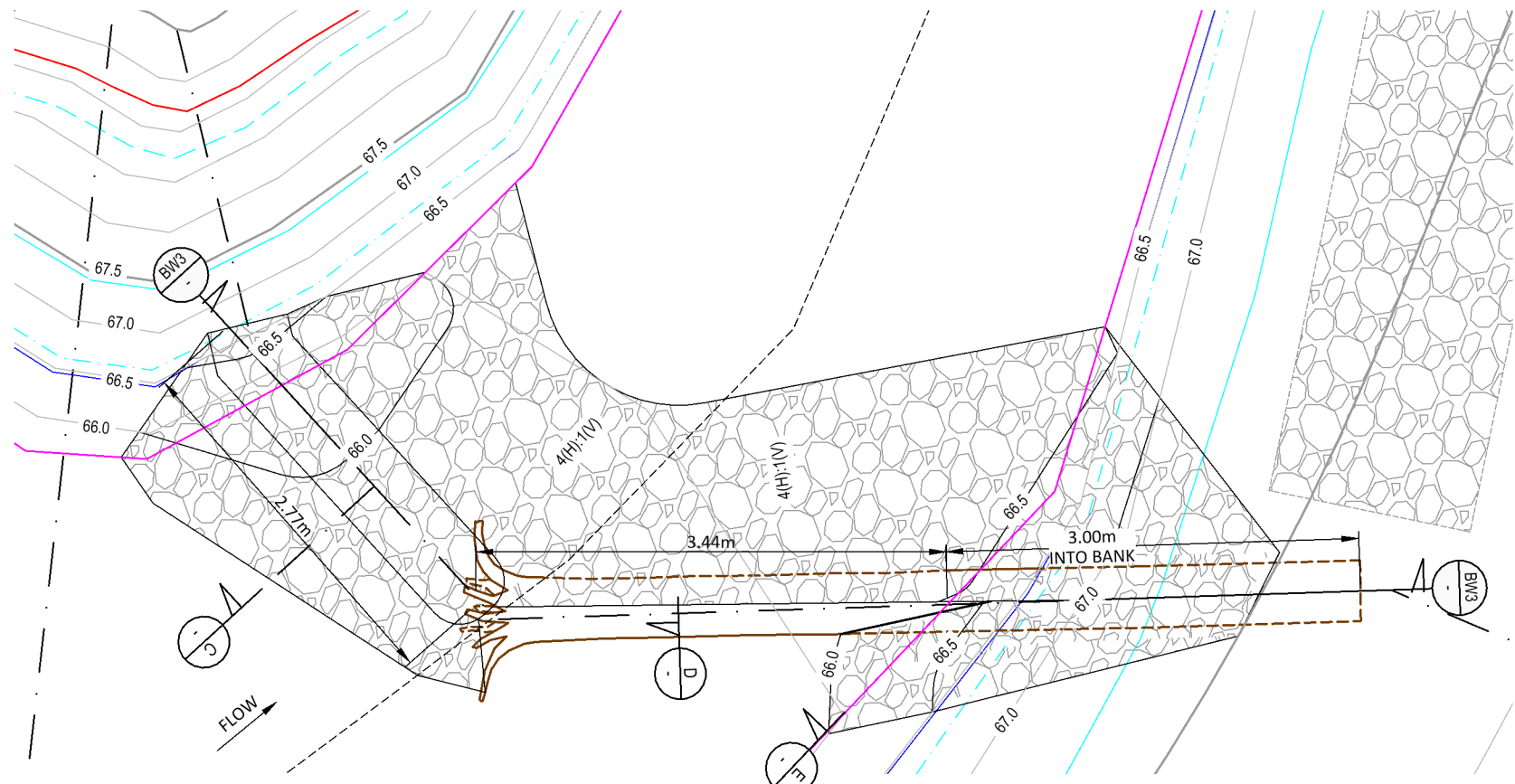


Project: SH27 MANGAWHERO STREAM BRIDGE

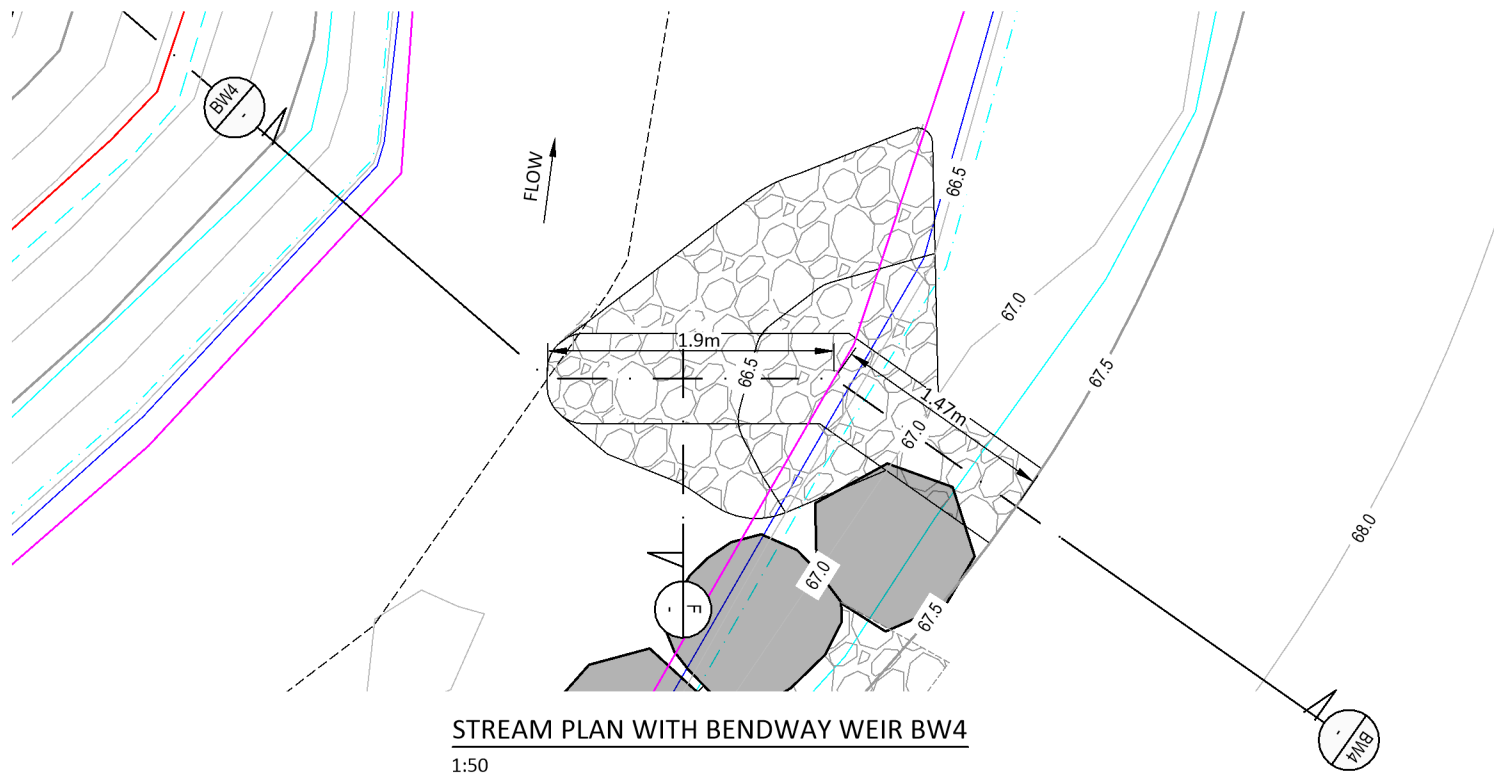
Title: BENDWAY WEIRS BW1& BW2 PLAN, CROSS SECTION AND DETAILS

Status: **TENDER**
Drawing No: SR2011 - 00 - CE - 2123
Rev: 0

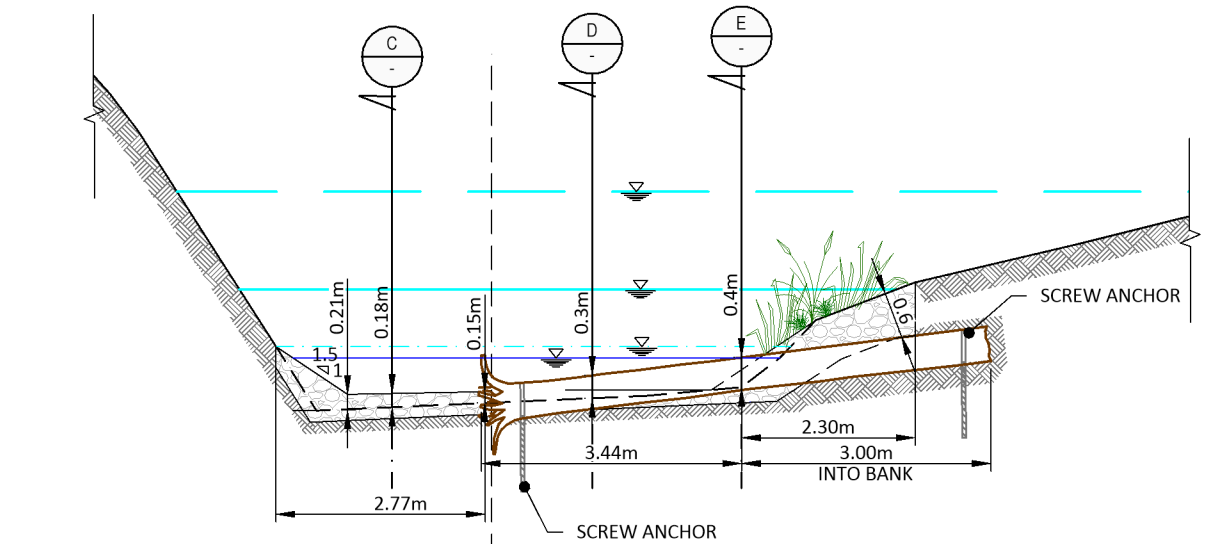
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



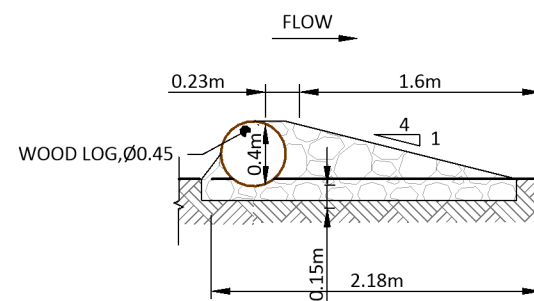
STREAM PLAN WITH BENDWAY WEIR BW3
1:50



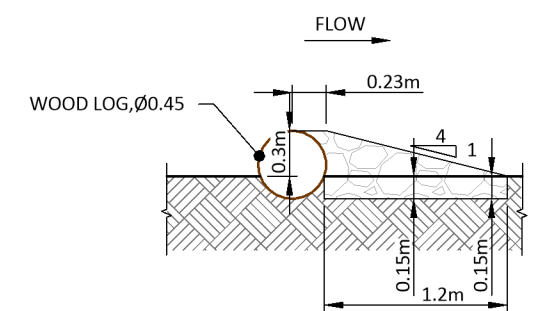
STREAM PLAN WITH BENDWAY WEIR BW4
1:50



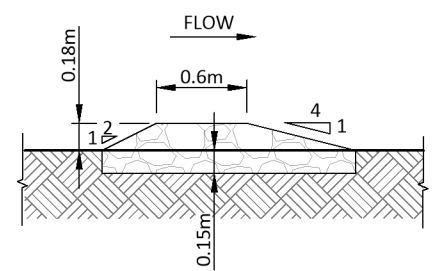
STREAM CROSS SECTION WITH BENDWAY WEIR BW3
1:100



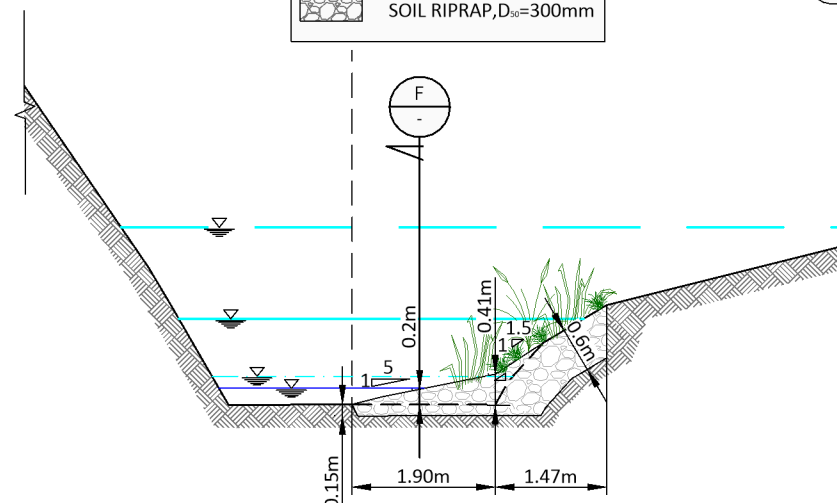
BENDWAY WEIR BW3 CROSS SECTION
1:50



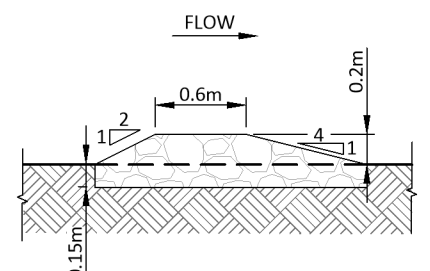
BENDWAY WEIR BW3 CROSS SECTION
1:50



BENDWAY WEIR BW3 CROSS SECTION
1:50



STREAM CROSS SECTION WITH BENDWAY WEIR BW4
1:100



BENDWAY WEIR BW4 CROSS SECTION
1:50

- 100YR WATER SURFACE
- 1/2 2YR WATER SERVICE
- WINTER NORMAL FLOW
- SUMMER NORMAL FLOW
- TOPO CHANNEL BOTTOM
- STREAM CENTRELINE
- STREAM CROSS SECTION
- VOID-FILLED RIPRAP, D₅₀=300mm
- SOIL RIPRAP, D₅₀=300mm

**ORIGINAL DRAWING
IN COLOUR**

0	ISSUED FOR TENDER	ZX	EV	JS	21.09.20
No	Revision	By	Chk	Appd	Date

Original Scale (A3)	AS SHOWN	Design	EV, ZX	Approved For Construction*
		Drawn	ZX	
		Dwg Check	EV	
				Date

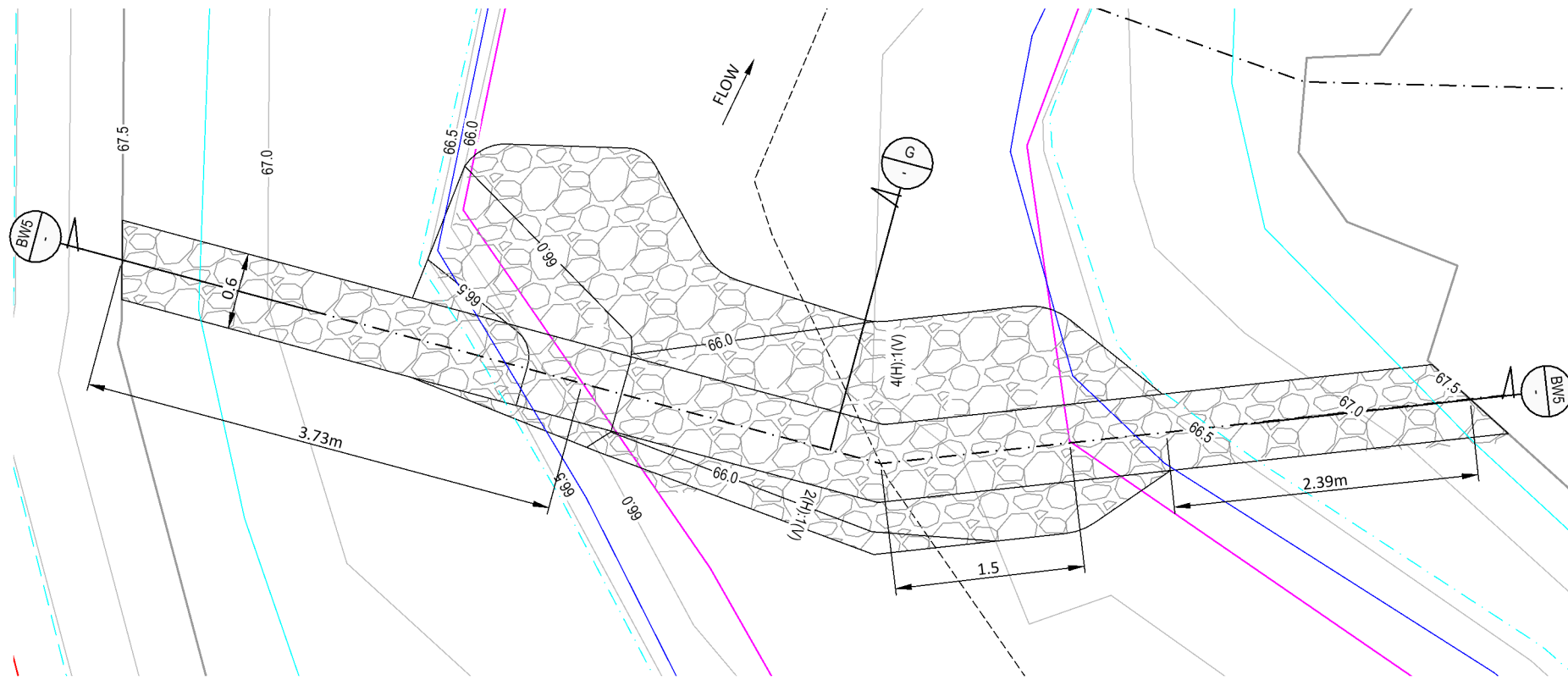


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: BENDWAY WEIRS BW3&BW4 PLAN CROSS SECTION AND DETAILS

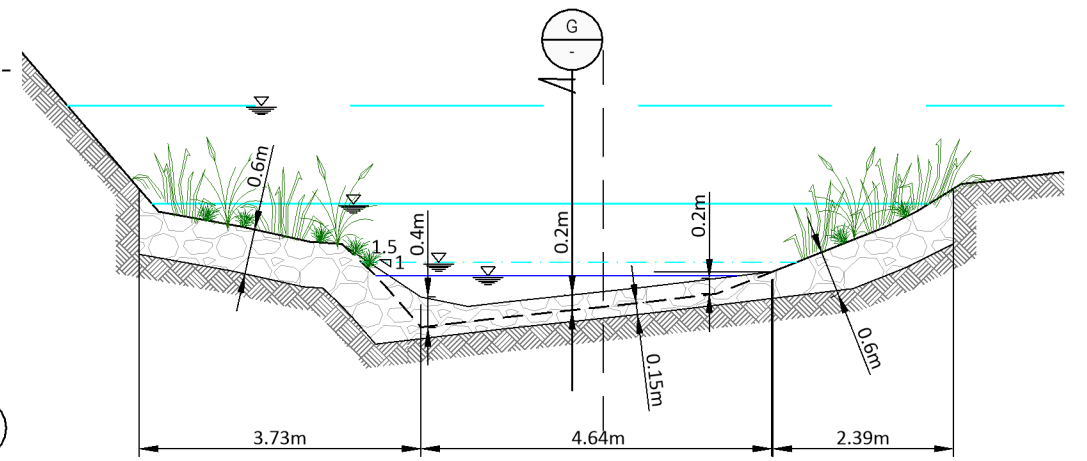
Status	TENDER
Drawing No	SR2011-00-CE-2124
Rev	0

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

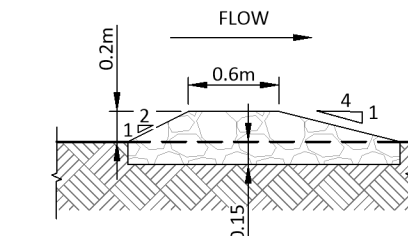


STREAM PLAN WITH BENDWAY WEIR BW5
1:50

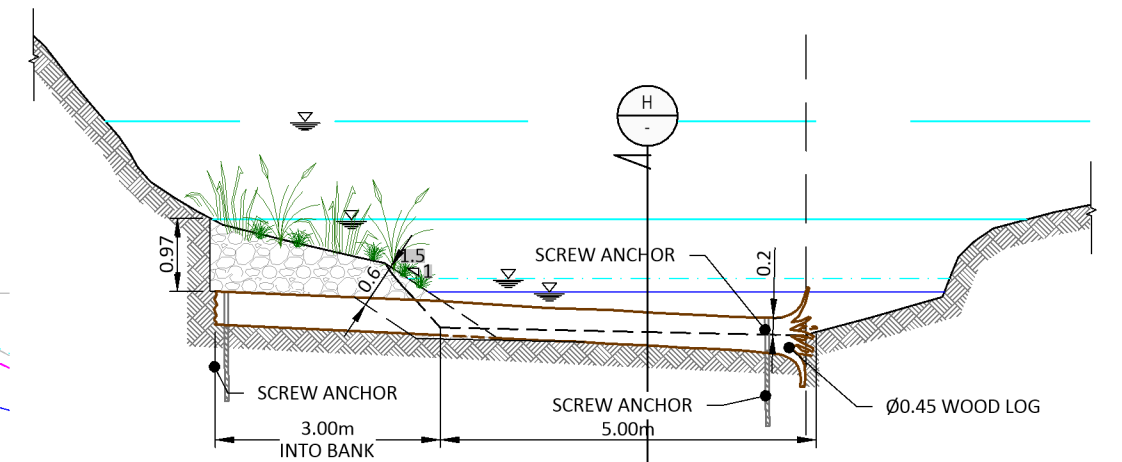
- 100YR WATER SURFACE
- 1/2 2YR WATER SERVICE
- WINTER NORMAL FLOW
- SUMMER NORMAL FLOW
- TOPO CHANNEL BOTTOM
- STREAM CENTRELINE
- STREAM CROSS SECTION
- VOID-FILLED RIPRAP, D₅₀=300mm
- SOIL RIPRAP, D₅₀=300mm



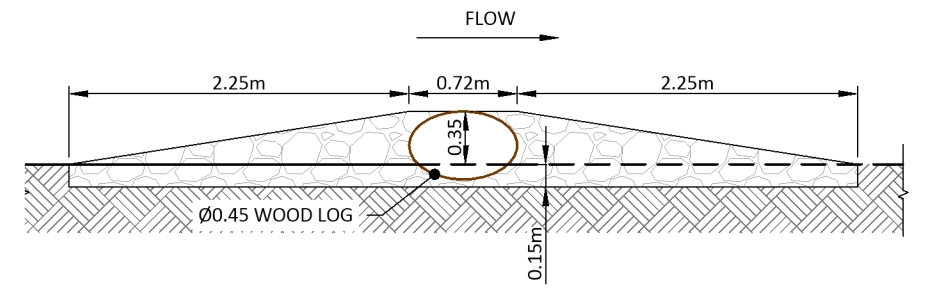
BW5 STREAM CROSS SECTION WITH RIPRAP BENDWAY WEIR
1:100



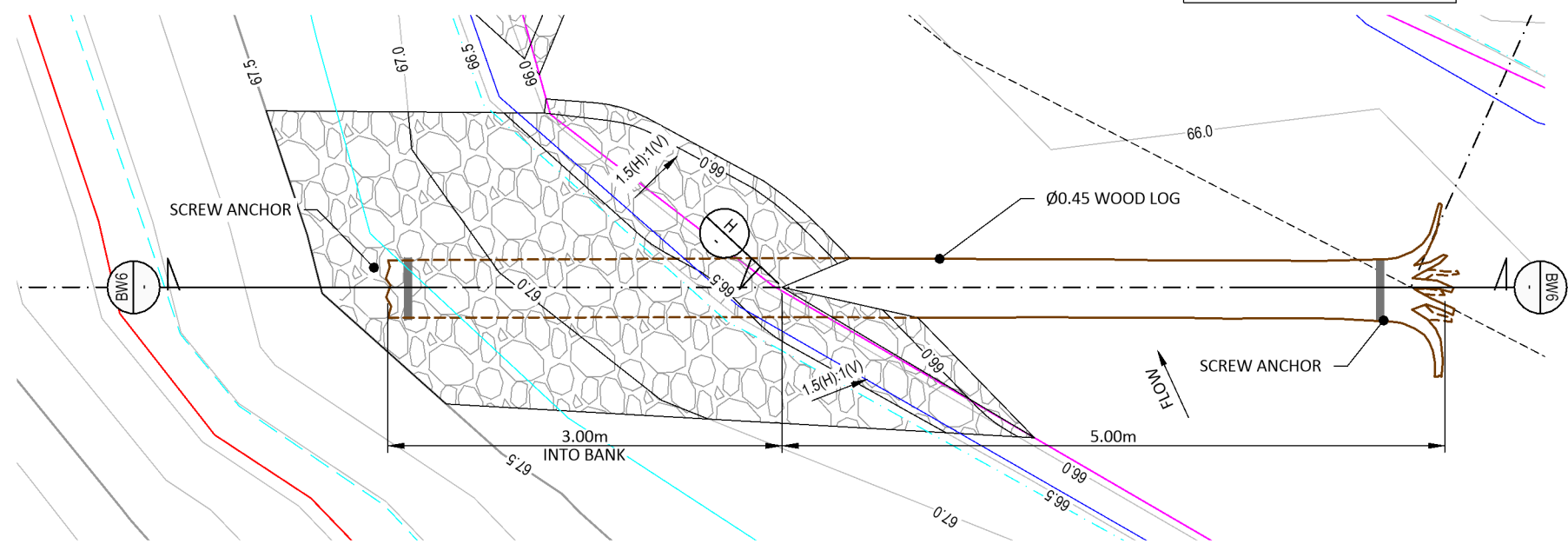
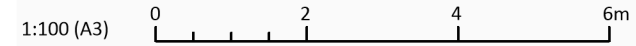
G RIPRAP BENDWAY WEIR CROSS SECTION
1:50



BW6 STREAM CROSS SECTION WITH WOOD LOG BENDWAY WEIR
1:100



H WOOD LOG BENDWAY WEIR CROSS SECTION
1:50



STREAM PLAN WITH BENDWAY WEIR BW6
1:50

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	ZX	EV	JS	21.09.20

Original Scale (A3) AS SHOWN	Design	EV, ZX	Approved For Construction*
	Drawn	ZX	
	Dwg Verifier		
	Dwg Check	EV	Date



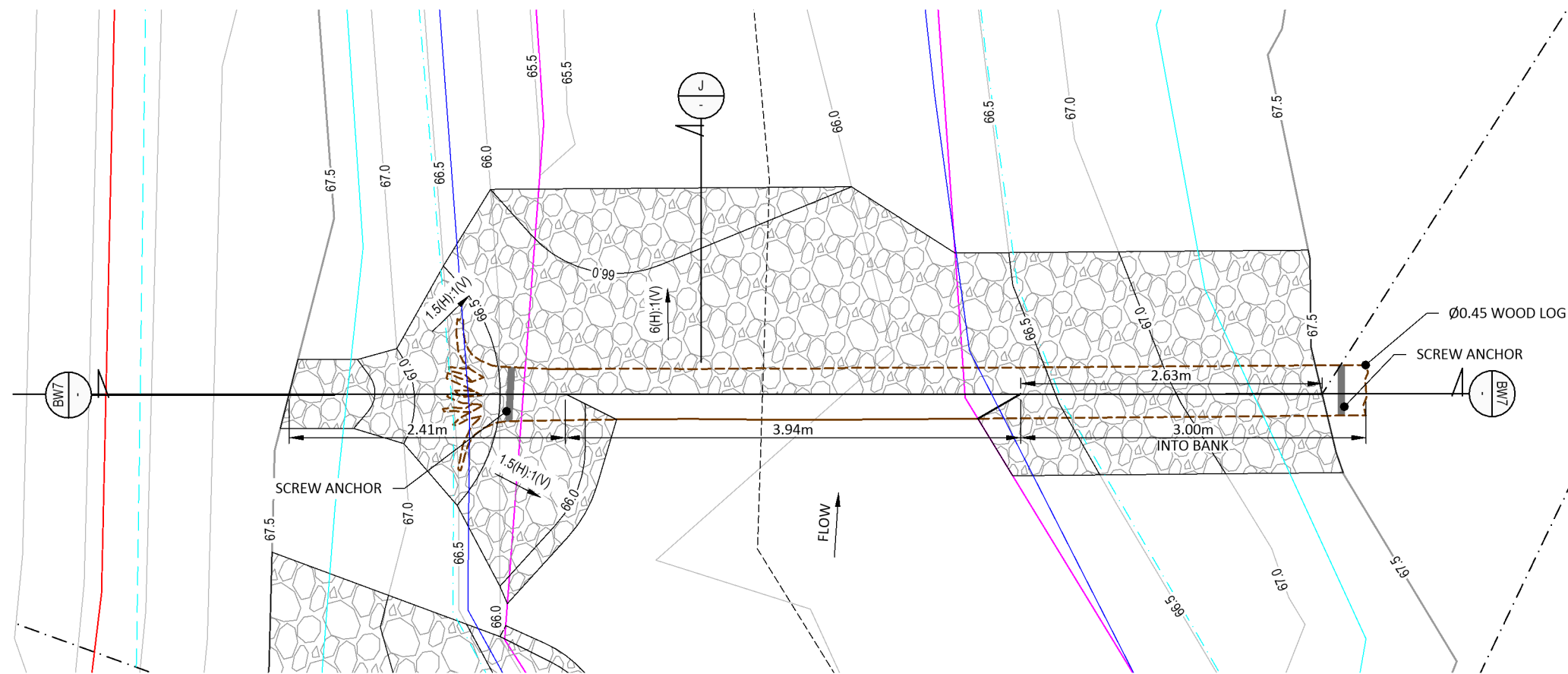
Project: SH27 MANGAWHERO STREAM BRIDGE

Title: BENDWAY WEIRS NEARBY WETLAND SHEET 1 OF 2

Status: TENDER	Rev: 0
Document No.: SR2011-00-CE-2125	

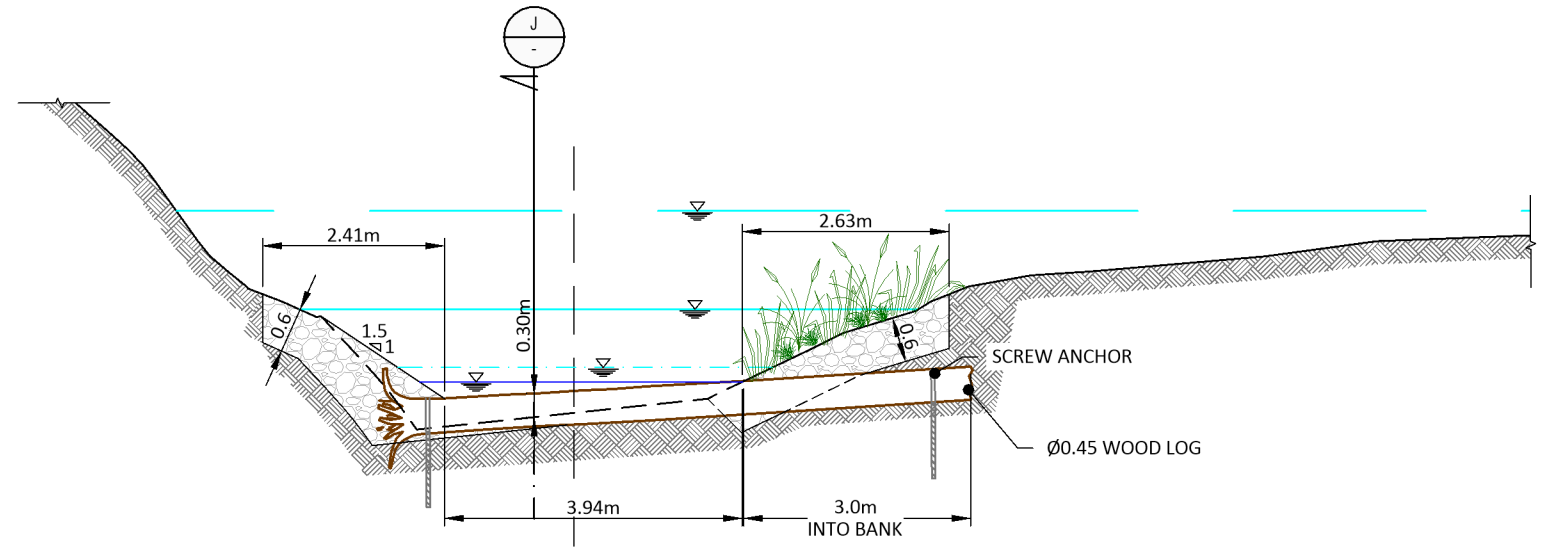
Document No.: SR2011-00-CE-2125.dwg

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

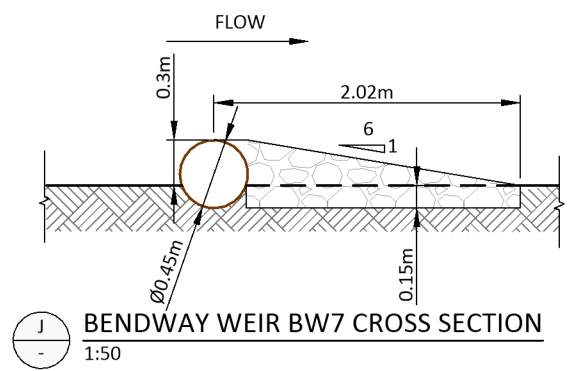


- - - 100YR WATER SURFACE
- 1/2 YR WATER SERVICE
- - - WINTER NORMAL FLOW
- SUMMER NORMAL FLOW
- TOPO CHANNEL BOTTOM
- - - STREAM CENTRELINE
- STREAM CROSS SECTION
- VOID-FILLED RIPRAP, D₅₀=300mm
- SOIL RIPRAP, D₅₀=300mm

STREAM PLAN WITH BENDWAY WEIR BW7
1:50



STREAM CROSS SECTION BENDWAY WEIR BW7
1:100



BENDWAY WEIR BW7 CROSS SECTION
1:50

1:50 (A3) 0 1 2 3m 1:100 (A3) 0 2 4 6m

ORIGINAL DRAWING
IN COLOUR

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	ZX	EV	JS	21.09.20

Original Scale (A3)	AS SHOWN	Design	EV, ZX	Approved For Construction*	
Drawn	ZX	Checked	ZX	Date	
Dwg Check	EV	* Refer to Revision 1 for Original Signature			



Project: **SH27 MANGAWHERO STREAM BRIDGE**

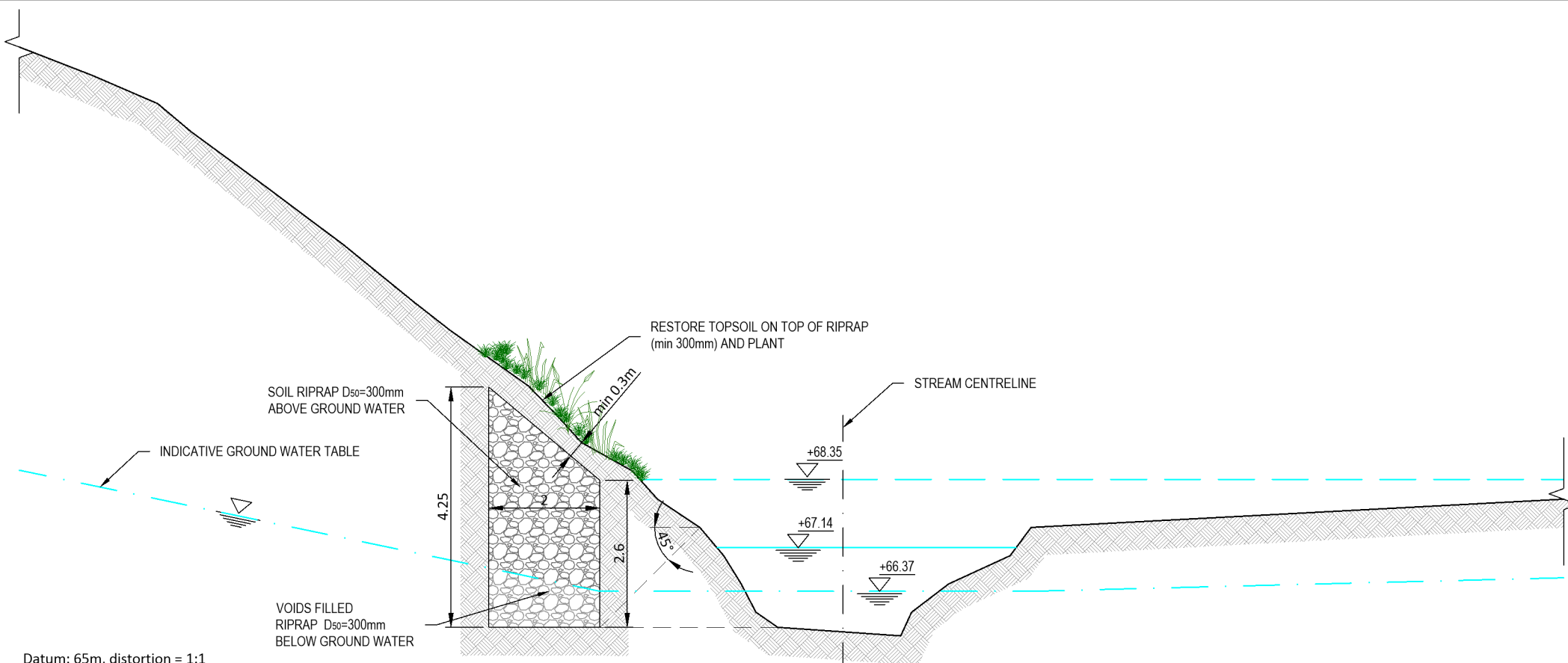
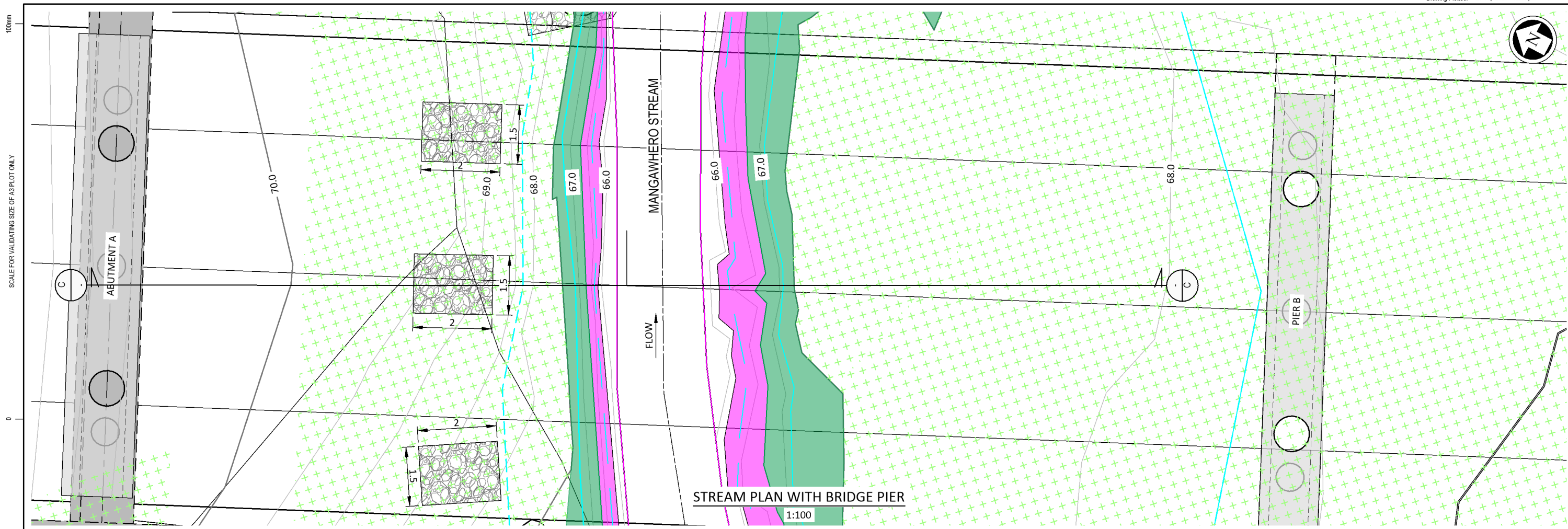
Title: **BENDWAY WEIRS NEARBY WETLAND SHEET 2 OF 2**

Status:	TENDER	
Drawing No:	SR2011 - 00 - CE - 2126	Rev: 0

Document No.: S:\Waka-Bay of Plenty\SH27 - Mangawhero Stream Bridge\00 Drawings\SR2011-00-CE-2126.dwg

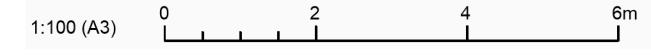
DO NOT SCALE

IF IN DOUBT ASK



- LOWER BANK AND WETLAND STREAM EDGE ZONE
- UPPER BANK ZONE
- RIPARIAN ZONE
- RUNDOWN ZONE

- HGL KEY
- 100-YEAR
 - HALF 2-YR FLOW
 - WINTER NORMAL FLOW



C TYPICAL CROSS SECTION
1:100

ORIGINAL DRAWING
IN COLOUR

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	ZX	EV	JS	21.09.20

Original Scale (A3):	1:100
Design:	EV, ZX
Drawn:	ZX
Dig Verifier:	
Dig Check:	EV
* Refer to Revision 1 for Original Signature	
Approved For Construction:	
Date:	



Project: SH27 MANGAWHERO STREAM BRIDGE

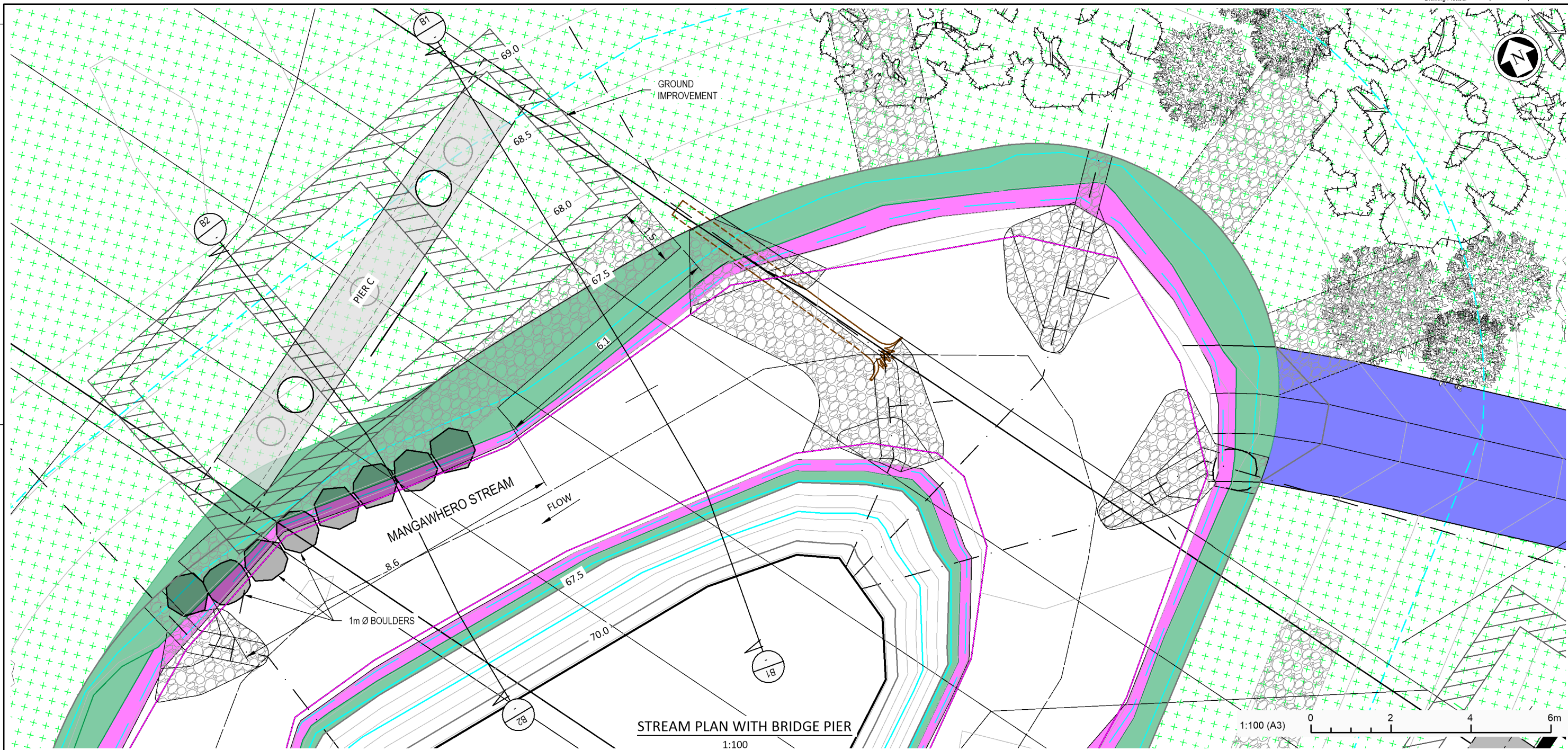
Title: ABUTMENT A SCOUR PROTECTION

Status: TENDER

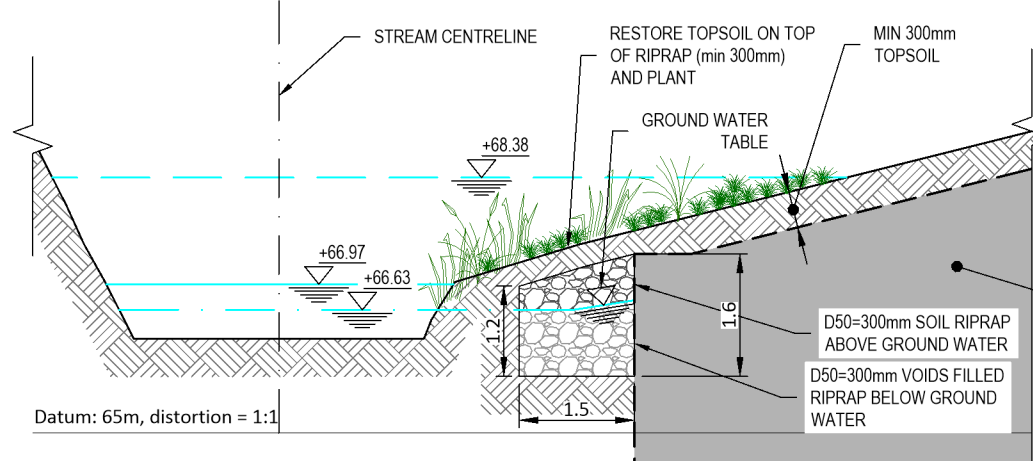
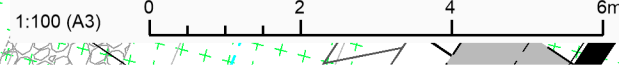
Drawing No: SR2011-00-CE-2127

Rev: 0

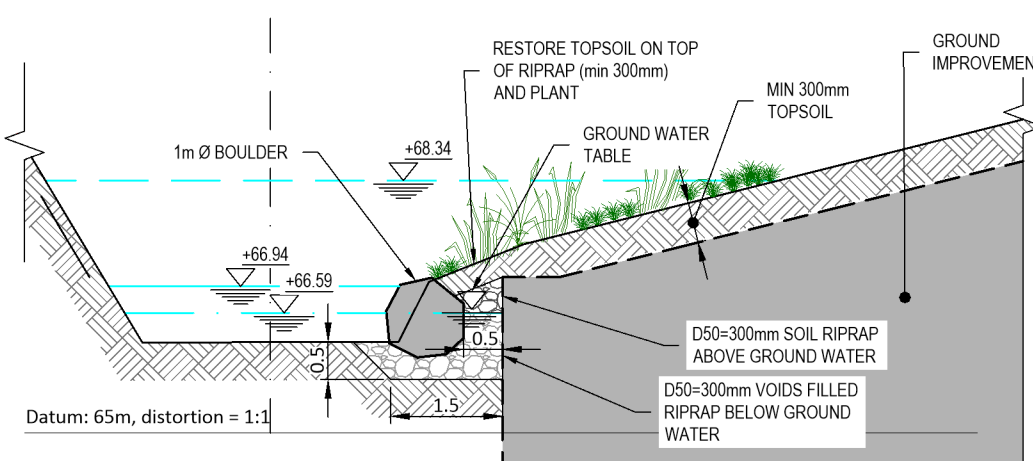
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



STREAM PLAN WITH BRIDGE PIER
1:100



B1
TYPICAL CROSS SECTION
1:100



B2
TYPICAL CROSS SECTION
1:100

HGL KEY

100-YEAR	—
HALF 2-YR FLOW	—
WINTER NORMAL FLOW	—

LOWER BANK AND WETLAND STREAM EDGE ZONE	—
UPPER BANK ZONE	—
RIPARIAN ZONE	—
RUNDOWN ZONE	—



No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	ZX	EV	JS	21.09.20

Original Scale (A3):	1:100
Design:	EV, ZX
Drawn:	ZX
Design Checker:	EV
Approved For Construction:	
Date:	



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: PIER C SCOUR PROTECTION

Status: **TENDER**

Drawing No: SR2011-00-CE-2128

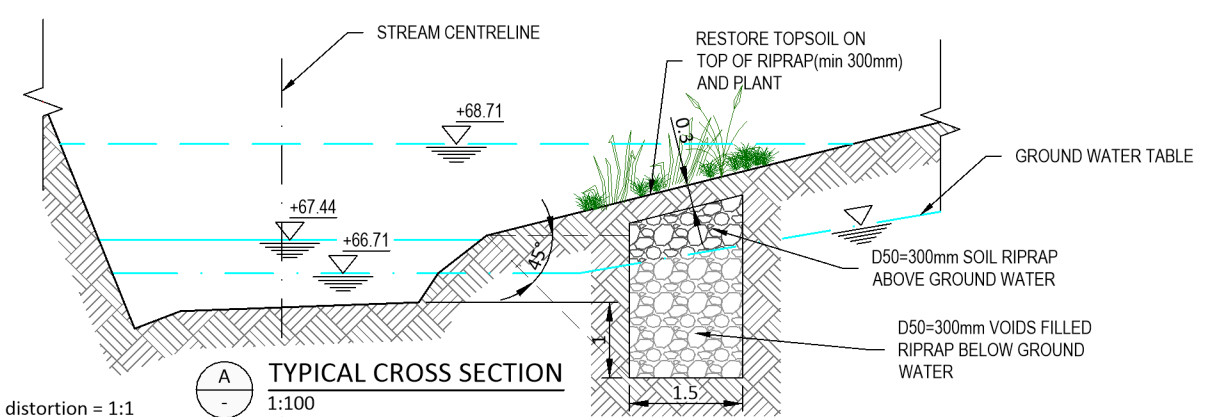
Rev: 0

Document No. S:\Waka Kotahi Bay of Plenty\SH27 - Mangawhero Stream Bridge\00 Drawings\SR2011-00-CE-2128.dwg

DO NOT SCALE

IF IN DOUBT ASK

100mm
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

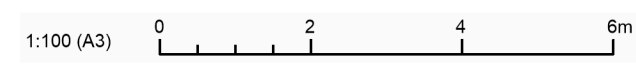


Datum: 65m, distortion = 1:1

TYPICAL CROSS SECTION
1:100

HGL KEY	
100-YEAR	---
HALF 2-YR FLOW	---
WINTER NORMAL FLOW	---

PLANTING ZONE KEY	
LOWER BANK AND WETLAND STREAM EDGE ZONE	
UPPER BANK ZONE	
RIPARIAN ZONE	
RUNDOWN ZONE	



No	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	ZX	EV	JS	21.09.20

Original Scale (A3):	1:100
Design:	EV, ZX
Drawn:	ZX
Dwg Checker:	EV
Approved For Construction:	
Date:	



Project: SH27 MANGAWHERO STREAM BRIDGE

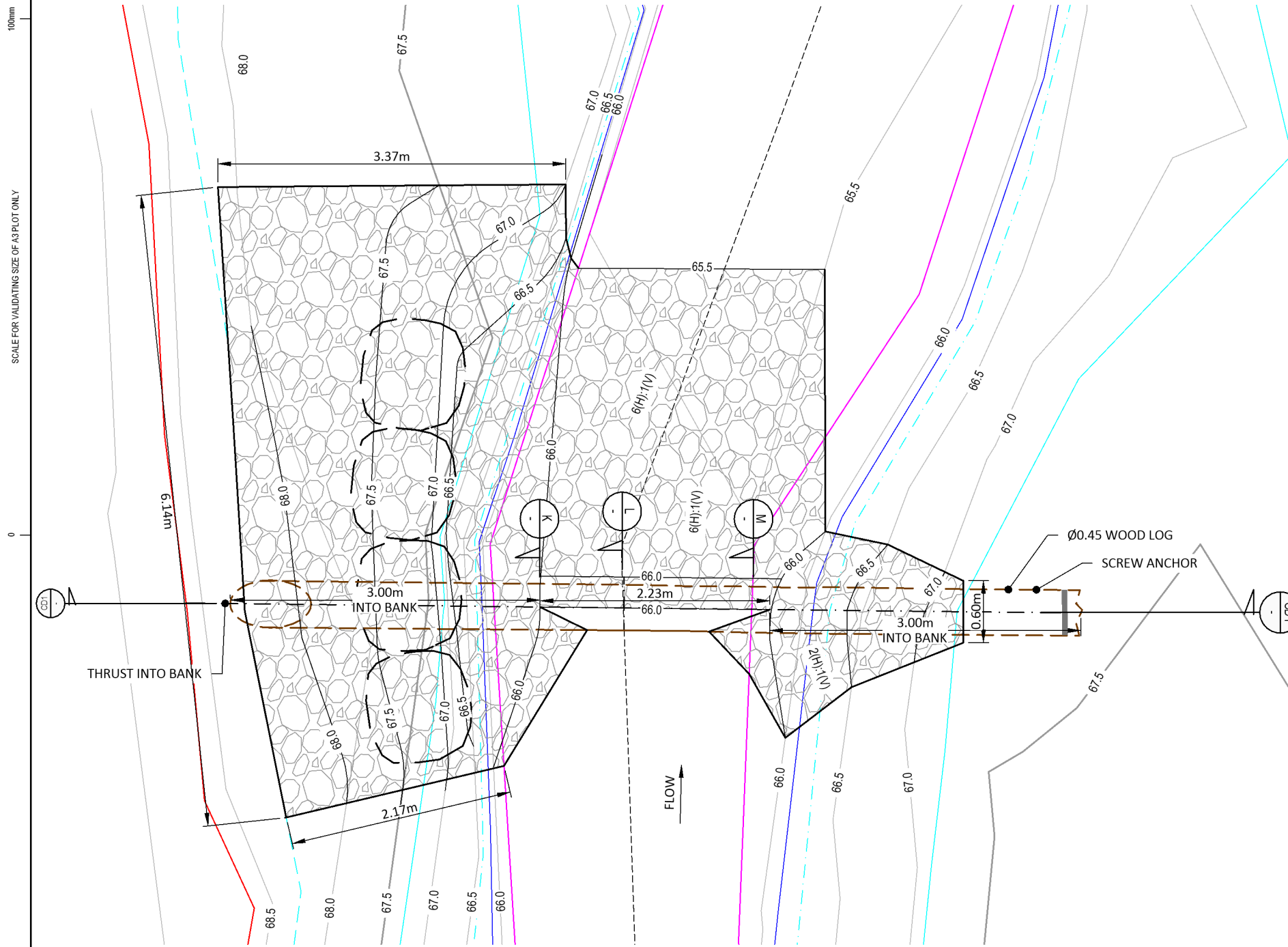
Title: ABUTMENT D SCOUR PROTECTION

Status: **TENDER**
Drawing No: SR2011-00-CE-2129
Rev: 0

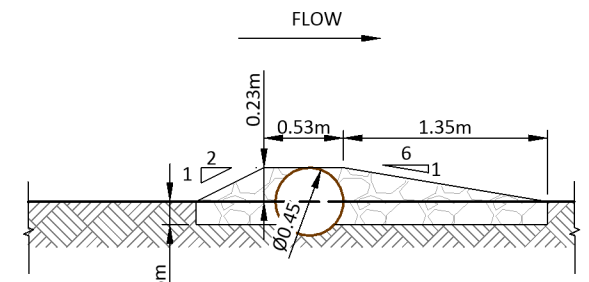
Document No.: S:\Waka Kotahi Bay of Plenty\SH27 - Mangawhero Stream Bridge\00 Drawings\SR2011-00-CE-2129.dwg

DO NOT SCALE

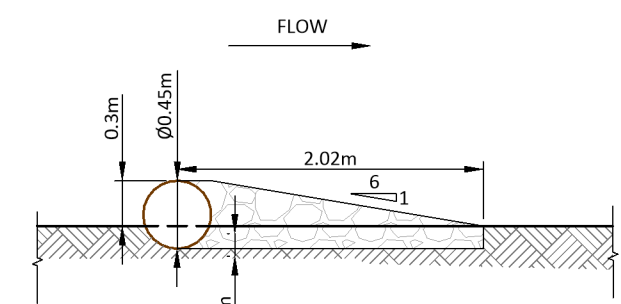
IF IN DOUBT ASK



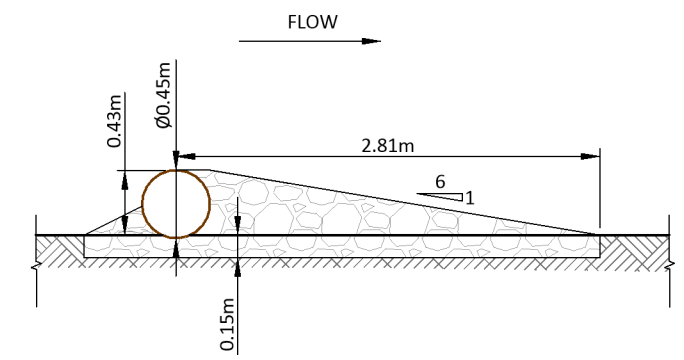
STREAM PLAN WITH CHECK DAM
1:50



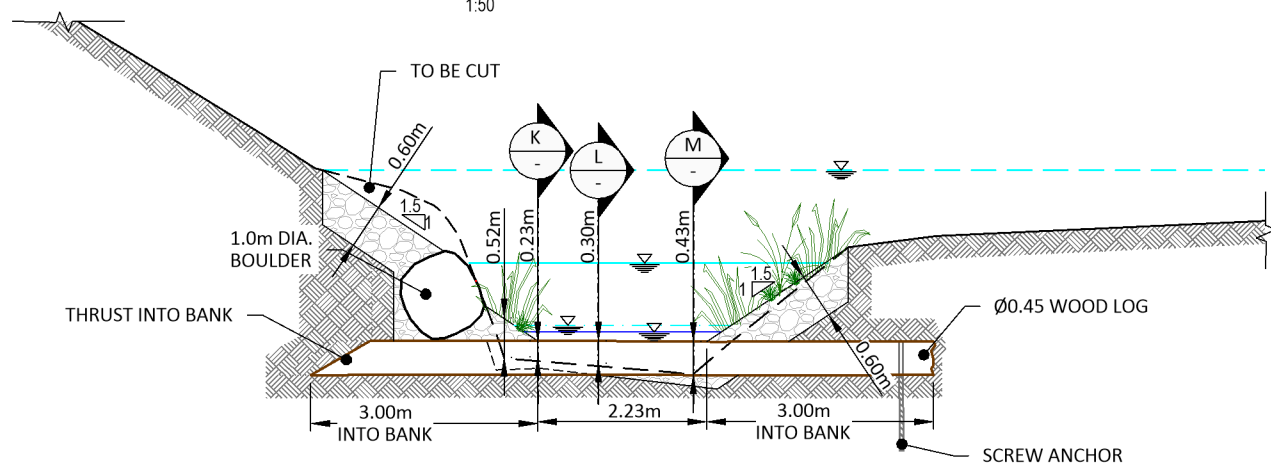
K CHECK DAM CROSS SECTION
1:50



L CHECK DAM CROSS SECTION
1:50

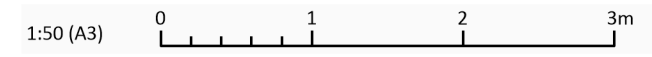


M CHECK DAM CROSS SECTION
1:50



CD1 STREAM CROSS SECTION WITH CHECK DAM
1:100

- 100YR WATER SURFACE
- 1/2 2YR WATER SERVICE
- WINTER NORMAL FLOW
- SUMMER NORMAL FLOW
- TOPO CHANNEL BOTTOM
- STREAM CENTRELINE
- STREAM CROSS SECTION
- VOID-FILLED RIPRAP, D₅₀=300mm
- SOIL RIPRAP, D₅₀=300mm



No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	ZX	EV	JS	21.09.20

Original Scale (A3) AS SHOWN	Design EV, ZX	Approved For Construction*
Drawn ZX	Design Check EV	Date
Dwg Check EV		

* Refer to Revision 1 for Original Signature

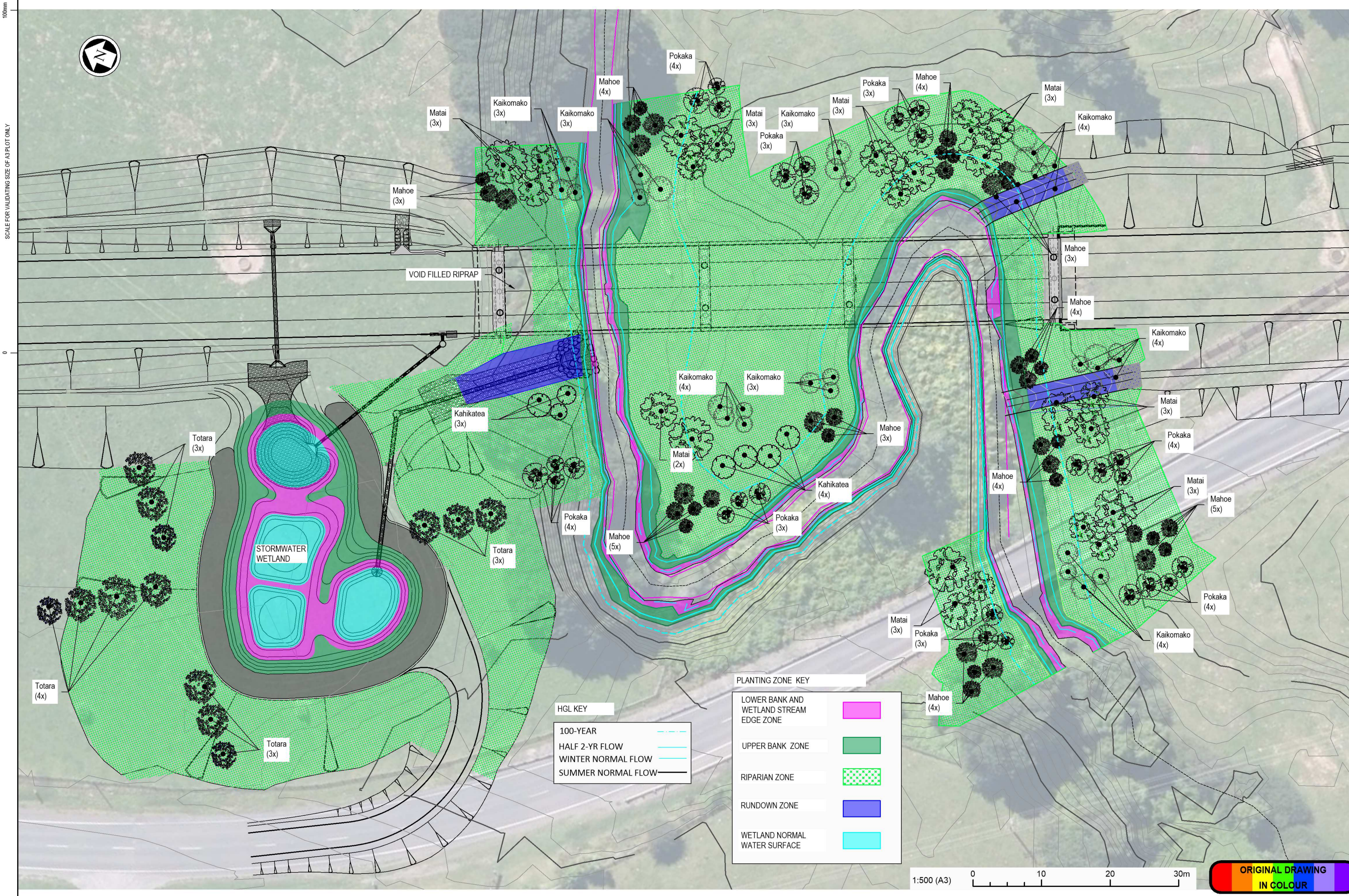


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: CHECK DAM PLAN, CROSS SECTION AND DETAILS

Status: TENDER	Rev: 0
Drawing No: SR2011-00-CE-2130	

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

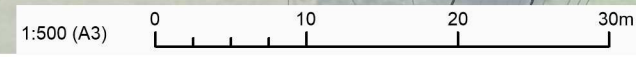


PLANTING ZONE KEY

LOWER BANK AND WETLAND STREAM EDGE ZONE	
UPPER BANK ZONE	
RIPARIAN ZONE	
RUNDOWN ZONE	
WETLAND NORMAL WATER SURFACE	

HGL KEY

100-YEAR	
HALF 2-YR FLOW	
WINTER NORMAL FLOW	
SUMMER NORMAL FLOW	



0	ISSUED FOR TENDER	ZX	EV	JS	21.09.20
No.	Revision	By	Chk	Appd	Date

Original Scale (A3)	1:500
Design	EV, ZX
Drawn	ZX
Dwg Verifier	
Dwg Check	EV
* Refer to Revision 1 for Original Signature	
Approved For Construction*	
Date	



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: STREAM AND WETLAND PLANTING PLAN

Status:	TENDER
Drawing No:	SR2011-00-CE-2141
Rev:	0

100mm
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

0



BRIDGE LOCATION

STATE HIGHWAY 27

TAHOA S Rd

PLAN
1:2500

NOT FOR
CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	GHJ	PCH	24.09.20

Original Scale (A3) AS SHOWN	Design	PG	03.18	Approved For Construction*
	Drawn	RG	10.18	
	Dwg Verifier	GHJ	06.19	Date
	Dwg Check	PG	06.19	

* Refer to Revision 1 for Original Signature



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: LOCALITY PLAN

Status: **TENDER**
Drawing No: SR2011 - 00 - CE - 4000
Rev: 0

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

General Notes

- 1 Refer to Technical Specification and BBO Standard Specifications for detail requirements as summarised below.
- 2 These drawings shall not be scaled.
- 3 The Designer as nominated on the drawings and standard specification refers to Bloxam Burnett & Olliver Ltd. The Engineer as nominated in Bloxam Burnett & Olliver Ltd standard specification refers to Bloxam Burnett & Olliver Ltd.

Setout

- 1 All coordinates are in terms of NZTM Coordinate System.
- 2 All levels are in terms of Moturiki Vertical Datum 1953.

Concrete

- 1 Concrete production is to comply with NZS3104.
- 2 Concrete materials and manufacturing is to comply with NZS3109. The following information is supplied as required by Clause 6.2 (a):
 - (i) Specified compressive strength: 40MPa for concrete placed insitu (N40); 50MPa for precast concrete (N50).
 - (ii) Nominal maximum aggregate size: 20mm.
 - (iii) Workability - the slump of the concrete shall be kept to a value consistent with satisfactory placement and compaction using methods acceptable to the Designer and the mix designer.
 - (iv) Methods of placement are to be proposed by the Contractor subject to the Designer's approval
 - (v) Special concrete is not required
- 3 Concrete cover (Exposure classification B1)
 - 75mm - all concrete cast in contact with the ground
 - 50mm - where protected from soil contact during casting by formwork or by a suitable damp-proof membrane.
 - 40mm - standard unless noted otherwise on the drawings
- 4 Concrete finishes are to be as specified by NZS3114, schedule as follows:
 - Barriers: F4
 - Precast beam- exterior faces: F4; top face and ends: Type B construction joints to NZS 3109.
 - Exposed concrete: F5
 - Element below ground: F2/U2
 - Top surface of deck: U5
- 5 All construction joint to be Type B to NZS3109. This applies to joints between new elements and both new and existing works.

Reinforcement

- 1 Reinforcement to comply with Clause 3 of NZS3109
- 2 DH denotes deformed bar Grade 500E
RH denotes round bar Grade 500E
D denotes deformed bar Grade 300E
R denotes round bar Grade 300E
- 3 Only MA (Micro Alloyed) reinforcement is permitted. QT (Quenched & Tempered) reinforcement is not acceptable.
- 4 Lap length shall be 50Ø unless stated otherwise on the drawings.
- 5 Laps of all longitudinal reinforcement shall be staggered except where positions are nominated.
- 6 Unless specifically shown otherwise on the drawings, longitudinal reinforcement is to be terminated with a standard 90° or 180° hook as specified in NZS3109, where it meets the end of a member, with 100 maximum end cover
- 7 Reidbar hardware to be steel; installed as recommended by manufacturer.

Prestress

- 1 Prestress to comply with Clause 4 of NZS3109 for materials and with Clause 8 of NZS3109 for stressing and grouting.
- 2 Strands shall be 15.2mm nominal diameter, Relax 2 in accordance with AS/NZS4672 (formerly designated as Low Relaxation in AS1310 & AS1311)
- 3 Debonding of strands where required to be strictly in accordance with BBO drawings.
- 4 Debonding of strands shall not be achieved by the use of grease.
- 5 Initial jacking force shall be 75% UTS maximum, unless shown otherwise on the drawings.
- 6 For 15.2mm diameter strands, strand force after transfer is to be 182kN minimum.
- 7 For 12.7mm diameter strands, strand force after transfer is to be 130kN minimum.
- 8 Release of pretension shall be at a controlled rate.
- 9 Concrete strength at transfer shall not be less than 40MPa unless shown otherwise on the drawings.

Design Loading

- 1 Traffic Loads: HN-HO-72 (to Bridge Manual 3rd Edition).
- 2 3 Load Lanes, 2 Marked Lanes
- 3 Design life is 100 years for new structural elements.
- 4 Structural importance level 3.

Seismic Loading

- 1 Hazard factor, Z = 0.19
- 2 Return period factor, R = 1.30, as per NZTA BM 3.3
- 3 Near fault factor, N(T,D) = 1.00
- 4 Site subsoil class = D
- 5 Design displacement ductility factor, $\mu = 3$
- 6 Structural performance factor, Sp = 0.7

Structural Steel

- 1 All fabrication and erection shall comply with the requirements of NZS3404.1:2009
- 2 All plates shall be Grade 350 L15 to AS/NZS3678.
- 3 All welds shall be in accordance with AS/NZS1554.1:2014 as a minimum standard, AS/NZS1554.5:2014 where noted or where detail category exceed 112 (refer to AS5100.6). Note this is demanding in terms of weld quality and testing requirements. Any uncertainties are to be regarded as AS/NZS1554.5:2011 unless confirmed otherwise by the Designer.
- 4 All surface finish shall be in accordance with AS/NZS2312 with IZS3 unless shown otherwise on the drawings.
- 5 Coating damaged during handling shall be repaired using method approved by the Designer.
- 6 All bolts shall be Property Class 8.8/TF Hot Dip Galvanised unless noted otherwise. Threaded length of bolts are to be excluded from potential shear planes such as between plates which are bolted together.
- 7 All bearing plates shall be Hot Dip Galvanised.

Steelwork Inspection and Testing (Refer also to BBO Standard Specification Section SS2210)

- 1 Butt welds: 100% visual scanning (VS) and 100% visual examination (VE).
10% ultrasonic test (UT) on all butt welds, increased frequency of UT testing to 100% should any defects be found.
- 2 Fillet welds: 100% visual scanning (VS) and 100% visual examination (VE).
10% magnetic particle test (MT) on all fillet welds. 100% of MT on all repairs to fillet welds.

Bottom Driven Tube Piles

- 1 Refer to BBO Standard Specifications for Bottom Driven Steel Cased Concrete Piles. (SS 2111)
- 2 Minimum pile toe levels shall be as shown on the drawings, subject to the additional soil proof drilling providing results acceptable to the Designer.
- 3 Location of proof drilling is shown on the drawings. At these locations, carry out core drilling and SPT testing at 1.5m centres extending through the pile foundation zone from 15m depth level to 6m below design pile toe level.
- 4 Geotech oversight to be agreed with BECA.
- 5 Care shall be taken in placement of pile reinforcing to ensure beam reinforcement can be positioned correctly.
- 6 Spiral reinforcing ends and splices shall comprise one full turn plus lapweld (detail to AS/NZS1554.3), or anchored by using an extra half turn around the piles, plus terminating the spiral bar with a standard 135 degree hook directed towards the core of the member.
- 7 Tremie shall be used.
- 8 Refer to drawing 4010 for additional piling notes.

Loading Panel

- 1 A bronze panel showing the year of erection and the design live load (HN-HO-72) shall be cast into the end face of NE corner of Abutment A and NW corner of Abutment D, clear of all fill batter material.
- 2 The panel shall conform to requirements of NZTA Bridge Manual Clause 4.12.6.
- 3 Subject to the Designer's approval, an equivalent "negative" imprint may be cast into the concrete, detailed to avoid impact on available concrete cover.

Anti-graffiti coating

- 1 Protective coating shall have minimum 10 year design life, be transparent and solvent resistant
- 2 Coating to be proposed by Contractor for the Engineer's approval from approved list of suitable products before application.
- 3 Shall be applied to:
 - Both faces of rigid traffic barriers
 - 1.2m min. from an accessible top edge
 - 2.7m min. above adjacent ground level
 - 1.5m min. horizontal from an accessible substructure element (external bridge beams)

NOT FOR
CONSTRUCTION

No	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	GHJ	PCH	24.09.20

Original Scale (A3)	N.T.S	Design	PG	03.18	Approved For Construction*
		Drawn	RG	03.18	
		Eng Verifier	GHJ	06.19	
		Diag Check	PG	06.19	Date

* Refer to Revision 1 for Original Signature

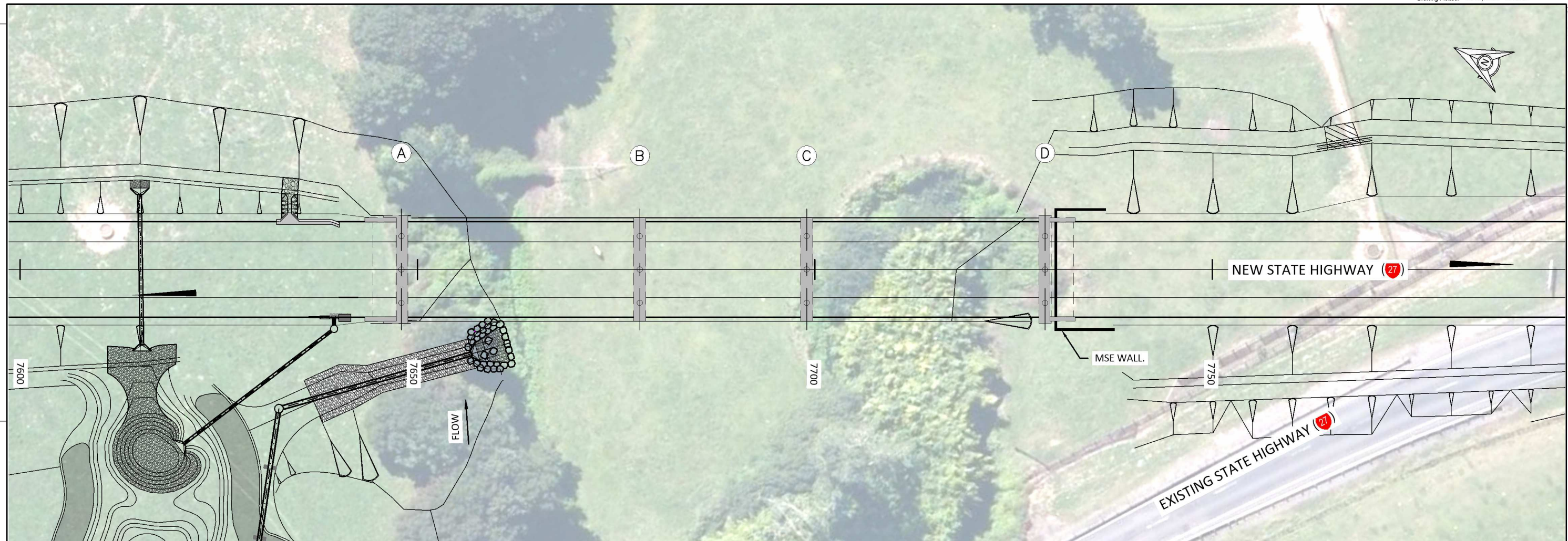


Project:	SH27 MANGAWHERO STREAM BRIDGE
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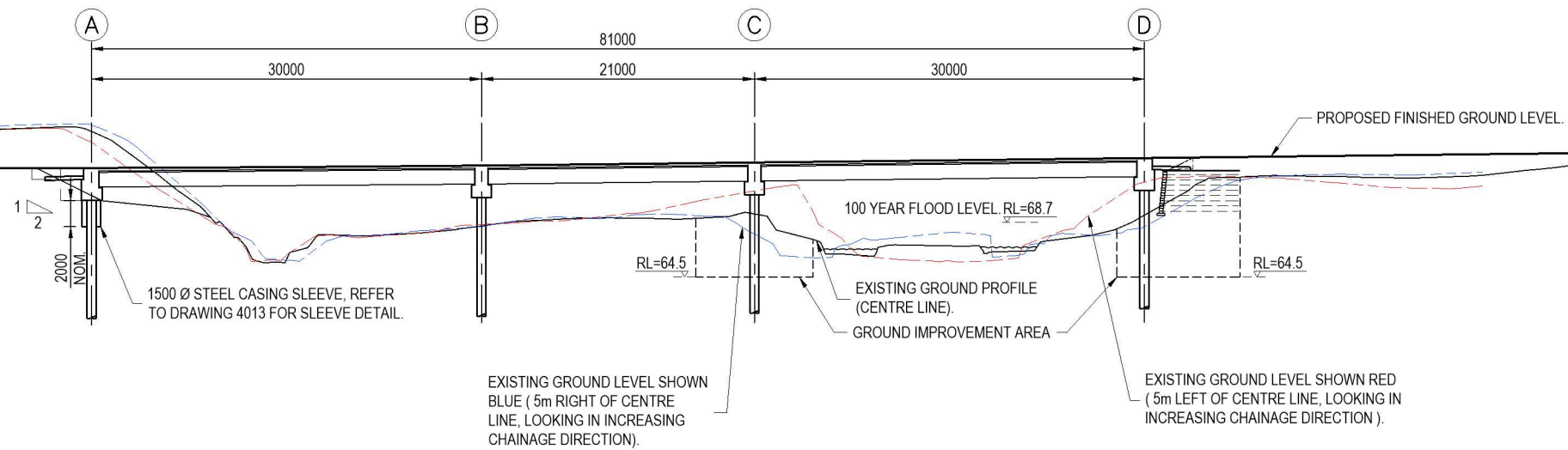
Title:	GENERAL NOTES
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Status:	TENDER
Drawing No:	SR2011 - 00 - CE - 4001
Rev:	0

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



PLAN
1:500



LONG SECTION
1:500

NOTE:

SCOUR PROTECTION NOT SHOWN FOR CLARITY, REFER TO CIVIL DWG 2121 FOR DETAILS.

NOT FOR CONSTRUCTION

0	ISSUED FOR TENDER	TZ	GHJ	PCH	24.09.20
No.	Revision	By	Chk	Appd	Date

Original Scale (A3):	1:500
Design	PG 03.18
Drawn	RG 03.18
Eng Checker	GHJ 06.19
Dwg Check	PG 06.19
* Refer to Revision 1 for Original Signature	

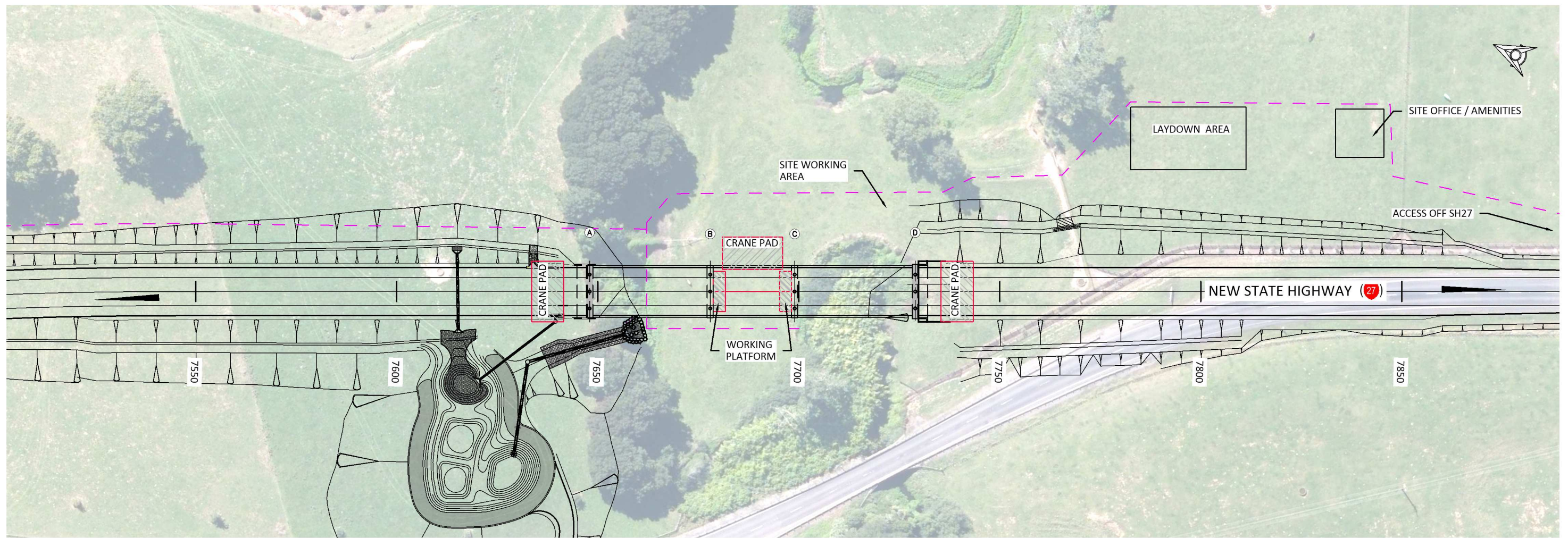


Project: **SH27 MANGAWHERO STREAM BRIDGE**

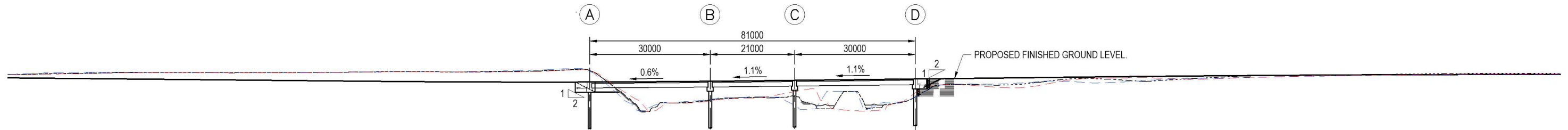
Title: **GENERAL ARRANGEMENT PLAN & LONG SECTION**

Status:	TENDER
Drawing No:	SR2011 - 00 - CE - 4002
Rev:	0

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



PLAN
1:1000



LONG SECTION
1:1000

NOTES:

PROPOSED CONSTRUCTION METHODOLOGY:

1. STRIP TOP SOIL/CUT ACCESS TRACK TO FORM LAY-DOWN AREAS AND WORKING PLATFORMS AROUND PIERS AND ABUTMENTS
2. CONSTRUCT AND INSTALL PILE FOUNDATIONS
3. INSTALL/POUR CONCRETE COLUMNS
4. INSTALL FALSEWORK/ACCESS TO CONSTRUCT PIER AND ABUTMENT CROSSHEADS
5. PLACE SUPERT BEAMS WORKING FROM WEST TO EAST (SEE NOTES ON BEAM LIFTS)
6. CAST SETTLEMENT SLABS AND WING-WALL APPROACHES AT BOTH ABUTMENTS
7. FIX, PLACE AND POUR DECK INCLUDING DIAPHRAGMS/UP-STANDS
8. INSTALL PRECAST CONCRETE BARRIERS OVER BRIDGE DECK
9. COMPLETE APPROACH WORKS/SURFACE BRIDGE DECK
10. REINSTATE ACCESS TRACKS AND LAY-DOWN AREAS

NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	GHJ	PCH	24.09.20

Original Scale (A3)	Design	PG	03.18	Approved For Construction*
1:1000	Drawn	RG	10.18	
	Eng Verifier	GHJ	06.19	
	Eng Check	PG	06.19	Date

* Refer to Revision 1 for Original Signature

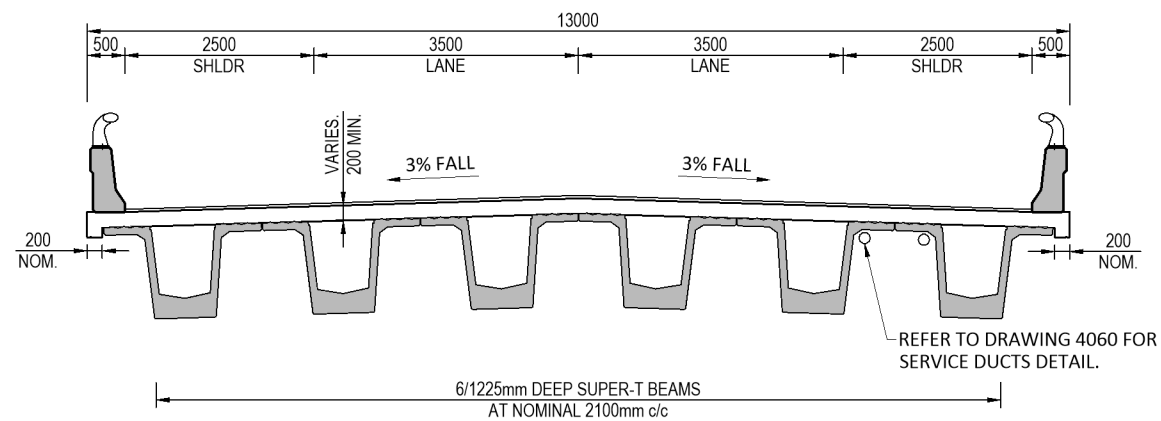


Project: SH27 MANGAWHERO STREAM BRIDGE

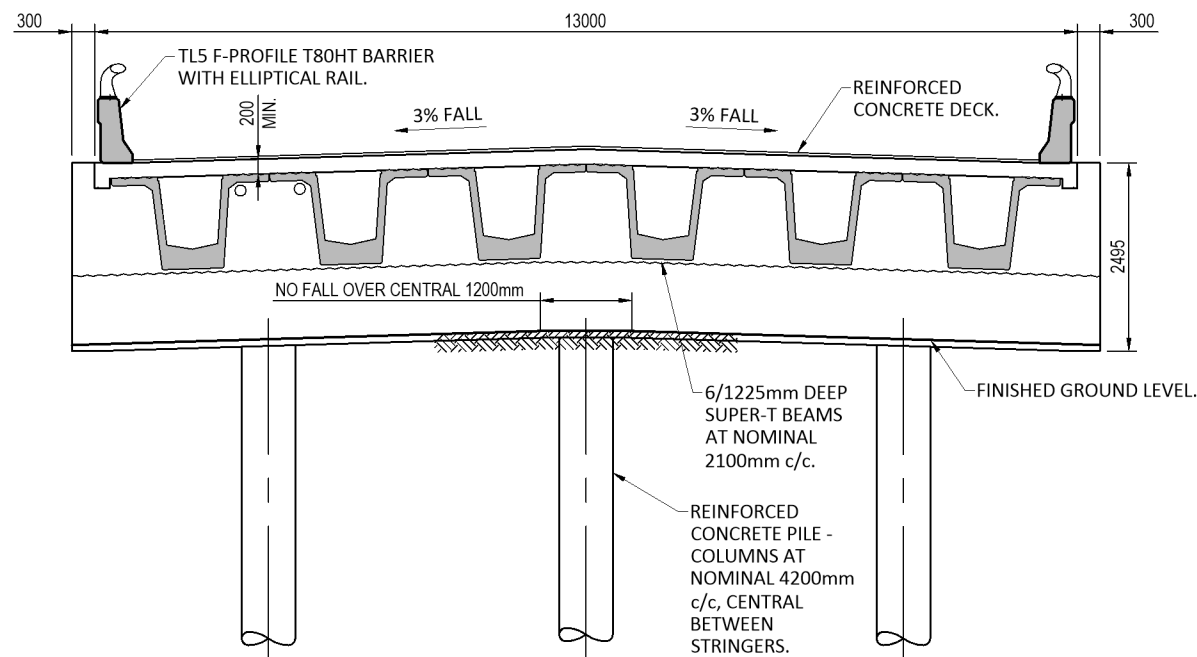
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Status	TENDER
Drawing No.	SR2011 - 00 - CE - 4003
Rev.	0

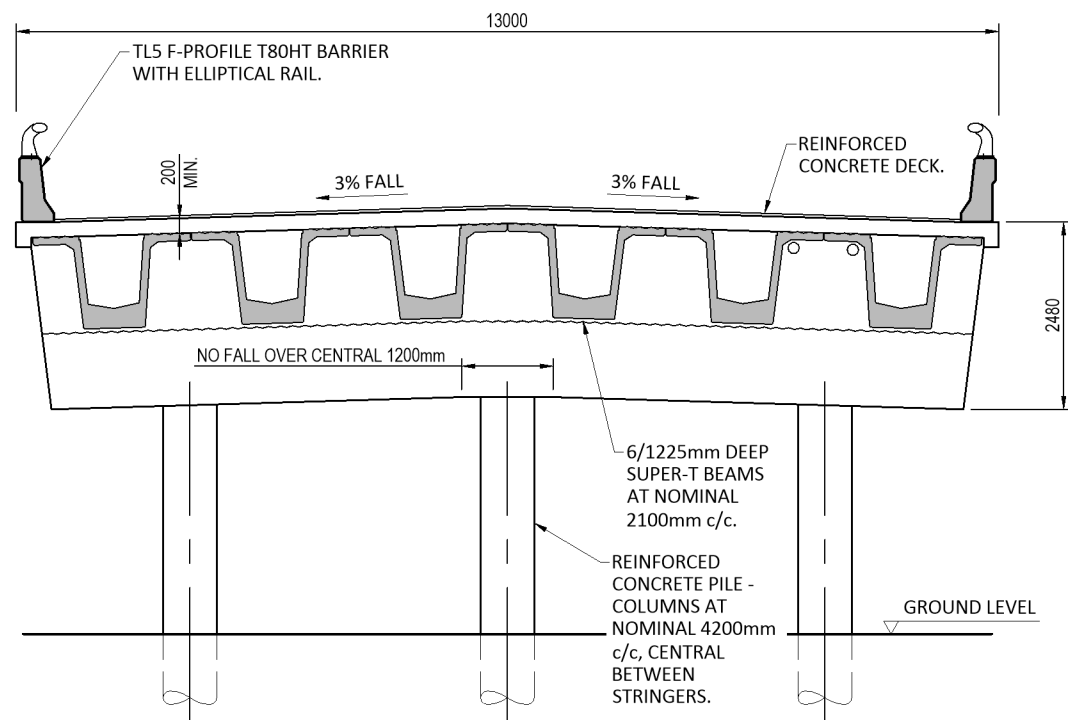
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



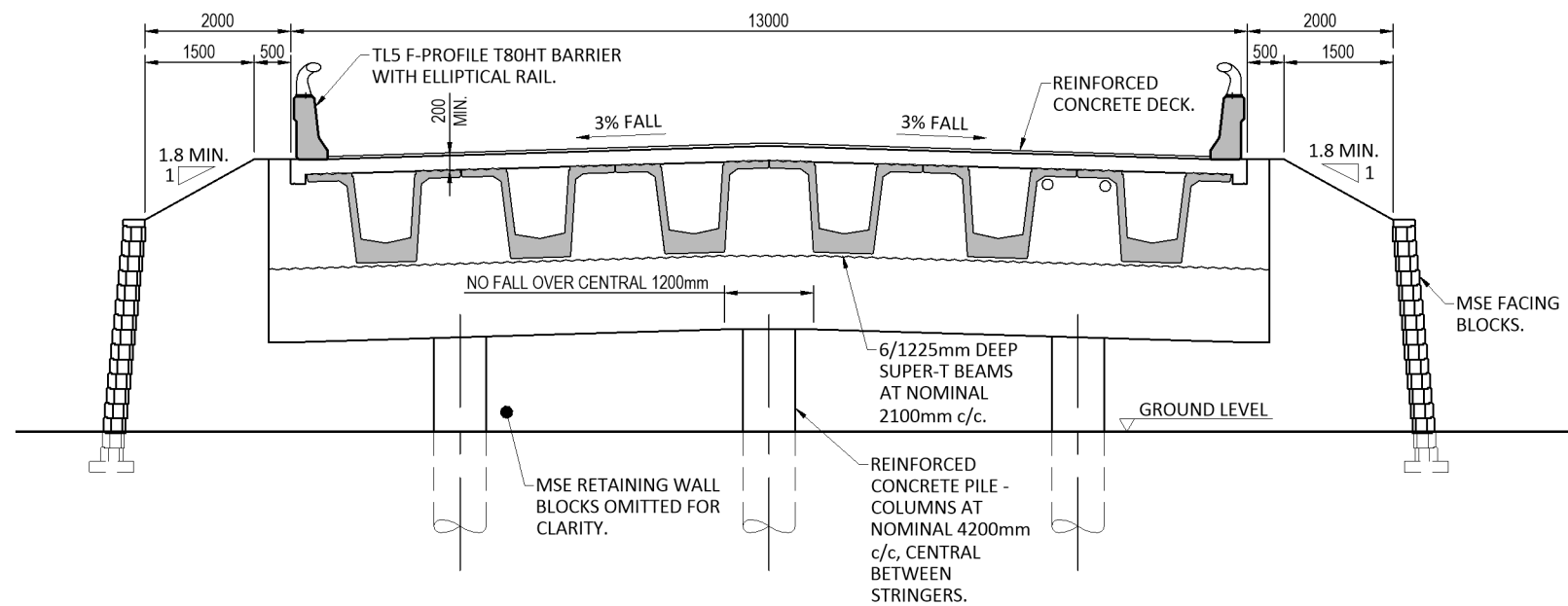
TYPICAL CROSS SECTION
1:100 (VIEWED IN DIRECTION OF INCREASING CHAINAGE)



CROSS SECTION AT ABUTMENT A
1:100 (VIEWED IN DIRECTION OF DECREASING CHAINAGE)



CROSS SECTION AT PIER (TYPICAL)
1:100 (VIEWED IN DIRECTION OF INCREASING CHAINAGE)



CROSS SECTION AT ABUTMENT D
1:100 (VIEWED IN DIRECTION OF INCREASING CHAINAGE)

NOT FOR CONSTRUCTION

0	ISSUED FOR TENDER	TZ	GHJ	PCH	24.09.20
No.	Revision	By	Chk	Appd	Date

Original Scale (A3):	1:100
Design	PG 03.18
Drawn	RG 03.18
Design Checker	GHJ 06.19
Design Checker	PG 06.19
* Refer to Revision 1 for Original Signature	

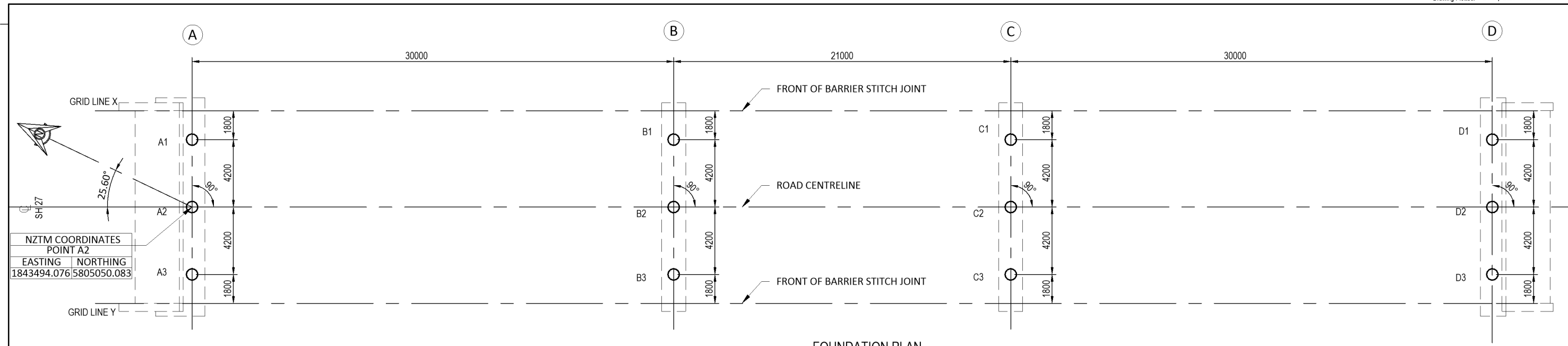


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: GENERAL ARRANGEMENT TYPICAL CROSS SECTIONS

Status:	TENDER
Document No.:	SR2011 - 00 - CE - 4004
Rev:	0

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



FOUNDATION PLAN
1:250

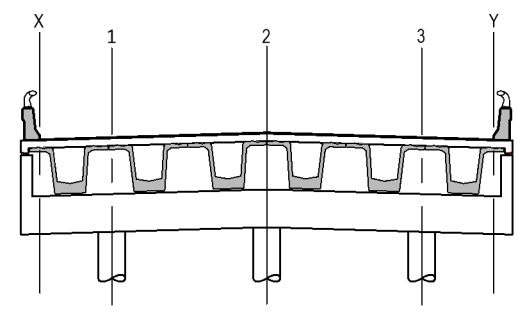


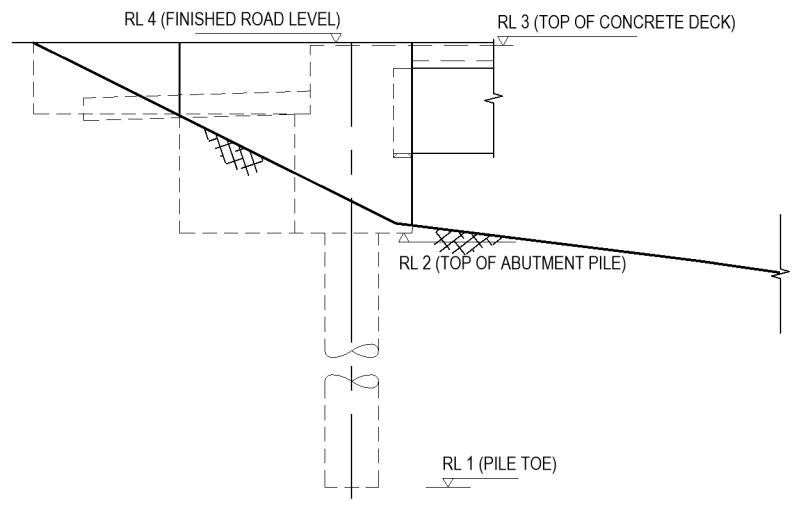
TABLE 1

	PILE #	PILE DRIVING RESISTANCE (KN)	GRID LINE	RL 1	RL 2	RL 3	RL 4
ABUTMENT A	1	5556	X	N/A	70.20m	72.68m	72.72m
	2			38.00m	70.26m	72.73m	72.77m
	3			70.37m	72.86m	72.90m	
PIER B	1	6670	X	N/A	70.20m	72.68m	72.72m
	2			N/A	70.38m	72.86m	72.90m
	3			33.00m	70.44m	72.91m	72.95m
PIER C	1	6670	X	N/A	70.38m	72.86m	72.90m
	2			N/A	70.44m	72.91m	72.95m
	3			32.00m	70.78m	73.28m	73.32m
ABUTMENT D	1	5556	X	N/A	70.62m	73.09m	73.13m
	2			N/A	70.68m	73.15m	73.19m
	3			33.00m	70.78m	73.28m	73.32m
			Y	N/A	70.38m	72.86m	72.90m
			Y	N/A	70.62m	73.09m	73.13m
			Y	N/A	70.96m	73.43m	73.47m

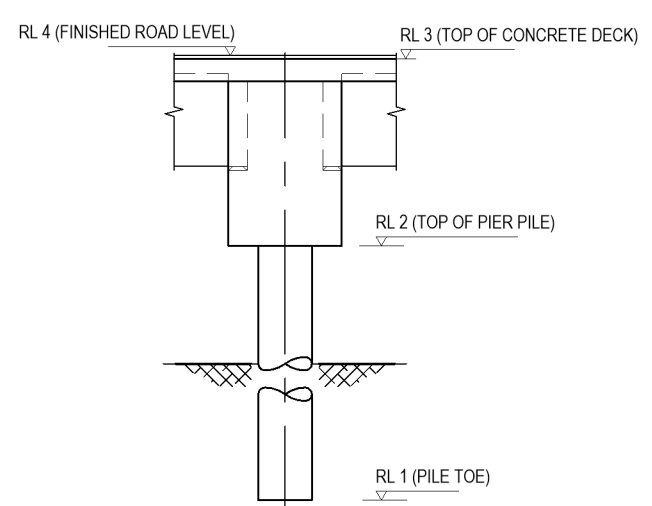
NOTES:

- ALL PILES ARE TO BE BOTTOM-DRIVEN SPIRAL WELDED STEEL TUBES FABRICATED IN ACCORDANCE WITH AS/NZS 5131 AND AS/NZS 1554.1.
- PROOF DRILLING AT ABUTMENT D SHALL BE COMPLETED AND SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO THE COMMENCEMENT OF PILING WORKS. FINAL PILE DESIGN AT ABUTMENT D SUBJECT TO THE RESULTS OF PROOF BORE. ENGINEER TO CONFIRM PILE DETAILS FOLLOWING RECEIPT AND REVIEW OF PROOF BORE. SEE DRAWING 5601 FOR PROOF BORE REQUIREMENTS.
- UNLESS AGREED OTHERWISE WITH THE ENGINEER, PILES SHALL BE DRIVEN TO AT LEAST THE MINIMUM PILE FOUNDING DEPTH AS SHOWN ON TABLE 1 AND SHALL ACHIEVE A MINIMUM DRIVING RESISTANCE PROVEN BY PDA ON RE-STRIKE NO LESS THAN THAT SPECIFIED IN NOTE 5 BELOW.
- PILE CAPACITIES SHALL BE CHECKED USING HILEY PILE DRIVING FORMULA AT EACH PILE LOCATION, AT LEAST ONE NO. PDA TEST IS REQUIRED AT EACH SUPPORT LINE, WITH HILEY CORRELATED WITH PDA AT EACH SUPPORT LINE TO DEMONSTRATE CONSISTENCY.
- MINIMUM (IDEAL) DRIVING RESISTANCES ON RE-STRIKE WHICH ARE TO BE PROVEN BY PDA ARE SHOWN ON TABLE 1.
- CONTRACTOR MAY AT HIS DISCRETION OPT TO INCREASE THE MINIMUM NOMINATED CASING GRADE (TO A NOMINATED YIELD STRESS NO GREATER THAN 355 MPa), OR TO INCREASE WALL THICKNESS OR TO INCREASE MINIMUM NOMINATED LENGTH OF THICKER WALL SECTION ABOVE BASE OF PILE IF SEEN AS DESIRABLE TO IMPROVE PRACTICALITY OF DRIVING.

BRIDGE PLAN SETOUT IS TO BE BASED ON ABUTMENT A AS SHOWN.
BRIDGE LEVEL SETOUT IS TO BE BASED ON LEVELS AS TABULATED ABOVE, RELATIVE TO MOTURIKI VERTICAL DATUM 1953.
REFER CIVIL DRAWINGS FOR DETAIL AND EXTENT OF AC ASPHALT SURFACING.



ABUTMENT SECTION - LEVEL REFERENCE
1:100



PIER SECTION - LEVEL REFERENCE
1:100

NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	GHJ	PCH	24.09.20

Original Scale (A3) AS SHOWN	Design	PG	03.18	Approved For Construction*
	Drawn	RG	03.18	
	Eng Verifier	GHJ	06.19	
	Eng Check	PG	06.19	Date

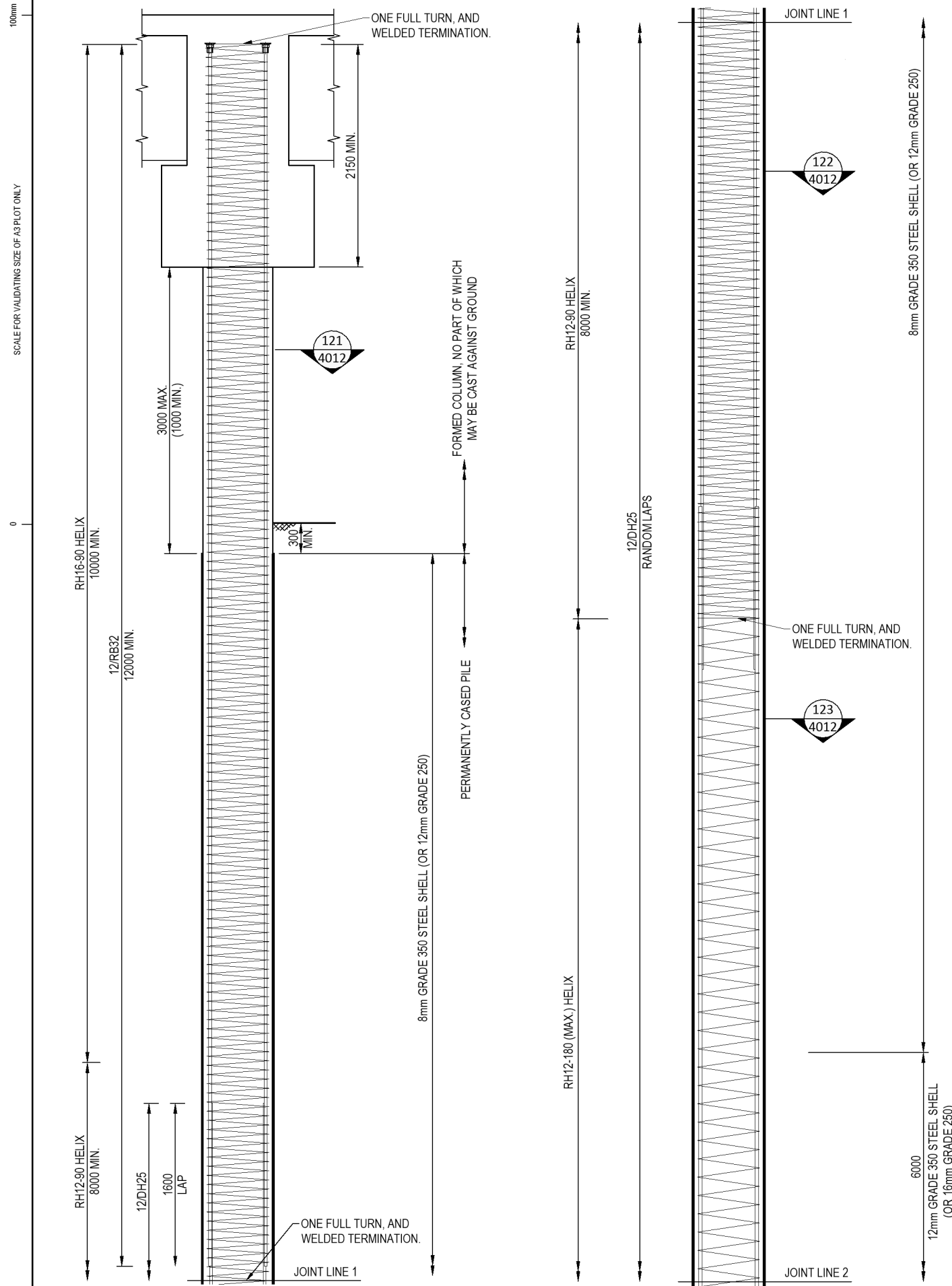
* Refer to Revision 1 for Original Signature



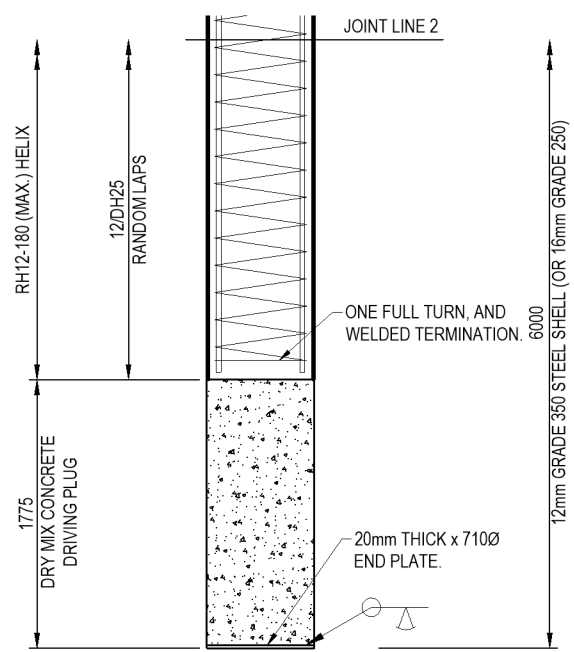
Project: SH27 MANGAWHERO STREAM BRIDGE

Title: FOUNDATION ARRANGEMENT AND SETOUT

Status	TENDER
Drawing No	SR2011 - 00 - CE - 4010
Rev	0

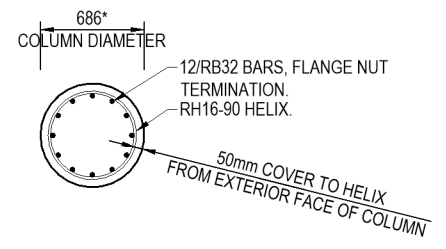


PILE REINFORCEMENT
1:50 (PIER B SHOWN, PILE C, ABUTMENT A AND ABUTMENT D SIMILAR)

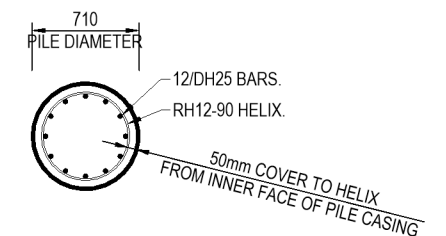


PILE TOP REINFORCEMENT TERMINATION DETAIL
1:100

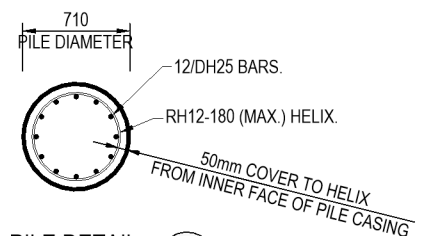
NOTE:
REFER TO DRAWING 4001 AND 4010 FOR FURTHER REQUIREMENTS ON PILES.



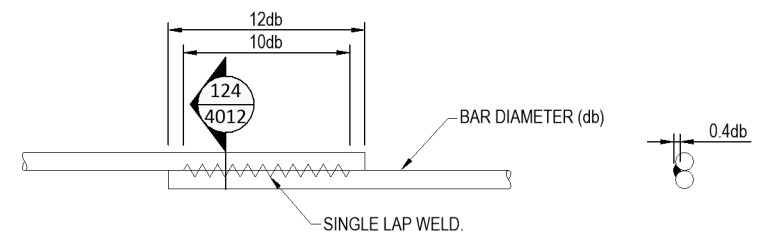
PILE DETAIL 121
1:50
*ASSUMES 12mm THICK PERMANENT CASING.



PILE DETAIL 122
1:50



PILE DETAIL 123
1:50



STANDARD SPIRAL TIE WELD SPLICE

DETAIL TO AS/NZS 1554.3
(TERMINATION TOP & BOTTOM-SIMILAR)
N.T.S

NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	GHJ	PCH	24.09.20

Original Scale (A3) (AS SHOWN)	Design	PG	03.18	Approved For Construction*
	Drawn	RG	03.18	
	Eng. Verifier	GHJ	06.19	
	Eng. Check	PG	06.19	Date

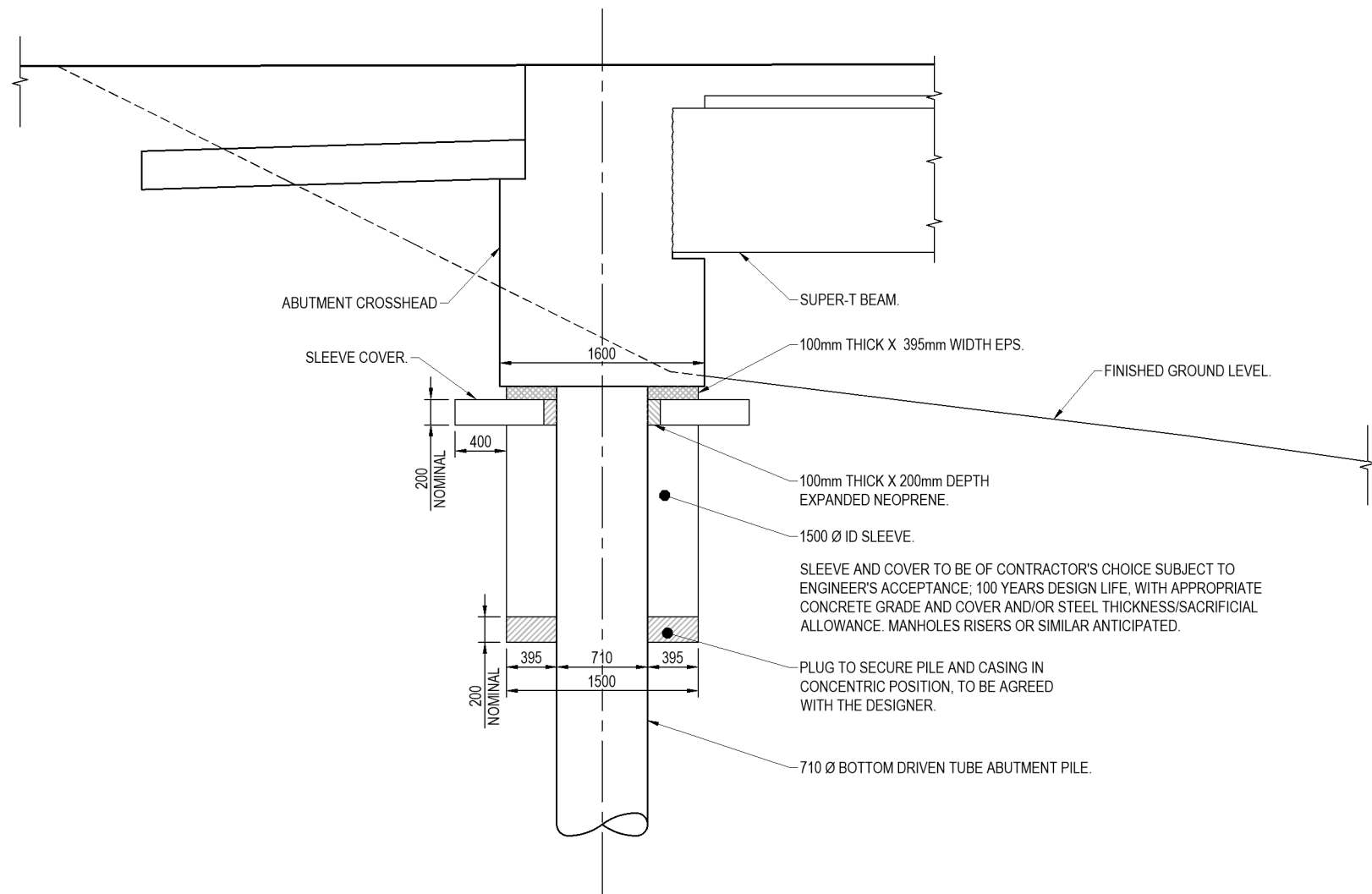


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: PILE DETAILS (BOTTOM DRIVEN TUBE PILES)

Status: TENDER	Rev: 0
Drawing No: SR2011-00-CE-4012	

100mm
SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY



PILE SLEEVE DETAIL
1:50 (ABUTMENT A ONLY)

NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	GHJ	PCH	24.09.20

Original Scale (A3) (AS SHOWN)	Design	PG	03.18	Approved For Construction*
	Drawn	RG	03.18	
	Eng Verifier	GHJ	06.19	
	Eng Check	PG	06.19	Date

* Refer to Revision 1 for Original Signature



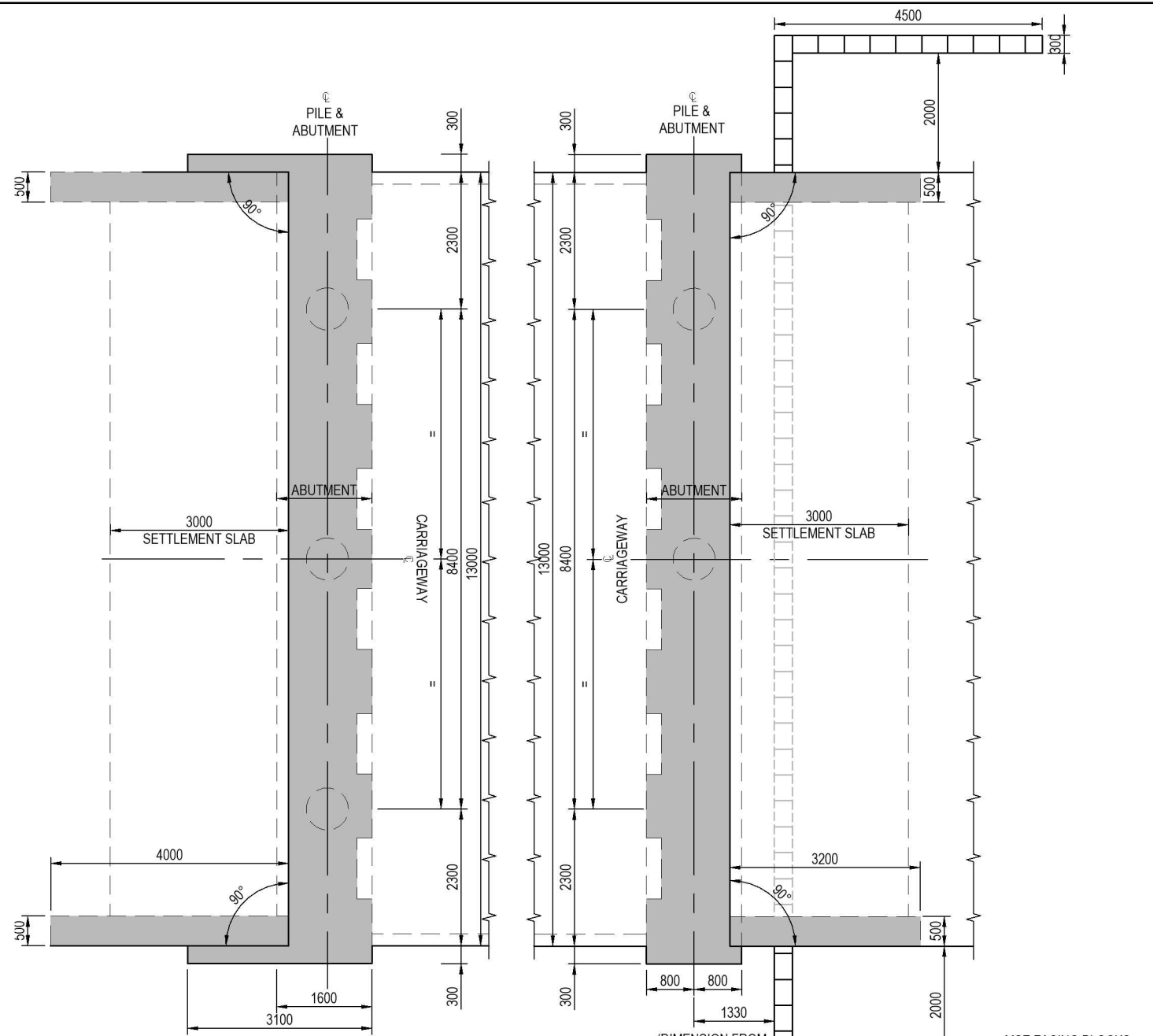
Project: **SH27 MANGAWHERO STREAM BRIDGE**

Title: **PILE SLEEVE DETAIL**

Status	TENDER
Drawing No	SR2011 - 00 - CE - 4013
Rev	0

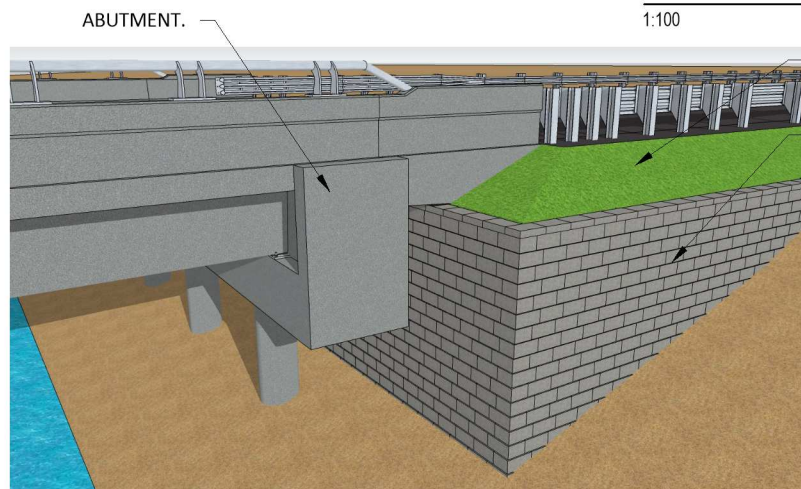
100mm

SCALE FOR VALIDATING SIZE OF AS PLOT ONLY



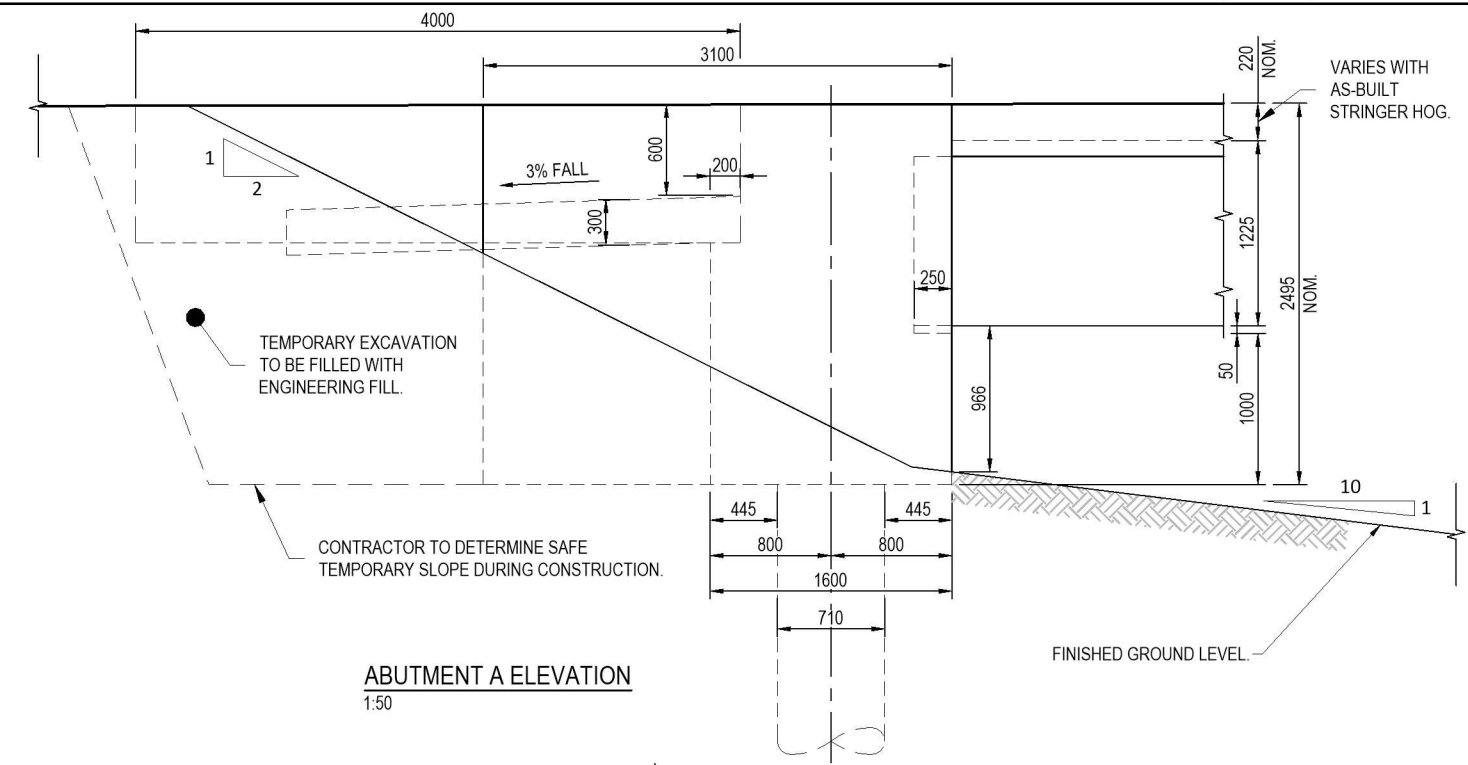
ABUTMENT A PLAN
1:100

ABUTMENT D PLAN
1:100

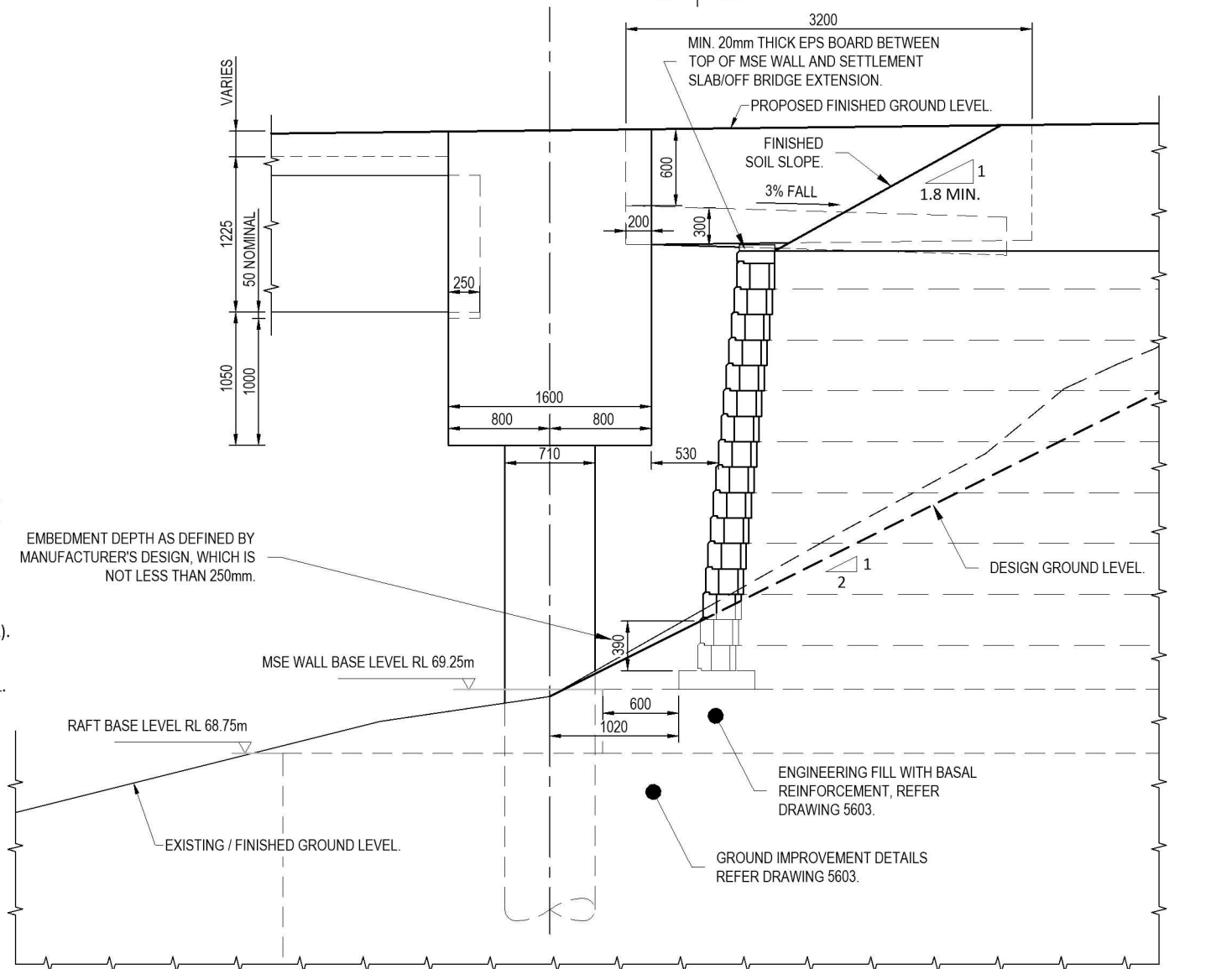


ABUTMENT D WINGWALL 3D IMAGE
N.T.S

FINISHED SLOPE AT 1.8:1 (CEMENT-STABILISED HARDFILL).
ALLAN BLOCK RETAINING WALL.



ABUTMENT A ELEVATION
1:50



ABUTMENT D ELEVATION
1:50

NOT FOR CONSTRUCTION

EMBEDMENT DEPTH AS DEFINED BY MANUFACTURER'S DESIGN, WHICH IS NOT LESS THAN 250mm.

MSE WALL BASE LEVEL RL 69.25m

RAFT BASE LEVEL RL 68.75m

EXISTING / FINISHED GROUND LEVEL.

ENGINEERING FILL WITH BASAL REINFORCEMENT, REFER DRAWING 5603.

GROUND IMPROVEMENT DETAILS REFER DRAWING 5603.

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	GHJ	PCH	24.09.20

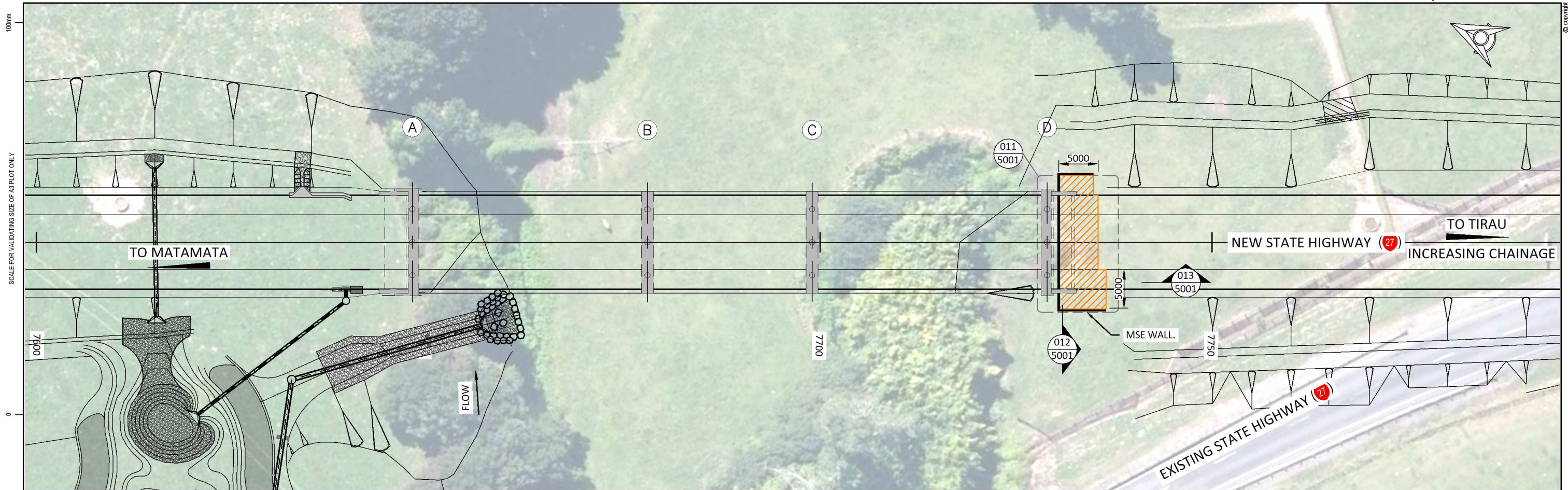
Original Scale (As Shown)	Design	PG	04.18	Approved For Construction*
	Drawn	RG	04.18	
	Design Check	GHJ	06.19	
	Design Check	PG	06.19	Date



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: ABUTMENTS GENERAL ARRANGEMENT

Status: TENDER	Rev: 0
Drawing No: SR2011-00-CE-4020	



PLAN
1:500

MSE WALL NOTES:

1. GENERAL:

- 1.1 GEOGRID WRAP AROUND SHALL BE CONSTRUCTED AGAINST FACING BLOCKS, AS SHOWN ON DRAWING 5002.
- 1.2 UTILITY DUCTS (FOR SERVICES) SHALL BE INSTALLED DURING CONSTRUCTION OF THE MSE WALL (i.e. GEOGRIDS BELOW UTILITY DUCTS SHALL BE PLACED BEFORE UTILITY DUCT INSTALLATION AND GEOGRIDS ABOVE PLACED AFTER).
- 1.3 GEOGRID LAYERS SHALL BE CONSTRUCTED WITH A MAXIMUM VERTICAL SPACING OF 500mm AND A MINIMUM VERTICAL SPACING OF 150mm BETWEEN GEOGRIDS OF THE SAME ORIENTATION (i.e. TRANSVERSE GEOGRIDS).
- 1.4 REFER TO MSE TECHNICAL SPECIFICATION DOC NO 0304 FOR GENERAL MSE HOLD AND WITNESS POINTS.
- 1.5 GROUND SLOPE BETWEEN BARRIER BASE AND TOP OF MSE WALL TO BE CEMENT STABILISED HARDFILL (GAP65).

2. GEOMETRY:

- 2.1 HEIGHT OF MSE WALL INDICATED ON ELEVATIONS.
- 2.2 MSE WALLS SHALL BE CONSTRUCTED TO TOLERANCES DETAILED IN THE MSE TECHNICAL SPECIFICATION.

3. EXCAVATION:

- 3.1 THE CONSTRUCTOR SHALL ENSURE THAT ALL TEMPORARY EXCAVATED FACES REMAIN STABLE FOR THE DURATION OF WORKS FOR WHICH THEY ARE REQUIRED.

4. REINFORCEMENT:

- 4.1 GEOGRID REINFORCEMENT SHALL BE TENSAR RE 570 OR APPROVED ALTERNATIVE AS PER THE MSE TECHNICAL SPECIFICATION.
- 4.2 NO TRAFFIC OR SITE PLANT SHALL BE PERMITTED TO TRAVEL ON THE GEOGRIDS WHERE FILL COVER IS LESS THAN 200mm.
- 4.3 REFER TO DRAWING 5002 FOR GEOGRID ARRANGEMENT WHEN INTERSECTED BY UTILITY DUCTS (FOR SERVICES)
- 4.4 GEOGRIDS SHALL BE LAID FLAT ON LEVEL, COMPACTED LAYERS OF FILL. WAVES/WRINKLES SHALL BE REMOVED PRIOR TO BACKFILLING BY PLACING A SMALL VOLUME OF FILL ON THE FREE END AND APPLYING LIGHT TENSION (REFER TO MSE TECHNICAL SPECIFICATION 0304). THE GEOGRIDS SHALL REMAIN TENSIONED WHILST THE BALANCE OF THE FILL IS PLACED.

5. BACKFILL AND SPECIFIC COMPACTION REQUIREMENTS:

- 5.1 REFER TO THE MSE TECHNICAL SPECIFICATION FOR BACKFILL MATERIAL TYPE AND SPECIFIC COMPACTION REQUIREMENTS..
- 5.2 FILL SHALL BE PLACED IN ACCORDANCE WITH THE MSE TECHNICAL SPECIFICATION.
- 5.3 ALL CONSTRUCTION PLANT AND ALL OTHER VEHICLES HAVING A MASS EXCEEDING 1000kg SHALL BE KEPT AT LEAST 2.0m AWAY FROM THE FACE OF WALL.
- 5.4 WITHIN 2.0m OF THE FACE OF THE WALL, COMPACTION LIFTS SHALL BE LIMITED TO 150mm AND THE PLANT USED FOR COMPACTING THE FILL MATERIAL SHALL BE:
 - a) VIBRATING ROLLERS HAVING A MASS PER METRE WIDTH OF ROLL NOT EXCEEDING 1300kg, WITH A TOTAL MASS NOT EXCEEDING 1000kg.
 - b) VIBRATING PLATE COMPACTORS HAVING A MASS NOT EXCEEDING 1000kg.
 - c) VIBRO TAMPERS HAVING A MASS NOT EXCEEDING 75kg.
- 5.5 ANY OVER-EXCAVATION OF INSITU MATERIAL SHALL BE BACKFILLED WITH MSE WALL BACKFILL MATERIAL AS PER THE MSE TECHNICAL SPECIFICATION 0304.
- 5.6 BIDIM A39 GEOFABRIC SHALL BE PLACED ON INSITU SOIL PRIOR TO ANY BACKFILLING ASSOCIATED WITH THE MSE WALL.

6. SUBSOIL DRAINAGE:

- 6.1 SUBSOIL DRAINAGE PIPE SHALL BE IN ACCORDANCE WITH THE SPECIFICATION FOR PIPE SUBSOIL DRAIN CONSTRUCTION, NZTA F/2: 2013.
- 6.2 THE MATERIAL SURROUNDING THE SUBSOIL DRAINAGE PIPE SHALL BE IN ACCORDANCE WITH THE SPECIFICATION FOR PIPE SUBSOIL DRAIN CONSTRUCTION, NZTA F/2: 2013.

NOT FOR
CONSTRUCTION

No	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	BECA	BECA	22.09.20

Original Scale (A3) AS SHOWN	Design	JL	11.18	Approved For Construction*
	Drawn	RG	11.18	
	Dig Verifier	BECA	06.19	
	Dig Check	BECA	06.19	Date

* Refer to Revision 1 for Original Signature

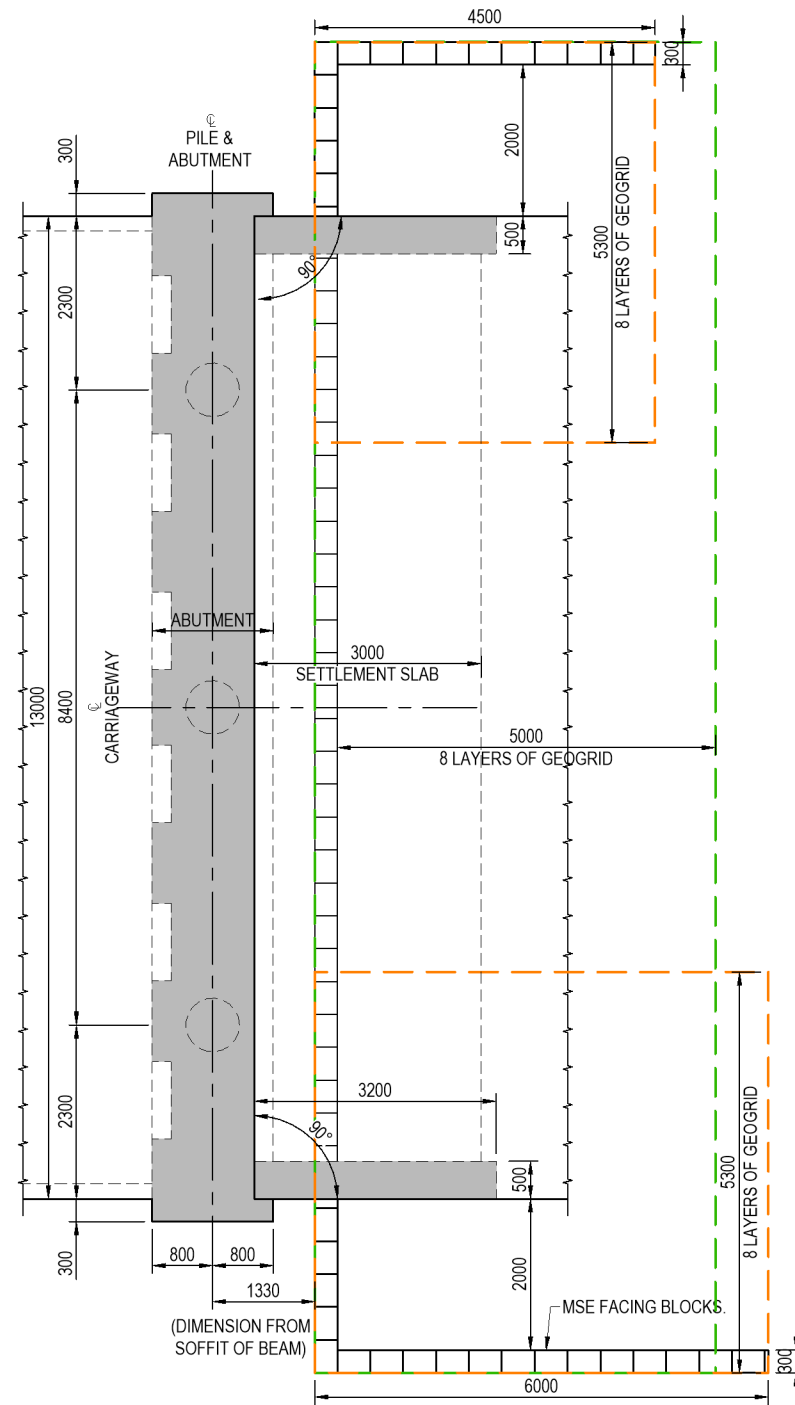


Project: SH27 MANGAWHERO STREAM BRIDGE

Title: MSE WALL PLAN AND GENERAL NOTES

Status: TENDER	Rev: 0
Drawing No: SR2011-00-CE-5000	

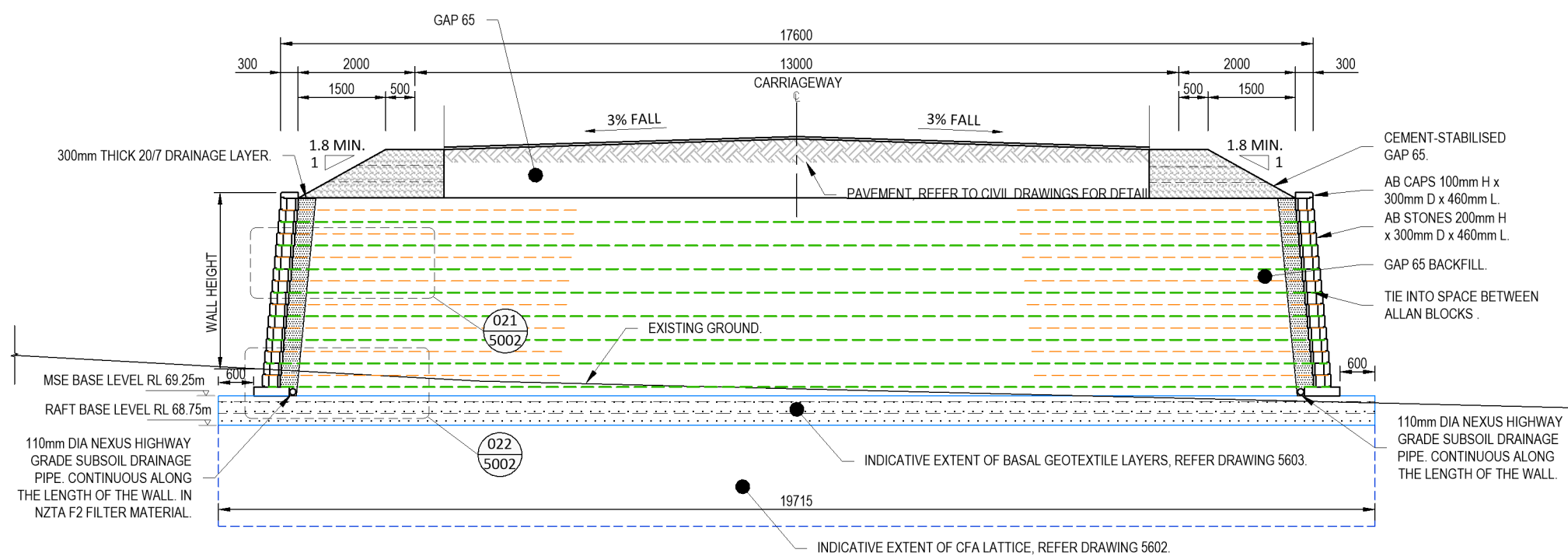
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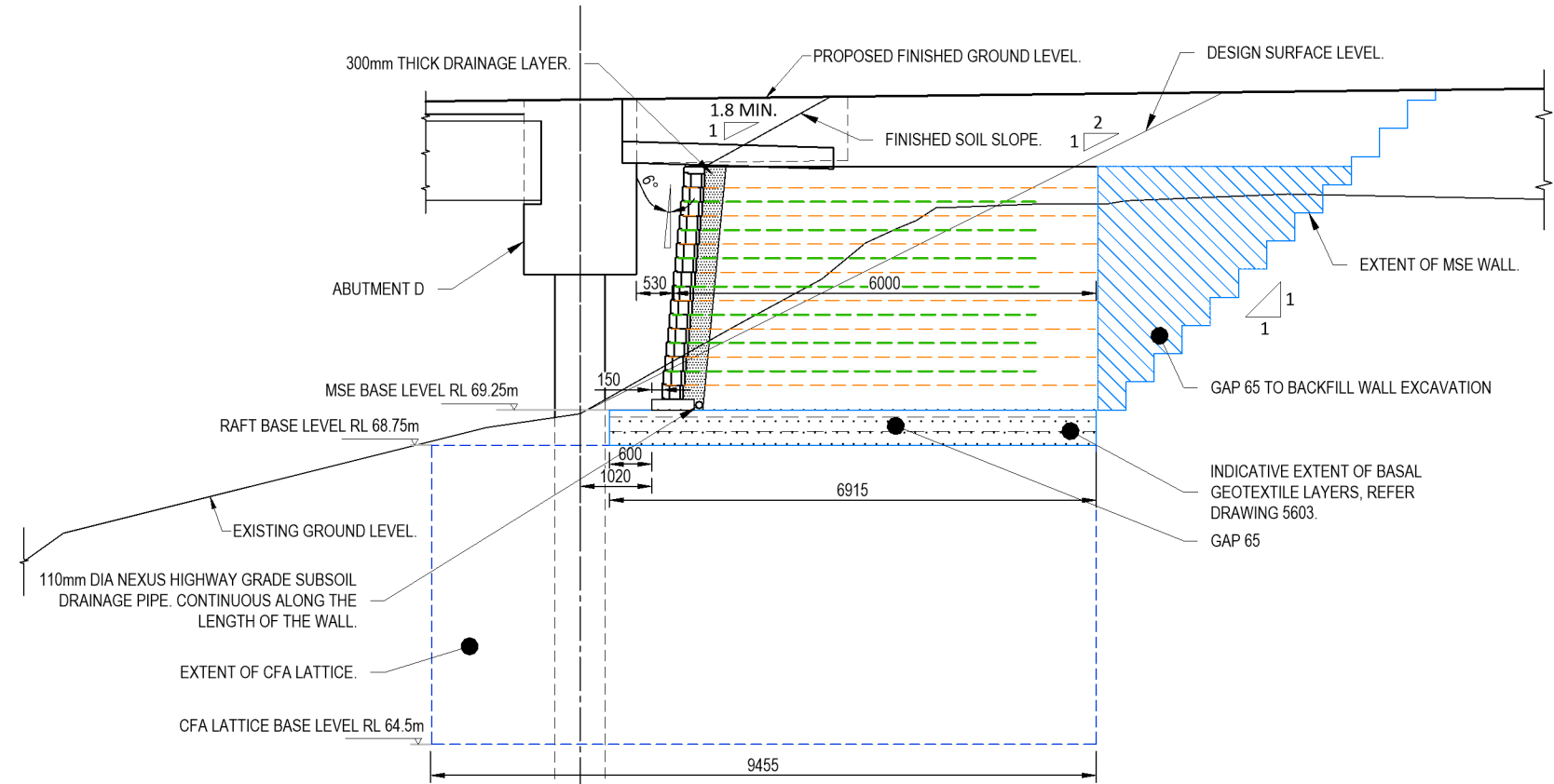
PLAN 011
1:100 (5000)

LEGEND:

- LONGITUDINAL GEOGRID LAYER TENSAR RE 570
- TRANSVERSE GEOGRID LAYER TENSAR RE 570



TYPICAL SECTION - APPROXIMATE STA 7729 MC10 012
1:100 (5000)
(OFF BRIDGE BARRIER AND SETTLEMENT SLAB OMITTED FOR CLARITY)



SECTION 013
1:100 (5000)

NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	BECA	BECA	22.09.20

Original Scale (A3) (AS SHOWN)	Design	JL	11.18	Approved For Construction*
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	Dwg Verifier	BECA	06.19	
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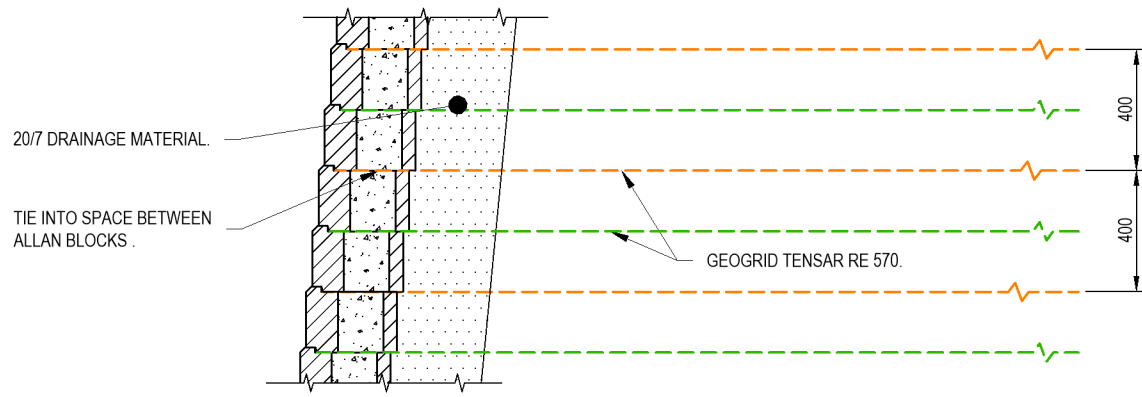
Project: SH27 MANGAWHERO STREAM BRIDGE

Title: MSE WALL SECTION AND DETAILS - SHEET 1

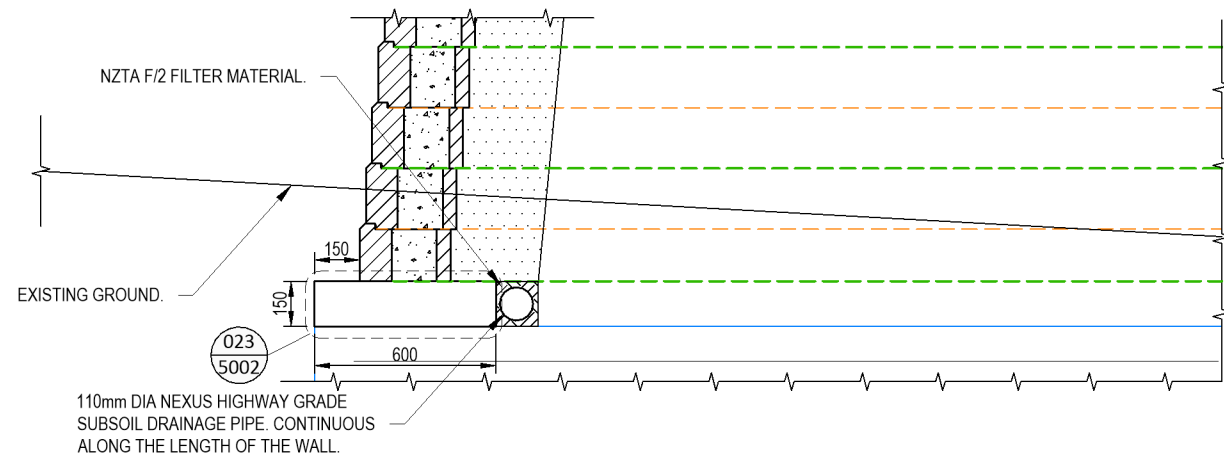
Status	TENDER
Drawing No.	SR2011-00-CE-5001
Rev.	0

Document No. K:\146880 Mangawhero Stream Bridges\Structural Tender Drawing\SR2011-00-CE-5001.dwg

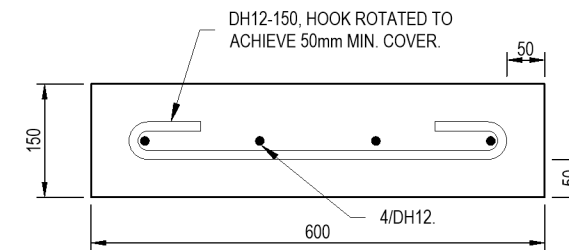
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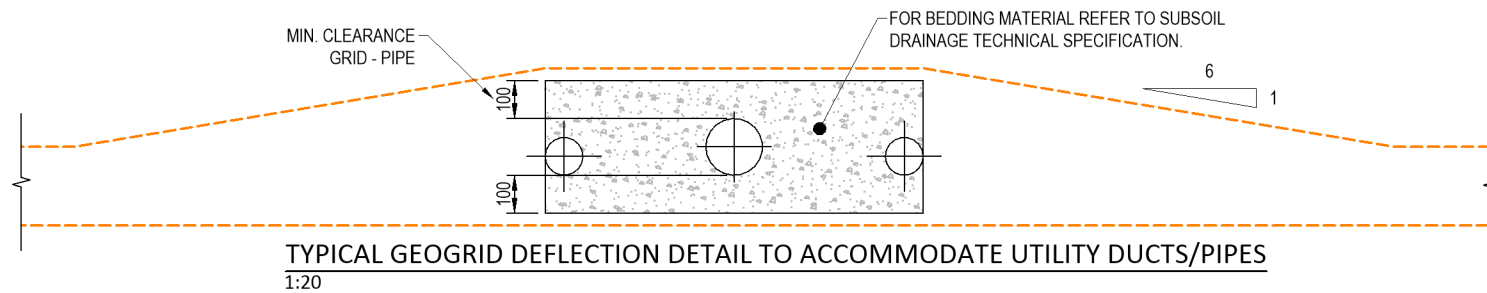
DETAIL - WRAP AROUND (021/5001)
1:25



DETAIL - DRAINAGE PIPE (022/5001)
1:25



DETAIL - FOOTING REINFORCEMENT (023/5002)
1:10



- NOTES:**
1. MAX. GRADE DEFLECTION OF GRID 1V : 6H.
 2. GRIDS BELOW MID HEIGHT OF PIPE TO BE DEFLECTED BELOW PIPE. GRID ABOVE AND AT MID HEIGHT TO BE DEFLECTED ABOVE.

NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	BECA	BECA	22.09.20

Original Scale (As Shown)	Design	JL	11.18	Approved For Construction*
	Drawn	RG	11.18	
	Dig Verifier	BECA	06.19	
	Dig Check	BECA	06.19	Date

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Project: SH27 MANGAWHERO STREAM BRIDGE

Title: MSE WALL SECTION AND DETAILS - SHEET 2

Status	TENDER
Drawing No.	SR2011 - 00 - CE - 5002
Rev.	0

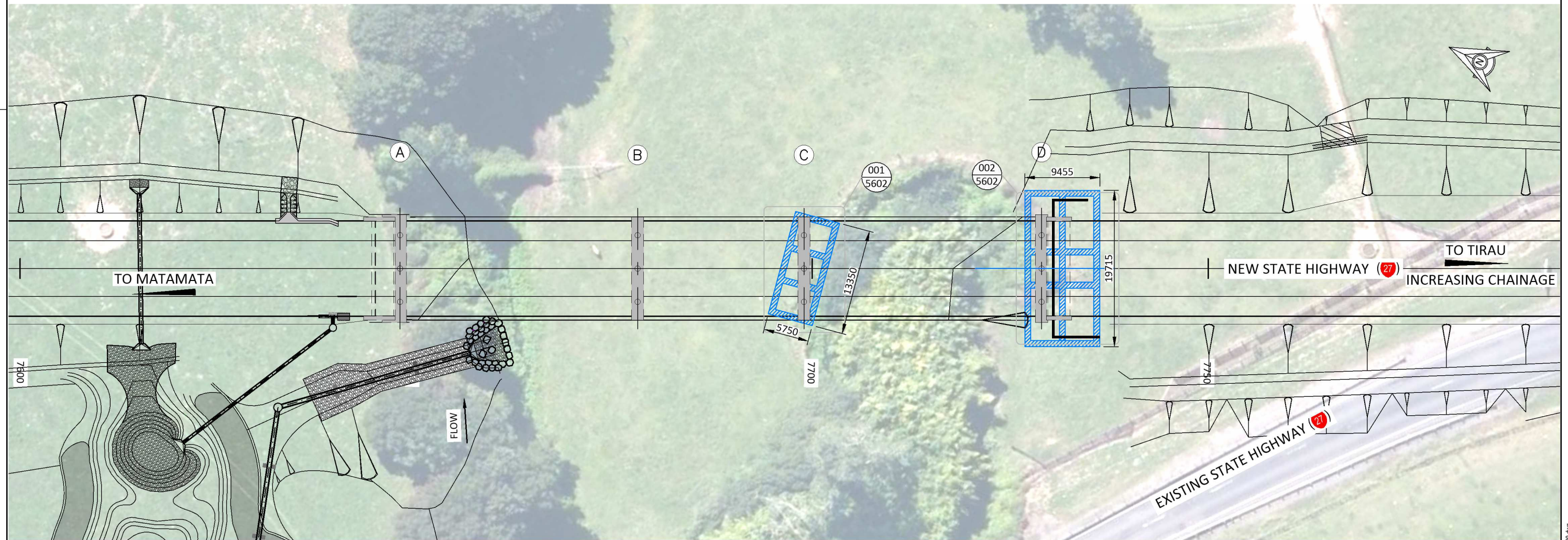
SCALE FOR VALIDATING SIZE OF ASPILOT ONLY

LEGEND:

 AREA OF DEEP GROUND IMPROVEMENT.

NOTES: (TO BE READ IN CONJUNCTION WITH GROUND IMPROVEMENT DRAWINGS 5601, 5602 & 5603)

1. THE DEEP GROUND IMPROVEMENT SHALL BE A LATTICE COMPRISED OF INTERLOCKING AND CONTINUOUS EMBEDDED ORTHOGONAL WALLS INCLUDING A CONTINUOUS PERIMETER WALL.
2. LATTICE WALLS SHALL BE FORMED USING A LOW STRENGTH BATCHED CONCRETE THAT ACHIEVES THE STRENGTH / STIFFNESS CRITERIA PROVIDED IN SCHEDULE 1 (DRAWING 5602). THE CONTINUOUS FLIGHT AUGER (CFA) CONSTRUCTION METHOD SHALL BE USED.
3. LATTICE DESIGN DETAILS ARE PROVIDED IN SCHEDULE 1 (DRAWING 5602).
4. TOE RL VALUES PROVIDED ARE INDICATIVE AND ASSUME A 500mm EMBEDMENT INTO UNDERLYING DENSE SOILS. ACTUAL TOE LEVEL TO BE CONFIRMED ON SITE AND RECORDED FOR AS-BUILT RECORDS.
5. TOLERANCE FOR CFA PILE POSITION AND VERTICALITY ARE GIVEN IN SPECIFICATION.



PLAN
1:500

NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	BECA	BECA	22.09.20

Original Scale (A3):	1:500		
Design	JL	11.18	Approved For Construction*
Drawn	RG	11.18	
Dwg Verifier	BECA	06.19	
Dwg Check	BECA	06.19	Date

* Refer to Revision 1 for Original Signature



Project: **SH27 MANGAWHERO STREAM BRIDGE**

Title: **GROUND IMPROVEMENT PLAN**

Status:	TENDER
Drawing No:	SR2011 - 00 - CE - 5600
Rev:	0

SCALE FOR VALIDATING SIZE OF A3 PLOT ONLY

0

GROUND IMPROVEMENT AND FILLING NOTES:

1. GEOLOGY

- 1.1 THE GEOTECHNICAL INTERPRETATION OF GROUND CONDITIONS AT THIS SITE IS BASED ON OBSERVATIONS AND THE RESULTS OF TESTING AT DISCRETE LOCATIONS. THE BOUNDARIES BETWEEN THE GEOTECHNICAL UNITS INDICATED IN THESE DRAWINGS, AND THE INDICATED CONTINUITY OF GROUND CONDITIONS, ARE INFERRED. AS SUCH, ACTUAL GROUND CONDITIONS COULD VARY FROM THOSE PRESENTED IN THESE DRAWINGS.
- 1.2 ANY SIGNIFICANT VARIANCES IN GROUND CONDITIONS FROM THOSE PRESENTED IN THESE DRAWINGS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

2. DIMENSIONS

- 2.1 THE GROUND WORKS EXTENTS SHOWN ON DRAWING 5600 ARE THE DESIGN EXTENTS AT THE BASE (i.e. THE FORMATION LEVELS OF THE GROUND WORKS). DRAWING 5603 INDICATES THE BASE OF GROUND WORKS IN SECTION .

3. FILL MATERIALS, TESTING AND COMPACTION LIMITS

- 3.1 ALL FILL MATERIALS SHALL MEET THE GRADING, COMPACTION AND TESTING REQUIREMENTS OF THE TECHNICAL SPECIFICATION.
- 3.2 THE MATERIAL IN ANY DRAINAGE SYSTEMS SHALL MEET THE REQUIREMENTS OF NZTA F/2:2013 (SPECIFICATION FOR PIPE SUBSOIL DRAIN CONSTRUCTION).

4. CONSIDERATIONS AND REQUIREMENTS FOR CONSTRUCTION

- 4.1 POSITIVE DRAINAGE OF ALL EXCAVATION WORKS MUST BE MAINTAINED DURING CONSTRUCTION.
- 4.2 THE WORKS FOR THE UNDERCUT SHOULD PROTECT THE MATERIALS AT FORMATION LEVEL FROM SOFTENING, OVERLOADING (e.g. FROM CONSTRUCTION TRAFFIC) OR OTHER CONDITIONS WHICH MAY RESULT IN WEAKENING OF THESE MATERIALS.

5. EDGE OF DRAINAGE LAYER AND COMPOSITE DRAIN OUTLETS ARE TO DAYLIGHT TO SIDE OF EMBANKMENT AND ARE NOT TO BE COVERED WITH FILL AT ANY STAGE OF FILLING OR SETTLEMENT.

6. SUBSOIL DRAINAGE SYSTEM

- 6.1 SUBSOIL DRAIN PIPE OUTLETS INTO NEAREST STORMWATER MEASURE.
 - a) THE POSITION OF THE OUTLET TO BE ADJUSTED ON SITE TO SUIT AND THE OUTLET TO BE ENCASED IN CONCRETE.
 - b) BEYOND THE MSE WALL, REFER TO SR2011-00-CE-5603 FOR SUBSOIL DRAINAGE FILL DETAILS.

7. THE MAXIMUM (i.e. STEEPEST) TEMPORARY BATTER ANGLE TO SATISFY THE PERMANENT WORKS DESIGN IS SHOWN FOR THE GROUND WORKS. THE CONSTRUCTOR SHALL EVALUATE, DURING CONSTRUCTION, IF A SHALLOWER BATTER ANGLE IS REQUIRED FOR STABILITY AND SAFETY OF THE EXCAVATION. THE CONSTRUCTOR SHALL CONSTRUCT BENCHING AS THE FILL IS RAISED SUCH THAT THE REQUIRED COMPACTION OF FILL MATERIAL / KEYING IN AT THE INTERFACE IS ACHIEVED. THE BENCH HEIGHT SHOULD BE BASED ON THE THICKNESS OF MATERIAL PLACED IN EACH LIFT AND SHOULD BE NO GREATER THAN 0.5m HIGH.

8. SUBSOIL DRAIN TO BE 110Ø MINIMUM NZTA F/2 COMPLIANT HDPE SMOOTH BORE CORRUGATED PERFORATED SUBSOIL DRAIN PIPE (NEXUS HI-WAY OR EQUIVALENT ACCEPTED BY THE DESIGNER) LAID AT MIN 1% GRADE. REFER DRAWING 5602 FOR PLAN EXTENTS.

HOLD POINTS

POINT TYPE	ITEM	DESCRIPTION	DETAILS
PROOF BORES HOLD POINT	ENGINEER TO CONFIRM GROUND / ROCK CONDITION ACCEPTABLE FOR PILING AND GROUND WORKS TO COMMENCE.	REVIEW BY THE ENGINEER OF PROOF BOREHOLE INFORMATION.	REQUIRED FOR THE ENGINEER TO REVIEW GENERAL GROUND CONDITIONS AND PILE DESIGNS PRIOR TO THE COMMENCEMENT OF GROUND WORKS AND PILING OPERATION. REFER SECTION 14.4 OF GEOTECHNICAL DESIGN REPORT FOR PROOF BOREHOLE LOCATION AND REQUIREMENTS.
CONSOLIDATION AND PRELOAD HOLD POINTS AT ABUTMENT D	ENGINEER TO CONFIRM ADEQUATE CONSOLIDATION HAS OCCURRED FOR REMOVAL OF SURCHARGE AND PILING TO COMMENCE.	REVIEW BY THE ENGINEER OR INSTRUMENTATION MONITORING RECORD AT THE ABUTMENT, REFER SR2011-00-CE-3001.	REQUIRED FOR THE ENGINEER TO CONFIRM, PRIOR TO REMOVAL OF SURCHARGE AND PILING, THAT ADEQUATE CONSOLIDATION SETTLEMENT HAS OCCURRED.

NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	BECA	BECA	22.09.20

Original Scale (A3):	N.T.S				
Design	JL	11.18	Approved For Construction*		
Drawn	RG	11.18			
Eng Verifier	BECA	06.19			
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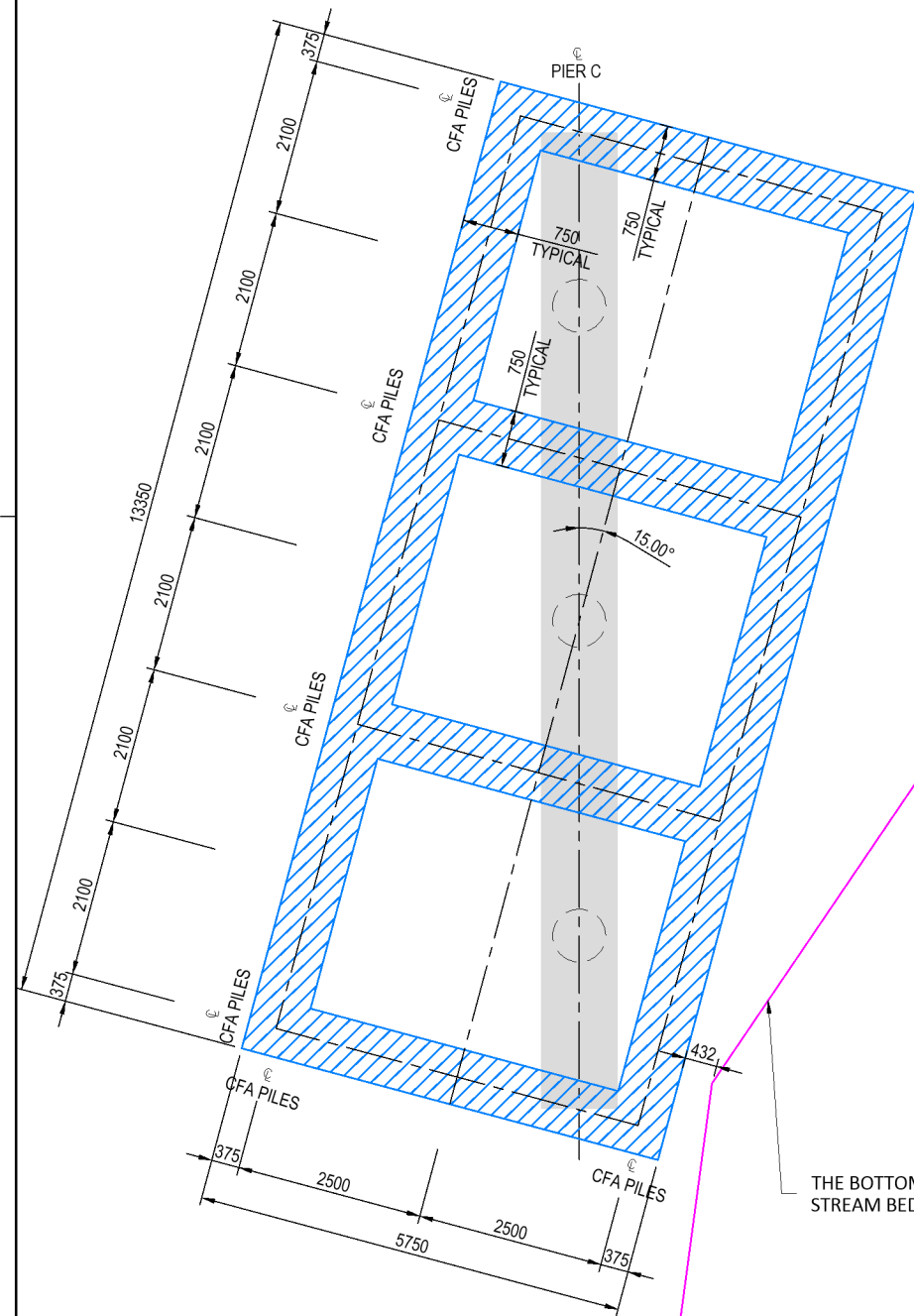


Project:	SH27 MANGAWHERO STREAM BRIDGE
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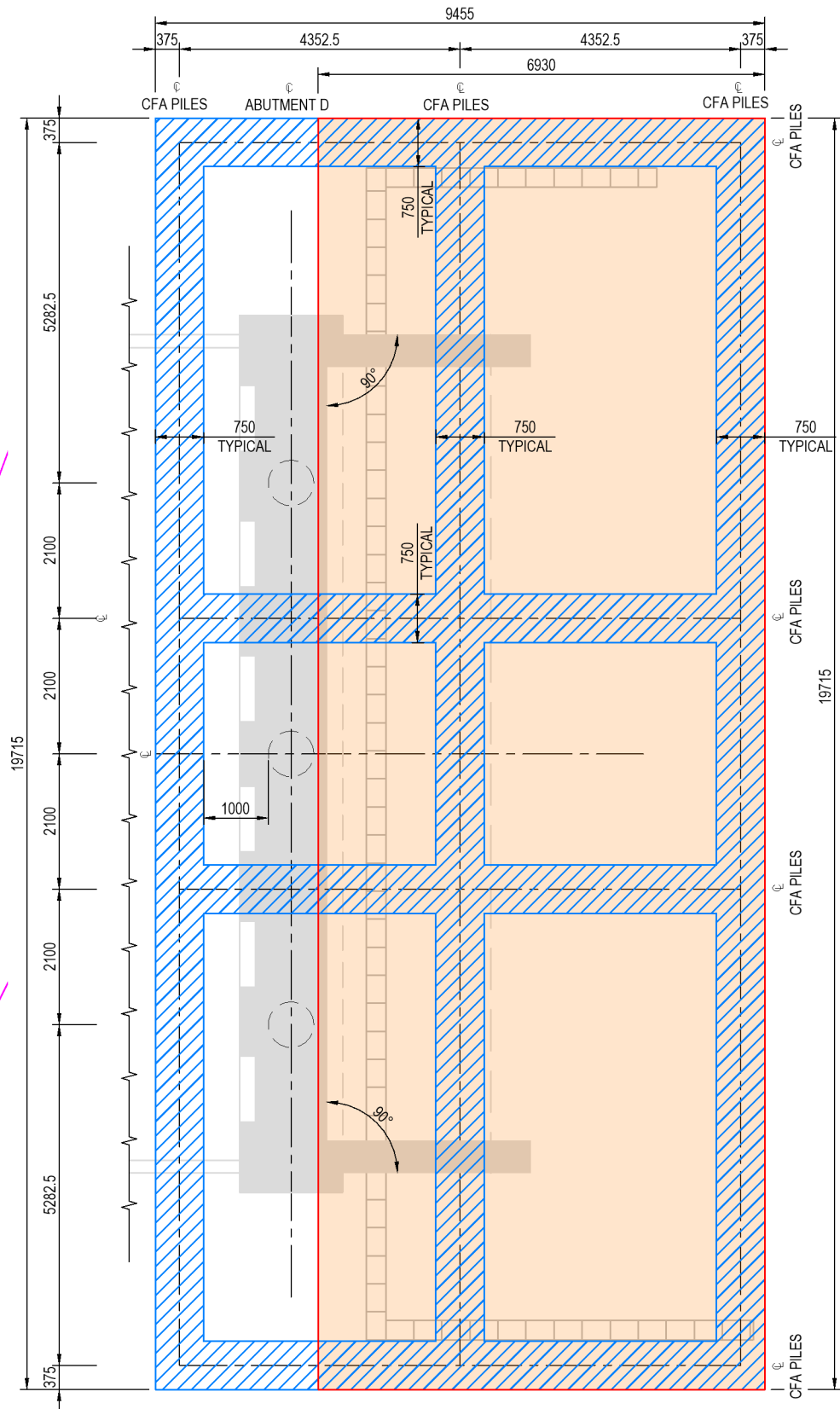
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Status:	TENDER	
Drawing No:	SR2011 - 00 - CE - 5601	Rev: 0

100mm
SCALE FOR VALIDATING SIZE OF AS PLOT ONLY



PIER C GROUND IMPROVEMENT LAYOUT 001
1:100 5600
REFER TO DRAWING 2128 FOR STREAM PROTECTION DETAILS.



ABUTMENT D GROUND IMPROVEMENT LAYOUT 002
1:100 5600

SCHEDULE 1 - LATTICE DESIGN DETAILS			
MINIMUM AREA RATIO	AREA OF LATTICE TOTAL AREA	PIER C	ABUTMENT D
		25%	25%
MAXIMUM CENTRE TO CENTRE LATTICE WALL SPACING		4200mm	7382.5mm
LATTICE TOE LEVEL		RL 64.5m	RL 64.5m
MINIMUM CFA PILE DIAMETER		750mm	
MAXIMUM CFA PILE CENTRE TO CENTRE SPACING		550mm	
MINIMUM UNCONFINED COMPRESSIVE STRENGTH OF CONCRETE	**	3.0MPa	
DESIGN SHEAR STIFFNESS		1500MPa	

** CONCRETE TESTING REQUIREMENTS PROVIDED IN SPECIFICATION 304.

LEGEND:

MIRAFI PET 1000-50 (TWO LAYERS PLACED AT RIGHT ANGLES TO EACH OTHER)

No	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	BECA	BECA	22.09.20

Original Scale (A3) AS SHOWN	Design	JL	11.18	Approved For Construction*
	Drawn	RG	11.18	
	Dig Checker	BECA	06.19	
	Dig Check	BECA	06.19	Date

* Refer to Revision 1 for Original Signature



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: GROUND IMPROVEMENT DETAILS - SHEET 1

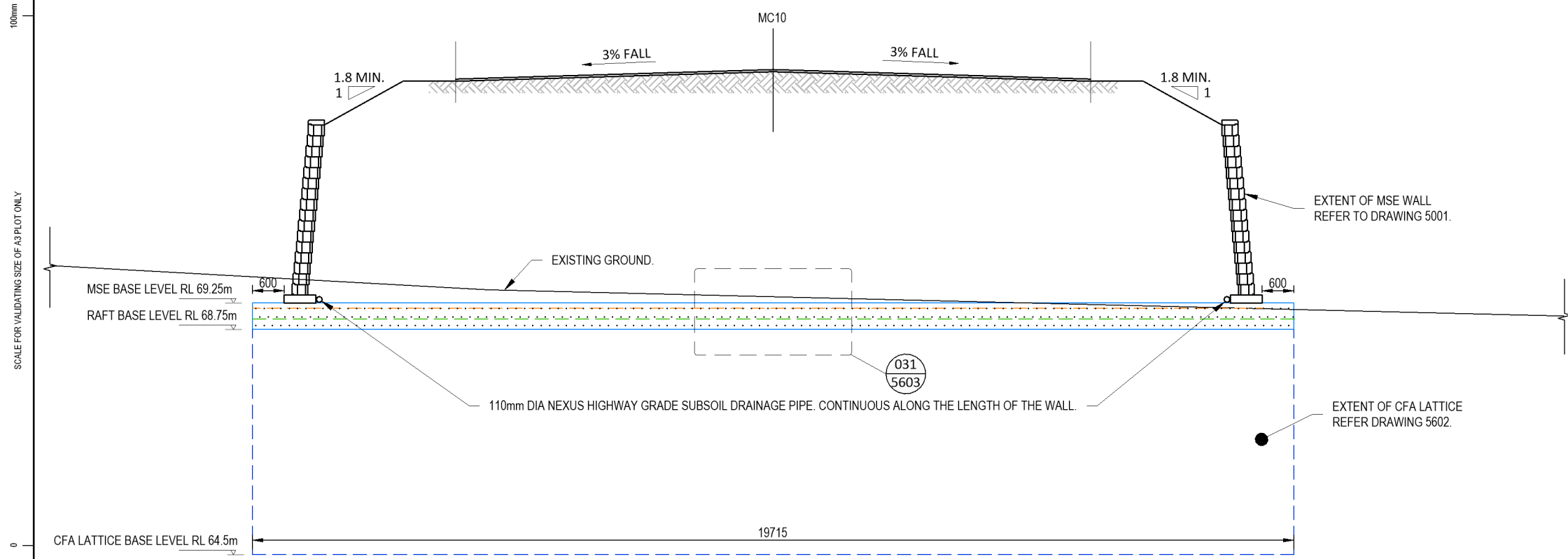
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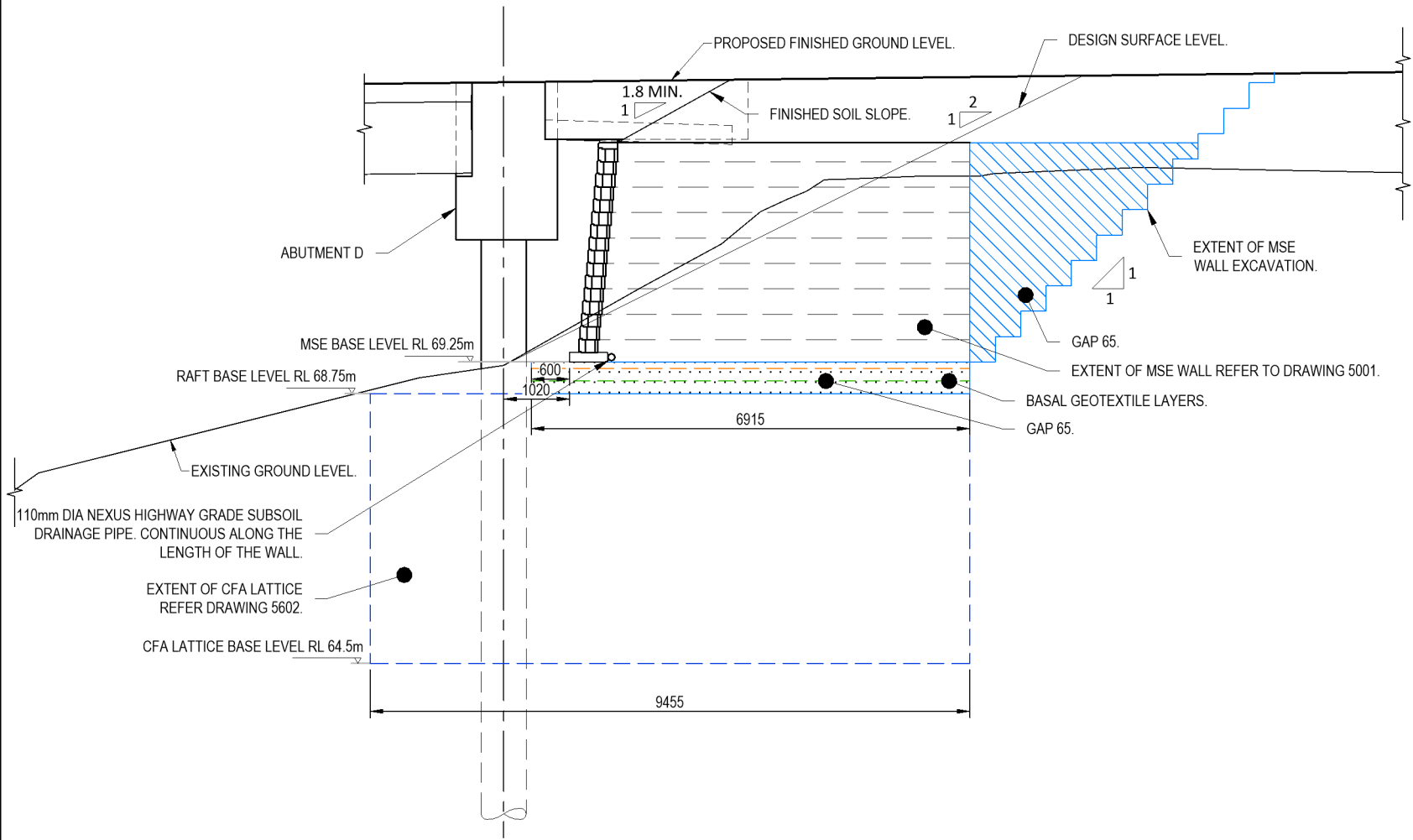
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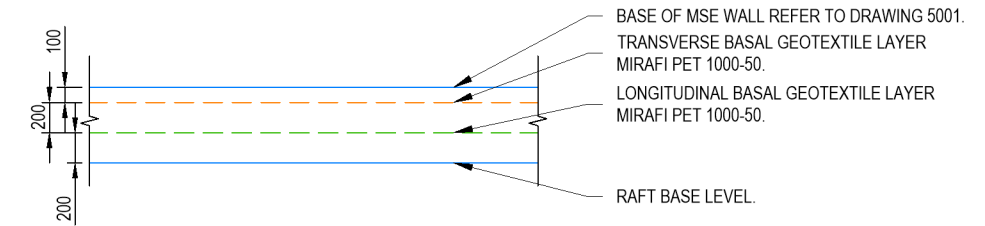
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TYPICAL SECTION - APPROXIMATE STA 7729 MC10
1:100



SECTION
1:100



DETAIL 031/5603
1:50

NOTE: EXISTING GROUND OMITTED FOR CLARITY.

No.	Revision	By	Chk	Appd	Date
0	ISSUED FOR TENDER	TZ	BECA	BECA	22.09.20

Original Scale (A3) AS SHOWN	Design	JL	11.18	Approved For Construction*
	Drawn	RG	11.18	
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	Dig Check	BECA	06.19	Date



Project: SH27 MANGAWHERO STREAM BRIDGE

Title: GROUND IMPROVEMENT DETAILS - SHEET 2

Status	TENDER
Drawing No.	SR2011 - 00 - CE - 5603
Rev.	0

NOT FOR CONSTRUCTION