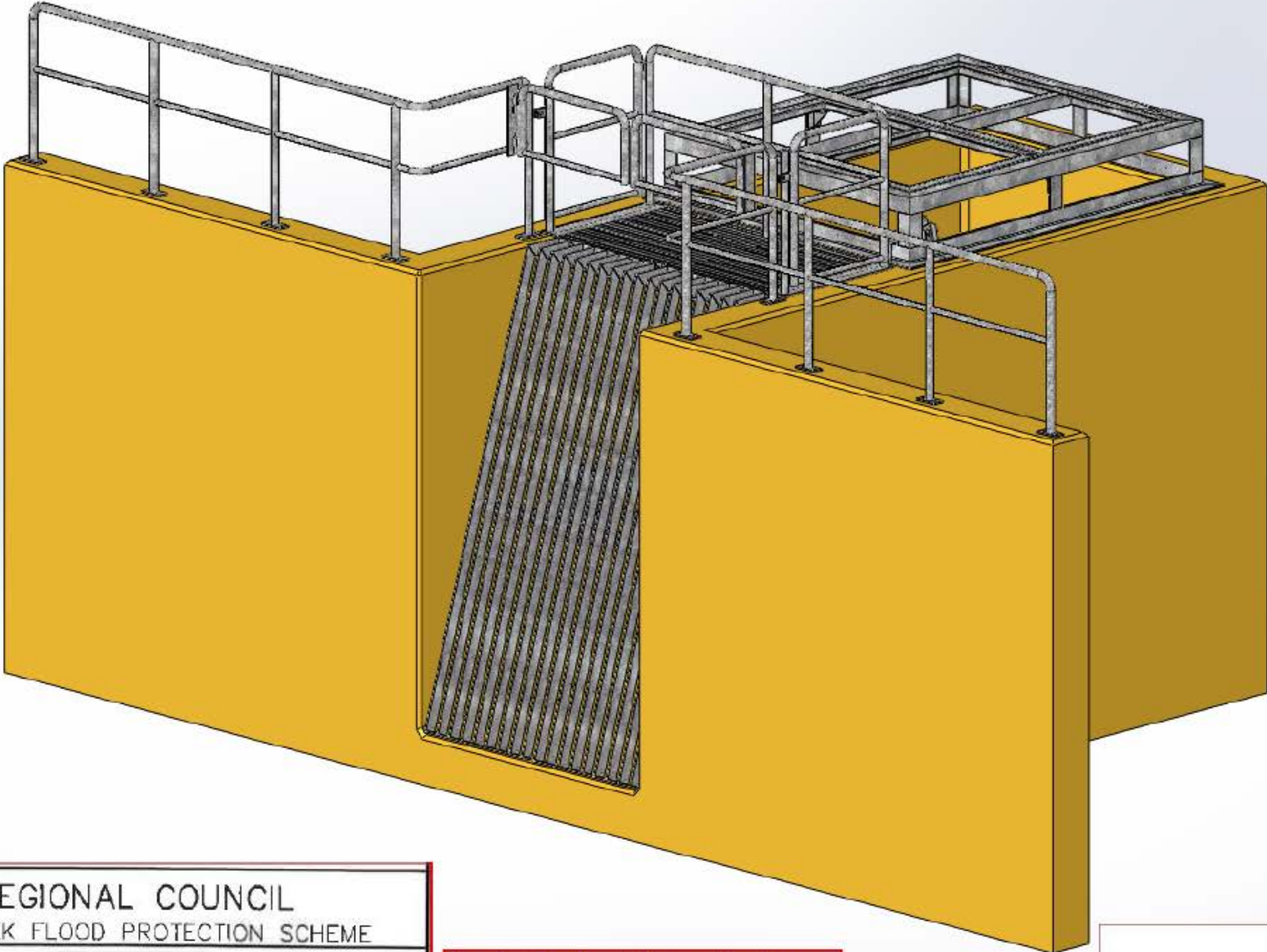


Appendix B – As built Drawings

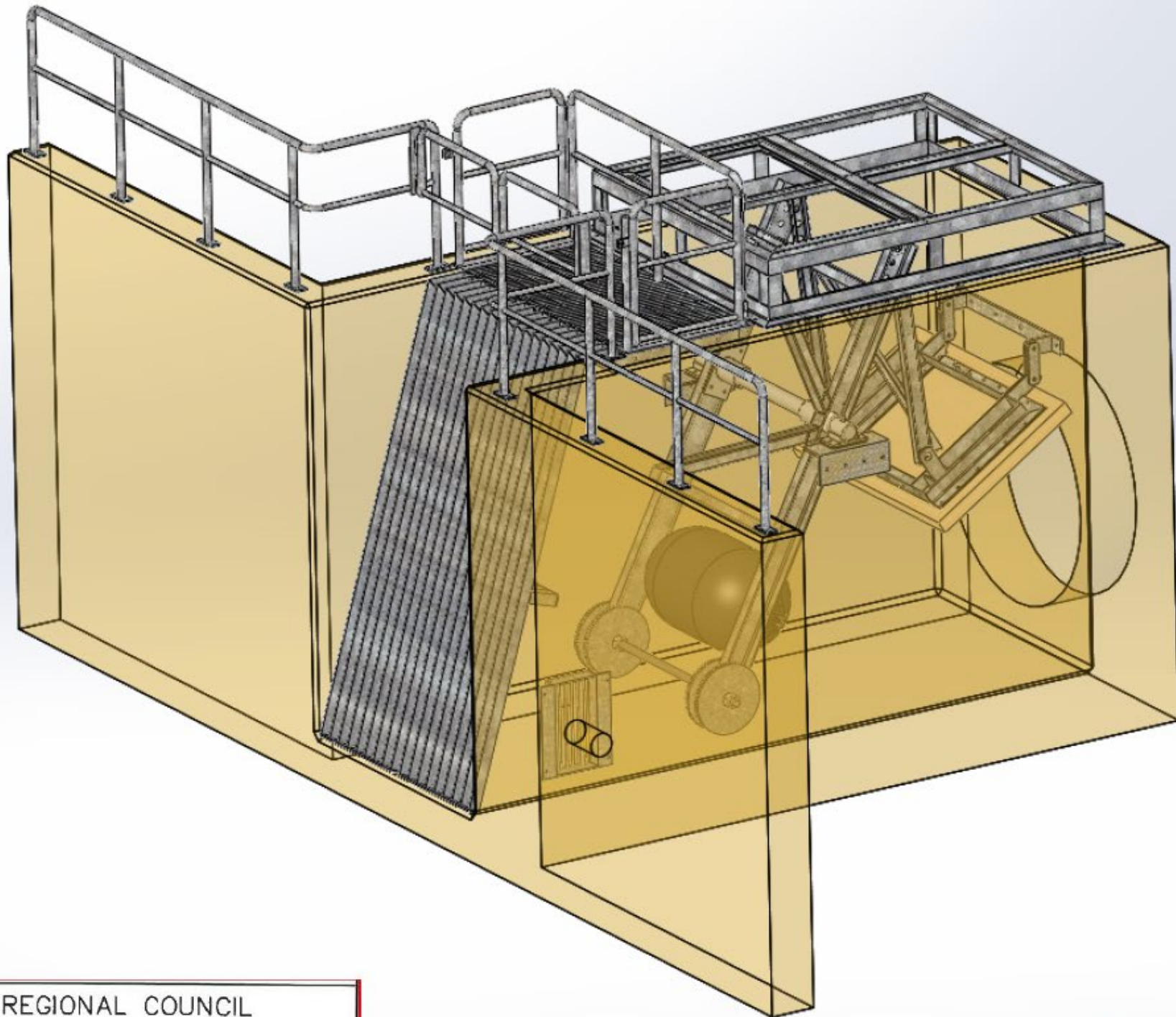
Plan 1594-121500 Grahams Creek Floodgate - As Built sent by Kopu Engineering (includes construction issue).pdf



<small>CLIENT, PROJECT</small> WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME
<small>TITLE</small> FLOODGATE SYSTEM Culvert Inlet Structure

Floodgate built and designed by Kopu Engineering from Solidworks CAD

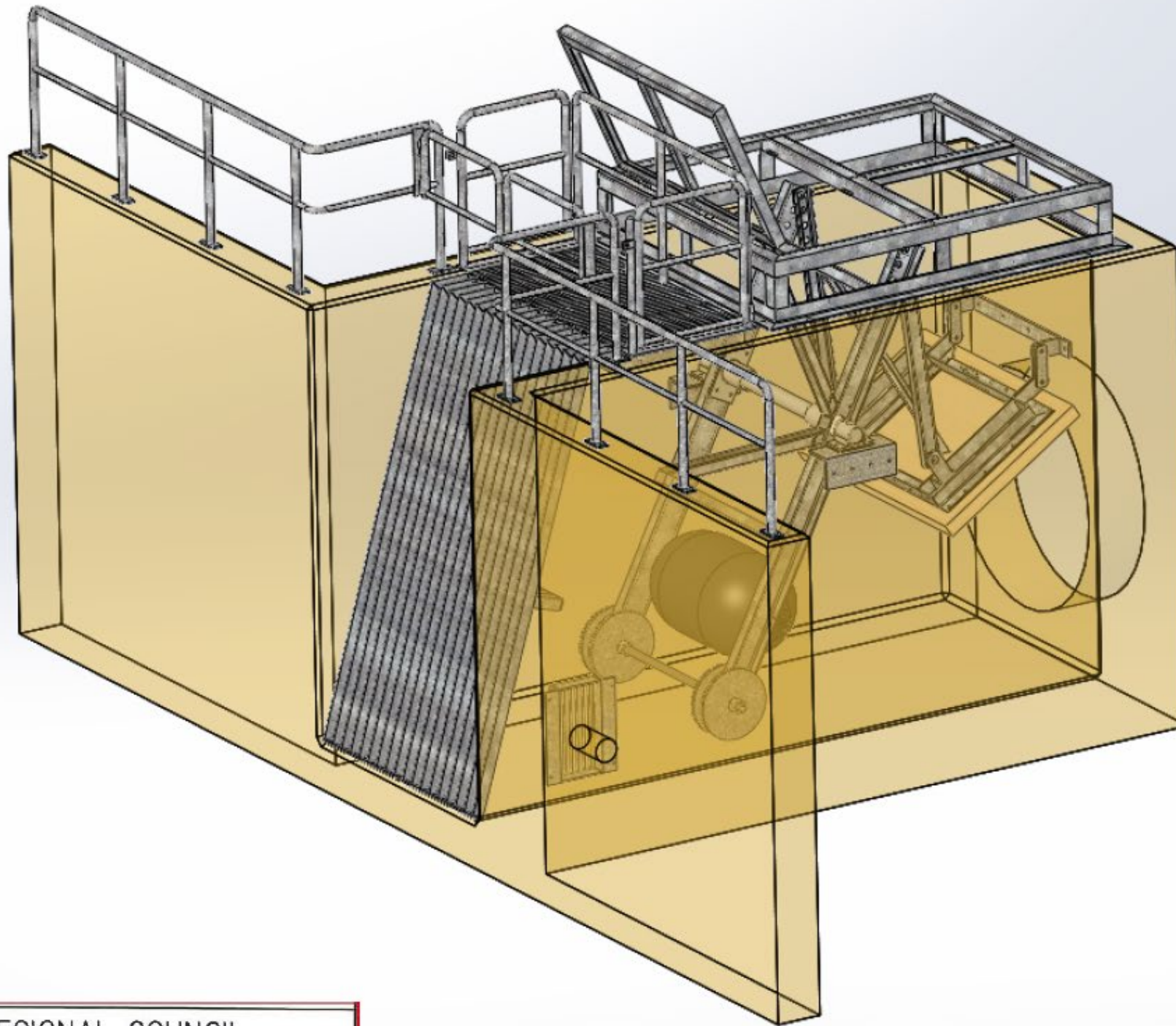
WRC Plan 1594-121500
DRAWING STATUS: AS-BUILT ISSUE



CLIENT, PROJECT
WAIKATO REGIONAL COUNCIL
GRAHAMS CREEK FLOOD PROTECTION SCHEME
TITLE
FLOODGATE SYSTEM
Culvert Inlet Structure

Floodgate built and designed by Kopu Engineering from Solidworks CAD

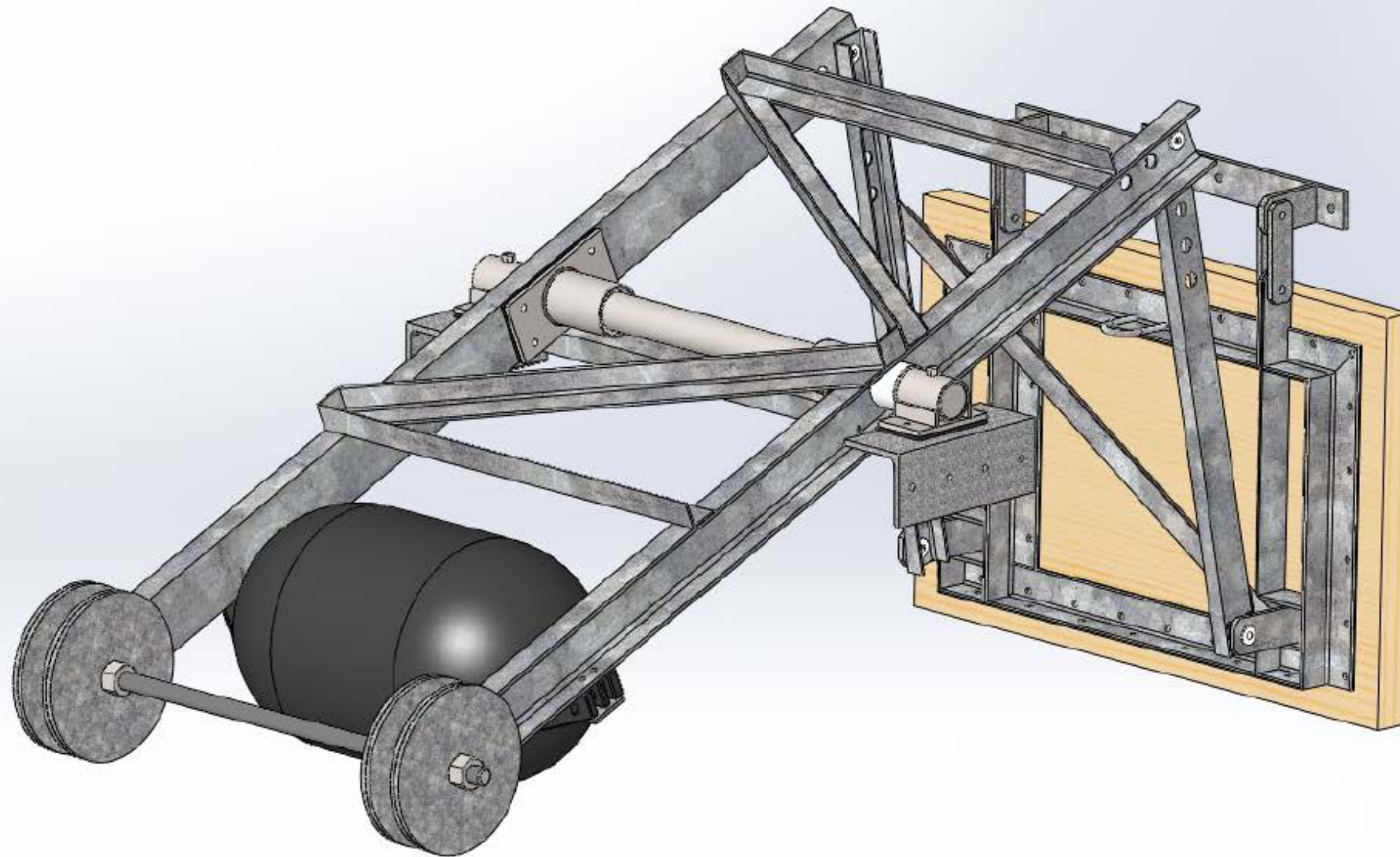
WRC Plan 1594-121500
DRAWING STATUS: AS-BUILT ISSUE



CLIENT, PROJECT
WAIKATO REGIONAL COUNCIL
GRAHAMS CREEK FLOOD PROTECTION SCHEME
TITLE
FLOODGATE SYSTEM
Culvert Inlet Structure

Floodgate built and designed by Kopu
Engineering from Solidworks CAD

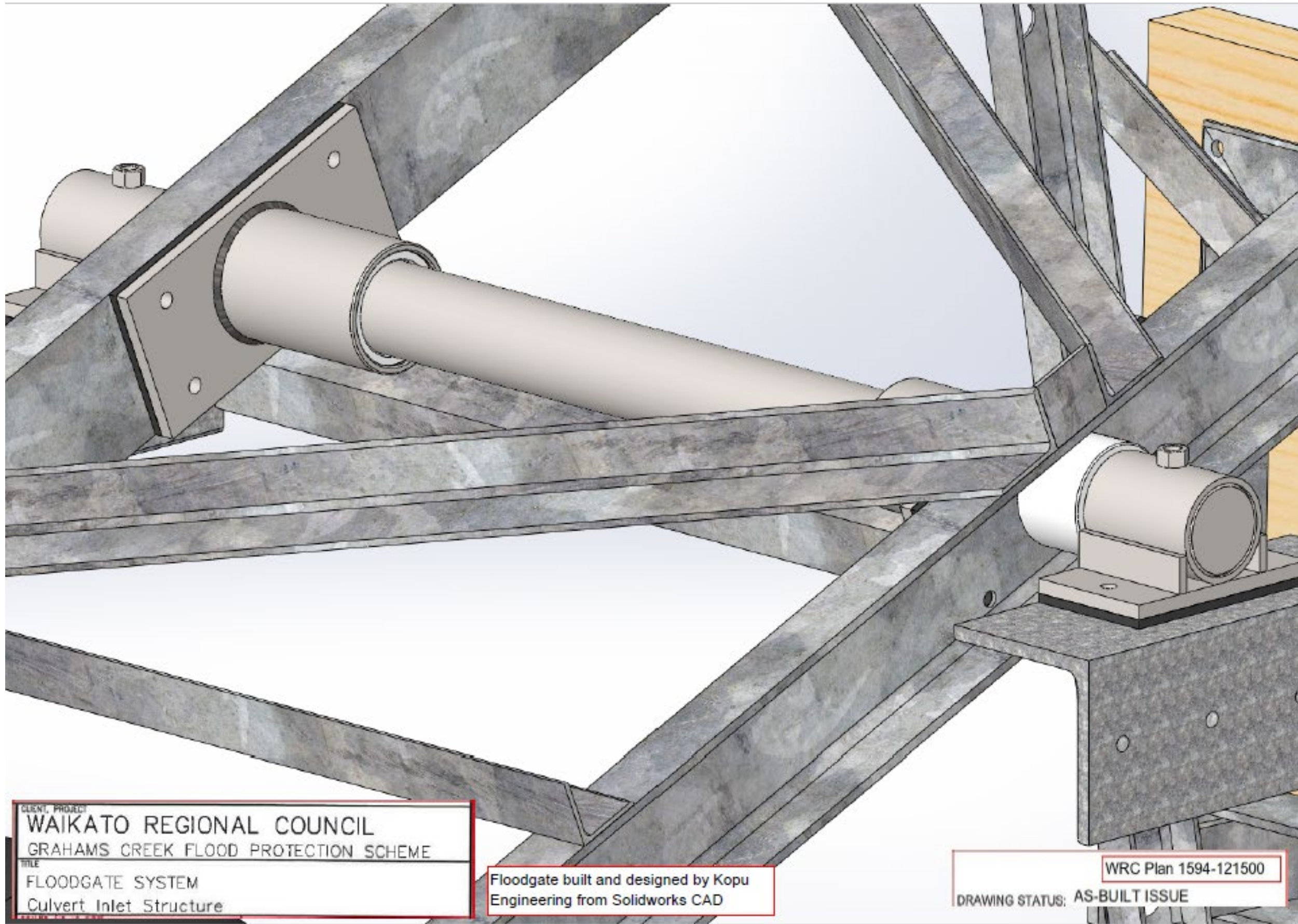
WRC Plan 1594-121500
DRAWING STATUS: AS-BUILT ISSUE



<small>CLIENT, PROJECT</small> WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME
<small>TITLE</small> FLOODGATE SYSTEM Culvert Inlet Structure

Floodgate built and designed by Kopu Engineering from Solidworks CAD

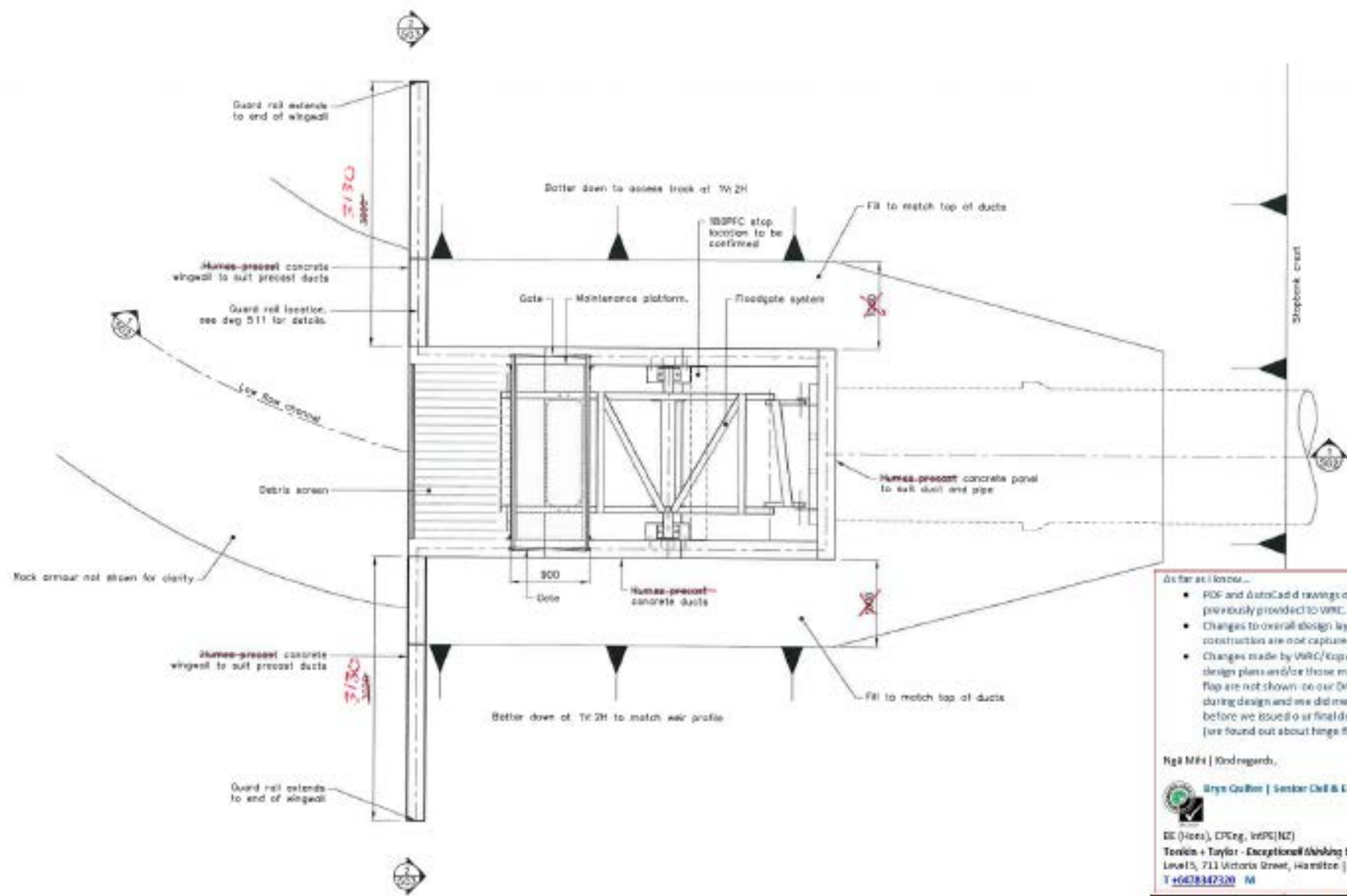
WRC Plan 1594-121500
DRAWING STATUS: AS-BUILT ISSUE



CLIENT PROJECT
WAIKATO REGIONAL COUNCIL
GRAHAMS CREEK FLOOD PROTECTION SCHEME
TITLE
FLOODGATE SYSTEM
Culvert Inlet Structure

Floodgate built and designed by Kopu
Engineering from Solidworks CAD

WRC Plan 1594-121500
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PLAN - FLOODWAY WEIR CULVERT INTAKE
SCALE 1:50

As far as I know...

- PDF and AutoCAD drawings of the issued design have been previously provided to WRC.
- Changes to overall design layout/features made on-site during construction are not captured in our drawings.
- Changes made by WRC/Kopu engineering after we issued our design plans and/or those made on-site i.e. the bottom hinge flap are not shown on our drawings. The concept did evolve during design and we did meet with Kopu but that was all well before we issued a final design plan that were then modified (we found out about hinge flap modifications much later on).

Ngā Māhi | Kind regards,
 Bryn Quiller | Senior Civil & Environmental Engineer
 BE (Hons), CPEng, Insp(NZ)
 Tonkin + Taylor - Exceptional thinking together
 Level 5, 711 Victoria Street, Hamilton | PO Box 9558, Hamilton, New Zealand
 T +64 274 7320 M

As-built markups completed by Kopu Engineering 30 Oct 2017 on "Preliminary Draft" Issue plans.
 Construction Issue Rev A follows on sheets 21-36.
 All text ringed in red completed by WRC staff

Floodgate built and designed by Kopu Engineering from Solidworks CAD

WRC Plan 1594-121500

SCALE 1:50
 0 0.5 1.0 1.5 2.0 2.5 (m)

DESIGNED :	GWG Feb 16
DRAWN :	DWM Feb 16
DESIGN CHECKED :	
DRAWING CHECKED :	
CAD FILE :	W61898.001-501.dwg
APPROVED :	
NOT FOR CONSTRUCTION	
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UNLESS APPROVED AS SHOWN	
COPYRIGHT OF THE ENGINEER IS RESERVED	

NOTES :
1. All dimensions are in millimetres unless noted otherwise.
2. Refer to Standard Steel & Metal Work Specifications (T+T Jan 2016)
3. All stainless steel shall be Grade 304
4. All mild steel shall be Grade S275MS and hot dipped galvanized.
5. All bolts shall be done up tight (but not over-tight)
6. All bolts shall be Grade 304 stainless steel with self locking nuts and brass spacers (lubricating washer when in contact with mild steel)
7. Composite dimensions shall be dimensioned to pre-cast concrete elements prior to installation.
REFERENCE :

Tonkin+Taylor
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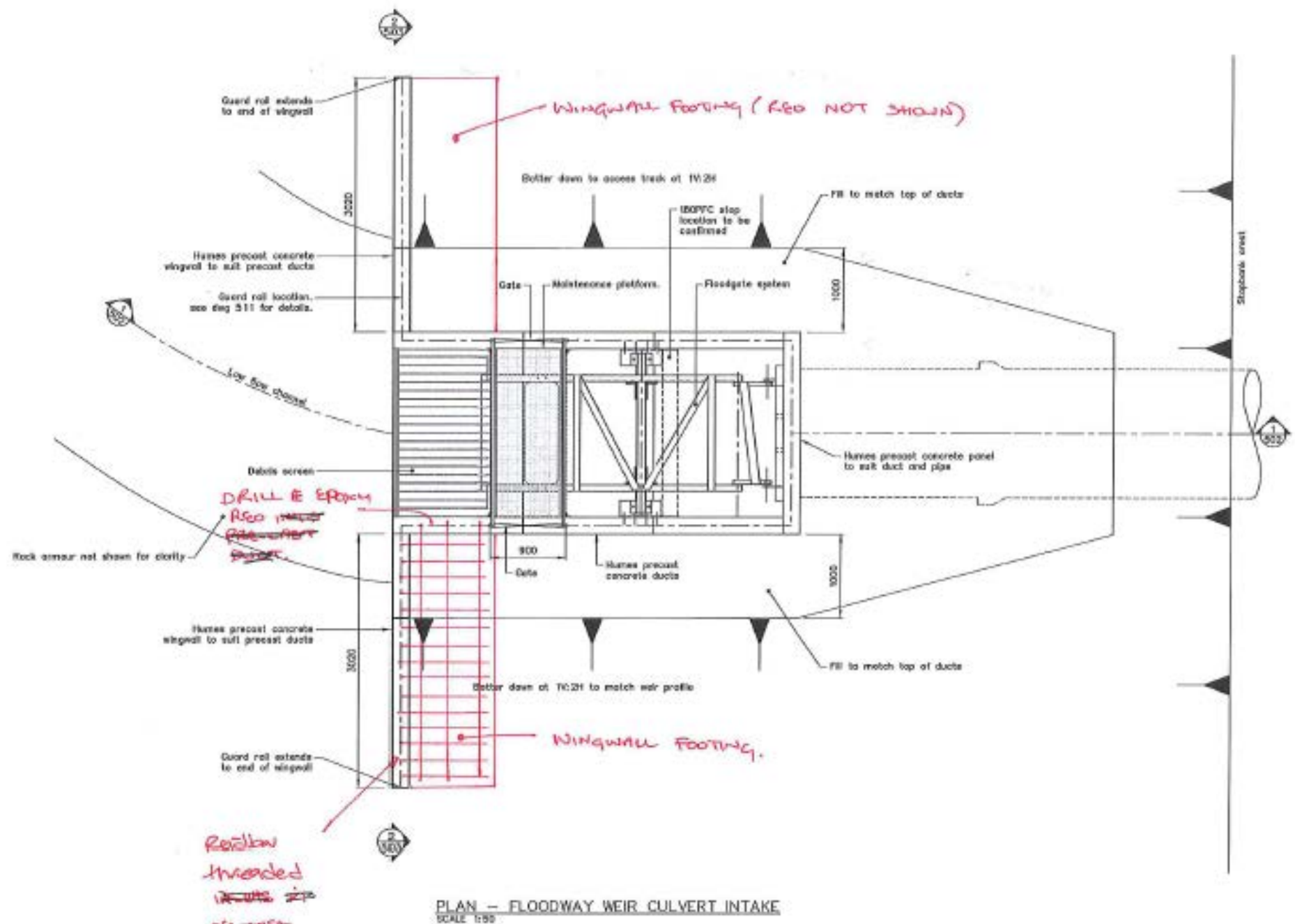
DRAWING STATUS: **AS-BUILT ISSUE**

CLIENT: PROJECT
WAIKATO REGIONAL COUNCIL
 GRAHAMS CREEK FLOOD PROTECTION SCHEME

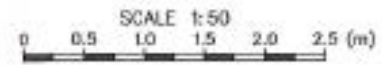
WRC
FLOODGATE SYSTEM
 Culvert Inlet Structure

SCALE (W/AJ SIZE): 1:50
 SHEET NO: 61898.001-501 **AB**

3771553



PLAN - FLOODWAY WEIR CULVERT INTAKE
SCALE 1:50



Rebar threaded into precast wingwall.

WRC Plan 1594-121500
DRAWING STATUS: AS-BUILT ISSUE

DESIGNED:	EMD	Apr. 16
DRAWN:	YVM	Apr. 16
DESIGN CHECKER:		
DRAWING CHECKER:		
DATE:	\\p15898\61898\001-501-501.dwg	
APPROVED:		
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REVISION DESCRIPTION	BY	DATE

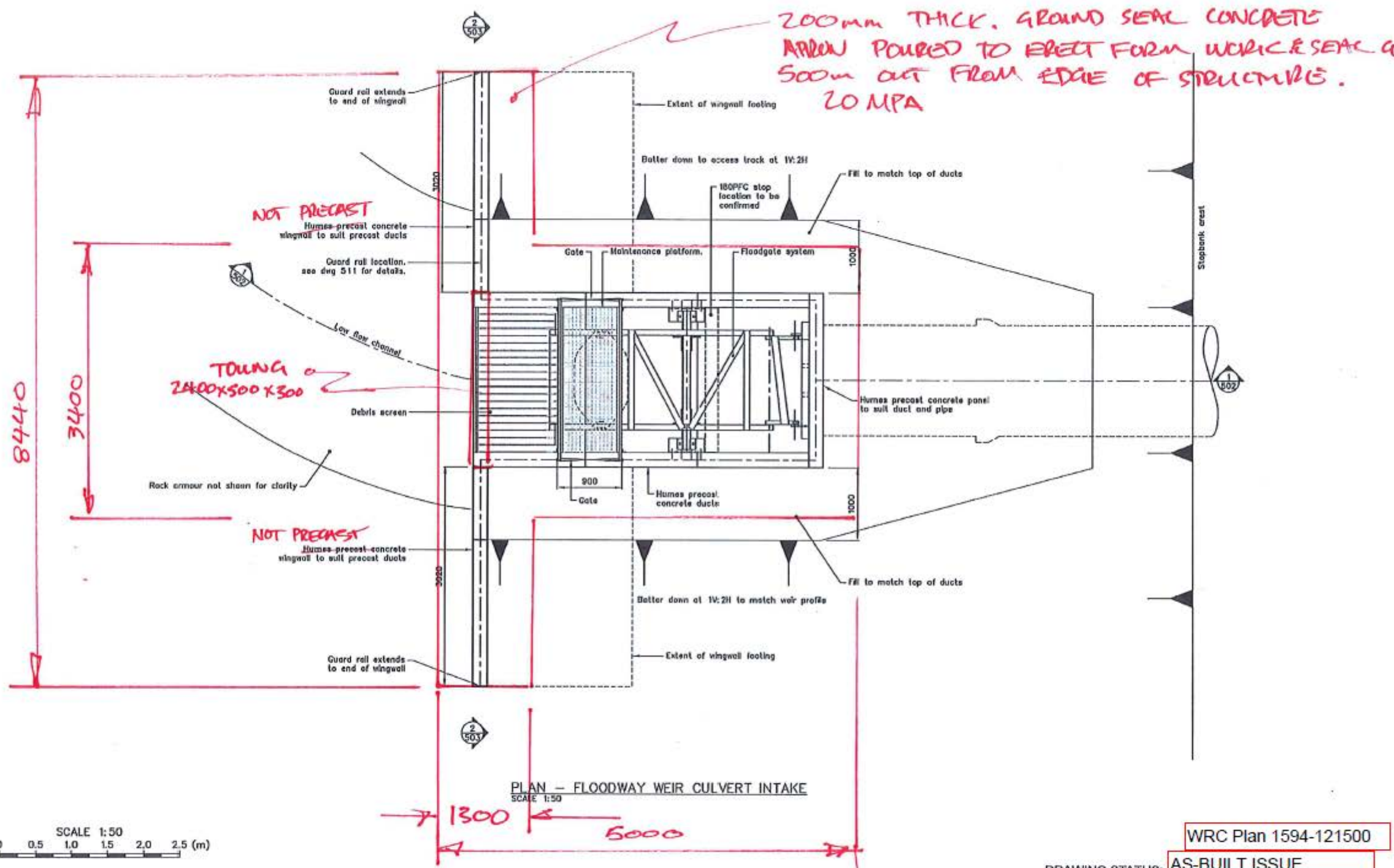
- NOTES:
- All dimensions are in millimetres unless noted otherwise.
 - Refer to Structural Steel & Metal Work Specification (T+Y Jan. 2016).
 - All stainless steel shall be Grade 304.
 - All mild steel shall be Grade 300PLUS and hot dipped galvanized.
 - All welds shall be Green leg length fillet welds.
 - All bolts shall be Grade 304 stainless steel with self locking nuts and 5mm nylon insulating washer when in contact with mild steel.
 - Component dimensions shall be clearance fit with pre-cast concrete elements prior to fabrication.

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CLIENT PROJECT	WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME
TITLE	FLOODGATE SYSTEM Culvert Inlet Structure
SCALE	1:50
DWG. NO.	6 1898.001-501
REV.	A

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PLAN - FLOODWAY WEIR CULVERT INTAKE
SCALE 1:50

SCALE 1:50
0 0.5 1.0 1.5 2.0 2.5 (m)

WRC Plan 1594-121500

DRAWING STATUS: AS-BUILT ISSUE

DESIGNED :	BMO	Apr. 16
DRAWN :	DVM	Apr. 16
DESIGN CHECKED :	BMO	4/15
DRAWING CHECKED :	BMO	4/15
CAD FILE :	\\61098.001-501.dwg	
APPROVED :	<i>[Signature]</i>	11/4/16
REVISION DESCRIPTION	BY	DATE
A For Construction	BMO	4/15

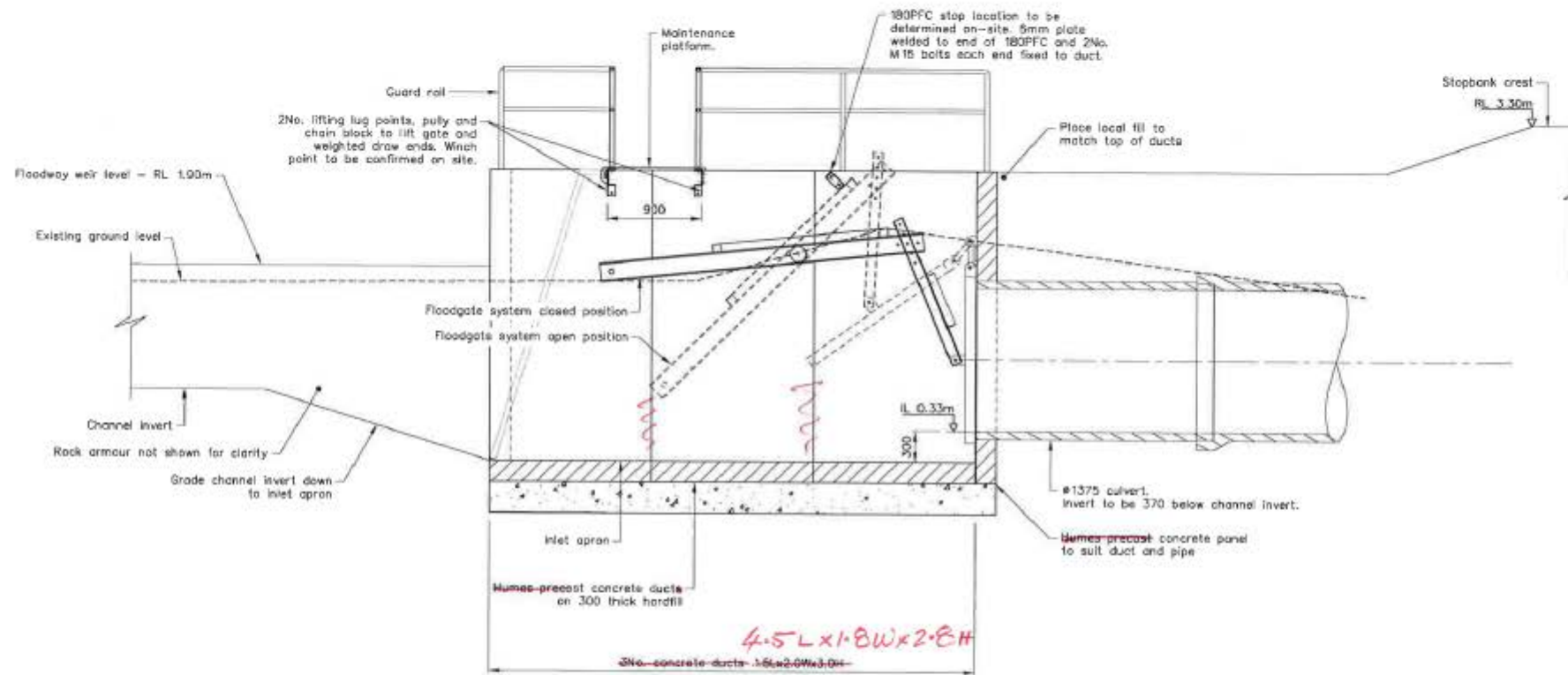
NOTES :

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- All bolts shall be Grade 304 stainless steel with self locking nuts and 5mm nylon insulating washer when in contact with mild steel.
- Component dimensions shall be checked for fit with pre-cast concrete elements prior to fabrication.

REFERENCE :

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CLIENT PROJECT
WAIKATO REGIONAL COUNCIL
 GRAHAMS CREEK FLOOD PROTECTION SCHEME
 TITLE
FLOODGATE SYSTEM
 Culvert Inlet Structure
 SCALES (if any size)
 1:50
 DWG. No.
 6 1898.00 1-50 1
 REV.
 A



SECTION 1
SCALE 1:50

SCALE 1:50
0 0.5 1.0 1.5 2.0 2.5 (m)

Floodgate built and designed by Kopu Engineering from Solidworks CAD

WRC Plan 1594-121500

DRAWING STATUS: AS-BUILT ISSUE

DESIGNED :	BMO	Feb. 15
DRAWN :	DWM	Feb. 15
DESIGN CHECKED :		
DRAFTING CHECKED :		
CADFILE :	\\6 1898.00 1-50 1...dwg	
APPROVED :		
NOT FOR CONSTRUCTION		
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REVISION DESCRIPTION	BY	DATE
D Preliminary Draft		

NOTES :

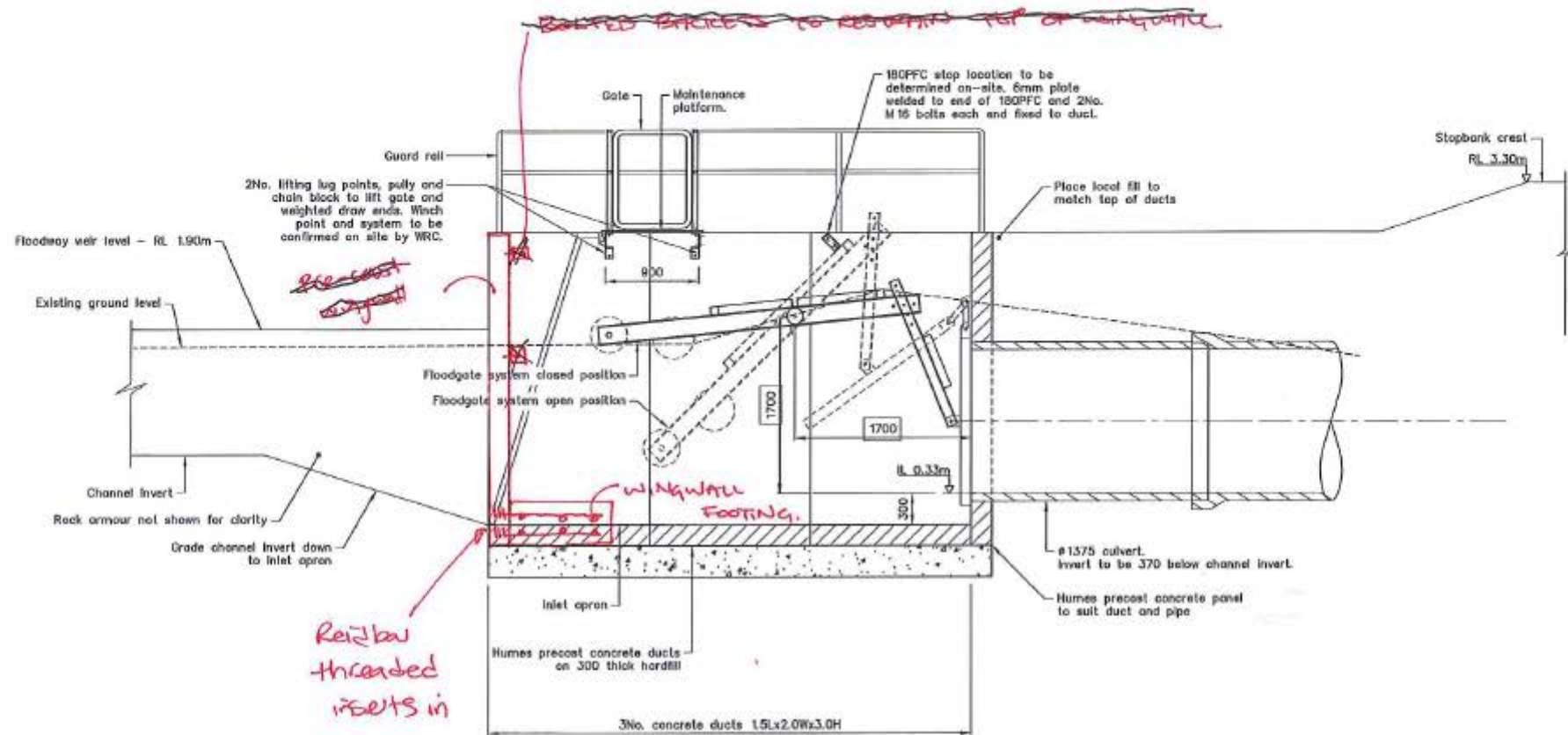
- All dimensions are in millimetres unless noted otherwise.
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- Component dimensions shall be clearance fit with pre-cast concrete elements prior to fabrication.

REFERENCE :

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CLIENT / PROJECT	WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME
TITLE	FLOODGATE SYSTEM Culvert Inlet Structure - Section
SCALE (AT A3 SIZE)	1:50
DWG. NO.	6 1898.00 1-502
AB	

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SECTION 1
SCALE 1:50

- INSTALLATION NOTES:**
1. Set out of main axle shaft critical to gate function. Centre of axle located 1700mm above culvert invert and 1700mm out from culvert / rear wall.
 2. Gate frame / lower arm connection point to use centre bolt holes to start. Test gate function and adjust as required.
 3. Place EZI Grip weight plates central (4No.) only initially and test gate function, place outside weights as required to close gate ensuring equal weights placed each side.
 4. Place PFC stop location to suit test set-up and function.
 5. Undertake full commission test and adjust connection points and weights as required.
 6. Dryn Quiller shall be notified 48 hours prior to commissioning tests being undertaken.

SCALE 1:50
0 0.5 1.0 1.5 2.0 2.5 (m)

WRC Plan 1594-121500

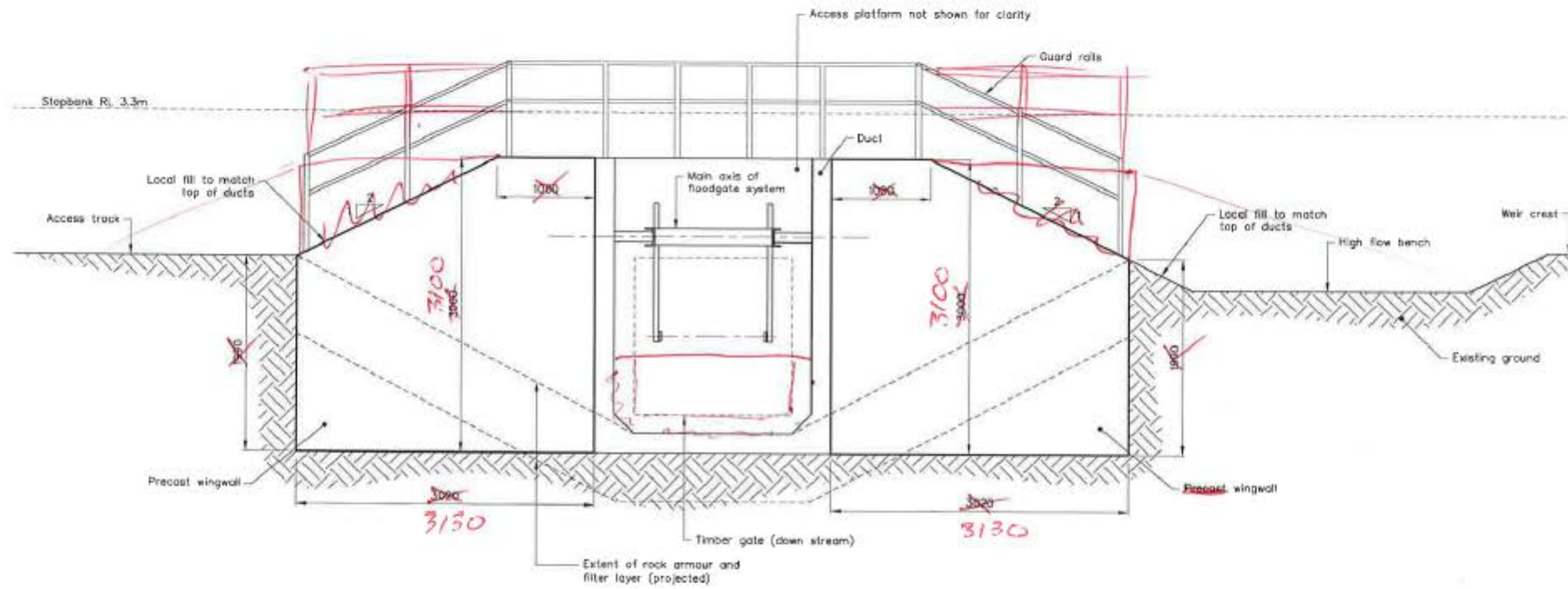
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DRAWN :	DIMM	Apr. 16
DESIGN CHECKED :		
DRAWING CHECKED :		
DATEFILE :	\\S 1898.00 1-50 1.dwg	
APPROVED :		
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- NOTES :**
1. All dimensions are in millimetres unless noted otherwise.
 2. Refer to Structural Steel & Metal Work Specification (T+T Jan. 2016)
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 7. Component dimensions shall be clearance fit with pre-coat concrete elements prior to fabrication.

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CLIENT PROJECT	WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME
TITLE	FLOODGATE SYSTEM Culvert Inlet Structure - Section
SCALE (IF AS SHD)	1:50
DWG. NO.	6 1898.00 1-502
REV.	A



ELEVATION 2 BOX CULVERT AND WINGWALLS
SCALE 1:50

SCALE 1:50
0 0.5 1.0 1.5 2.0 2.5 (m)

Floodgate built and designed by Kopu Engineering from Solidworks CAD

WRC Plan 1594-121500

DRAWING STATUS: AS-BUILT ISSUE

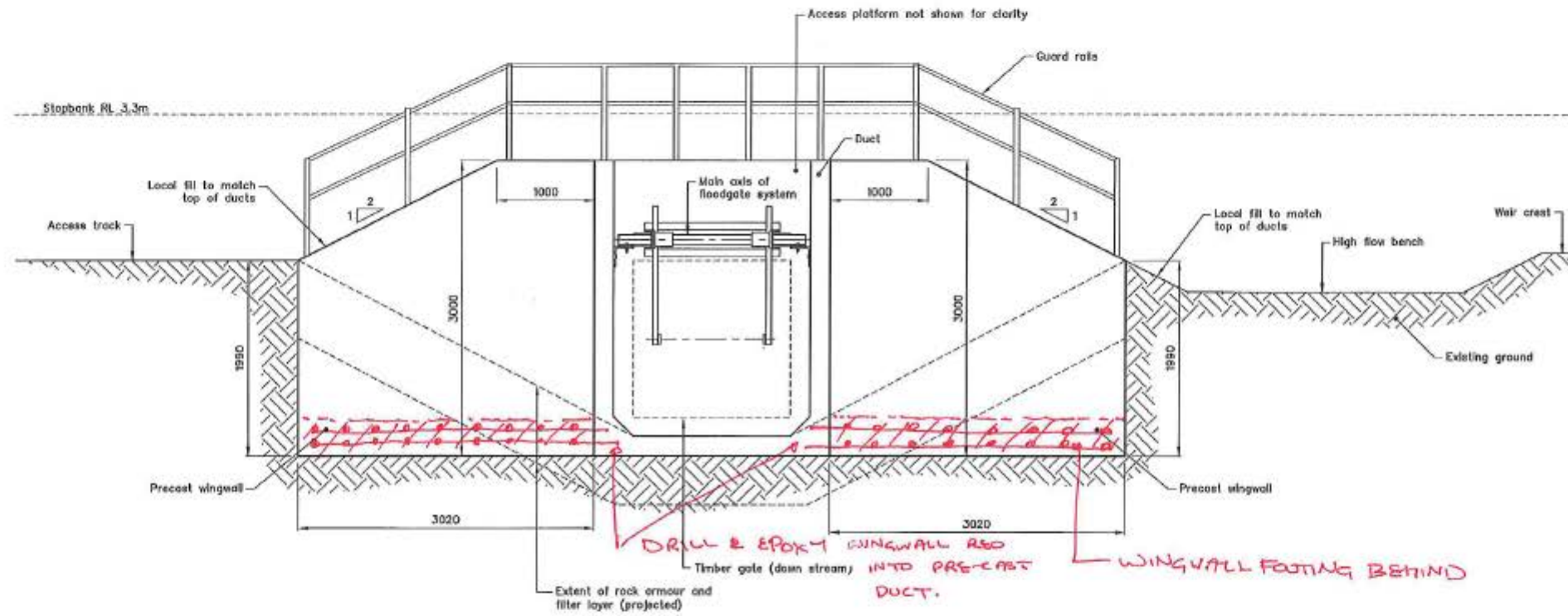
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DRAWN :	DWM Feb. 16		
DESIGN CHECKED :			
DRAFTING CHECKED :			
CAD FILE :	\\6 1898.001-501.dwg		
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1	Preliminary Draft		

NOTES:
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7. Component dimensions shall be clearance fit with pre-cast concrete elements prior to fabrication.

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CLIENT PROJECT	WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME
TITLE	FLOODGATE SYSTEM Culvert Inlet Structure - Elevation
SCALE (AT A3 SIZE)	1:50
DWG. NO.	6 1898.001-503
	AB

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ELEVATION (2) BOX CULVERT AND WINGWALLS
SCALE 1:50

SCALE 1:50
0 0.5 1.0 1.5 2.0 2.5 (m)

WRC Plan 1594-121500

DRAWING STATUS: AS-BUILT ISSUE

DESIGNED :	DMQ	Apr. 16
DRAWN :	DRM	Apr. 16
DESIGN CHECKED :		
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REVISION DESCRIPTION	BY	DATE
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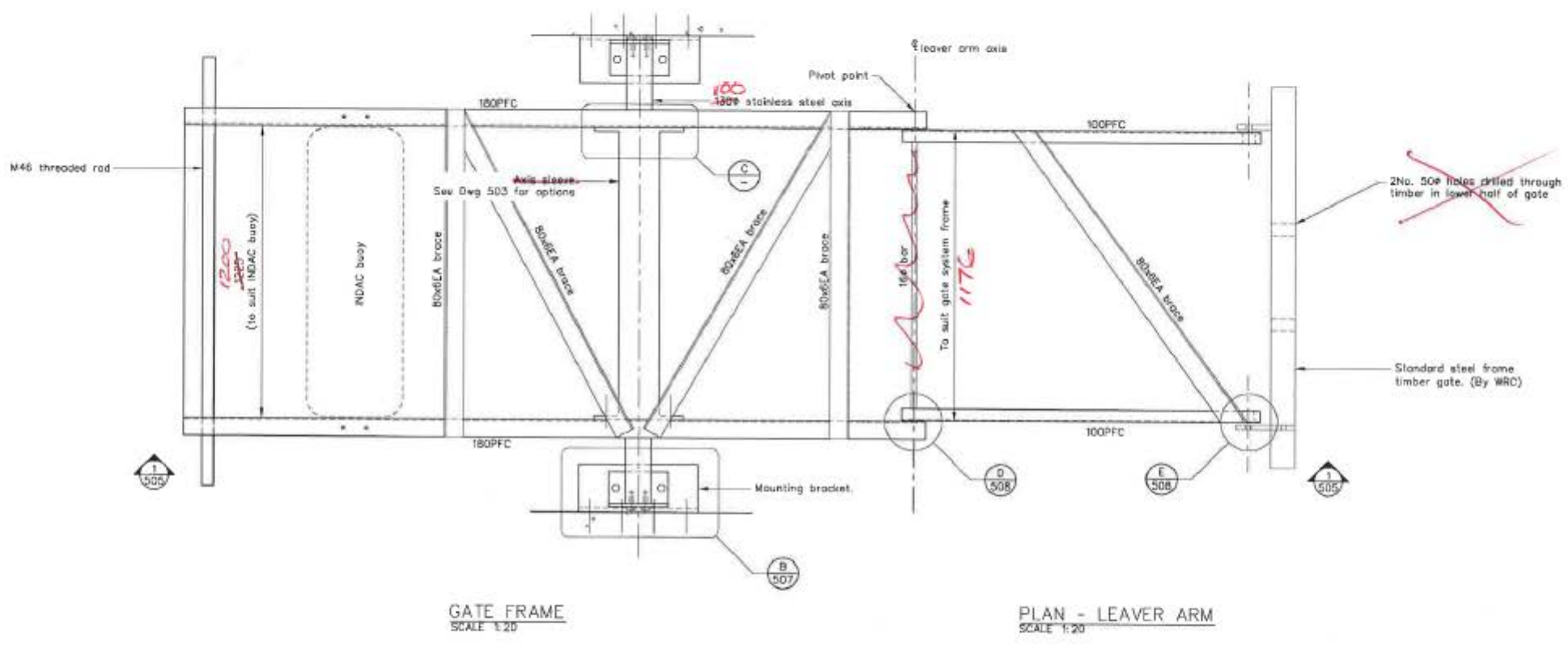
- All dimensions are in millimetres unless noted otherwise.
- Refer to Structural Steel & Metal Work Specification (T+T Jan. 2016)
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REFERENCE :

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CLIENT PROJECT	WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME
TITLE	FLOODGATE SYSTEM Culvert Inlet Structure - Elevation
SCALE (AT AS SHD)	1:50
DWG. No.	6 1898.00 1-503
REV.	A

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SCALE 1:20
0 0.2 0.4 0.6 0.8 1.0 (m)

Floodgate built and designed by Kopu Engineering from Solidworks CAD

WRC Plan 1594-121500

DRAWING STATUS: AS-BUILT ISSUE

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DRAWN :	DMM	Feb. 16
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REVISION DESCRIPTION	BY	DATE
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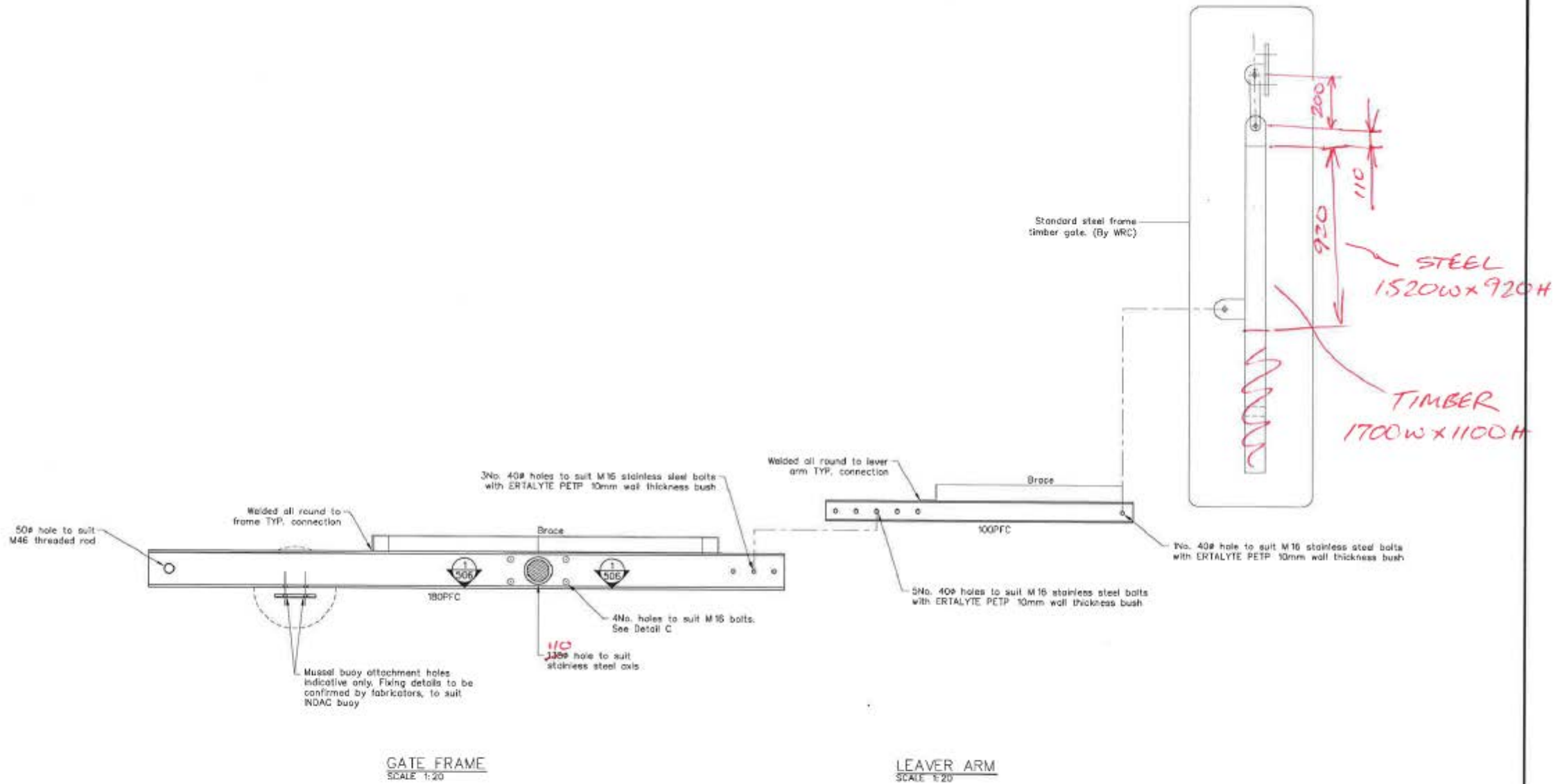
- NOTES :
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- REFERENCE :

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CLIENT PROJECT	WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME
FILE	FLOODGATE SYSTEM Gate Frame Plan
SIZES (A4 A3 A2)	1:20
DWG. NO.	6 1898.001-504
	AB

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SCALE 1:20
0 0.2 0.4 0.6 0.8 1.0 (m)

Floodgate built and designed by Kopu Engineering from Solidworks CAD

SECTION 1
SCALE 1:20 504

WRC Plan 1594-121500

DRAWING STATUS: AS-BUILT ISSUE

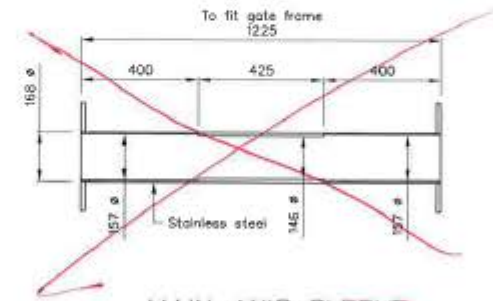
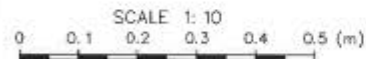
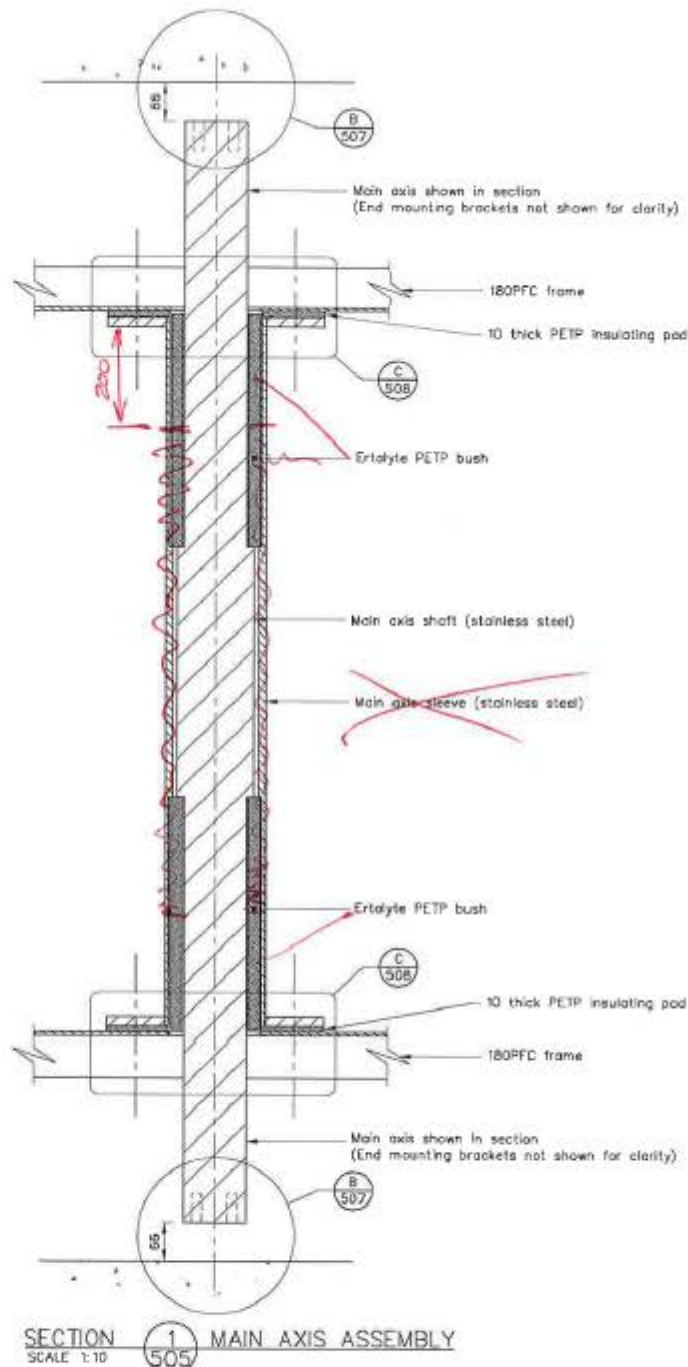
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APPROVED :		
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NOTES :
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7. Component dimensions shall be clearance fit with pre-cast concrete elements prior to fabrication.
REFERENCE :

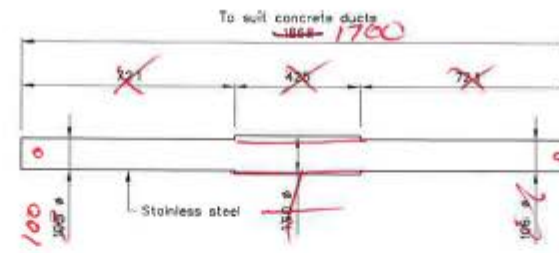
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CLIENT PROJECT	WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME
TITLE	FLOODGATE SYSTEM Section and Details - Sheet 1 of 4
SCALE (AT AS SHD)	1:20
DWG. NO.	61898.001-505
AB	

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MAIN AXIS SLEEVE
SCALE 1:20
2 SEPARATE BUSH HOUSINGS



MAIN AXIS SHAFT
SCALE 1:20



Floodgate built and designed by Kopu Engineering from Solidworks CAD

WRC Plan 1594-121500

DRAWING STATUS: AS-BUILT ISSUE

DESIGNED :	EMQ	Feb. 16
DRAWN :	DRM	Feb. 16
DESIGN CHECKED :		
DRAWING CHECKED :		
CAD FILE :	\\G 1698.001-501.dwg	
APPROVED :		
NOT FOR CONSTRUCTION		
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REVISION	DESCRIPTION	BY DATE

- NOTES:
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CLIENT PROJECT
WAIKATO REGIONAL COUNCIL
GRAHAMS CREEK FLOOD PROTECTION SCHEME

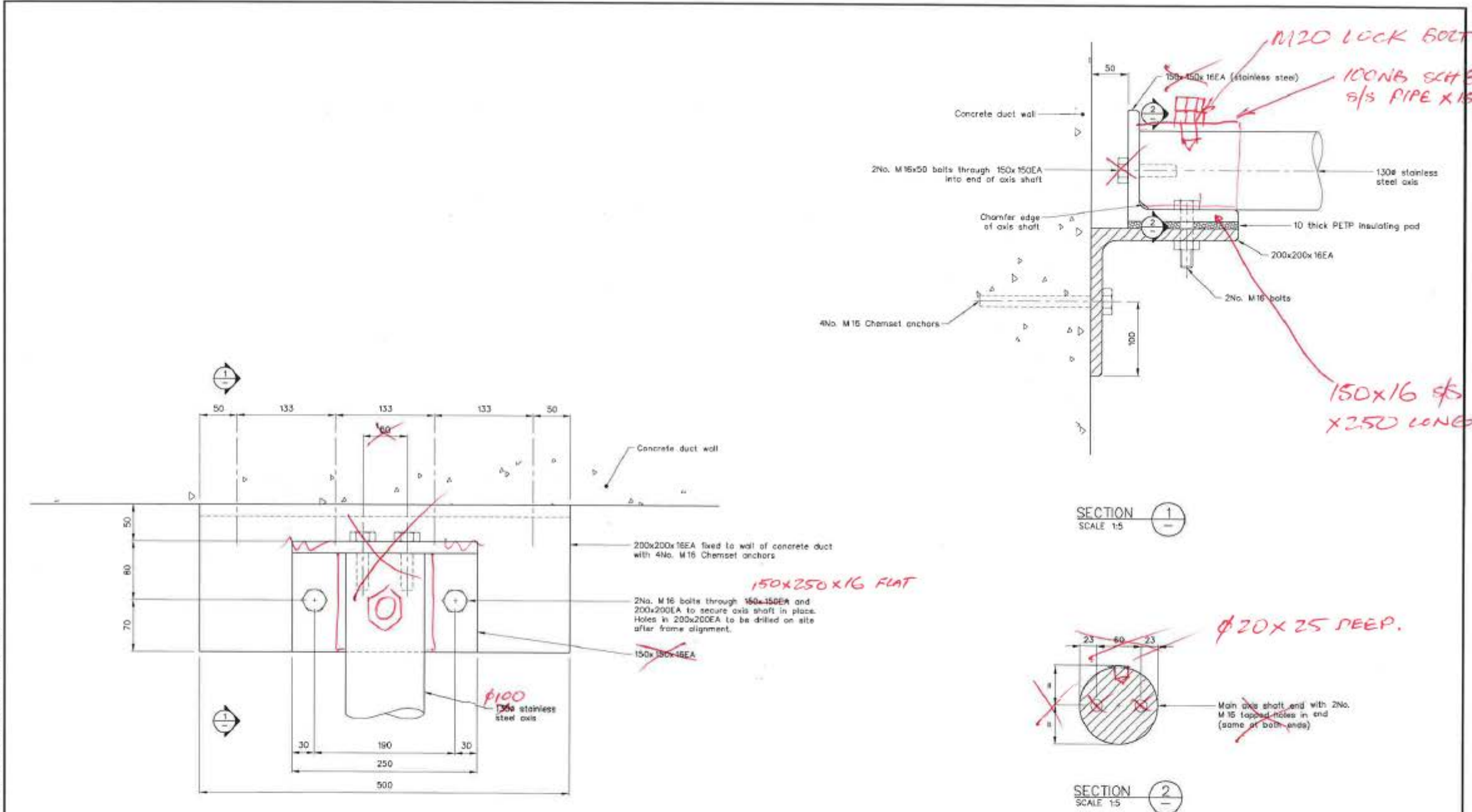
TITLE
FLOODGATE SYSTEM
Section and Details - Sheet 2 of 4

SCALE(S) (AT A3 SIZE)
As Shown

DWG. NO.
6 1898.00 1-506

AB

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DETAIL (B) MOUNTING BRACKET
SCALE 1:5



Floodgate built and designed by Kopu Engineering from Solidworks CAD

WRC Plan 1594-121500

DRAWING STATUS: AS-BUILT ISSUE

DESIGNED :	BMQ Feb, 15
DRAWN :	QWM Feb, 15
DESIGN CHECKED :	
DRAFTING CHECKED :	
CADFILE :	\\61898.001-501.dwg
APPROVED :	
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 - Component dimensions shall be clearance fit with pre-coat concrete elements prior to fabrication.
- REFERENCE :

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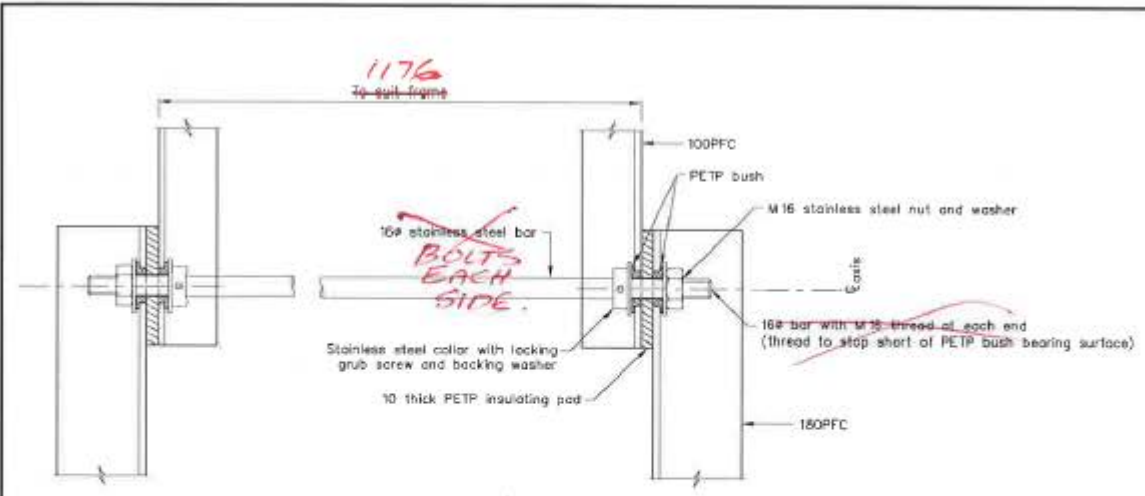
CLIENT PROJECT
WAIKATO REGIONAL COUNCIL
 GRAHAMS CREEK FLOOD PROTECTION SCHEME

TITLE
 FLOODGATE SYSTEM
 Section and Details - Sheet 3 of 4

SCALE (AT A3 SIZE)
 1:5

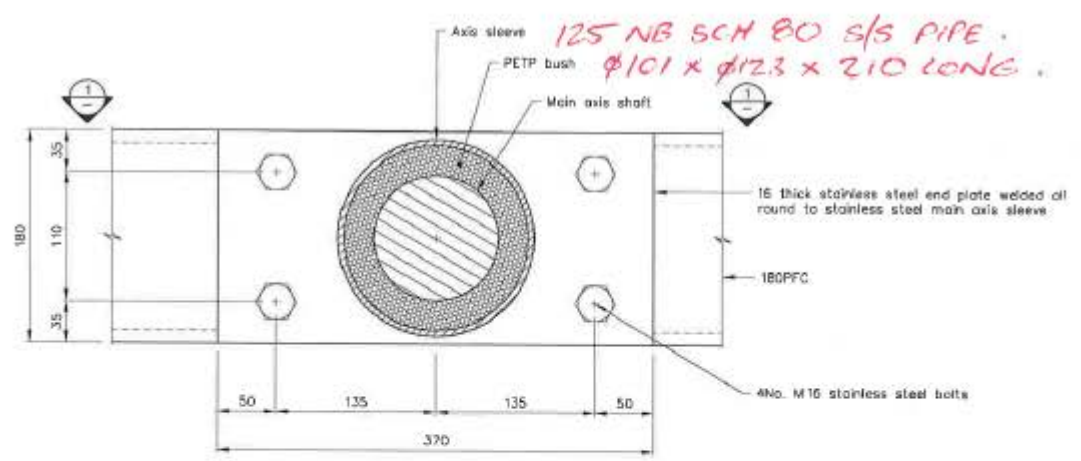
DWG. No.
 61898.001-507

AB

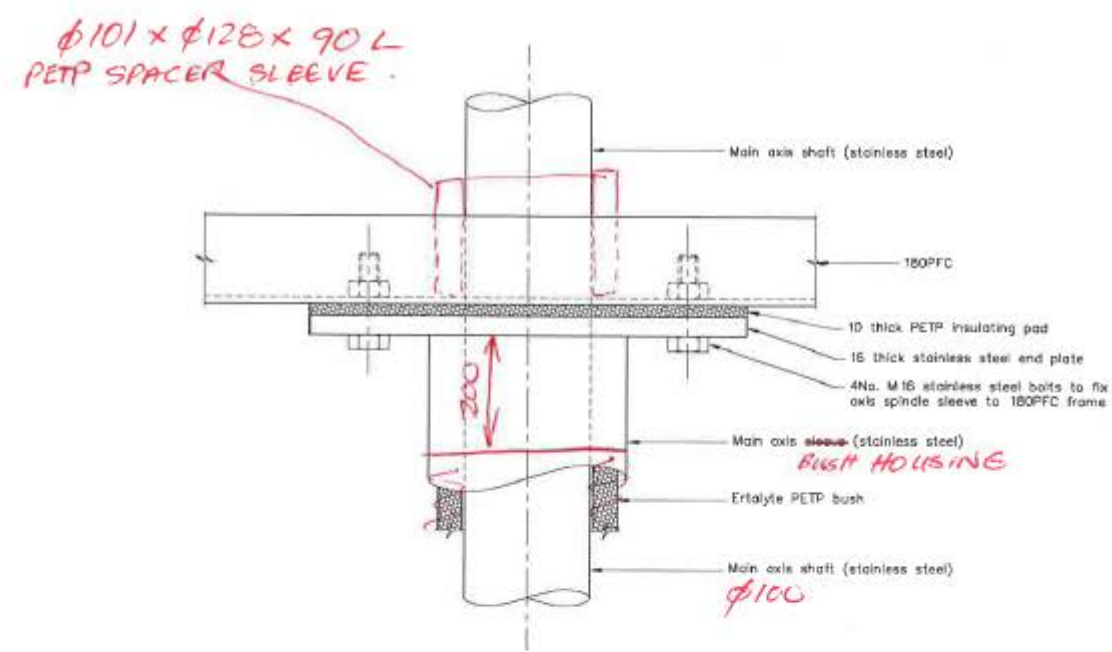


DETAIL **D** LEVER ARM AXIS
SCALE 1:5
504

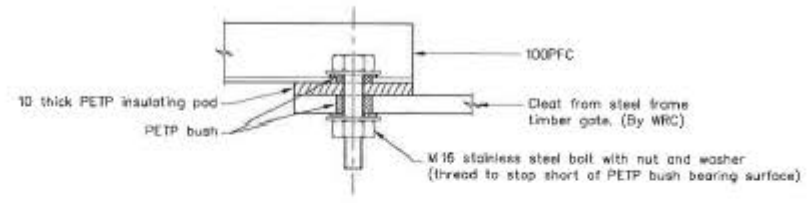
NOTE: Arrangement same at both ends



DETAIL **C** AXIS SLEEVE END PLATE
SCALE 1:5
504



SECTION **1**
SCALE 1:5



DETAIL **E** PIVOT CONNECTION
SCALE 1:5
504

NOTE: Same arrangement both ends



Floodgate built and designed by Kopu Engineering from Solidworks CAD

WRC Plan 1594-121500

DRAWING STATUS: AS-BUILT ISSUE

DESIGNED :	BMC	Feb. 16
DRAWN :	DWM	Feb. 16
DESIGN CHECKED :		
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CADFILE :	\\6 1898.001-501.dwg	
APPROVED :	NOT FOR CONSTRUCTION	
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- NOTES :
- All dimensions are in millimetres unless noted otherwise.
 - Refer to Structural Steel & Metal Work Specification (T+T Jan. 2016)
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 - All mild steel shall be Grade 300PLUS and hot dipped galvanized.
 - All welds shall be 6mm leg length fillet welds.
 - All bolts shall be Grade 304 stainless steel with self locking nuts and 5mm nylon insulating washer when in contact with mild steel.
 - Component dimensions shall be clearance fit with pre-cast concrete elements prior to fabrication.

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CLIENT PROJECT
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GRAHAMS CREEK FLOOD PROTECTION SCHEME

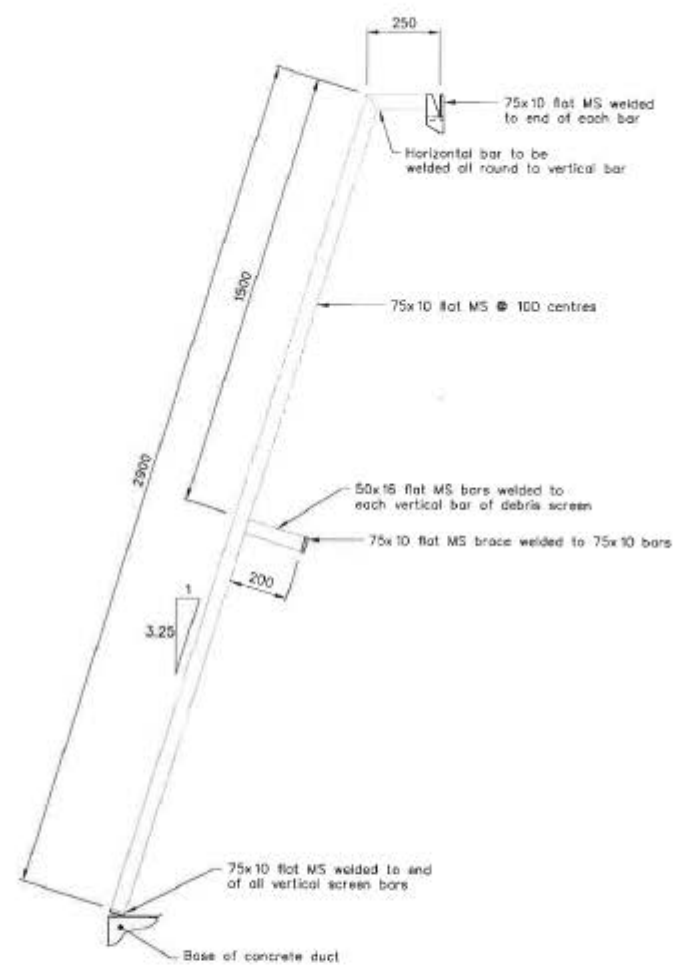
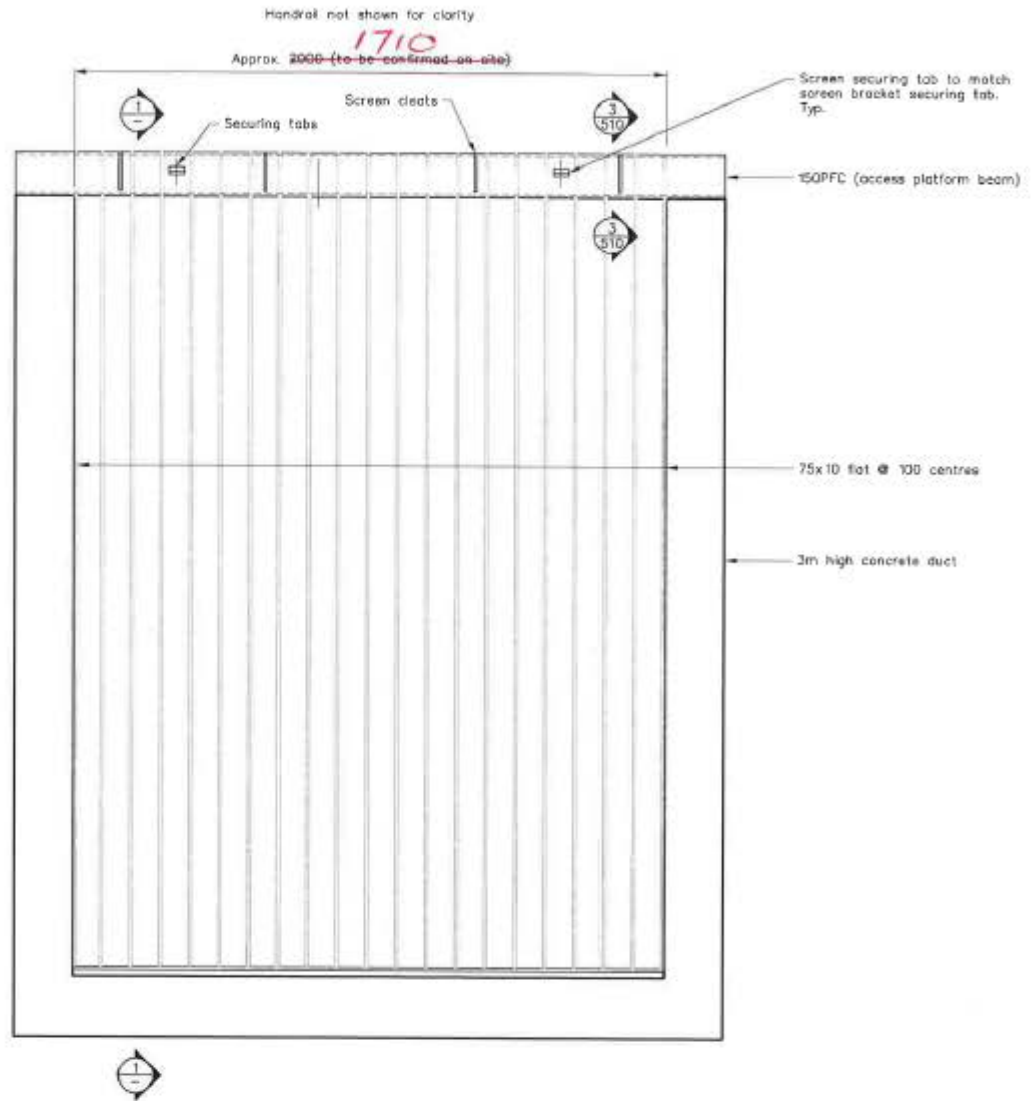
TITLE
FLOODGATE SYSTEM
Section and Details - Sheet 4 of 4

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DWG. NO.
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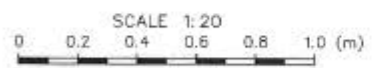
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DEBRIS SCREEN
SCALE 1:20

SECTION 1-1
SCALE 1:20



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WRC Plan 1594-121500

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FILE :	\\61898.001-501.dwg	
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REVISION DESCRIPTION	BY	DATE

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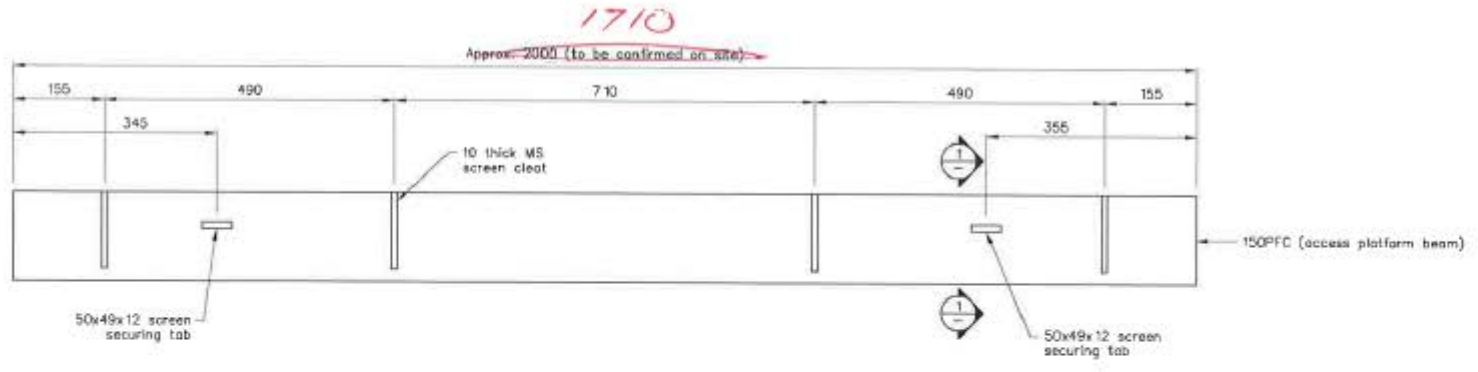
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WAIKATO REGIONAL COUNCIL
 GRAHAMS CREEK FLOOD PROTECTION SCHEME

TITLE
FLOODGATE SYSTEM
 Debris Screen - Sheet 1 of 2

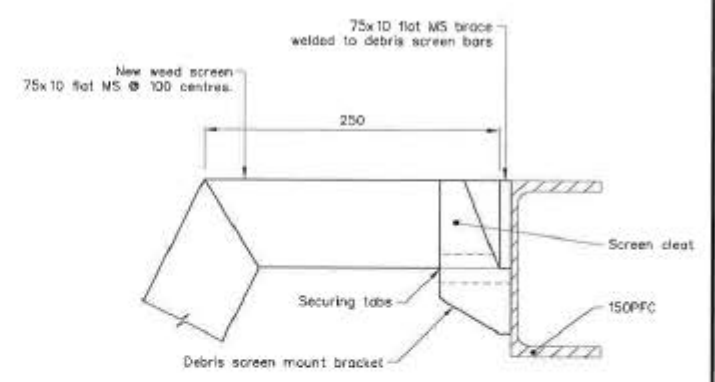
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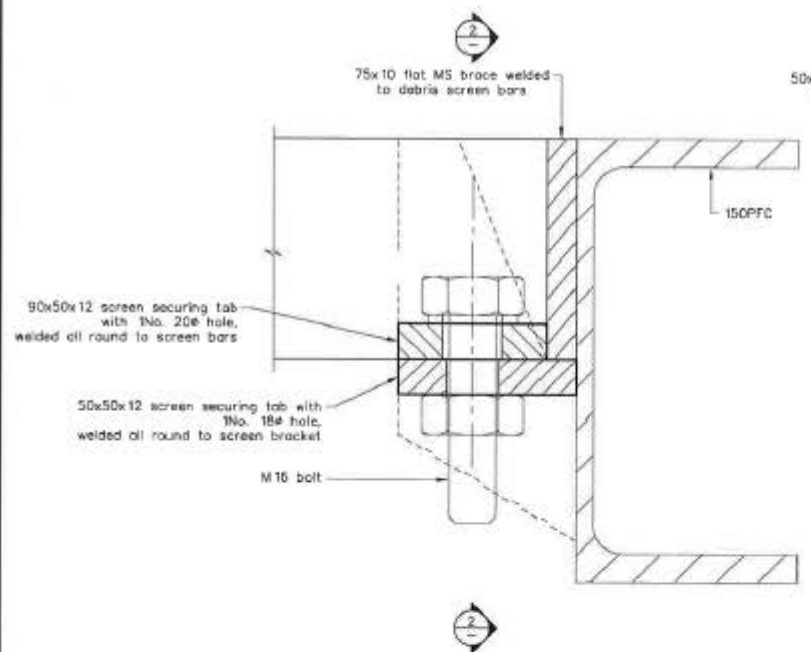
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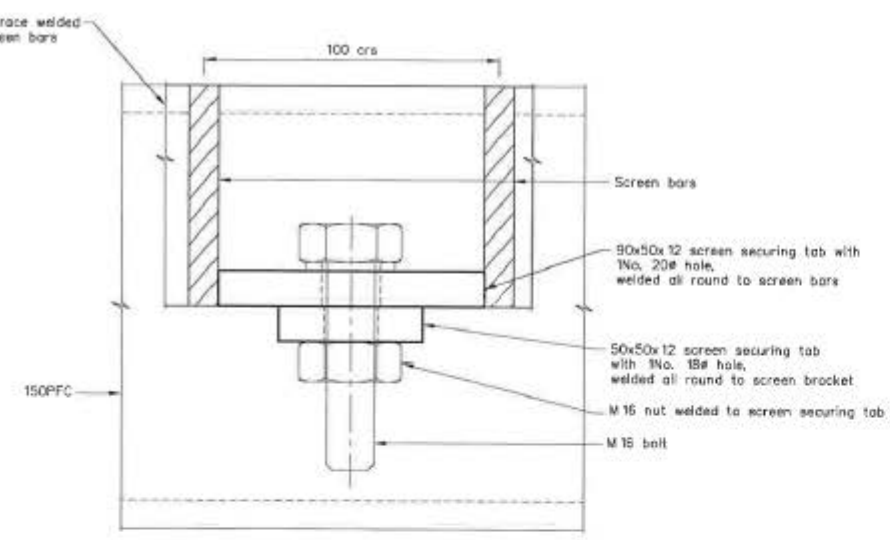
SCREEN BRACKET CONNECTIONS
SCALE 1:10



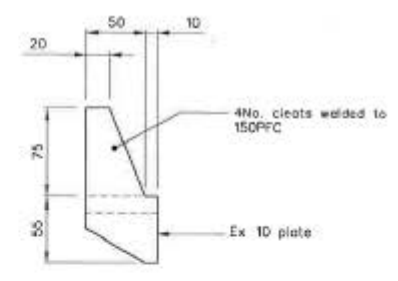
SECTION 3
SCALE 1:5



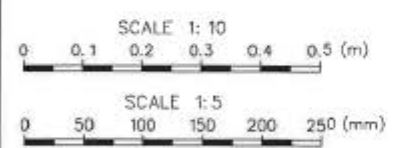
SECTION 1
SCALE 1:2



SECTION 2
SCALE 1:2



SCREEN CLEAT
SCALE 1:5



Floodgate built and designed by Kopu Engineering from Solidworks CAD

WRC Plan 1594-121500

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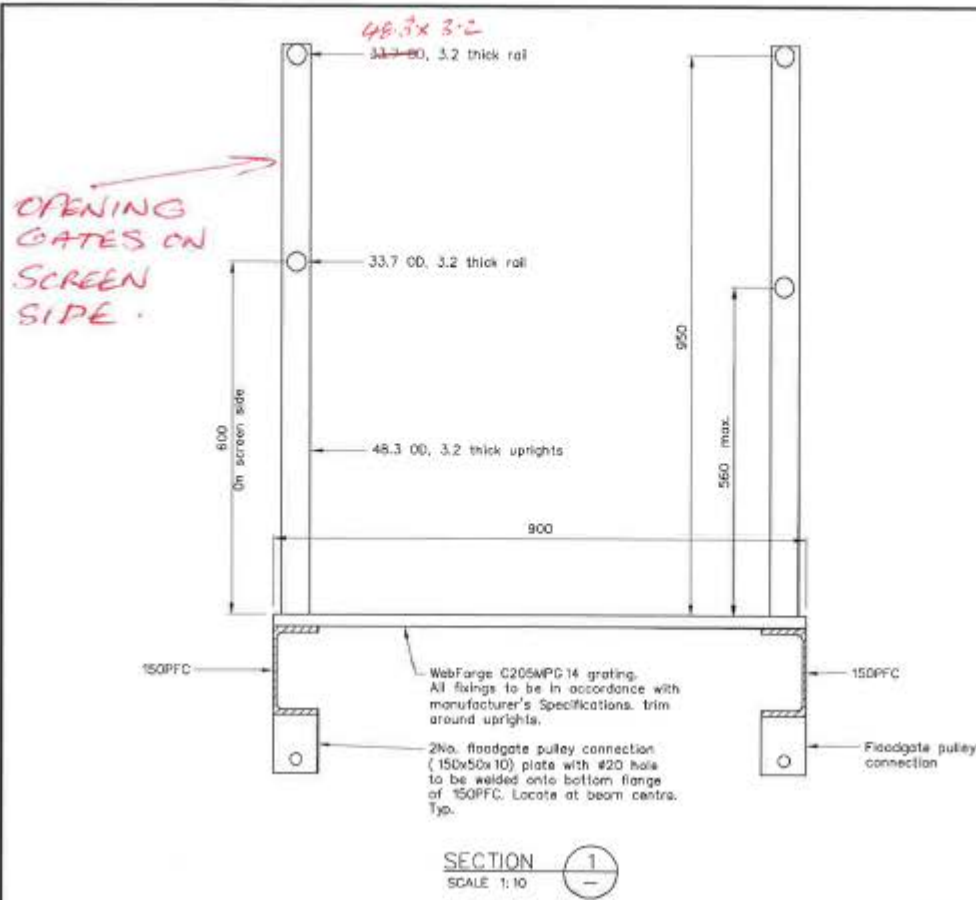
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- All bolts shall be Grade 304 stainless steel with self locking nuts and 6mm nylon insulating washer when in contact with mild steel.
- Component dimensions shall be clearance fit with pre-cast concrete elements prior to fabrication.

REFERENCE :

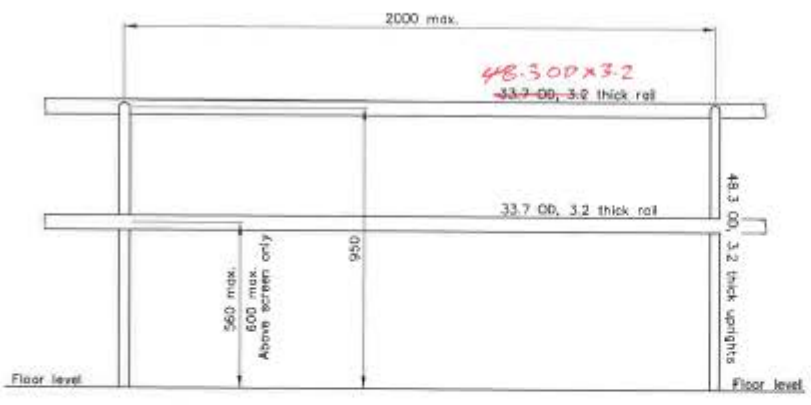
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CLIENT PROJECT	WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME
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SCALE(S) (AT AS SHD)	1:50
BWD. NO.	6 1898.00 1-5 10

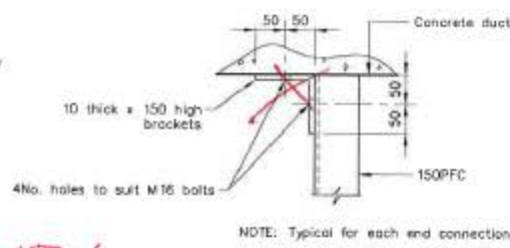
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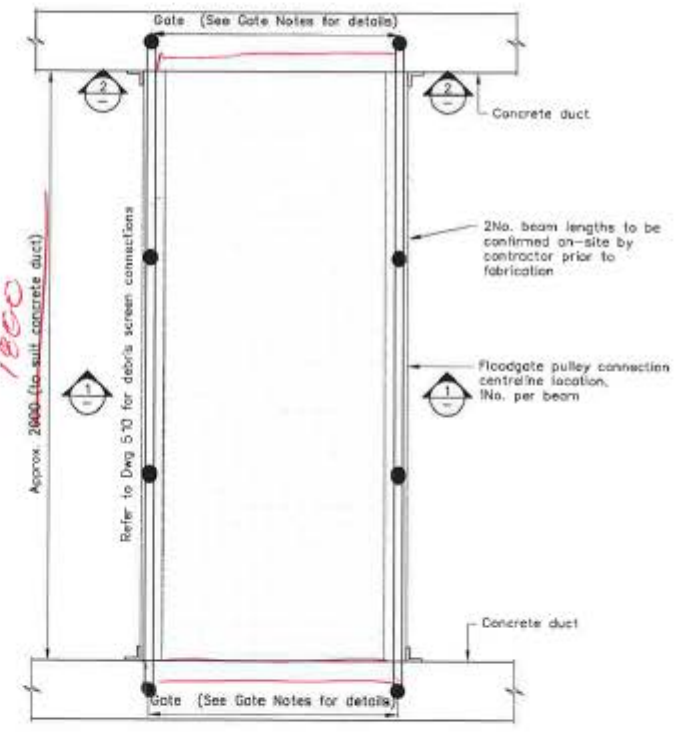
SECTION 1
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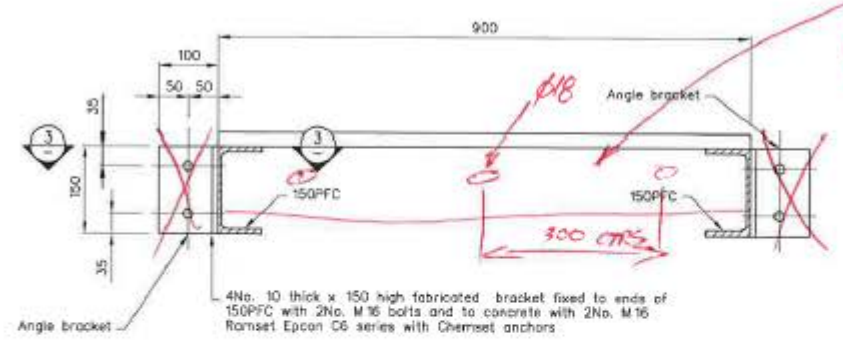
TYPICAL GUARDRAIL DETAIL
SCALE 1:20



SECTION 3
SCALE 1:10



PLAN - ACCESS PLATFORM
SCALE 1:20



SECTION 2
SCALE 1:10

GATES:
Gate 1 900 wide

All gates shall have:

- 2No. 20mm HD gudgeon and hinge.
- Vertical end bars same size as rails.
- 6 thick welded flat plate on gate end post with 20 dia hole for standard padlock.

Guardrail post fixings:
Masterklamp pipe fittings with 2No. M12 Ramset Epron C6 series with Chemset anchors to concrete duct or 2No. M12 bolts to steel.

Floodgate built and designed by Kopu Engineering from Solidworks CAD

WRC Plan 1594-121500

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DESIGNED:	BWQ	Feb, 16
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APPROVED:	NOT FOR CONSTRUCTION	
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REVISION DESCRIPTION	BY	DATE

NOTES:

1. All dimensions are in millimetres unless noted otherwise.
2. Dimensions are based on site measurements and shall be verified by the Contractor prior to construction.
3. All structural steel to be Grade 300 plus.
4. All welds to be 5mm leg length fillet welds.
5. All bolts to be M16 Grade 304 stainless steel with self-locking nuts and 3mm nylon insulating washer when stainless steel bolts are in contact with mild steel.
6. All structural steel to be hot dip galvanised unless noted otherwise.
7. All stainless steel to be Grade 304.

REFERENCE:

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CLIENT PROJECT
WAIKATO REGIONAL COUNCIL
GRAHAMS CREEK FLOOD PROTECTION SCHEME

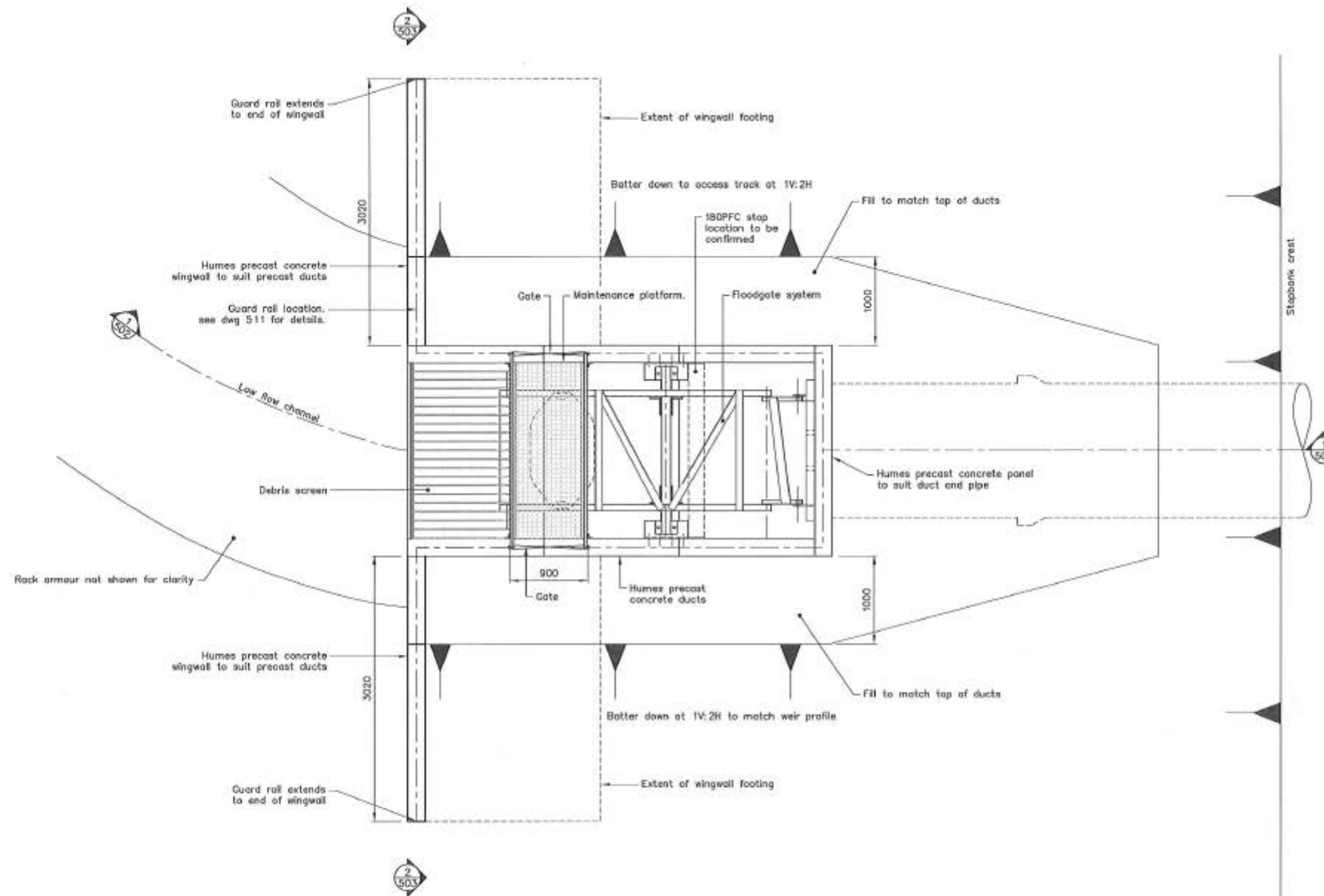
TITLE
FLOODGATE SYSTEM
Access Platform and Guardrail Details

SCALE(S) (AT A3 SIZE)
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DWG NO.
6 1898.00 1-5 11

AB

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PLAN - FLOODWAY WEIR CULVERT INTAKE
SCALE 1:50



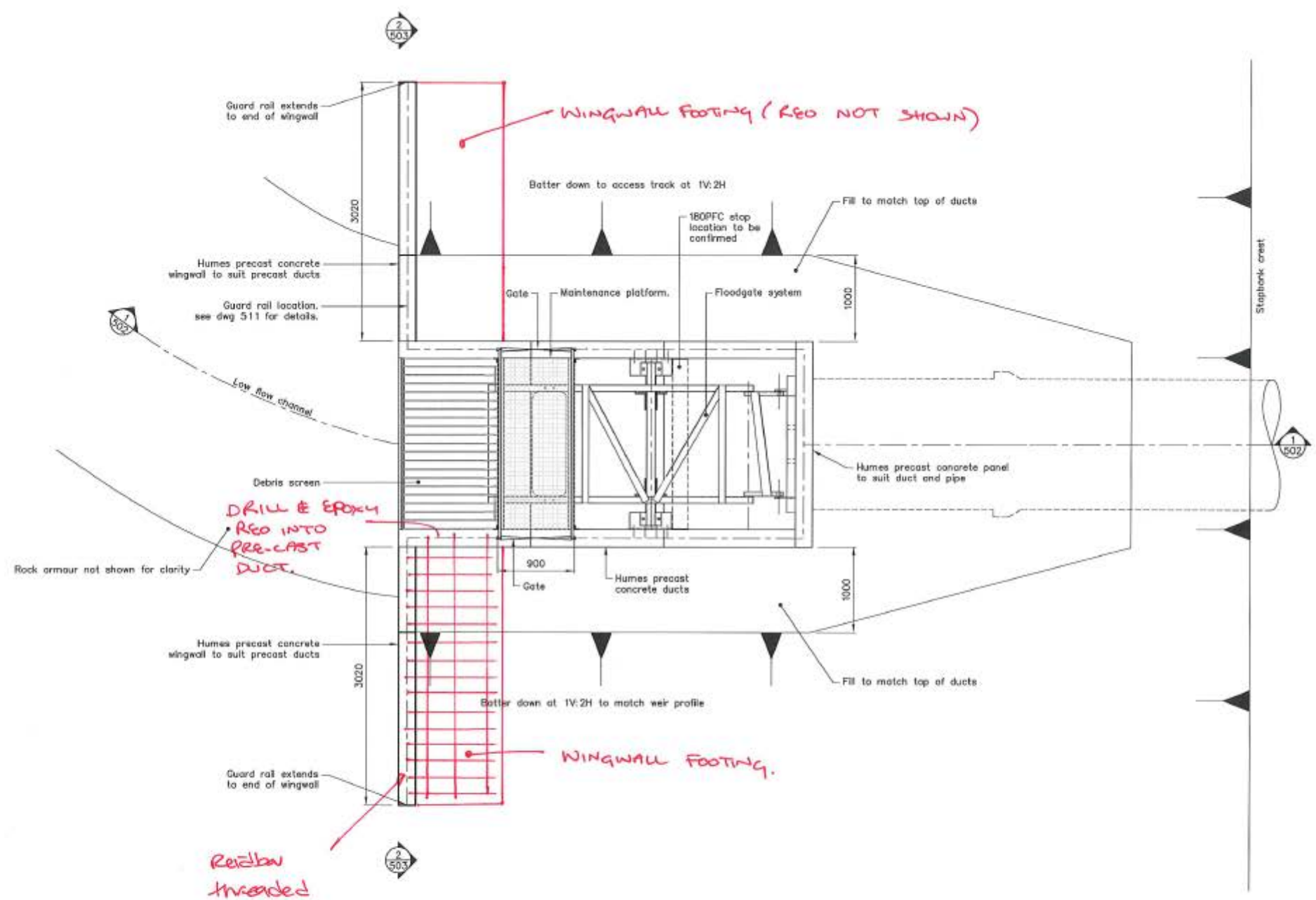
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APPROVED :	<i>[Signature]</i> 11/4/16	
REVISION DESCRIPTION	BY	DATE
A For Construction	BMQ	4/15

- NOTES :
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- REFERENCE :

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DRAWING STATUS: CONSTRUCTION ISSUE		
CLIENT, PROJECT	WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME	
TITLE	FLOODGATE SYSTEM Culvert Inlet Structure	
SCALE (IF A3 SIZE)	DWG. No.	REV.
1:50	6 1898.001-501	A



PLAN - FLOODWAY WEIR CULVERT INTAKE
SCALE 1:50

SCALE 1:50
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REVISION DESCRIPTION	BY	DATE

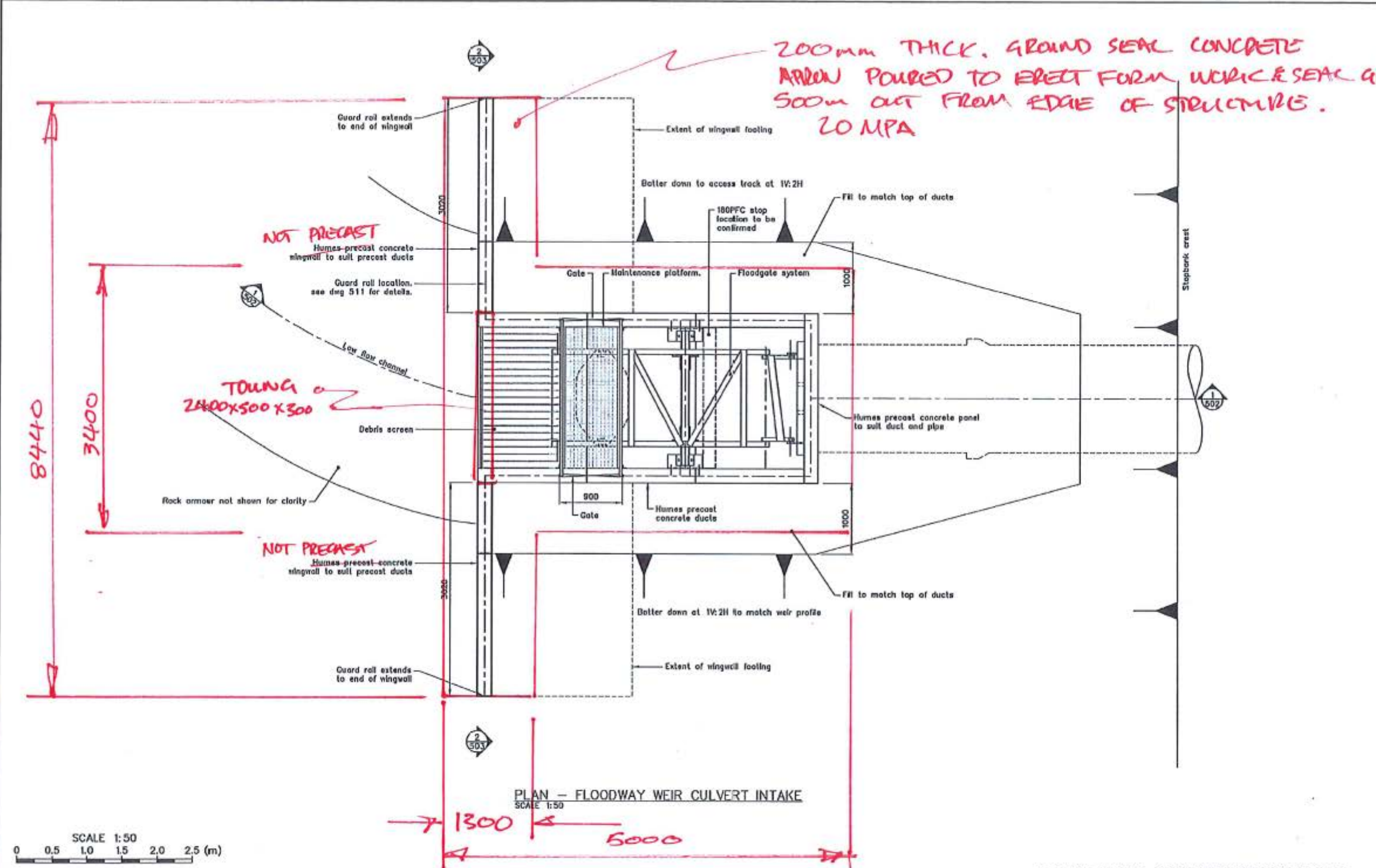
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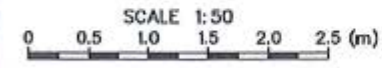
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DRAWING STATUS: CONSTRUCTION ISSUE	
CLIENT PROJECT WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME	
TITLE FLOODGATE SYSTEM Culvert Inlet Structure	
SCALE(S) (AT AS SHOWN) 1:50	DWG. No. 61898.001-501
	REV. A



PLAN - FLOODWAY WEIR CULVERT INTAKE
SCALE 1:50



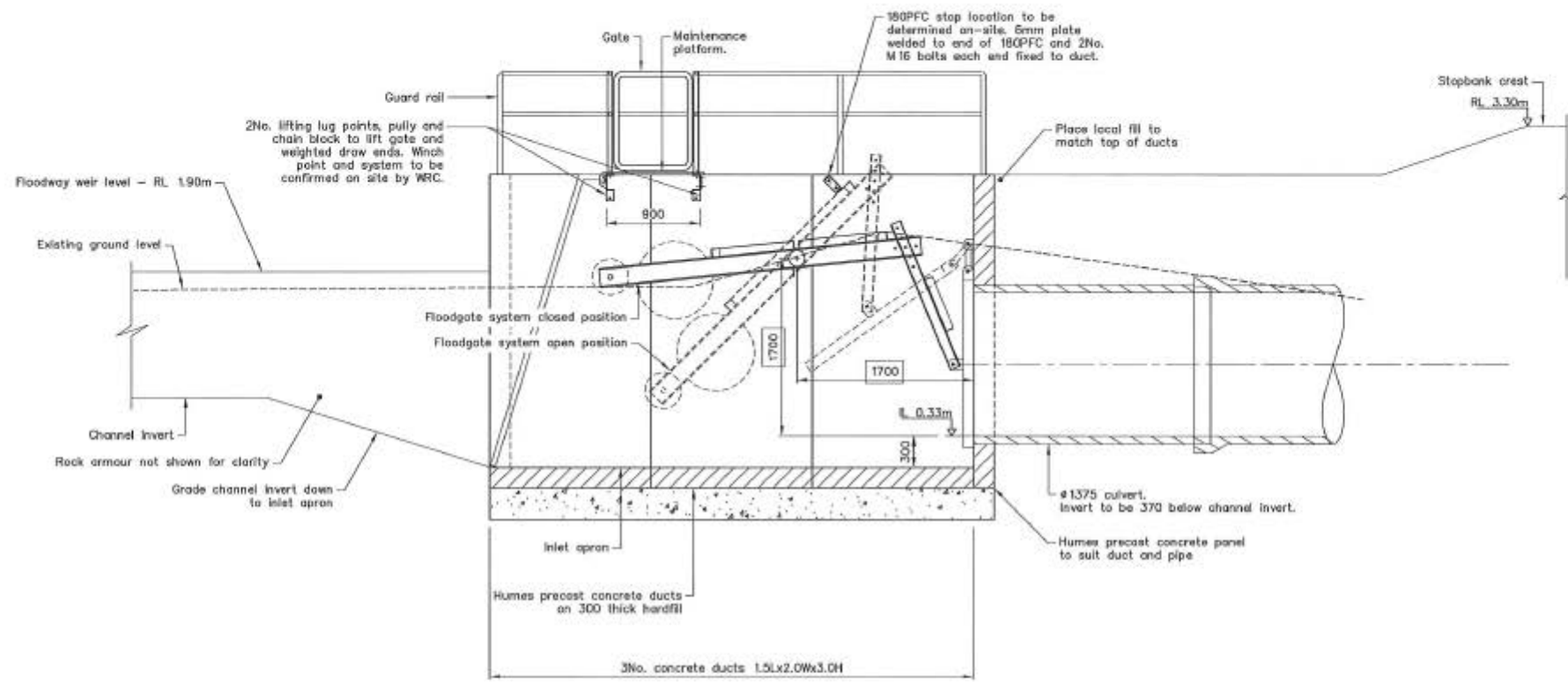
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APPROVED :	<i>[Signature]</i> 11/4/16	
REVISION DESCRIPTION	BY	DATE
A For Construction	BMC	4/15

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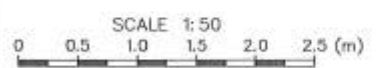
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TITLE	FLOODGATE SYSTEM Culvert Inlet Structure
SCALE (AT A3 SIZE)	DWG. No. 6 1898.001-501
1:50	REV. A

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SECTION 1
SCALE 1:50

- INSTALLATION NOTES:**
1. Set out of main axis shaft critical to gate function. Centre of axis located 1700mm above culvert invert and 1700mm out from culvert / rear wall.
 2. Gate frame / lever arm connection point to use centre bolt holes to start. Test gate function and adjust as required.
 3. Place EZI Grip weight plates central (4No.) only initially and test gate function, place outside weights as required to close gate ensuring equal weights placed each side.
 4. Place PFC stop location to suit test set-up and function.
 5. Undertake full commission test and adjust connection points and weights as required.
 6. Bryn Quilter shall be notified 48 hours prior to commissioning tests being undertaken.



DESIGNED :	BMQ	Apr. 15
DRAWN :	DWM	Apr. 15
DESIGN CHECKED :	BMQ	4/15
DRAFTING CHECKED :	BMQ	4/15
CADFILE :	\\61898.001-501.dwg	
APPROVED :	<i>[Signature]</i> 11/4/15	
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A For Construction	BMQ	4/15

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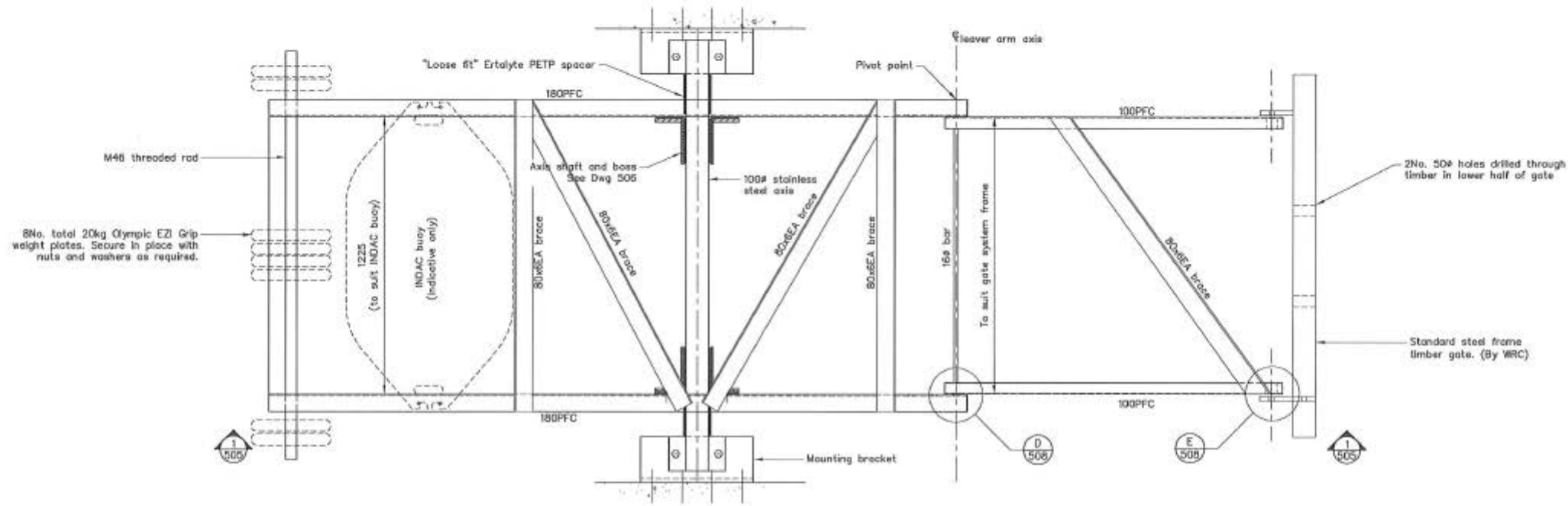
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CLIENT PROJECT WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME		
TITLE FLOODGATE SYSTEM Culvert Inlet Structure – Section		
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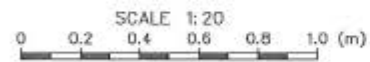
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GATE FRAME
SCALE 1:20

PLAN - LEVER ARM
SCALE 1:20



DESIGNED :	BMO	Apr 16
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DESIGN CHECKED :	BWQ	L/S
DRAWING CHECKED :	BMS	L/S
CADFILE :	\\61898.001-501.dwg	
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A For Construction	BWQ	L/S

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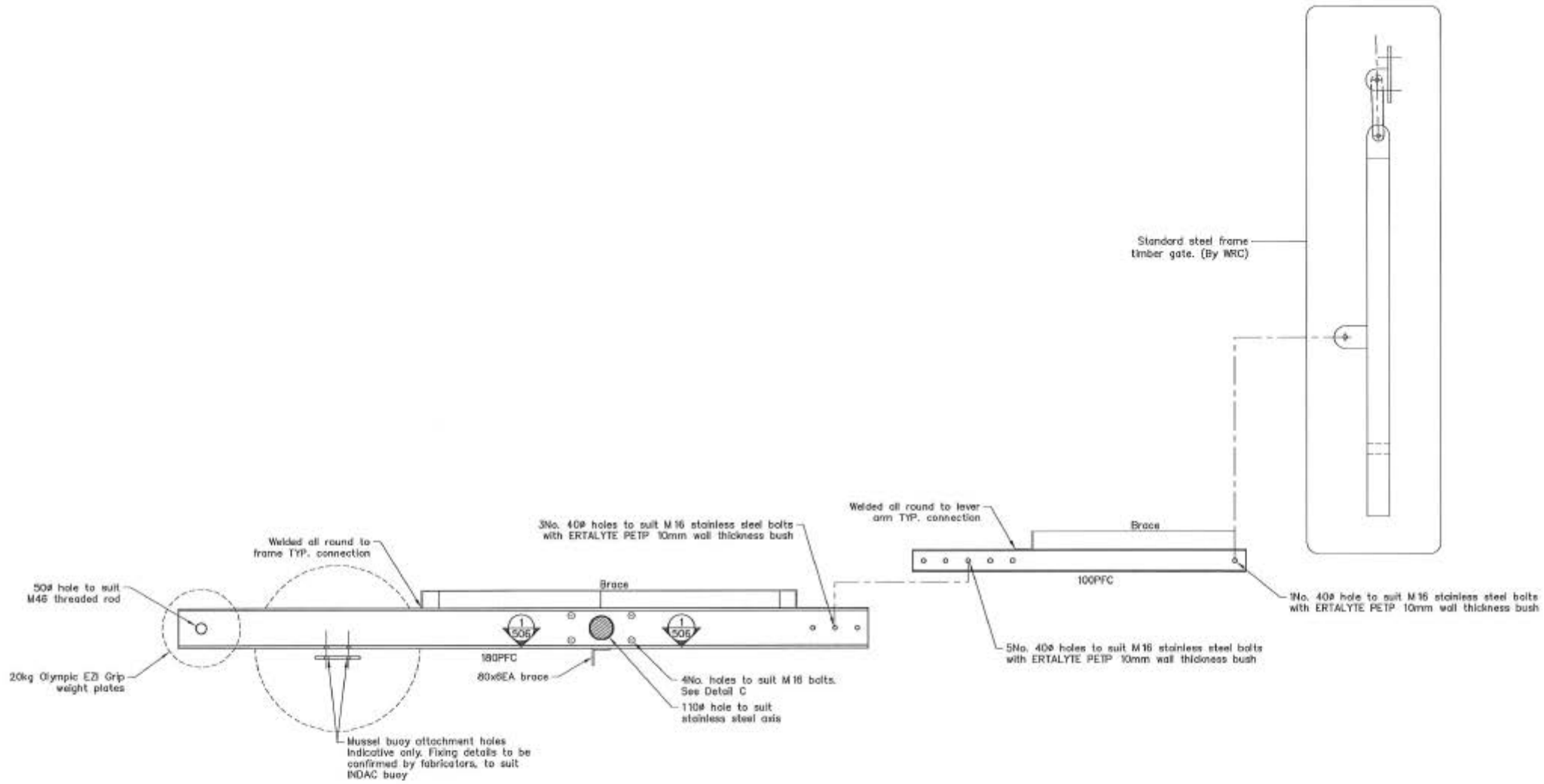
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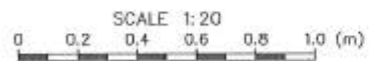
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GATE FRAME
SCALE 1:20

LEAVER ARM
SCALE 1:20



SECTION 1
SCALE 1:20

DRAWING STATUS: CONSTRUCTION ISSUE

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DESIGN CHECKED :	BMO	4/15
DRAWING CHECKED :	BMO	4/15
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APPROVED :	<i>Lee Nelson 11/4/16</i>	
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A For Construction	BMO	4/15

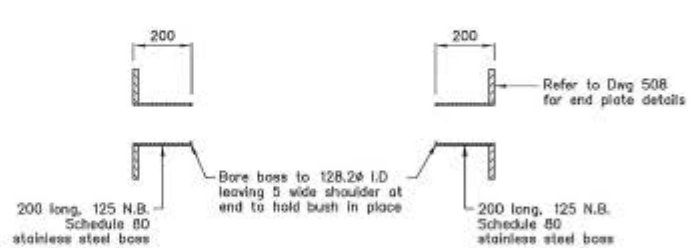
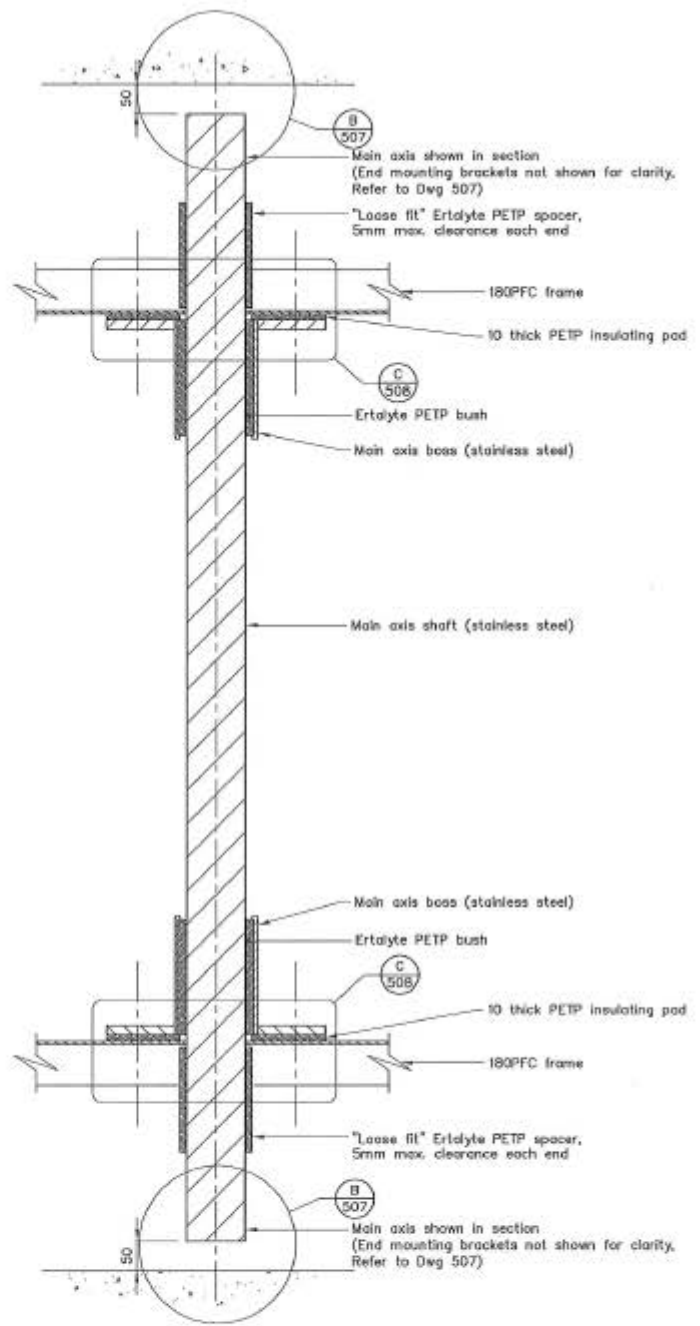
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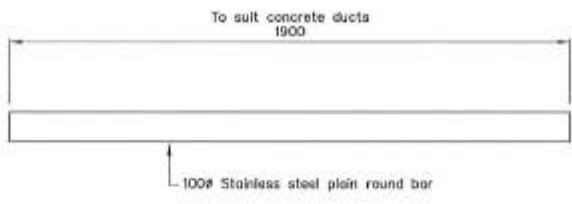
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CLIENT PROJECT	WAIKATO REGIONAL COUNCIL
TITLE	GRAHAMS CREEK FLOOD PROTECTION SCHEME
TITLE	FLOODGATE SYSTEM
TITLE	Section and Details - Sheet 1 of 4
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DWG. No.	61898.001-505
REV.	A

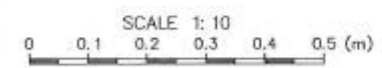


MAIN AXIS BOSS
SCALE 1:20



MAIN AXIS SHAFT
SCALE 1:20

SECTION 1 MAIN AXIS ASSEMBLY
SCALE 1:10



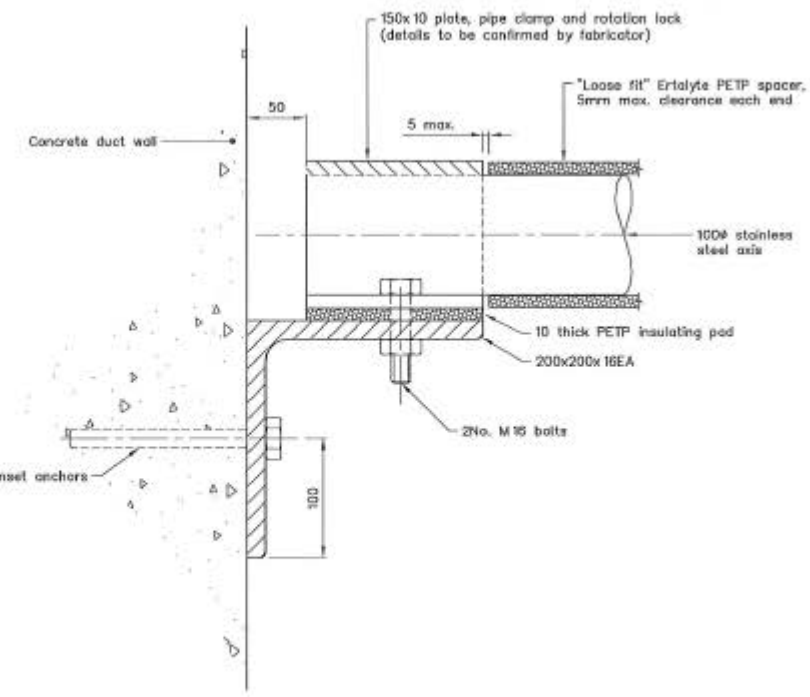
DESIGNED :	BMD	Apr. 16
DRAWN :	DWM	Apr. 16
DESIGN CHECKED :	EMG	LJS
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CADFILE :	\\S 1898.001-501.dwg	
APPROVED :	<i>[Signature]</i> 11.14.16	
REVISED :		
REVISION DESCRIPTION	BY	DATE

- NOTES :
- All dimensions are in millimetres unless noted otherwise.
 - Refer to Structural Steel & Metal Work Specification (T+T Jan. 2016)
 - All stainless steel shall be Grade 304.
 - All mild steel shall be Grade 300PLUS and hot dipped galvanised.
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 - All bolts shall be Grade 304 stainless steel with self locking nuts and 5mm nylon insulating washer when in contact with mild steel.
 - Component dimensions shall be checked for fit with pre-cast concrete elements prior to fabrication.
- REFERENCE :

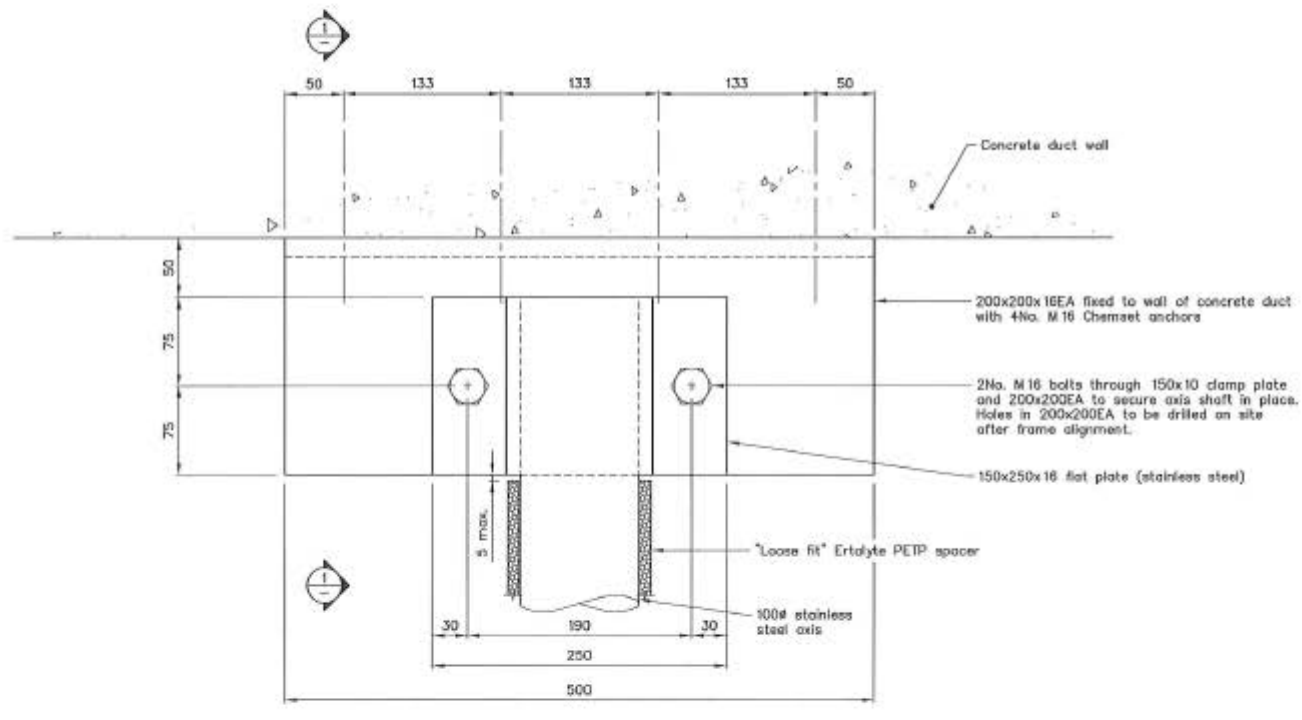
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DRAWING STATUS: CONSTRUCTION ISSUE		
CLIENT, PROJECT WAIKATO REGIONAL COUNCIL GRAHAM'S CREEK FLOOD PROTECTION SCHEME		
TITLE FLOODGATE SYSTEM Section and Details - Sheet 2 of 4		
SCALE (if A3 size) As Shown	DWG. No. 6 1898.001-506	REV. A

P:\01898\61898.001\010\Working\Internal\CAD\61898.001-501.dwg, 507, 11/04/2016 12:56:35 p.m., dnm, 1:1



SECTION 1
SCALE 1:5



DETAIL B MOUNTING BRACKET
SCALE 1:5

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CLIENT PROJECT	WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME
TITLE	FLOODGATE SYSTEM Section and Details - Sheet 3 of 4
SCALE (AT A3 SIZE)	1:5
DWG. No.	6 1898.001-507
REV.	A

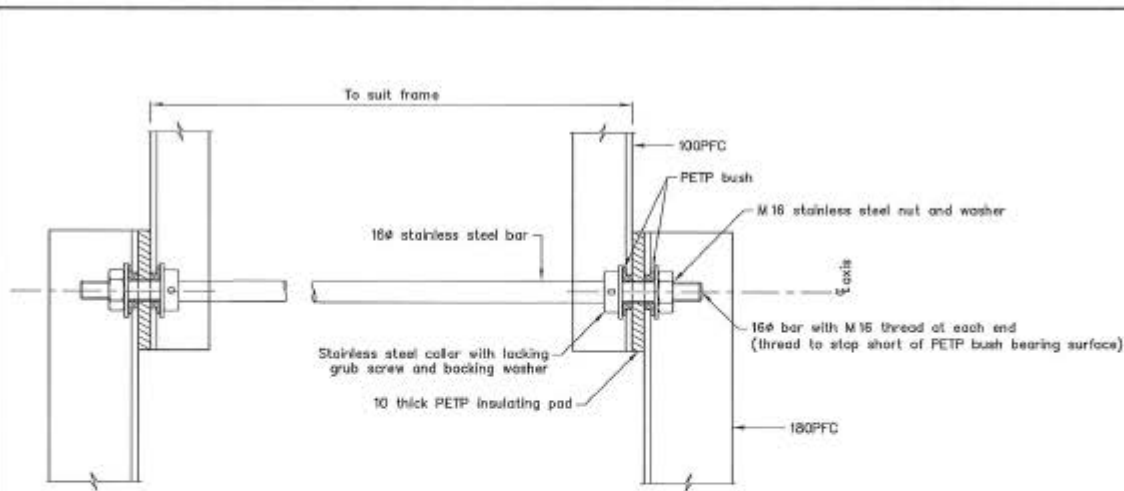
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DRAWN :	DWM	Apr. 16
DESIGN CHECKED :	BMQ	4/15
DRAWING CHECKED :	BMQ	4/15
CADFILE :	\\61898.001-501.dwg	
APPROVED :	<i>[Signature]</i> 11/4/16	
REVISION DESCRIPTION	BY	DATE
A For Construction	BMQ	4/15

NOTES :

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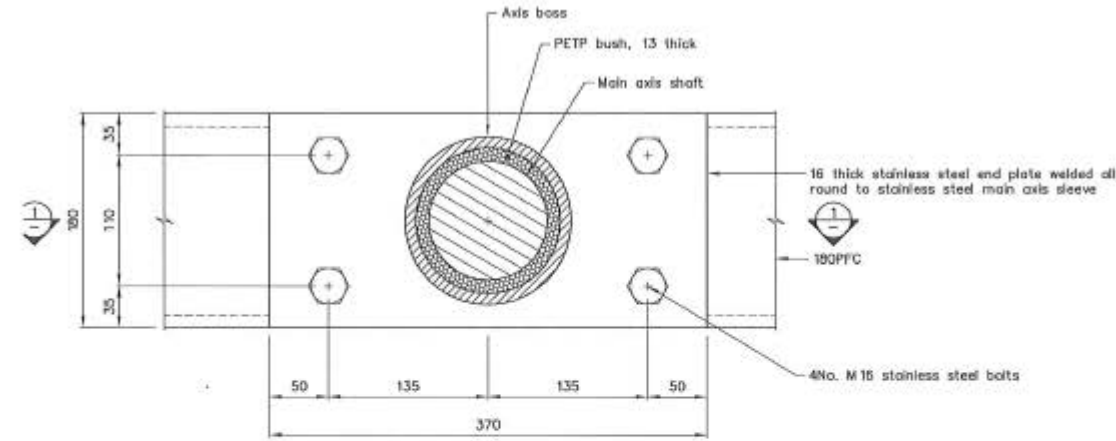
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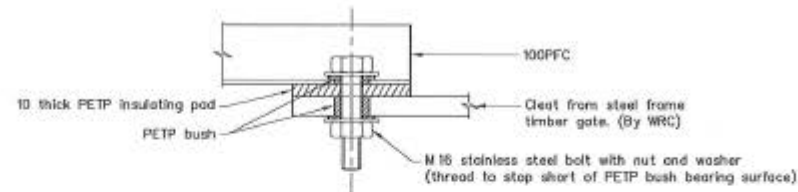


DETAIL **D** LEVER ARM AXIS
SCALE 1:5

NOTE: Arrangement same at both ends

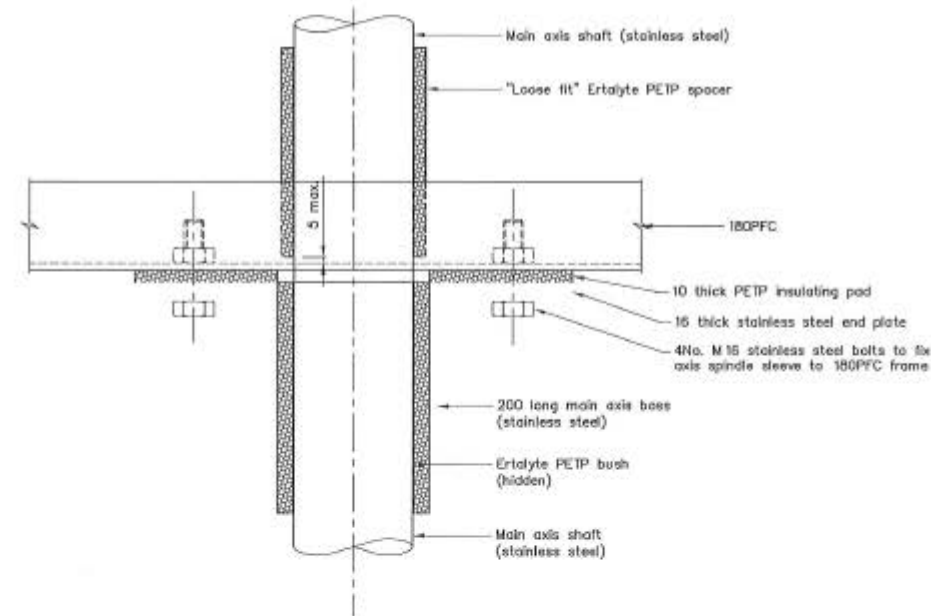


DETAIL **C** AXIS SLEEVE END PLATE
SCALE 1:5

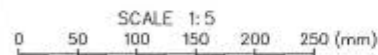


DETAIL **E** PIVOT CONNECTION
SCALE 1:5

NOTE: Same arrangement both ends



SECTION **1**
SCALE 1:5



DESIGNED :	BMC	Apr. 16
DRAWN :	DWM	Apr. 16
DESIGN CHECKED :	BMC	4/15
DRAWING CHECKED :	BMC	4/15
CADFILE :	61898-001-501.dwg	
APPROVED :	<i>[Signature]</i>	11/4/16
REVISION DESCRIPTION	BY	DATE
A For Construction	BMC	4/15

NOTES :

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REFERENCE :

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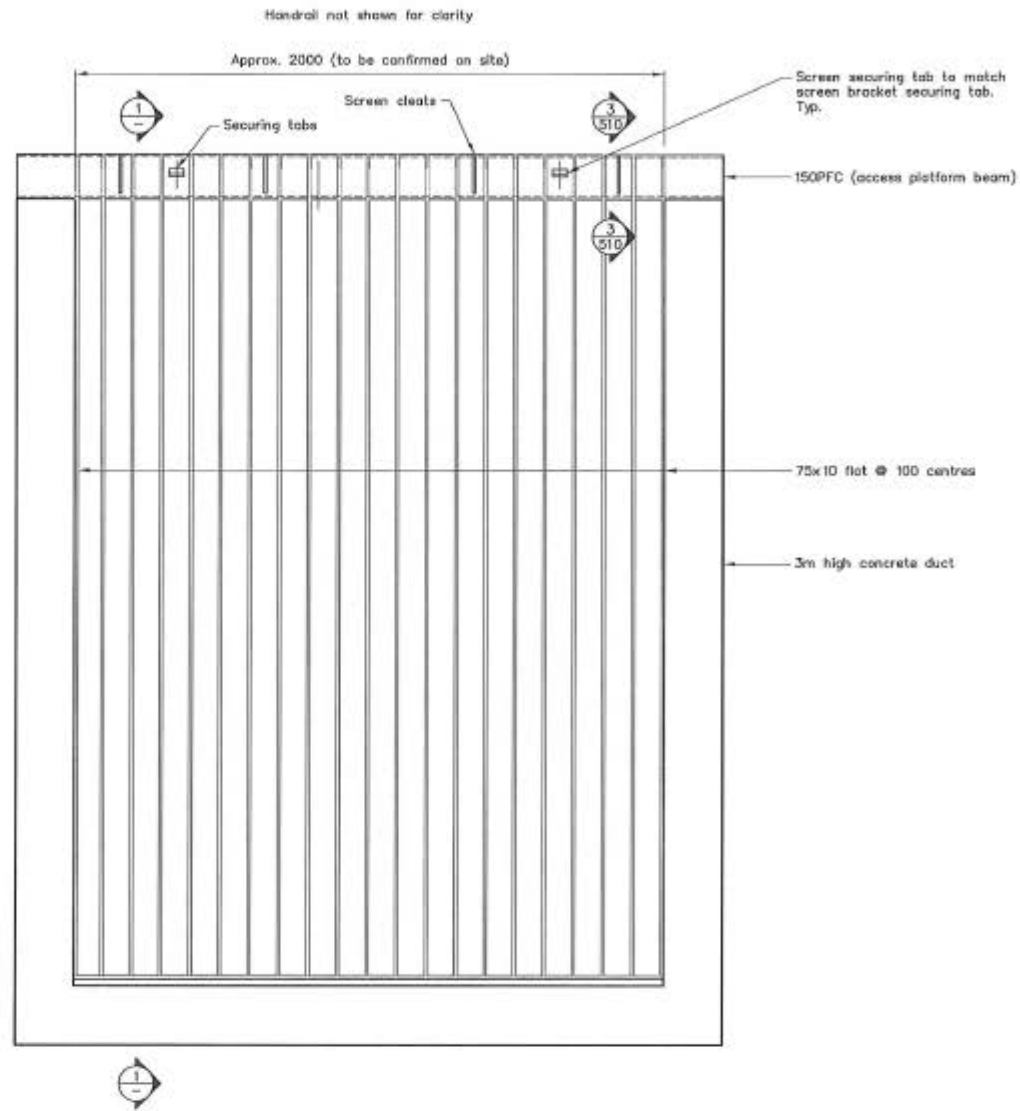
DRAWING STATUS: CONSTRUCTION ISSUE

CLIENT PROJECT
WAIKATO REGIONAL COUNCIL
GRAHAMS CREEK FLOOD PROTECTION SCHEME

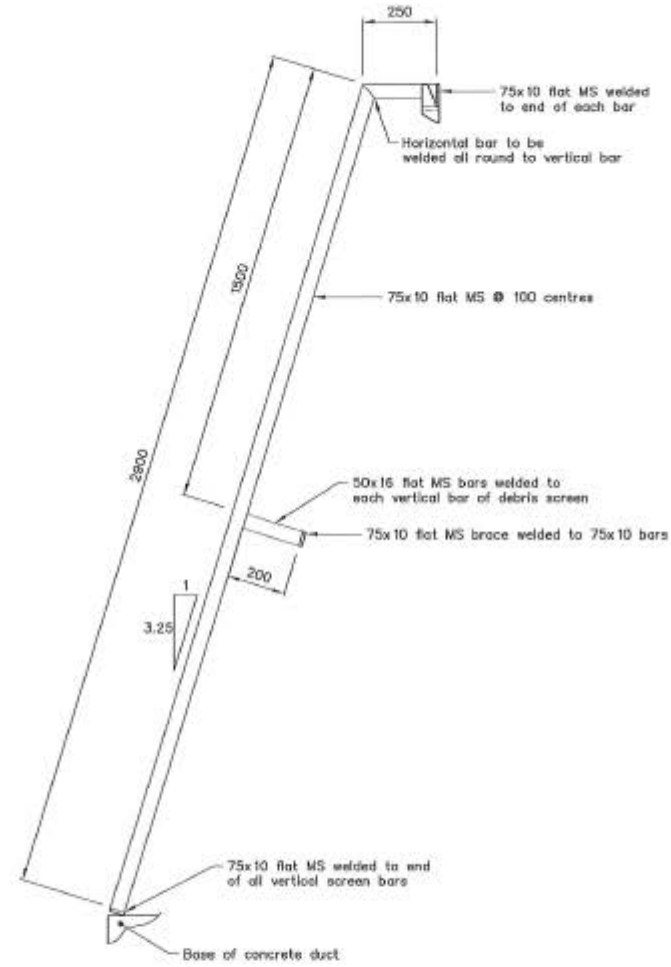
TITLE
FLOODGATE SYSTEM
Section and Details - Sheet 4 of 4

SCALE (AT AS SIZE) 1:5
DWG. No. 61898.001-508
REV. A

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DEBRIS SCREEN
SCALE 1:20



SECTION 1
SCALE 1:20



DESIGNED :	EMQ	Apr. 16
DRAWN :	DWM	Apr. 16
DESIGN CHECKED :	PWQ	4/5
DRAWING CHECKED :	PWQ	4/5
CADFILE :	\\61898.001-501.dwg	
APPROVED :	<i>[Signature]</i> 11/04/16	
REVISION DESCRIPTION	BY	DATE
A For Construction	PWQ	4/5

NOTES :

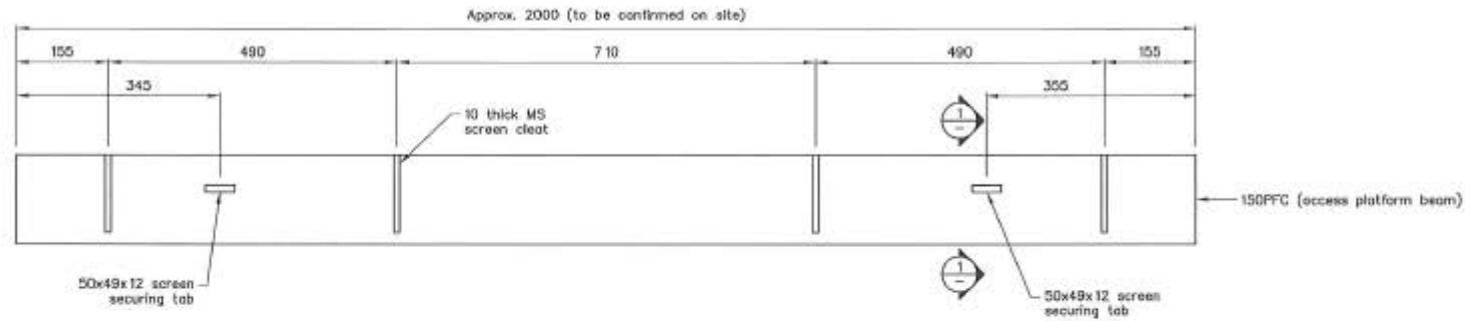
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REFERENCE :

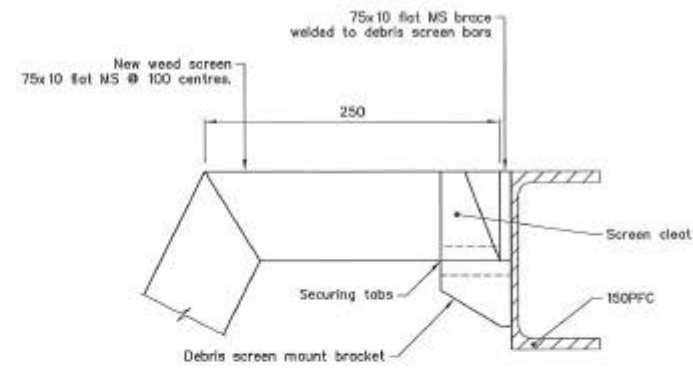
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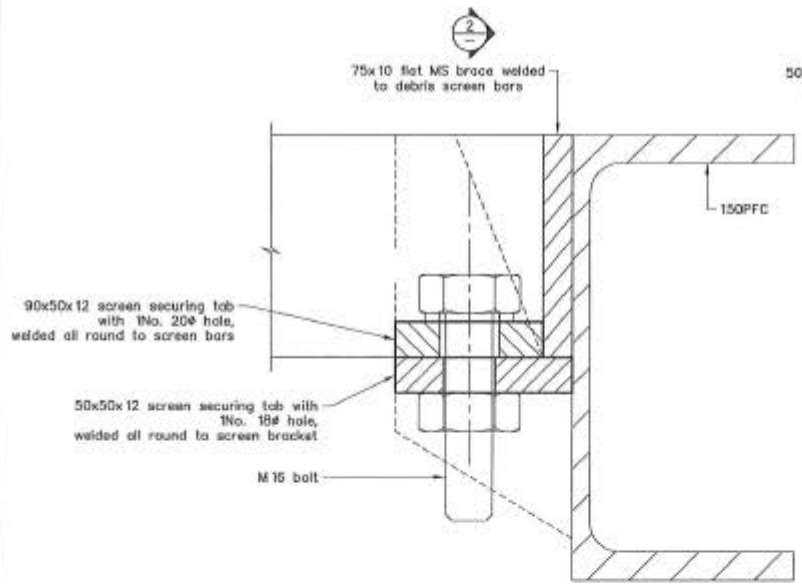
CLIENT PROJECT	WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME
TITLE	FLOODGATE SYSTEM Debris Screen - Sheet 1 of 2
SCALE (AT A3 SIZE)	1:20
DWG. No.	6 1898.001-509
REV.	A



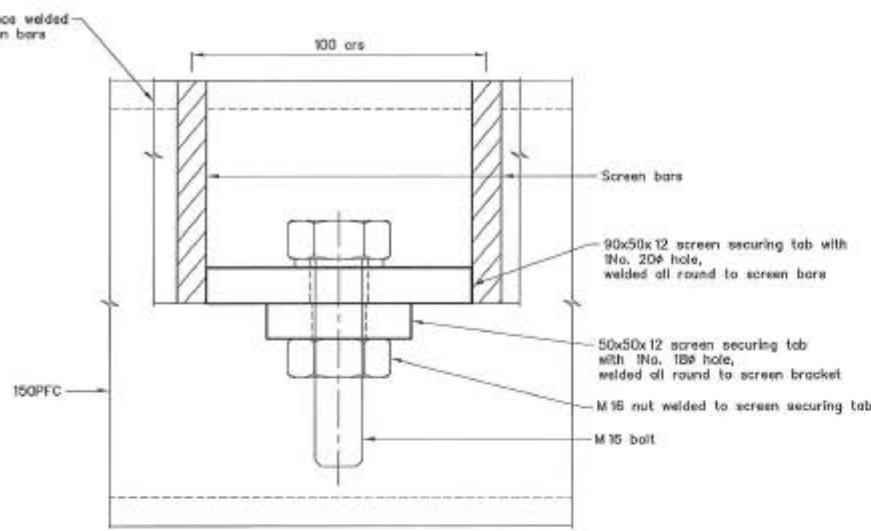
SCREEN BRACKET CONNECTIONS
SCALE 1:10



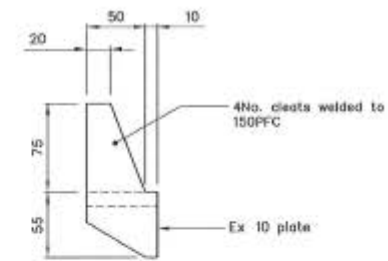
SECTION 3
SCALE 1:5



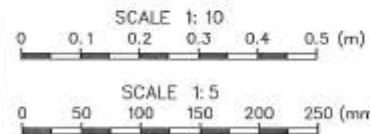
SECTION 1
SCALE 1:2



SECTION 2
SCALE 1:2



SCREEN CLEAT
SCALE 1:5



DESIGNED :	BMG	Apr. 16
DRAWN :	DWM	Apr. 16
DESIGN CHECKED :	BMG	4/15
DRAWING CHECKED :	BMG	4/15
CADFILE :	\\6 1898.001-501.dwg	
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CLIENT PROJECT	WAIKATO REGIONAL COUNCIL GRAHAMS CREEK FLOOD PROTECTION SCHEME
TITLE	FLOODGATE SYSTEM Debris Screen - Sheet 2 of 2
SCALE (AT A3)	1:50
DWG. No.	6 1898.001-5 10
REV.	A

