

- NOTES**
- REFER SE-4001 TO SE-4004 FOR GENERAL NOTES.
 - REFER TO CIVIL PACKAGE FOR GEOMETRIC, SERVICES AND DRAWINGS.
 - ALL DIMENSIONS & SETTING OUT TO BE CONFIRMED ON SITE. CONTRACTOR TO ADVISE DESIGNER OF SIGNIFICANT DISCREPANCIES AGAINST THESE DRAWINGS OR AS-BUILT DRAWINGS.
 - GEOMETRY OF EXISTING BRIDGE IS BASED ON EXISTING DRAWINGS AVAILABLE AND IS TO BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION COMMENCING.
 - LOCATION OF EXISTING SERVICES SHALL BE CONFIRMED ON SITE BEFORE CONSTRUCTION COMMENCES.
 - EXISTING SANITARY SEWER TO BE RELOCATED BEFORE BRIDGE CONSTRUCTION.
 - ALL CONSTRUCTION WORK NEAR TRANSMISSION LINES AND TOWERS SHALL COMPLY WITH THE REQUIRED CLEARANCE REGULATIONS.
 - THE CONTRACTOR SHALL ENSURE ANY CONSTRUCTION AND EXCAVATION WORK WILL NOT ADVERSELY AFFECT THE EXISTING BRIDGE, EXISTING SERVICE FOUNDATION AND OTHER EXISTING STRUCTURES. TEMPORARY WORKS TO BE DESIGNED BY THE CONTRACTOR.
 - ANTI-GRAFFITI PROTECTION FOR CONCRETE AND STEEL ELEMENTS TO NZTA BRIDGE MANUAL REQUIREMENTS:
 - CLEAR COLOUR.
 - PERMANENT COATING SYSTEM GUARDIAN ANTI GRAFFITI SHIELD OR APPROVED EQUIVALENT.
 - REFER TO SPECIFICATION.
 - NEW SERVICES NOT SHOWN ON DRAWING:
 - REFER TO DWG SE-4030 FOR UTILITIES
 - REFER TO UTILITIES DRAWINGS FOR SERVICES DETAILS.
 - CONTRACTOR TO INSTALL SLOPE STABILITY RETAINING STRUCTURE BEFORE EXCAVATION AND INSTALLATION OF BRIDGE ABUTMENT PILES.
 - THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE TEMPORARY WORKS AND THE EFFECTS OF THAT ON THE EMBANKMENT SLOPE AND THE EXISTING BRIDGE.
 - REVETMENT WORKS IN THE PROXIMITY OF THE PROPOSED BRIDGE SHALL BE COMPLETE PRIOR TO PILING WORKS.

HOLD

HOLD

HOLD

A PLAN
1:100 (A1), 1:200 (A3)

No.	Revision	By	Chk.	Appd.	Date
D	ISSUED FOR DRAFT DETAILED DESIGN / FOR CONSENTING	PN	TC	GC	26.08.22
C	PEER REVIEW 30% DESIGN	TZ	DS	GC	23.03.22
B	ISSUED FOR DRAFT DETAILED DESIGN	TZ	DS	GC	19.01.22
A	PRELIMINARY DESIGN	PN	TC	NL	26.03.21

Drawing Originator: **Beca**

Original Scale (A1)	Design	M.MORELLI	19.01.22	Approved For Construction*
1:100	Drawn	T.ZHU	19.01.22	
Reduced Scale (A3)	Design Verifier			Date
1:200	Design Check	D.SHINNICK	19.01.22	

* Refer to Revision 1 for Original Signature

Client: **WAKA KOTAHU**
NZ TRANSPORT AGENCY

Project: **SH16 - SAFETY IMPROVEMENTS STAGE 2 BRIGHAM CREEK TO KUMEU**

Title: **KUMEU SHARED USE BRIDGE GENERAL ARRANGEMENT PLAN**

Discipline: **STRUCTURAL ENGINEERING**

Drawing No: **3235084-SE-4005**

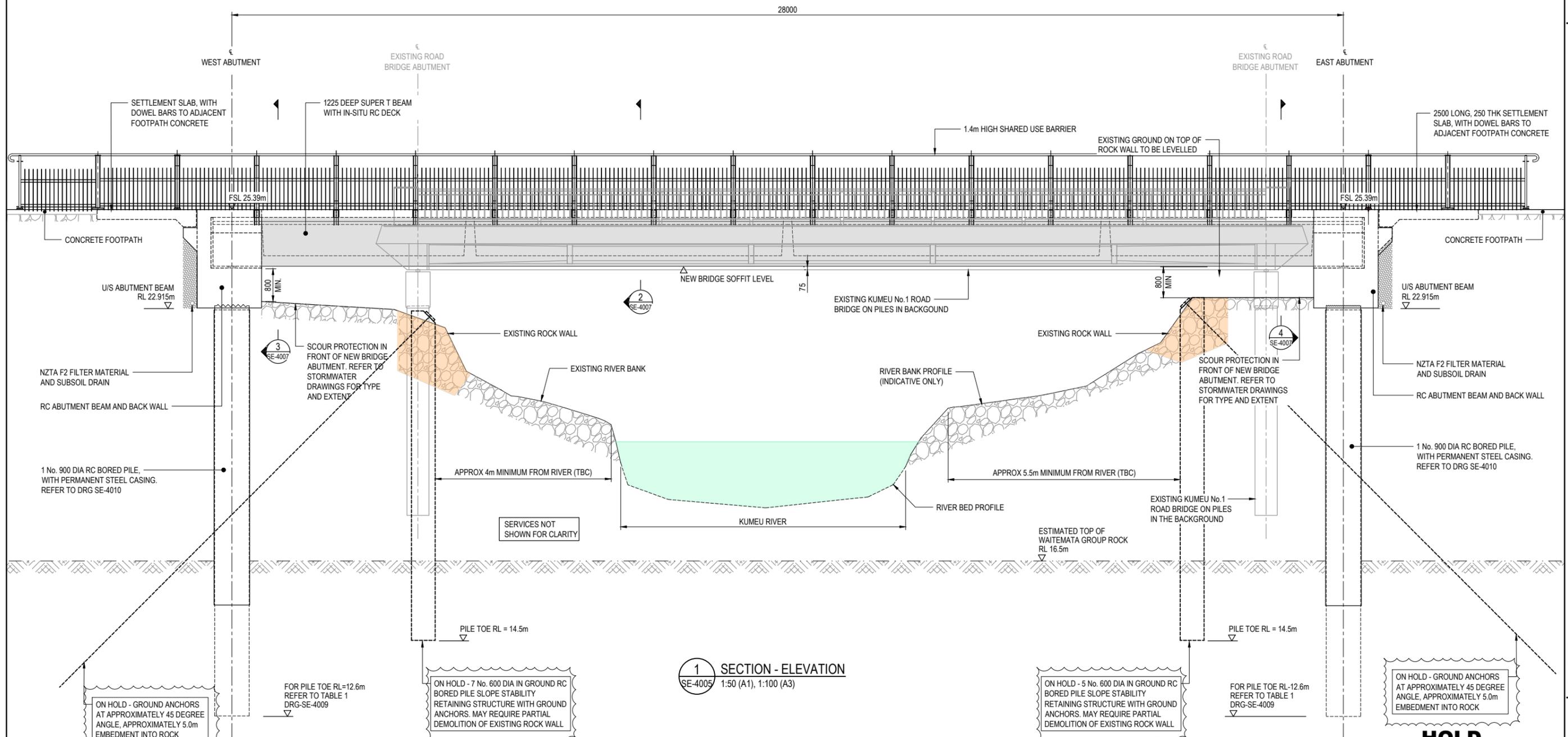
Rev: **D**

ORIGINAL DRAWING IN COLOUR

DETAILED DESIGN NOT FOR CONSTRUCTION

NOTES

1. REFER TO DRAWING SE-4005 FOR NOTES.
2. THE LEVEL AND CONTINUITY OF THE TOP OF SLIGHTLY WEATHERED TO UNWEATHERED ROCK IS INFERRED BASED ON OBSERVATIONS AND THE RESULTS OF TESTING AT DISCRETE LOCATIONS NEAR BUT OFF THE ALIGNMENT OF THE NEW BRIDGE STRUCTURE. AS SUCH, THE ACTUAL ROCK LEVELS ACROSS THE BRIDGE SITE MAY VARY FROM WHAT IS SHOWN ON THIS DRAWING.
3. 1225 SUPER TEE GIRDERS REFERRED TO HEREIN ADOPTS A SLIGHTLY MODIFIED GIRDER GEOMETRY TO THAT OF THE STANDARD NZTA WAKA KOTAHI 1225 STANDARD SUPER TEE DRAWINGS.
4. SLOPE STABILITY PILES TO BE INSTALLED PRIOR TO COMMENCING BRIDGE PILING WORKS. REFER TO DRG SE-4005.



1 SECTION - ELEVATION
SE-4005 1:50 (A1), 1:100 (A3)

HOLD
ON HOLD - GROUND ANCHORS AT APPROXIMATELY 45 DEGREE ANGLE, APPROXIMATELY 5.0m EMBEDMENT INTO ROCK

HOLD
ON HOLD - 7 No. 600 DIA IN GROUND RC BORED PILE SLOPE STABILITY RETAINING STRUCTURE WITH GROUND ANCHORS. MAY REQUIRE PARTIAL DEMOLITION OF EXISTING ROCK WALL

HOLD
ON HOLD - 5 No. 600 DIA IN GROUND RC BORED PILE SLOPE STABILITY RETAINING STRUCTURE WITH GROUND ANCHORS. MAY REQUIRE PARTIAL DEMOLITION OF EXISTING ROCK WALL

HOLD
ON HOLD - GROUND ANCHORS AT APPROXIMATELY 45 DEGREE ANGLE, APPROXIMATELY 5.0m EMBEDMENT INTO ROCK

ORIGINAL DRAWING IN COLOUR

DETAILED DESIGN NOT FOR CONSTRUCTION

D	ISSUED FOR DRAFT DETAILED DESIGN / FOR CONSENTING	PN	TC	GC	26.08.22
C	PEER REVIEW 30% DESIGN	TZ	DS	GC	23.03.22
B	ISSUED FOR DRAFT DETAILED DESIGN	TZ	DS	GC	19.01.22
A	PRELIMINARY DESIGN	PN	TC	NL	26.03.21
No.	Revision	By	Chk.	Appd.	Date

Drawing Originator:

Original Scale (A1) 1:50
Reduced Scale (A3) 1:100

Design: M.MORELLI 19.01.22
Drawn: T.ZHU 19.01.22
Dwg Verifier: D.SHINNICK 19.01.22
Dwg Check: D.SHINNICK 19.01.22

Approved For Construction*
Date

* Refer to Revision 1 for Original Signature

Client:

Project: SH16 - SAFETY IMPROVEMENTS STAGE 2 BRIGHAM CREEK TO KUMEU

Title: KUMEU SHARED USE BRIDGE GENERAL ARRANGEMENT LONG SECTION

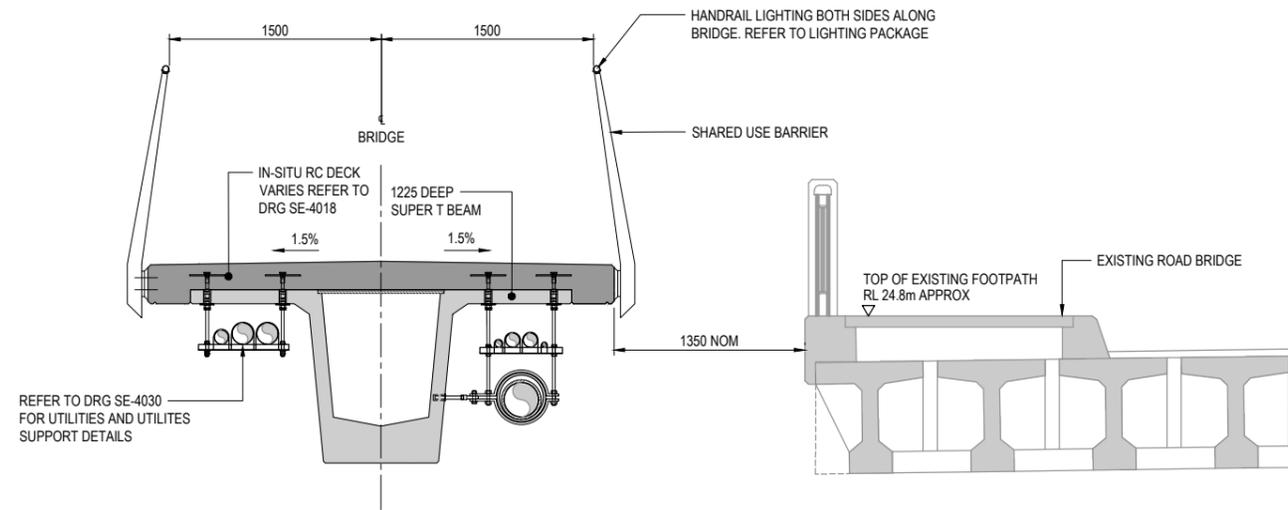
Discipline: STRUCTURAL ENGINEERING

Drawing No: 3235084-SE-4006

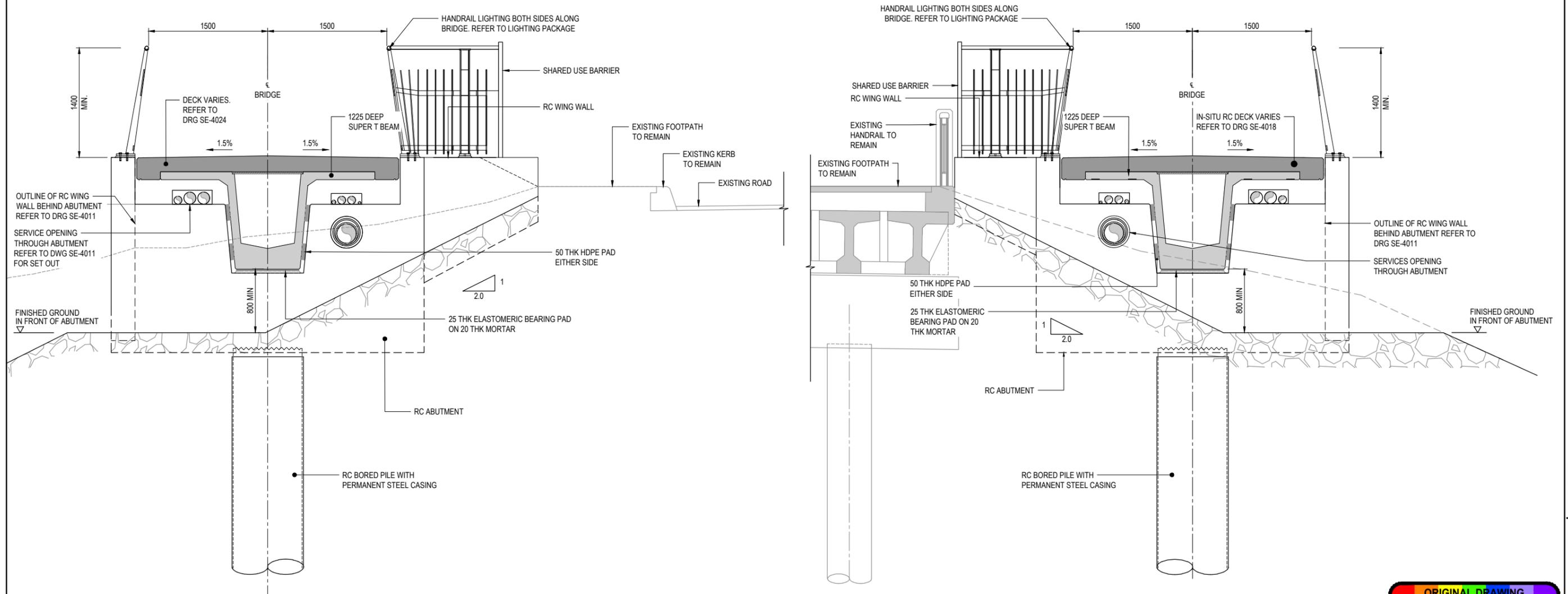
Rev: D

NOTES

1. REFER TO DRAWING SE-4005 FOR NOTES.
2. REFER TO SE-4030 FOR SERVICES DETAILS.
3. REFER TO CIVIL PACKAGE FOR SERVICE DETAILS.
4. REFER TO UTILITIES DRAWINGS FOR DUCTS DETAILS.
5. REFER TO STORM WATER DRAWINGS FOR STORM WATER PIPES.



2 SECTION - TYPICAL
SE-4005 1:25 (A1) 1:50 (A3)



3 SECTION - WEST ABUTMENT
SE-4005 1:25 (A1) 1:50 (A3)

4 SECTION - EAST ABUTMENT
SE-4005 1:25 (A1) 1:50 (A3)

No.	Revision	By	Chk.	Appd.	Date
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A	PRELIMINARY DESIGN	PN	TC	NL	26.03.21



Original Scale (A1)	Design	M.MORELLI	19.01.22	Approved For Construction*
1:25	Drawn	T.ZHU	19.01.22	
Reduced Scale (A3)	Design Check	D.SHINNICK	19.01.22	Date
1:50	* Refer to Revision 1 for Original Signature			

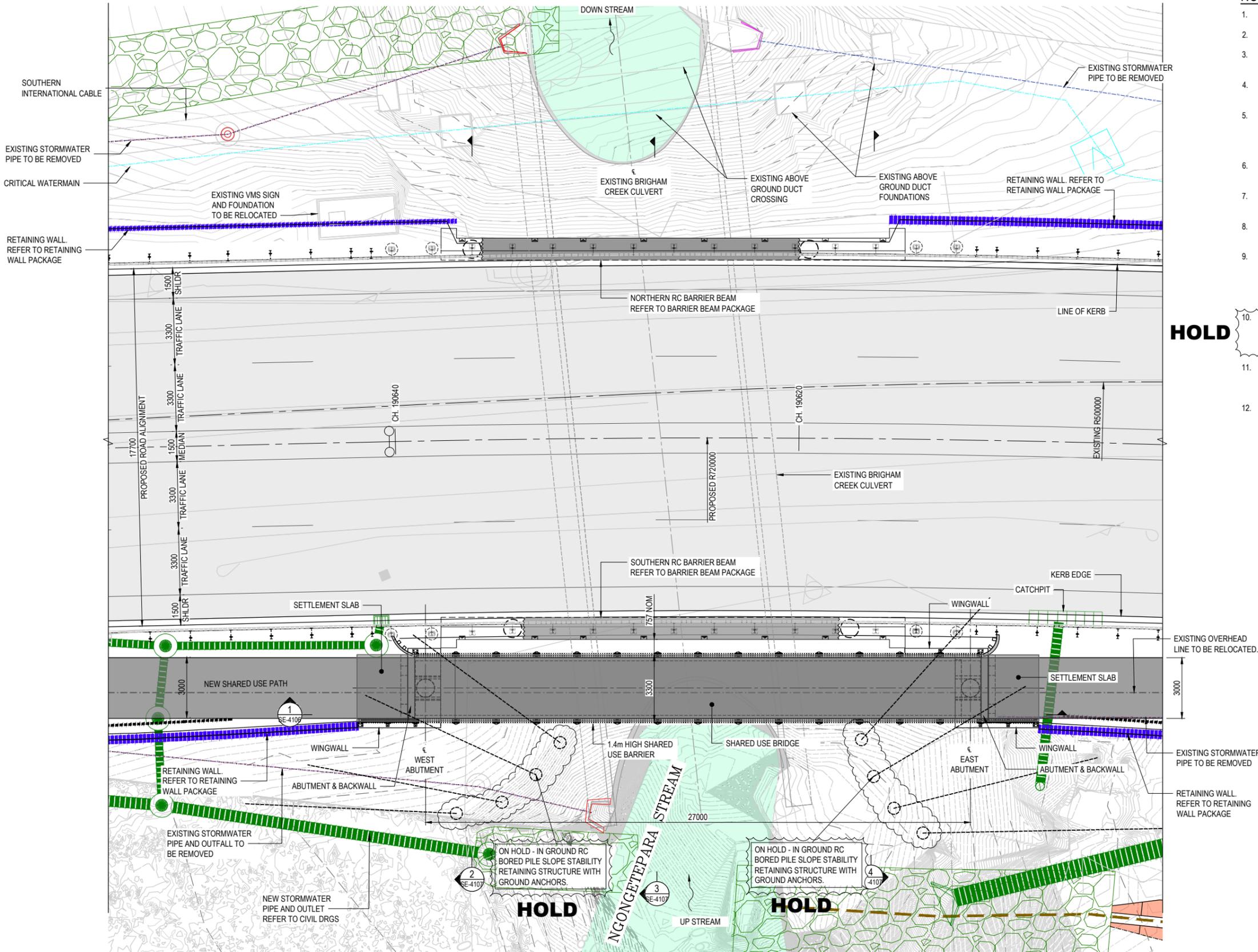


Client: SH16 - SAFETY IMPROVEMENTS STAGE 2 BRIGHAM CREEK TO KUMEU

Title: KUMEU SHARED USE BRIDGE GENERAL ARRANGEMENT CROSS SECTIONS

Discipline	STRUCTURAL ENGINEERING
Drawing No.	3235084-SE-4007
Rev.	D





NOTES

1. REFER TO DRAWINGS SE-4101 TO SE-4104 FOR GENERAL NOTES.
2. REFER TO DRAWING SERIES SE-4200 FOR BARRIER BEAM DETAILS.
3. REFER TO CIVIL PACKAGE FOR GEOMETRIC, STORMWATER AND SERVICES DRAWINGS.
4. REFER TO RETAINING WALL PACKAGE FOR RETAINING WALL DETAILS.
5. ALL DIMENSIONS & SETTING OUT TO BE CONFIRMED ON SITE. CONTRACTOR TO ADVISE DESIGNER OF SIGNIFICANT DISCREPANCIES AGAINST THESE DRAWINGS OR AS-BUILT DRAWINGS.
6. GEOMETRY OF EXISTING CULVERT SHALL BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
7. THE CONTRACTOR SHALL LOCATE EXISTING SERVICES ON SITE PRIOR TO CONSTRUCTION.
8. EXISTING OVERHEAD LINES TO BE RELOCATED BEFORE BRIDGE CONSTRUCTION COMMENCES.
9. NEW SERVICES UNDER THE SHARED USE BRIDGE NOT SHOWN ON THIS DRAWING FOR CLARITY:
 - REFER TO DRG SE-4130 FOR SERVICE SUPPORT DETAIL.
 - REFER TO CIVIL UTILITIES DRAWINGS FOR FURTHER SERVICES APPROACH TRENCH DETAILS.
10. THE CONTRACTOR TO INSTALL SLOPE STABILITY RETAINING STRUCTURE BEFORE EXCAVATION AND BEFORE THE INSTALLATION OF BRIDGE ABUTMENT PILES OR BARRIER BEAM PILES.
11. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE TEMPORARY WORKS AND ITS EFFECTS ON THE EMBANKMENT SLOPE AND THE EXISTING CULVERT.
12. ANTI-GRAFFITI PROTECTION FOR CONCRETE AND STEEL ELEMENTS TO NZTA BRIDGE MANUAL REQUIREMENTS:
 - CLEAR COLOUR.
 - PERMANENT COATING SYSTEM GUARDIAN ANTI GRAFFITI SHIELD OR APPROVED EQUIVALENT.
 - REFER TO SPECIFICATION.

HOLD

A PLAN
1:100 (A1), 1:200 (A3)

**ORIGINAL DRAWING
IN COLOUR**

**DETAILED DESIGN
NOT FOR CONSTRUCTION**

No.	Revision	By	Chk.	Appd.	Date
D	ISSUED FOR DRAFT DETAILED DESIGN / FOR CONSENTING	PN	TC	GC	26.08.22
C	PEER REVIEW 30% DESIGN	TZ	DS	GC	23.03.22
B	ISSUED FOR DRAFT DETAILED DESIGN	TZ	DS	GC	19.01.22
A	PRELIMINARY DESIGN	PN	TC	NL	26.03.21



Original Scale (A1)	Design	J.CHEN	19.01.22	Approved For Construction*
1:100	Drawn	T.ZHU <td>19.01.22</td> <td></td>	19.01.22	
Reduced Scale (A3)	Design Checker	D.SHINNICK <td>19.01.22</td> <td>Date</td>	19.01.22	Date
1:200				

* Refer to Revision 1 for Original Signature



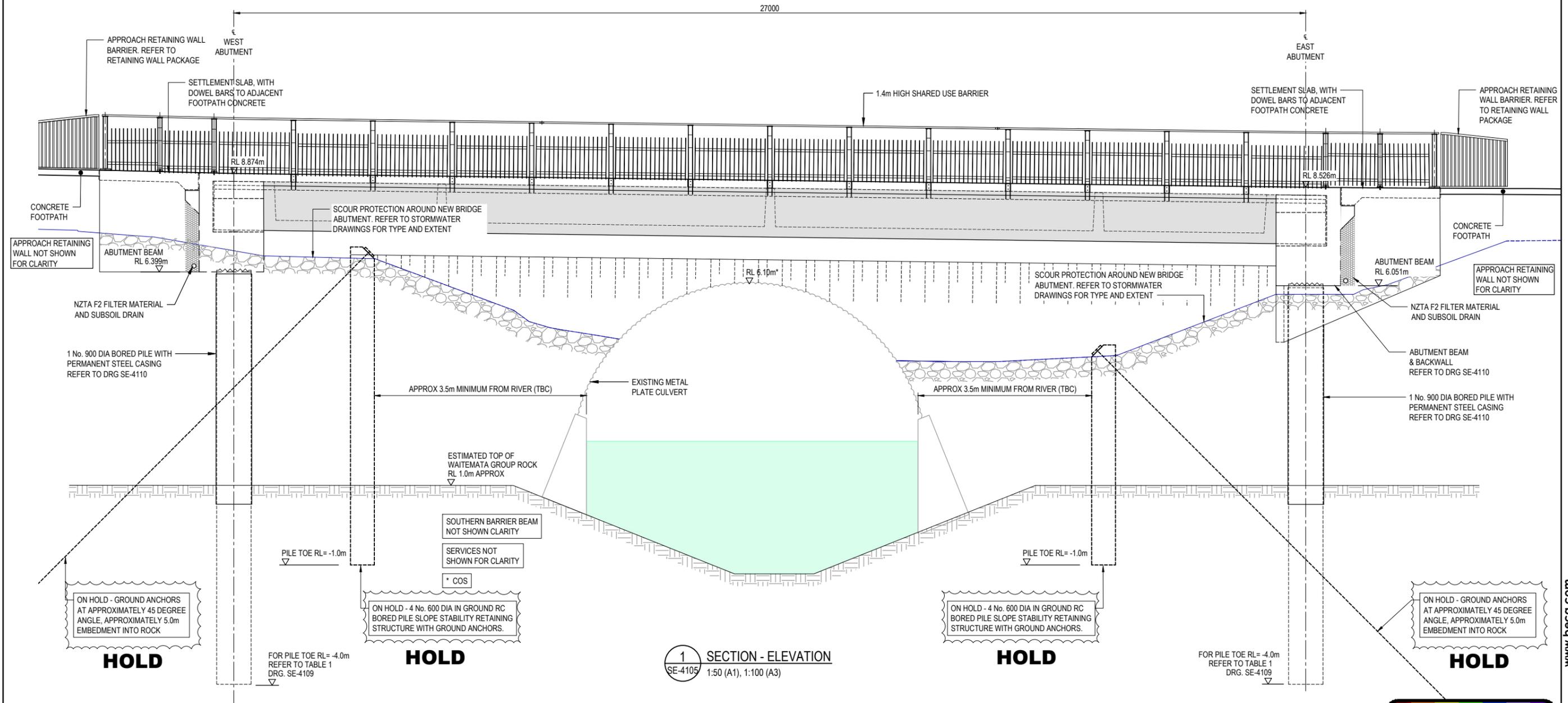
Project: SH16 - SAFETY IMPROVEMENTS
STAGE 2
BRIGHAM CREEK TO KUMEU

Title: BRIGHAM CREEK
SHARED USE BRIDGE
GENERAL ARRANGEMENT - PLAN

Discipline	STRUCTURAL ENGINEERING
Drawing No.	3235084-SE-4105
Rev.	D

NOTES

- REFER TO DRAWING SE-4105 FOR NOTES.
- THE LEVEL AND CONTINUITY OF THE TOP OF SLIGHTLY WEATHERED TO UNWEATHERED ROCK IS INFERRED BASED ON OBSERVATIONS AND THE RESULTS FROM TESTING AT DISCRETE LOCATIONS NEAR THE ALIGNMENT OF THE NEW BRIDGE STRUCTURE. NOTE THE ACTUAL ROCK LEVELS ACROSS THE BRIDGE SITE MAY VARY FROM WHAT IS SHOWN ON THIS DRAWING.
- 1225 SUPER TEE GIRDERS REFERRED TO HEREIN ADOPTS A SLIGHTLY MODIFIED GIRDER GEOMETRY TO THAT OF THE STANDARD NZTA WAKA KOTAHU 1225 STANDARD SUPER TEE DRAWINGS.
- SLOPE STABILITY RETAINING STRUCTURE TO BE INSTALLED PRIOR TO COMMENCING BRIDGE PILING WORKS. REFER TO DWG SE-4105.
- NEW SERVICES UNDER THE SHARED USE BRIDGE NOT SHOWN ON THIS DRAWING FOR CLARITY:
 - REFER TO DRG SE-4130 FOR SERVICE SUPPORT DETAIL.
 - REFER TO CIVIL UTILITIES DRAWINGS FOR FURTHER SERVICES APPROACH TRENCH DETAILS.
- SLOPE STABILITY RETAINING STRUCTURE AND SCOUR PROTECTION TO BE INSTALLED PRIOR TO COMMENCING THE BRIDGE PILING.



No.	Revision	By	Chk.	Appd.	Date
D	ISSUED FOR DRAFT DETAILED DESIGN / FOR CONSENTING	PN	TC	GC	26.08.22
C	PEER REVIEW 30% DESIGN	TZ	DS	GC	23.03.22
B	ISSUED FOR DRAFT DETAILED DESIGN	TZ	DS	GC	19.01.22
A	PRELIMINARY DESIGN	PN	TC	NL	26.03.21

Drawing Originator:

Original Scale (A1)	Design	J.CHEN	19.01.22	Approved For Construction*
1:100	Drawn	T.ZHU	19.01.22	
Reduced Scale (A3)	Design Check	D.SHINNICK	19.01.22	Date
1:200				

* Refer to Revision 1 for Original Signature

Client:

Project: SH16 - SAFETY IMPROVEMENTS
STAGE 2
BRIGHAM CREEK TO KUMEU

Title: BRIGHAM CREEK
SHARED USE BRIDGE
G.A. - LONG SECTION

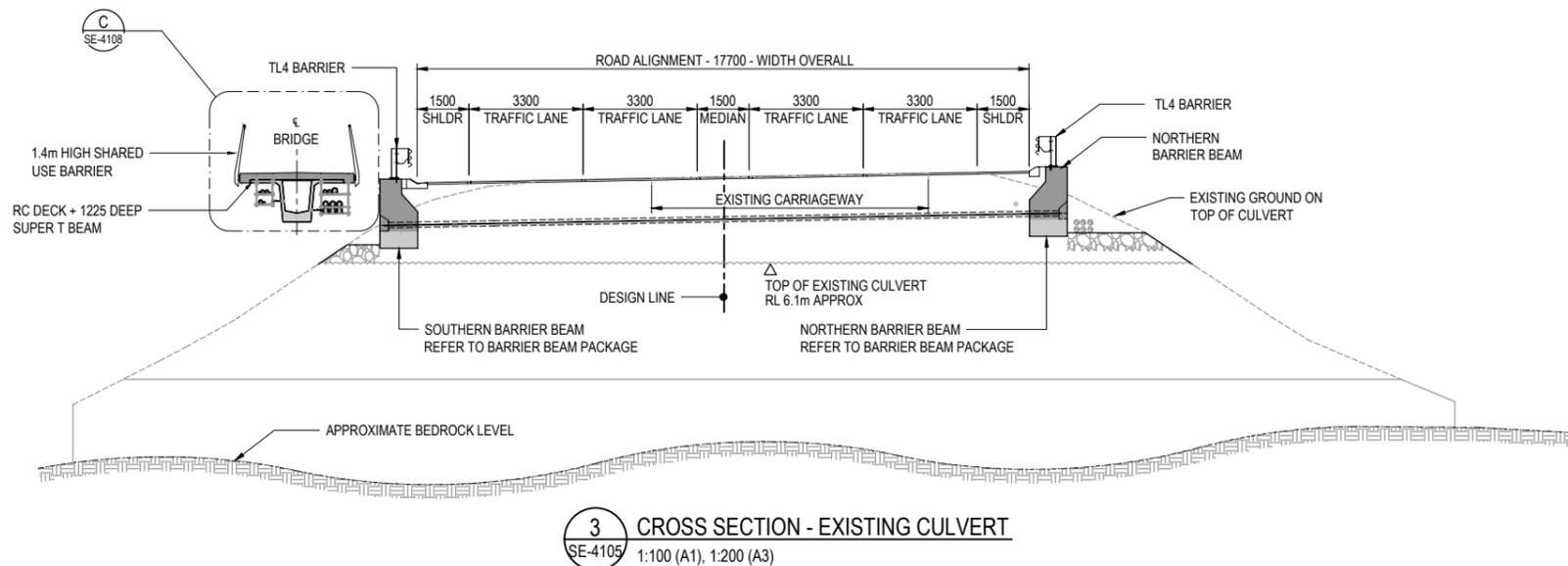
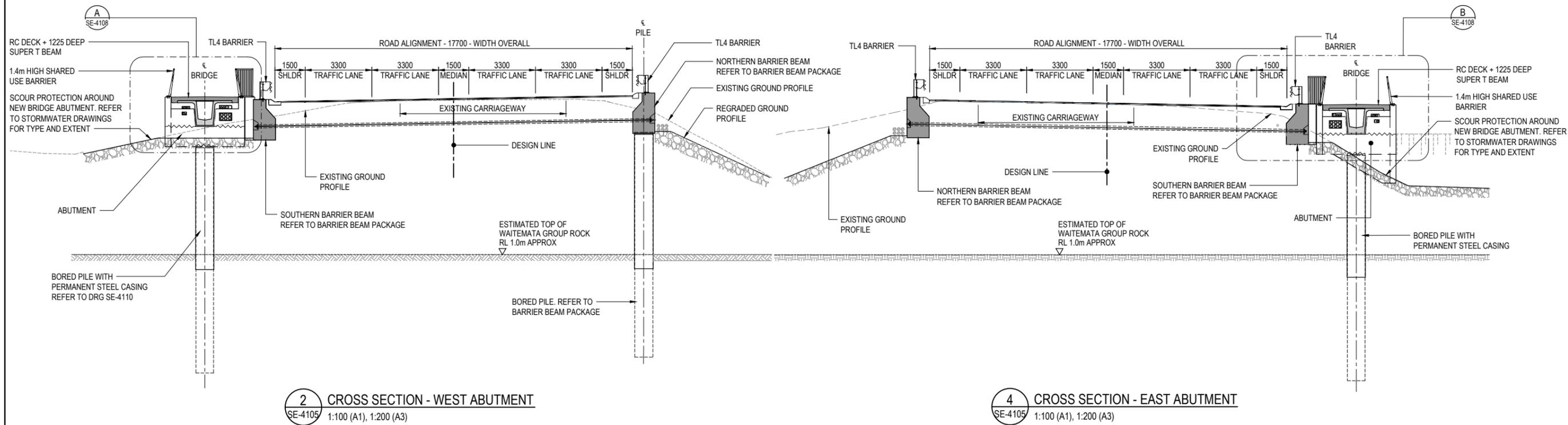
Discipline	STRUCTURAL ENGINEERING
Drawing No.	3235084-SE-4106
Rev.	C

ORIGINAL DRAWING
IN COLOUR

DETAILED DESIGN
NOT FOR CONSTRUCTION

NOTES

1. REFER TO DRAWING SE-4105 FOR NOTES.



ORIGINAL DRAWING
IN COLOUR

DETAILED DESIGN
NOT FOR CONSTRUCTION

D	ISSUED FOR DRAFT DETAILED DESIGN / FOR CONSENTING	PN	TC	GC	26.08.22
C	PEER REVIEW 30% DESIGN	TZ	GC	GC	23.03.22
B	ISSUED FOR DRAFT DETAILED DESIGN	TZ	DS	GC	19.01.22
A	PRELIMINARY DESIGN	PN	TC	NL	26.03.21
No.	Revision	By	Chk.	Appd.	Date



Original Scale (A1)	Design	J.CHEN	19.01.22	Approved For Construction*
1:100	Drawn	T.ZHU	19.01.22	
Reduced Scale (A3)	Design Check	D.SHINNICK	19.01.22	Date
1:200	* Refer to Revision 1 for Original Signature			



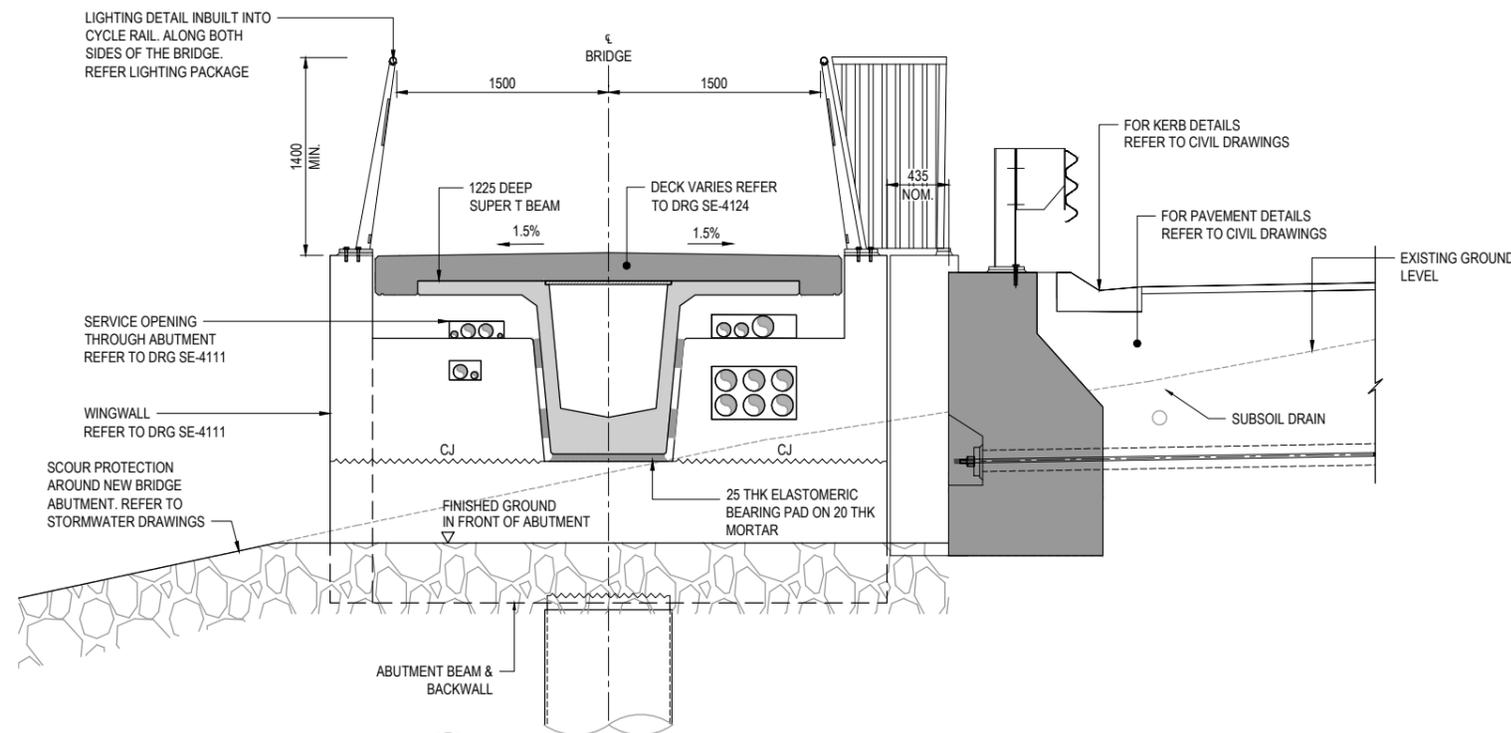
Client: SH16 - SAFETY IMPROVEMENTS
STAGE 2
BRIGHAM CREEK TO KUMEU

Title: BRIGHAM CREEK
SHARED USE BRIDGE
G.A. - CROSS SECTIONS

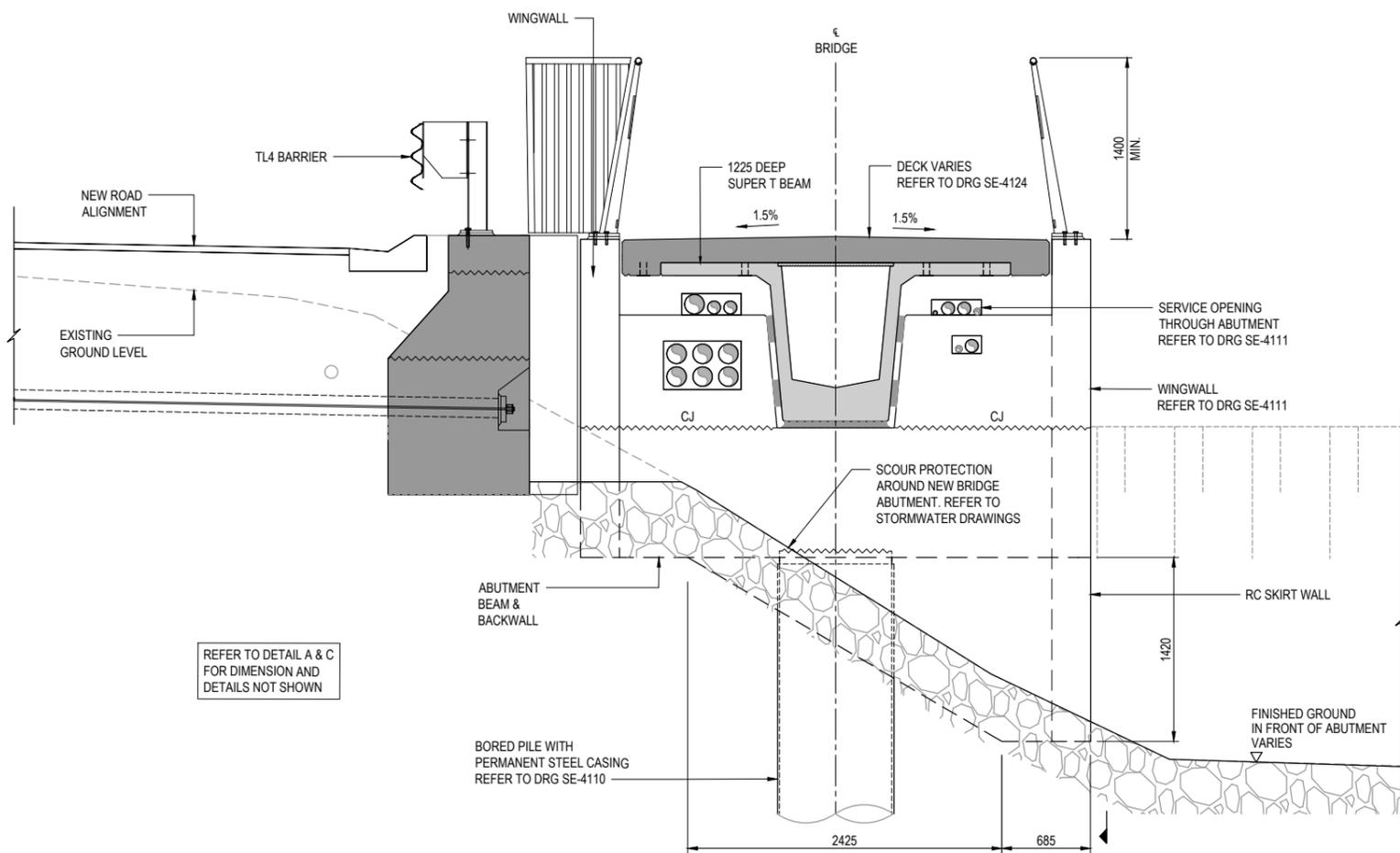
Discipline	STRUCTURAL ENGINEERING
Drawing No.	3235084-SE-4107
Rev.	D

NOTES

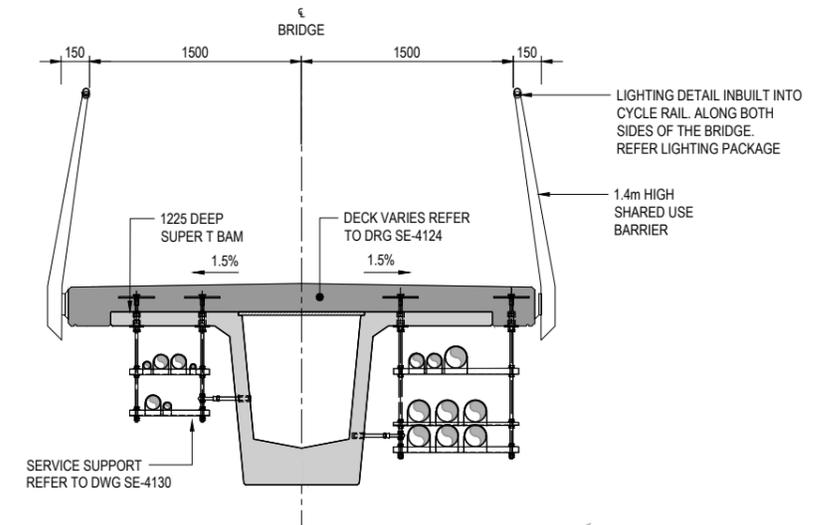
1. REFER TO DRAWING SE-4105 FOR NOTES.
2. REFER TO DRG SE-4030 FOR SERVICES SUPPORT DETAILS.
3. REFER TO CIVIL PACKAGE FOR IN GROUND SERVICE TRENCH DETAILS.



A SECTION - WEST ABUTMENT
SE-4107 1:25 (A1), 1:50 (A3)



B SECTION - EAST ABUTMENT
SE-4107 1:25 (A1), 1:50 (A3)



C SECTION - TYPICAL DECK
SE-4107 1:25 (A1), 1:50 (A3)

REFER TO DETAIL A & C FOR DIMENSION AND DETAILS NOT SHOWN

ORIGINAL DRAWING
IN COLOUR

DETAILED DESIGN
NOT FOR CONSTRUCTION

No.	Revision	By	Chk.	Appd.	Date
D	ISSUED FOR DRAFT DETAILED DESIGN / FOR CONSENTING	PN	TC	GC	26.08.22
C	PEER REVIEW 30% DESIGN	TZ	GC	GC	23.03.22
B	ISSUED FOR DRAFT DETAILED DESIGN	TZ	DS	GC	19.01.22
A	PRELIMINARY DESIGN	PN	TC	NL	26.03.21



Original Scale (A1)	Design	J.CHEN	19.01.22	Approved For Construction*
1:25 <td>Drawn</td> <td>T.ZHU</td> <td>19.01.22</td> <td></td>	Drawn	T.ZHU	19.01.22	
Reduced Scale (A3) <td>Design Verifier</td> <td></td> <td></td> <td></td>	Design Verifier			
1:50	Design Check	D.SHINNICK	19.01.22	Date

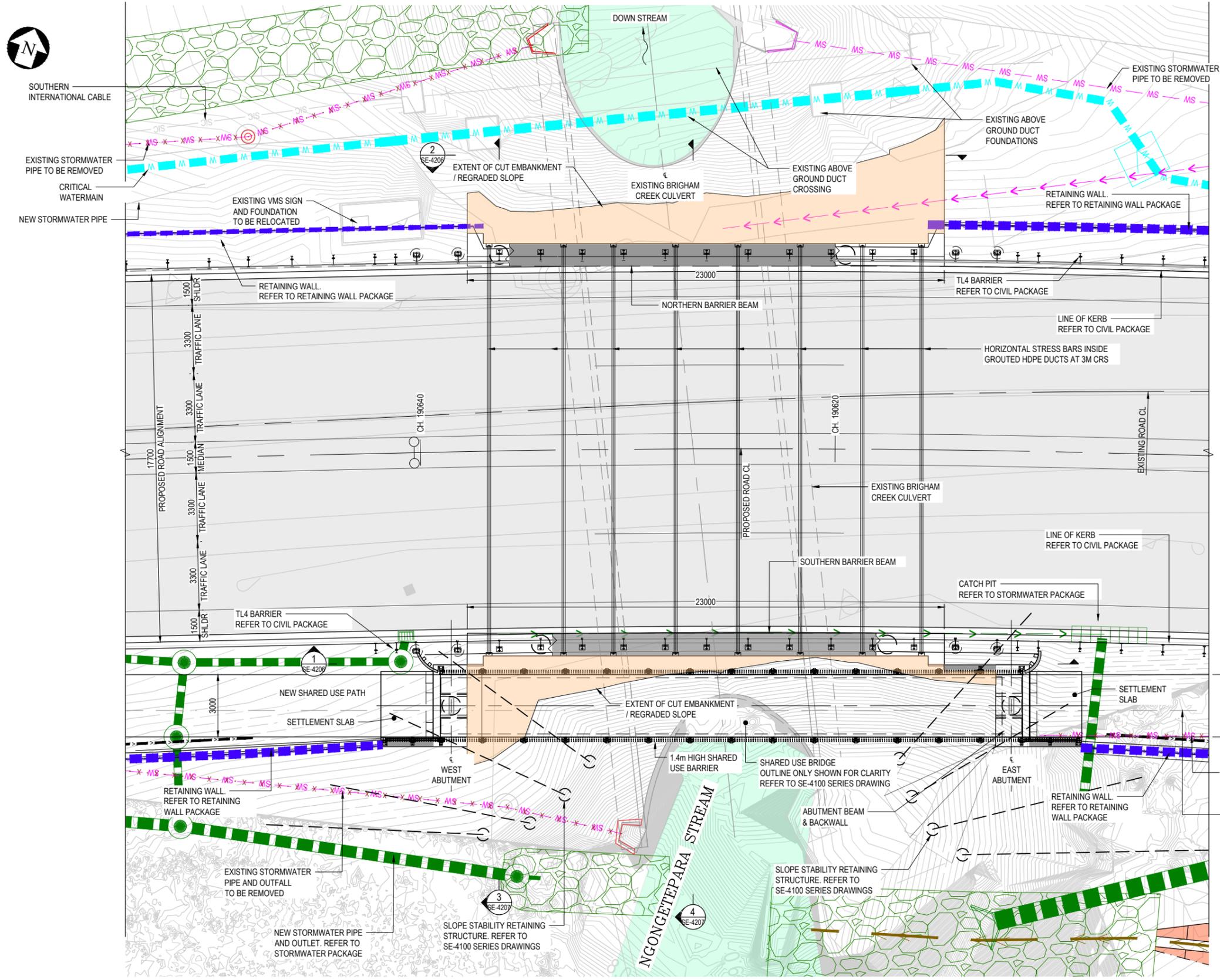
* Refer to Revision 1 for Original Signature



Project: SH16 - SAFETY IMPROVEMENTS
STAGE 2
BRIGHAM CREEK TO KUMEU

Title: BRIGHAM CREEK
SHARED USE BRIDGE
DETAILED CROSS SECTIONS

Discipline	STRUCTURAL ENGINEERING
Drawing No.	3235084-SE-4108
Rev.	D



NOTES

1. REFER SE-4201 TO SE-4204 FOR GENERAL NOTES.
2. REFER TO DRAWING SERIES SE-4100 FOR SHARED PATH DRAWINGS.
3. REFER TO CIVIL PACKAGE FOR GEOMETRIC SERVICES AND DRAWINGS.
4. REFER TO RETAINING WALL PACKAGE FOR RETAINING WALL DETAILS.
5. ALL DIMENSIONS & SETTING OUT TO BE CONFIRMED ON SITE. CONTRACTOR TO ADVISE DESIGNER OF SIGNIFICANT DISCREPANCIES AGAINST THESE DRAWINGS OR AS-BUILT DRAWINGS.
6. GEOMETRY OF EXISTING CULVERT IS BASED ON EXISTING DRAWINGS AVAILABLE AND IS TO BE VERIFIED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION COMMENCING.
7. LOCATION OF EXISTING SERVICES SHALL BE CONFIRMED ON SITE BEFORE CONSTRUCTION COMMENCES.
8. EXISTING OVERHEAD LINES TO BE RELOCATED BEFORE BRIDGE AND BARRIER BEAM CONSTRUCTION COMMENCES.
9. THE CONTRACTOR SHALL ENSURE ANY CONSTRUCTION AND EXCAVATION WORK WILL NOT ADVERSELY AFFECT THE EXISTING CULVERT, EXISTING SERVICE FOUNDATION AND OTHER EXISTING STRUCTURES. TEMPORARY WORKS TO BE DESIGNED BY THE CONTRACTOR.
10. ANTI-GRAFFITI PROTECTION FOR CONCRETE AND STEEL ELEMENTS TO NZTA BRIDGE MANUAL REQUIREMENTS:
 - CLEAR COLOUR.
 - PERMANENT COATING SYSTEM GUARDIAN ANTI GRAFFITI SHIELD OR APPROVED EQUIVALENT.
 - REFER TO SPECIFICATION.
11. NEW SERVICES NOT SHOWN ON THIS DRAWING:
 - REFER TO DRG SE-4130 FOR UTILITIES UNDER THE SHARED USE BRIDGE.
 - REFER TO UTILITIES DRAWINGS FOR SERVICES DETAILS FOR IN GROUND SERVICES AND SERVICES INSIDE SERVICE TRY ALONG THE NORTHERN SIDE OF NORTHERN BARRIER BEAM.
12. CONTRACTOR TO INSTALL SLOPE STABILITY RETAINING STRUCTURE BEFORE EXCAVATION AND INSTALLATION OF NEW ABUTMENT PILES. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE TEMPORARY WORKS AND THE EFFECTS OF THAT ON THE EMBANKMENT SLOPE AND CULVERT.
13. RETVEMENT WORKS IN THE PROXIMITY OF THE PROPOSED BRIDGES AND BARRIER BEAM SHALL BE COMPLETE PRIOR TO PILING WORKS.

A PLAN
1:100 (A1), 1:200 (A3)

ORIGINAL DRAWING
IN COLOUR

DETAILED DESIGN
NOT FOR CONSTRUCTION

No.	Revision	By	Chk.	Appd.	Date
C	ISSUED FOR DRAFT DETAILED DESIGN / FOR CONSENTING	PN	TC	GC	26.08.22
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A	ISSUED FOR DRAFT DETAILED DESIGN	TZ	DS	GC	19.01.22

Original Scale (A1) 1:100
Reduced Scale (A3) 1:200

Beca

Design	D.Shinnick	19.01.22	Approved For Construction*
Drawn	T. Zhu	19.01.22	
Design Checker	D.SHINNICK	19.01.22	Date

* Refer to Revision 1 for Original Signature

Client: **WAKA KOTAHI**
NZ TRANSPORT AGENCY

Project: **SH16 - SAFETY IMPROVEMENTS STAGE 2 BRIGHAM CREEK TO KUMEU**

Title: **BRIGHAM CREEK BARRIER BEAM GENERAL ARRANGEMENT - PLAN**

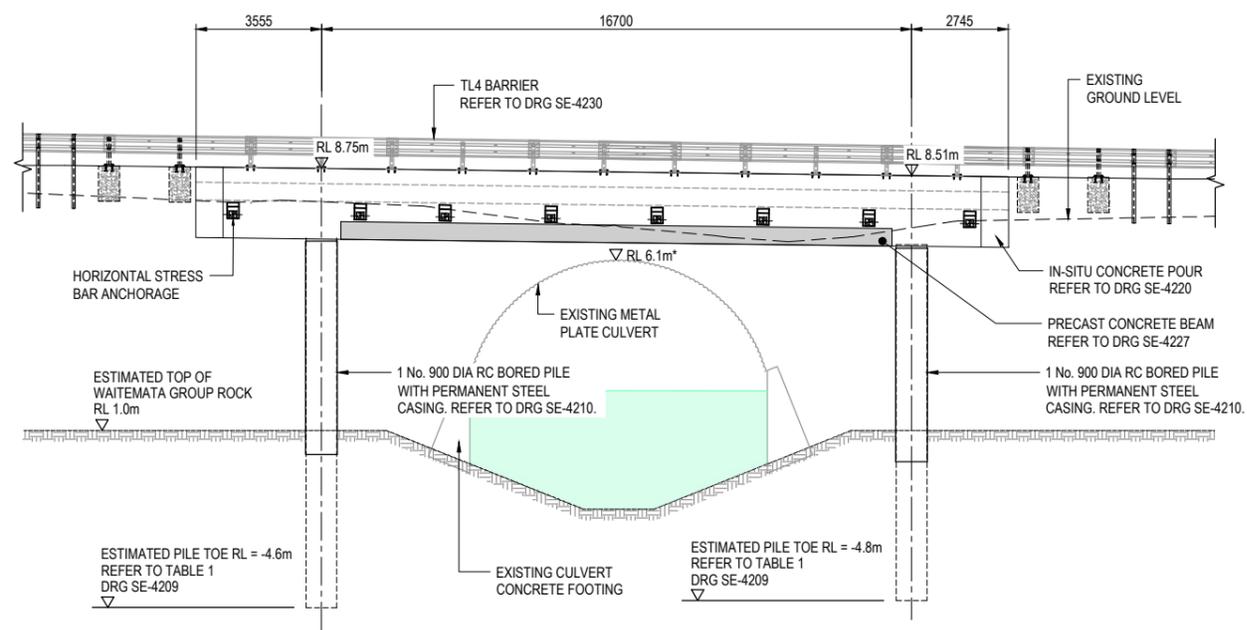
Discipline: **STRUCTURAL ENGINEERING**

Drawing No: **3235084-SE-4205**

Rev: **C**

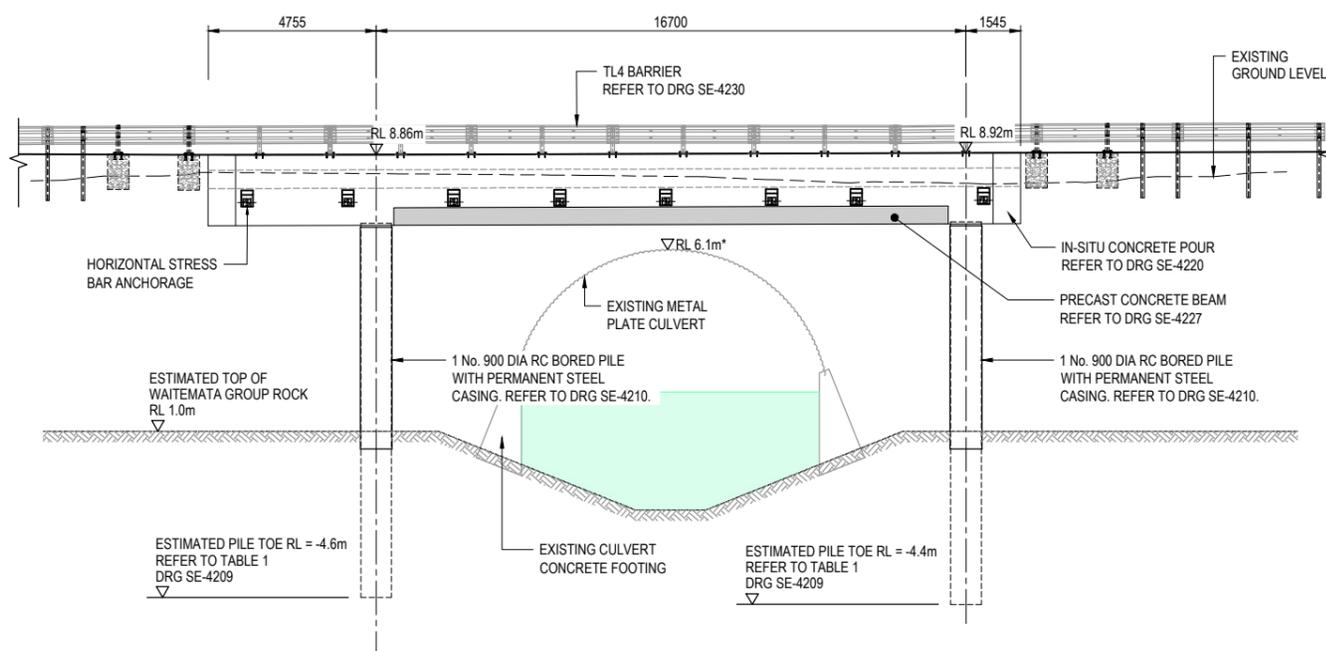
NOTES

1. REFER TO DRAWING SE-4205 FOR NOTES.
2. THE LEVEL AND CONTINUITY OF THE TOP OF SLIGHTLY WEATHERED TO UNWEATHERED ROCK IS INFERRED BASED ON OBSERVATIONS AND THE RESULTS OF TESTING AT DISCRETE LOCATIONS NEAR BUT OFF THE ALIGNMENT OF THE NEW STRUCTURES. AS SUCH, THE ACTUAL ROCK LEVELS ACROSS THE SITE MAY VARY FROM THOSE SHOWN ON THIS DRAWING.
3. SERVICES ARE NOT SHOWN ON THESE DRAWINGS FOR CLARITY. CONTRACTOR SHALL CONFIRM THERE IS NO DIRECT CONFLICT WITH THE UNDERGROUND SERVICES AND IMPLEMENT APPROPRIATE PROTECTION MEASURES PRIOR TO CARRYING OUT EXCAVATION WORKS.
4. REFER TO DESIGN REPORT FOR HISTORICAL DRAWINGS.



1 ELEVATION - SOUTHERN BARRIER BEAM
SE-4105 1:100 (A1), 1:200 (A3)

* COS



2 ELEVATION - NORTHERN BARRIER BEAM
SE-4105 1:100 (A1), 1:200 (A3)

* COS

ORIGINAL DRAWING
IN COLOUR

DETAILED DESIGN
NOT FOR CONSTRUCTION

No.	Revision	By	Chk.	Appd.	Date
C	ISSUED FOR DRAFT DETAILED DESIGN / FOR CONSENTING	PN	TC	GC	26.08.22
B	PEER REVIEW 30% DESIGN	TZ	DS	GC	23.03.22
A	ISSUED FOR DRAFT DETAILED DESIGN	TZ	DS	GC	19.01.22



Original Scale (A1)	1:100	Design	D.Shinnick	19.01.22	Approved For Construction*
Reduced Scale (A3)	1:200	Drawn	T. Zhu	19.01.22	Date
		Design Check	D.SHINNICK	19.01.22	Date



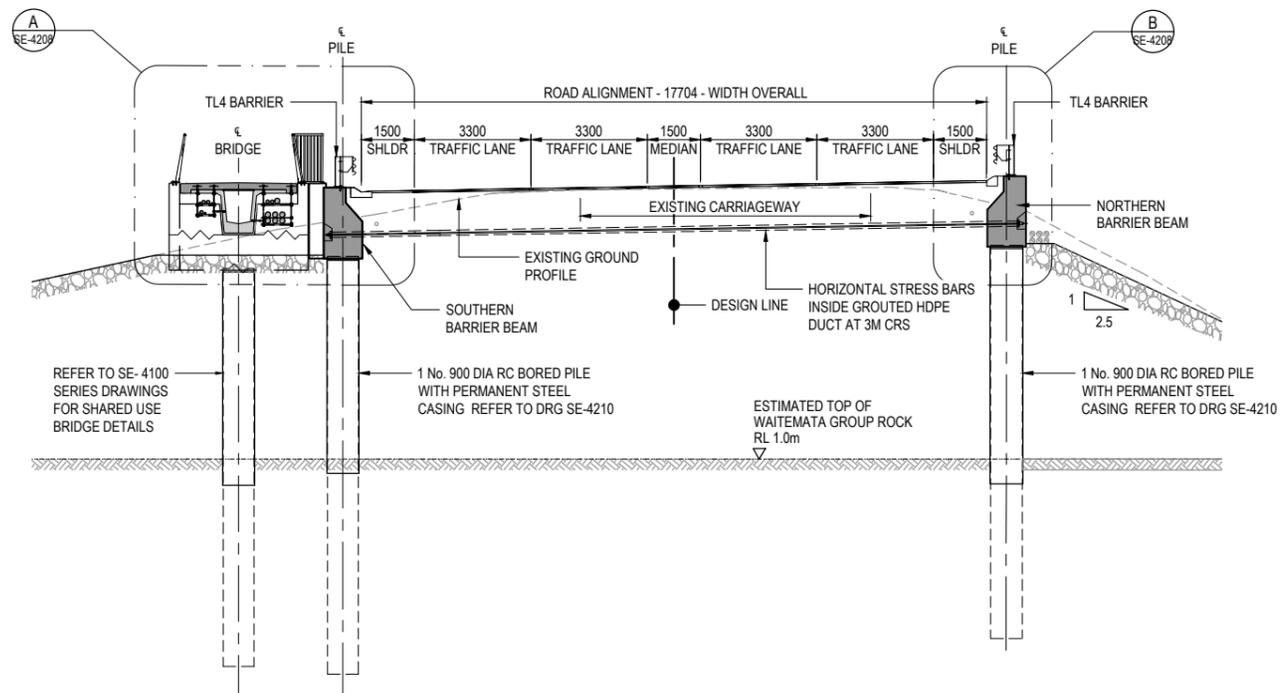
Project: SH16 - SAFETY IMPROVEMENTS
STAGE 2
BRIGHAM CREEK TO KUMEU

Title: BRIGHAM CREEK
BARRIER BEAM - GENERAL
ARRANGEMENT - LONG SECTION

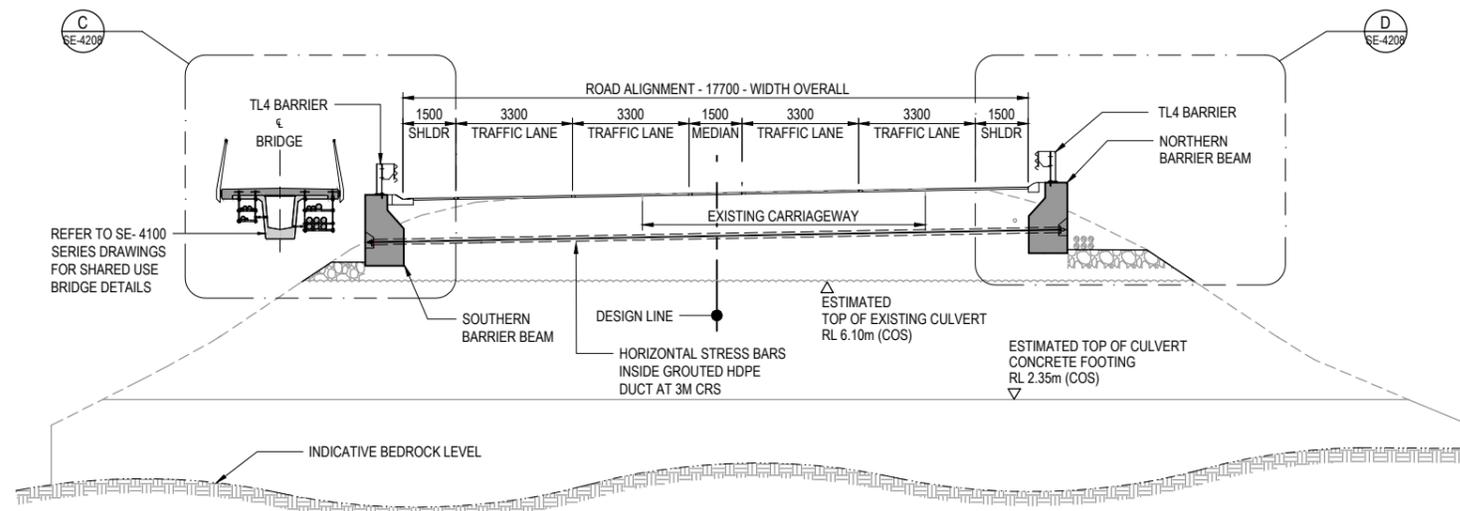
Discipline	STRUCTURAL ENGINEERING
Drawing No.	3235084-SE-4206
Rev.	C

NOTES

- REFER TO DRAWING SE - 4205 FOR NOTES.



3 SECTION - WEST ABUTMENT
SE-4105 1:100 (A1), 1:200 (A3)



4 SECTION - CULVERT CENTRELINE
SE-4105 1:100 (A1), 1:200 (A3)

**ORIGINAL DRAWING
IN COLOUR**

**DETAILED DESIGN
NOT FOR CONSTRUCTION**

No.	Revision	By	Chk.	Appd.	Date
C	ISSUED FOR DRAFT DETAILED DESIGN / FOR CONSENTING	PN	TC	GC	26.08.22
B	PEER REVIEW 30% DESIGN	TZ	DS	GC	23.03.22
A	ISSUED FOR DRAFT DETAILED DESIGN	TZ	DS	GC	19.01.22

Drawing Originator:

Original Scale (A1)	Design	Drawn	19.01.22	Approved For Construction*
1:100	D.Shinnick	T. Zhu	19.01.22	
Reduced Scale (A3)	Design Check	Date		
1:200	D.SHINNICK	19.01.22		

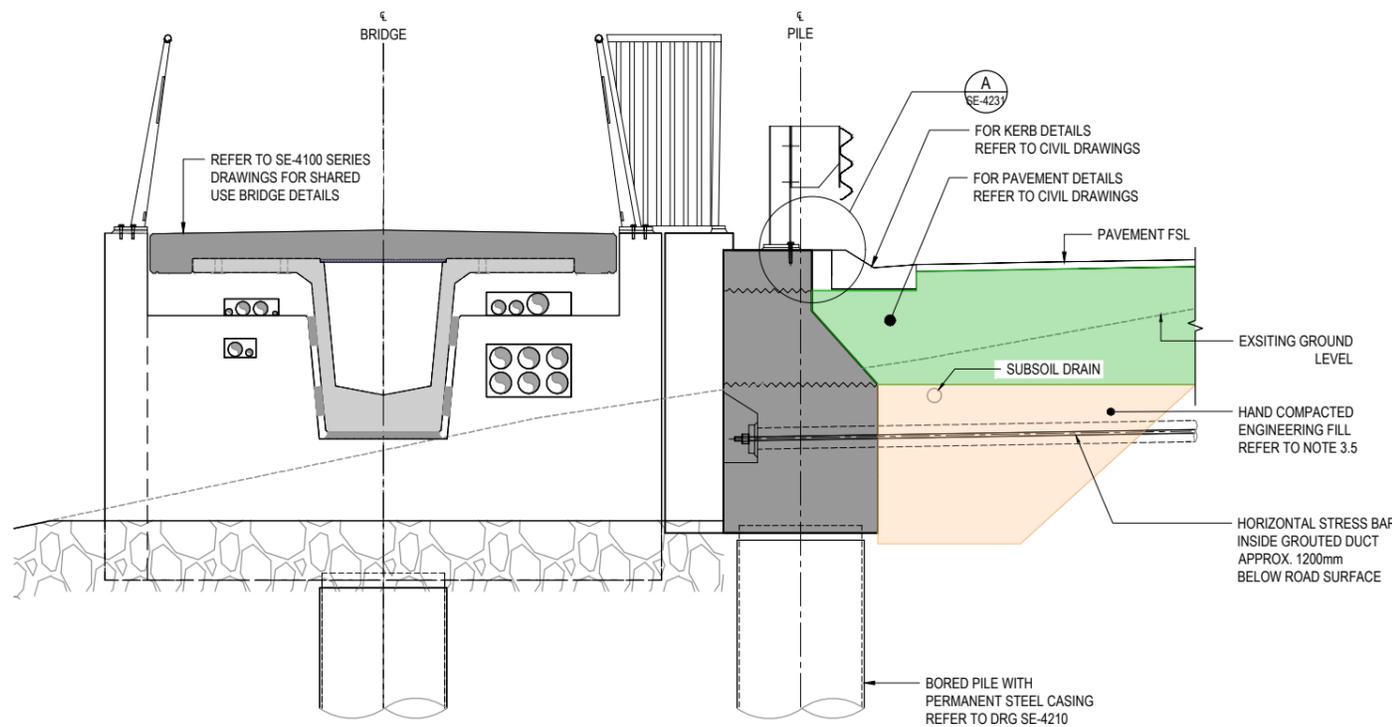
* Refer to Revision 1 for Original Signature

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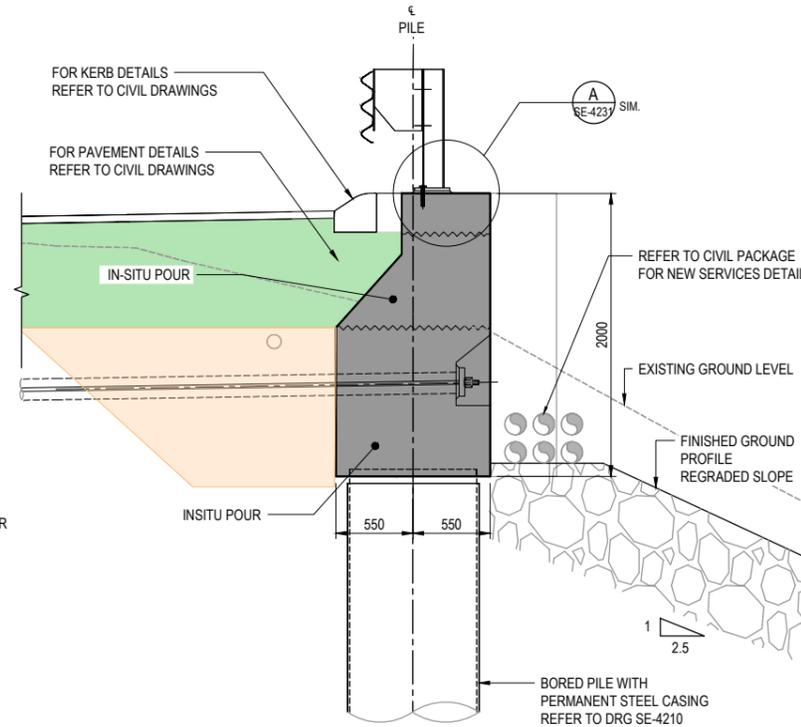
Project: SH16 - SAFETY IMPROVEMENTS
STAGE 2
BRIGHAM CREEK TO KUMEU

Title: BRIGHAM CREEK
BARRIER BEAM - GENERAL
ARRANGEMENT - CROSS SECTIONS

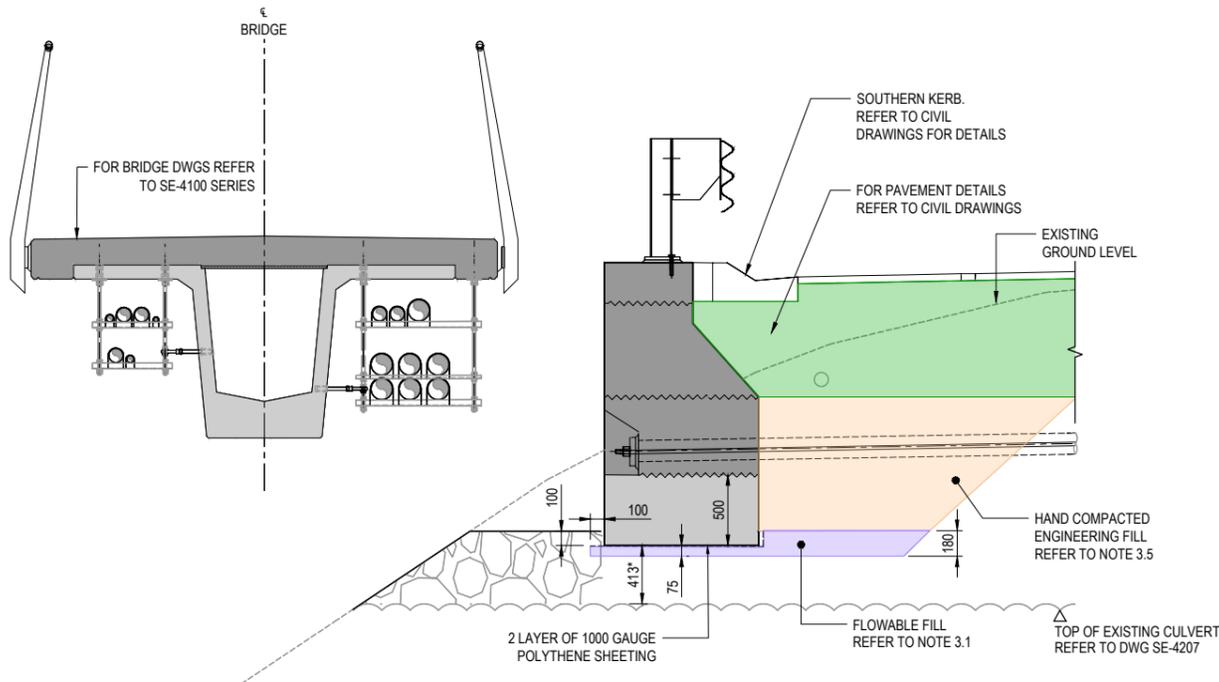
Discipline	Structural Engineering
Drawing No.	3235084-SE-4207
Rev.	C



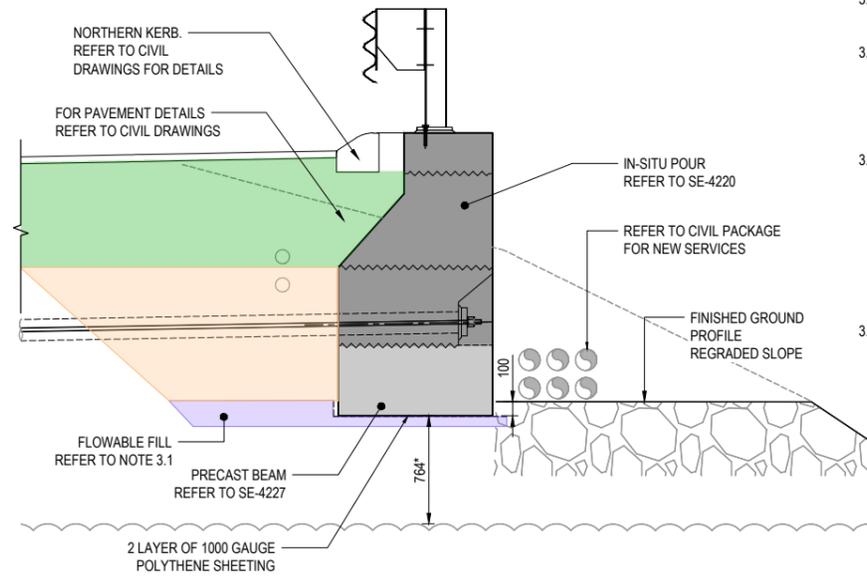
A DETAIL
SE-4107 1:25 (A1), 1:50 (A3)



B DETAIL
SE-4207 1:25 (A1), 1:50 (A3)



C DETAIL
SE-4107 1:25 (A1), 1:50 (A3)



D DETAIL
SE-4207 1:25 (A1), 1:50 (A3)

NOTES:

1. GENERAL

- 1.1 REFER TO DWG SE-4205 FOR NOTES.
- 1.2 ALL FORMED SURFACE TO BE F4 FINISH, EXCEPT WHERE NOT VISIBLE TO PUBLIC F3 ACCEPTABLE.
- 1.3 ALLOW FOR 20mm CHAMFER TO ALL CONCRETE EDGES U.N.O.
- 1.4 ALL CONSTRUCTION JOINTS TO BE TYPE 'B' U.N.O.
- 1.5 REFER TO DWG SE-4220 FOR STRESS BAR DETAILS
- 1.6 REFER TO DWG SE-4227 FOR PRECAST BEAM DETAILS
- 1.7 REFER TO DWG SE-4240 FOR CONSTRUCTION SEQUENCE.

2. EXCAVATION

- 2.1 THE CONTRACTOR SHALL PROVIDE A STABLE EXCAVATION FOR CONSTRUCTING BARRIER BEAM.
- 2.2 THE EXISTING CULVERT IS ASSUMED TO BE SURROUNDED BY WELL COMPACTED GRANULAR FILL. THE COMPOSITION OF THE EXISTING FILL SHALL BE CONFIRMED ON SITE BY GEOTECHNICAL ENGINEER BY VISUAL INSPECTION.
- 2.3 THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT OVER DIG OR DAMAGE TO THE EXISTING CULVERT WHEN EXCAVATING TO FORMATION LEVEL.
- 2.4 A 75mm CLEAR GAP BETWEEN THE PRECAST BEAM DEFLECTED SOFFIT LEVEL AND GROUND LEVEL SHALL BE MAINTAINED UNTIL AFTER THE SECOND CONCRETE POUR AND THE CONCRETE REACHES 28 DAY STRENGTH.

3. BACKFILL

- 3.1 FLOWABLE FILL IN ACCORDANCE WITH AS/NZS 2041.2 AND THE EARTHWORKS SPECIFICATION SHALL BE POURED AFTER THE SECOND INSITU CONCRETE POUR REACHES 28 DAY STRENGTH ALLOWING THE BEAM TO DEFLECT UNDER ITS OWN DEAD WEIGHT, FILLING THE GAP BETWEEN THE BEAM SOFFIT AND EXISTING GROUND LEVEL.
- 3.2 BACKFILLING AND COMPACTION TO THE VERTICAL FACE OF THE BARRIER BEAM SHALL BE CARRIED OUT AFTER THE BARRIER BEAM'S SECOND CONCRETE POUR ACHIEVE ITS MINIMUM 28 DAY STRENGTH.
- 3.3 BACKFILL SHALL COMPRISE OF GAP65 HARDFILL U.N.O. AND SHALL BE BUILT UP IN LONGITUDINAL LAYERS OVER THE HEIGHT OF THE BARRIER BEAM ON BOTH SIDES OF THE CARRIAGEWAY SIMULTANEOUSLY.
- 3.4 ALL CONSTRUCTION PLANT AND OTHER VEHICLES HAVING A MASS OF 1500KG SHALL BE KEPT 3m AWAY FROM THE BACK OF THE WALLS.
- 3.5 COMPACTION OF BACKFILL WITHIN A HEIGHT OF 1.5m ABOVE THE ARCH CULVERT SHALL BE HAND COMPACTED IN ACCORDANCE WITH WAKA KOTAHU F3 "SPECIFICATION FOR PIPE CULVERT CONSTRUCTION". HAND COMPACTION IS ASSUMED TO BE VIBRO TAMPERS HAVING A MASS NOT EXCEEDING 75KG.
 - VIBRATING ROLLERS, HAVING A MASS PER METRE WIDTH OF ROLLER NOT EXCEEDING 1300KG WITH A TOTAL MASS NOT EXCEEDING 1500KG.
 - VIBRATING PLATE COMPACTOR HAVING A MASS NOT EXCEEDING 100KG.
 - VIBRO TAMPERS HAVING A MASS NOT EXCEEDING 75KG.
- 3.6 THE PLANT USED FOR COMPACTING FILL MATERIAL OUTSIDE THE 1.5m ZONE INDICATED IN NOTE 3.5 SHALL BE RESTRICTED TO:
 - VIBRATING ROLLERS, HAVING A MASS PER METRE WIDTH OF ROLLER NOT EXCEEDING 1300KG WITH A TOTAL MASS NOT EXCEEDING 1500KG.
 - VIBRATING PLATE COMPACTOR HAVING A MASS NOT EXCEEDING 100KG.
 - VIBRO TAMPERS HAVING A MASS NOT EXCEEDING 75KG.
- 3.7 CONTRACTOR SHALL PROVIDE BENCHING TO INTERFACE OF THE BACKFILL WITH THE EXISTING GROUND SUCH THAT THE FILL IS KEYED IN. THE CONTRACTOR SHALL CONSTRUCT BENCHING AS THE FILL IS RAISED SUCH THAT THE REQUIRED COMPACTION OF THE FILL MATERIAL (KEYING IN AT THE INTERFACE IS ACHIEVED). THE BENCH HEIGHT SHALL BE BASED ON THE THICKNESS OF MATERIAL PLACED IN EACH LIFT BUT SHALL BE NO GREATER THAN 500mm HIGH. TOPSOIL AND UNSUITABLE MATERIAL SHALL BE TRIMMED PRIOR TO ANY FILLING.

No.	Revision	By	Chk.	Appd.	Date
C	ISSUED FOR DRAFT DETAILED DESIGN / FOR CONSENTING	PN	TC	GC	26.08.22
B	PEER REVIEW 30% DESIGN	TZ	DS	GC	23.03.22
A	ISSUED FOR DRAFT DETAILED DESIGN	TZ	DS	GC	19.01.22

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1:100	Drawn	T. Zhu	19.01.22
Reduced Scale (A3)	Design Checker	D.SHINNICK	19.01.22
1:200	Date		

Client:	WAKA KOTAHU NZ TRANSPORT AGENCY
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Project:	SH16 - SAFETY IMPROVEMENTS STAGE 2 BRIGHAM CREEK TO KUMEU
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Title:	BRIGHAM CREEK BARRIER BEAM DETAILED CROSS SECTIONS
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Discipline:	STRUCTURAL ENGINEERING
Drawing No:	3235084-SE-4208
Rev:	C

