



## NOTES

1. ALL LOT FILLING & EARTHWORKS FOR ROADS IS TO BE COMPLETED PRIOR TO SEWER CONSTRUCTION. THE CONTRACTOR SHALL THEN CHECK FINISHED SURFACE LEVELS IN RELATION TO DESIGN TOP OF MANHOLE LEVELS & ADVISE THE SUPERINTENDENT OF ANY ANOMALIES PRIOR TO PROCEEDING WITH EXCAVATION FOR SEWERS.
2. ALL SEWER MANHOLES TO BE PRECAST 1050Ø CONCRETE MANHOLES AND TOPS WITH CORAL COAST COMPOSITES FIBREGLASS BASES (OR APPROVED EQUIVALENT) UNO. HEAD OF LINE STRUCTURES TO BE LAMP HOLES (LH) WHERE SHOWN ON LONGITUDINAL SECTIONS.
3. NOTWITHSTANDING THE FINISHED MANHOLE SURFACE LEVELS SHOWN ON THE LONGITUDINAL SECTIONS, THE LEVEL OF SEWER MANHOLE COVERS SHALL BE ADJUSTED SO AS TO MATCH THE FINISHED SURFACE PROFILES PLUS ANY COUNCIL REQUIRED CLEARANCE ALLOWANCES. NO ADDITIONAL PAYMENT WILL BE MADE FOR THESE ADJUSTMENTS.
4. PIPE GRADES, LENGTHS AND INVERT LEVELS SHOWN ON THE LONGITUDINAL SECTIONS ARE PROJECTED AT THE SPECIFIED PIPE GRADES TO THE CENTRE OF THE MANHOLE .
5. SEWERS OVER 2.0m DEEP TO BE COMPACTION TESTED (95% MIN STANDARD COMPACTION)
6. LOCATION OF HOUSE JUNCTIONS ON MAIN SEWER SHOWN ON LONGITUDINAL SECTIONS MEASURED FROM DOWNSTREAM MANHOLE UNLESS SHOWN WITH CO-ORDINATES ON PLAN VIEW.
7. CONFIRM CONNECTION LEVELS TO EXIST. SEWERS PRIOR TO COMMENCING EXCAVATION FOR ANY SEWERS.
8. ALL HOUSE CONNECTIONS DEEPER THAN 2m DEPTH TO HAVE HEAVY DUTY REINFORCED FIBREGLASS JUNCTIONS.

8. ALL HOUSE CONNECTIONS DEEPER THAN 2m DEPTH TO HAVE HEAVY DUTY REINFORCED FIBREGLASS JUNCTIONS.

2/S10

MANHOLE 2; SEWER LINE S1; CENTER  
CO-ORDINATES

OBlique. HOUSE CONNECTION JUNCTION (HC); 150Ø  
SEWER CL SN8; MANHOLE

150Ø WATERMAIN WITH FH AND HC

ALLOTMENT FILLING/EXCAVATION. REFER  
ROADWORKS PLANS

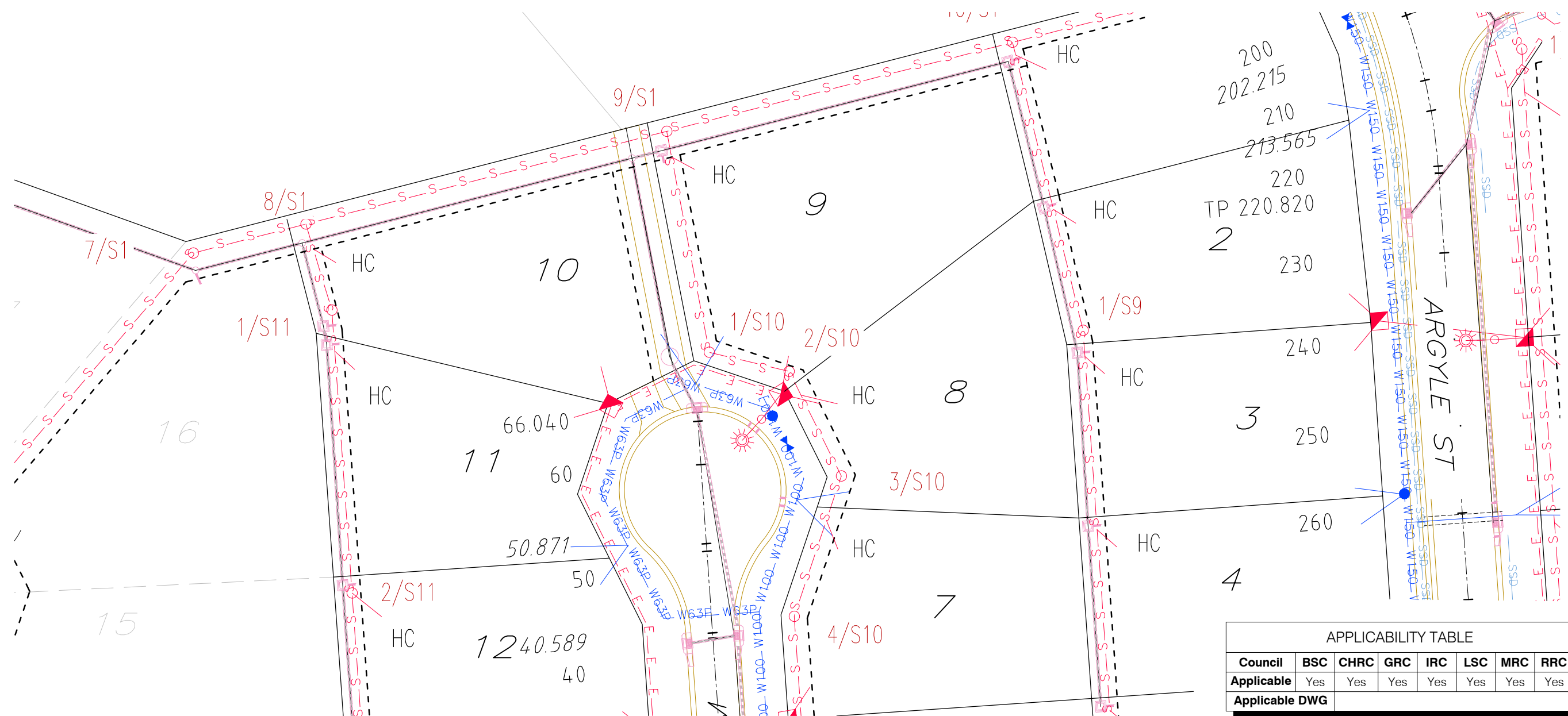
STORMWATER

ELECTRICAL LINE AND TURRET

SUBSOIL DRAINAGE

EXISTING SEWER AND NEW DRAINAGE SERVICES SHOWN GREYED

EXISTING SEWER AND NEW DRAINAGE SERVICES SHOWN GREYED



APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Applicable DWG							

REVISIONS		DATE
E	IRC ADDED	11/2016
D	DELETE NOTE 9 REGARDING ALIGNMENT	10/2016
C	GRC AND LSC ADDED	01/2015
B	ACCESS CHAMBER BASE TYPE AMENDED	05/2014
A	ORIGINAL ISSUE	01/2013

**DISCLAIMER.**

The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage, or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

# Capricorn Municipal Development Guidelines

Banana Shire Council (BSC)	Livingstone Shire Council (LSC)
Central Highlands Regional Council (CHRC)	Maranoa Regional Council (MRC)
Gladstone Regional Council (GRC)	Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)	

## SAMPLE DESIGN LAYOUT PLAN

REV.	A	B	C	D	F	
------	---	---	---	---	---	--

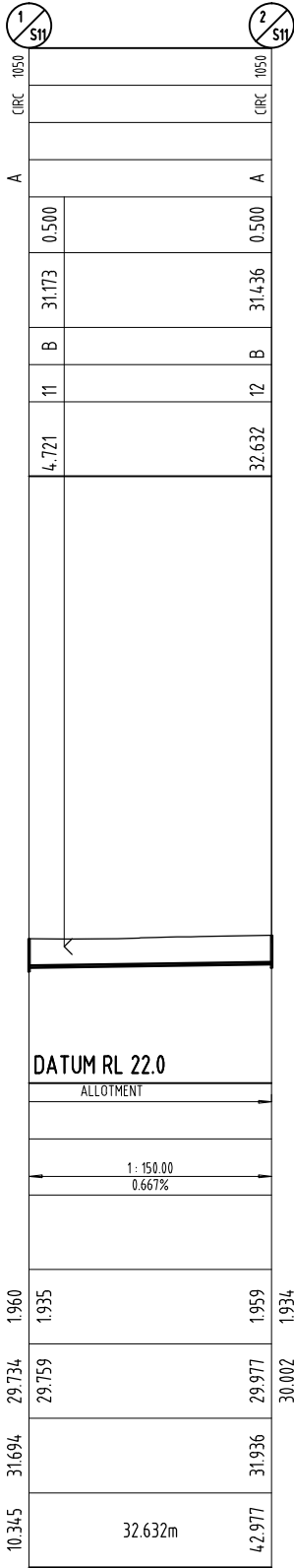
MANHOLE/END NAME
MANHOLE TYPE
LID TYPE
JUNCTION LINE
DROP TYPE
DEPTH TO HC
HOUSE CONNECTION INVERT LEVEL
HC TYPE
HC LOT No
CH. FROM D/S MH

MANHOLE SEWER INLET DROPS TYPE  
'A' & 'B' AS PER COUNCIL STD DWG.

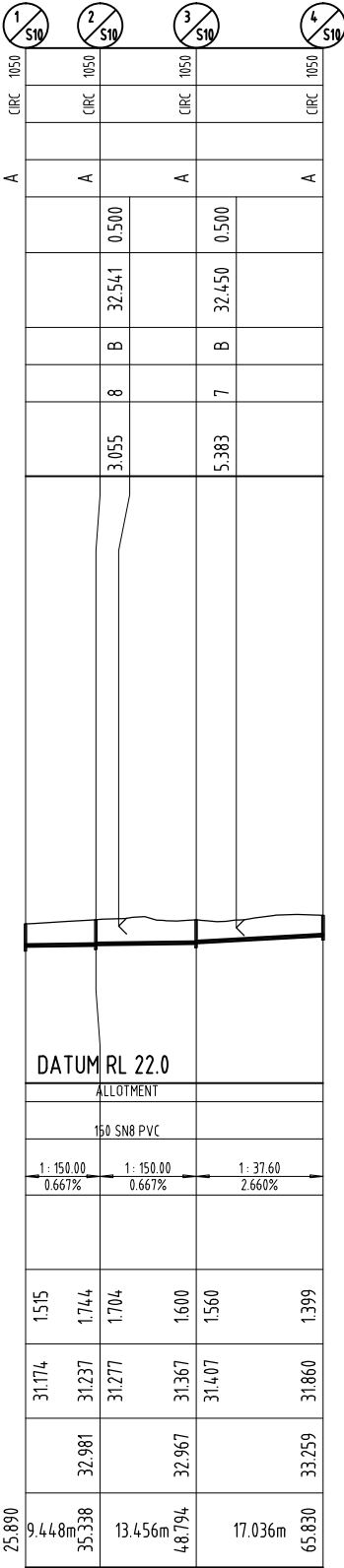
HOUSE CONNECTIONS TO SEWERS &  
MANHOLES  
TYPE 'A' & 'B' AS PER STD DWG;  
TYPE BSG JUMP UP WITH SUGDEN  
CONNECTION.

LOCATION
DIAMETER/CLASS
GRADE
JUNCTION INVERT LEVEL
DEPTH TO INVERT
INVERT LEVEL OF SEWER
DESIGN SURFACE LEVEL
RUNNING CHAINAGE

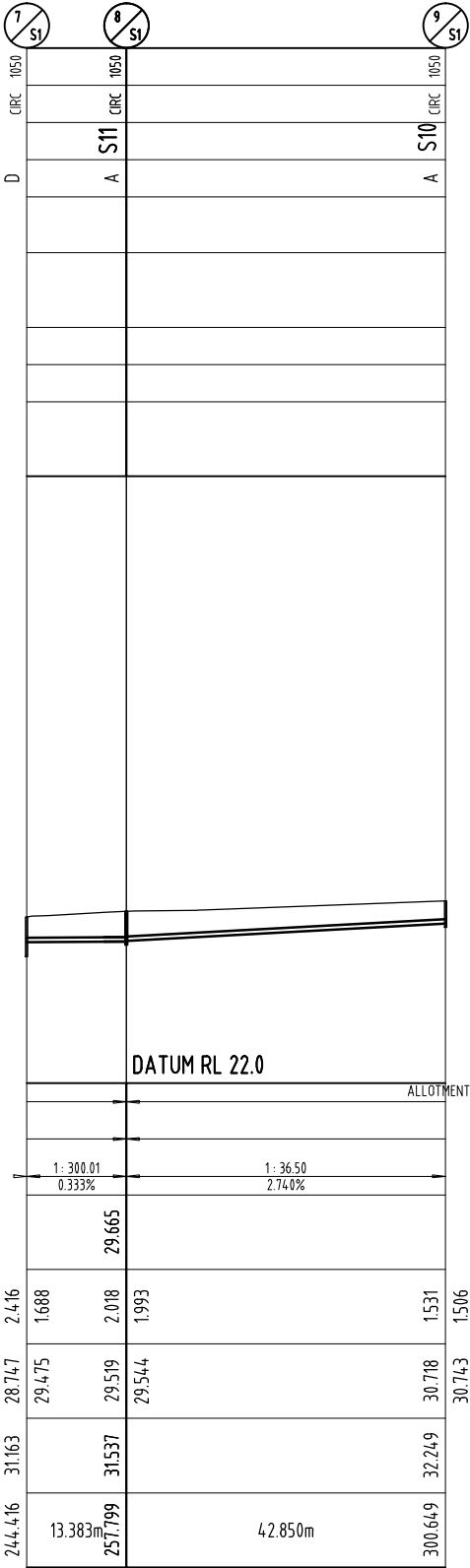
LINE



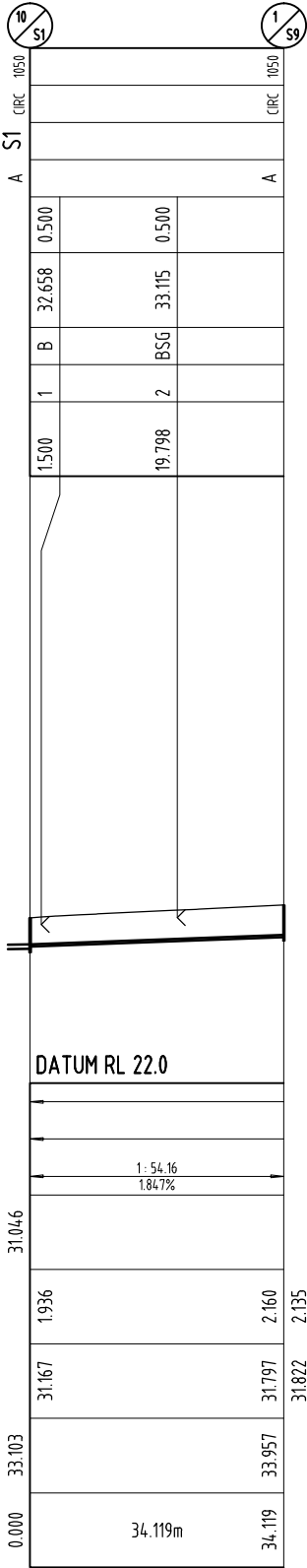
S11



S10



S1



S9

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Applicable DWG							

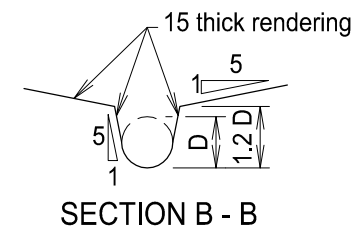
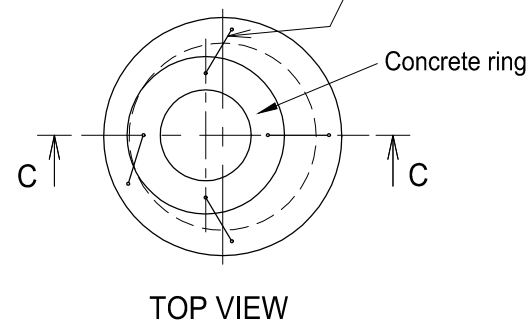
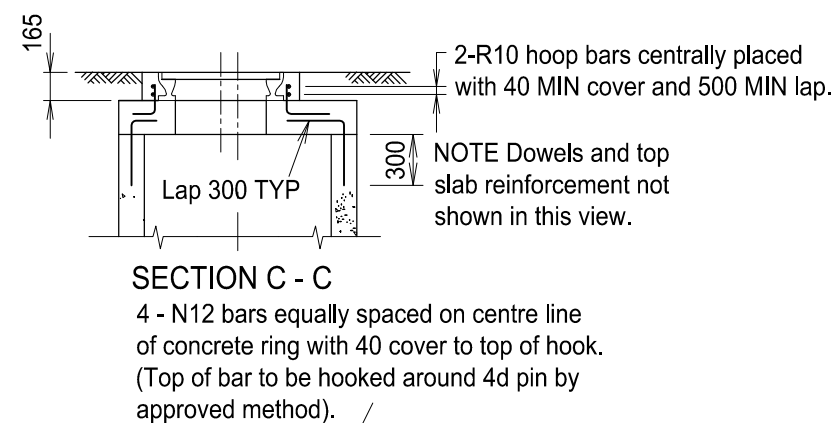
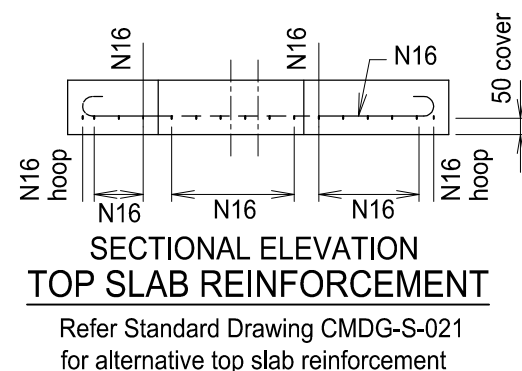
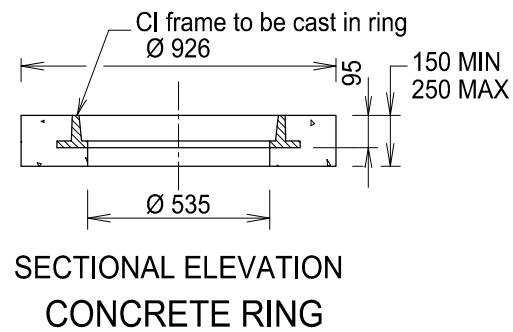
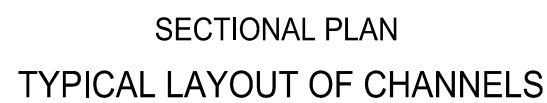
REVISIONS		DATE
C	IRC ADDED	11/2016
B	GRC AND LSC ADDED	01/2015
A	ORIGINAL ISSUE	09/2013

DISCLAIMER.  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

Capricorn Municipal Development Guidelines  
Incorporating:  
Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Isaac Regional Council (IRC)  
Livingstone Shire Council (LSC)  
Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)


SAMPLE DESIGN  
LONGITUDINAL SECTION

ROADS				
STANDARD DRAWING				
CMDG-S-012				
REV.	A	B	C	



CRITICAL DIMENSIONS		
Depth to outlet invert	Thickness	
	'a'	'b'
Minimum to 3000	150	150
3000 to 6000	225	300

MINIMUM DEPTHS	
Outlet Ø	Minimum Depth 'd'
Ø150	1500 + (Type A fall - 100)
Ø225	1575 + (Type A fall - 100)
Ø300	1650 + (Type A fall - 100)
Ø375	1725 + (Type A fall - 100)

INLET DROP - DEPTH RANGE 						
PIPE SIZE	V C PIPE			uPVC PIPE		
	TYPE A	TYPE B	TYPE C	TYPE A	TYPE B	TYPE C
Ø150	40 to 300	300 to 600	over 350	40 to 300	300 to 600	over 600
Ø225	40 to 300	500 to 800	over 550	40 to 300	500 to 1000	over 1000
Ø300	40 to 300	600 to 900	over 700	40 to 300	600 to 1500	over 1500
Ø375	40 to 300	700 to 1000	over 900	40 to 300	1000 to 2100	over 2100

### LEGEND

- Length of pipe shall be 3 x DIA of pipe
- ☆ For details of Inlet drop types refer drawing SD-S-021.

NOTES:

1. Minimum fall through chambers shall be in accordance with standard sewer manhole base detail drawing CMDG-S-005.
2. Concrete N32 in accordance with AS 1379 and AS 3600.
3. All fasteners will be Grade AS 2837/316 stainless steel.  
Unless otherwise noted, fasteners shall be as described below.
  - (a) Fixing to concrete - bolts shall be approved anchors.
  - (b) Fixing to metalwork - bolts shall be HEX head bolts.
4. Nylon or polythene separation inserts shall be used between stainless steel fasteners and aluminium sections.
5. Anti-galling lubricant "Loctite 222 or 567" or similar shall be used on all threads and between all stainless steel abutting surfaces.
6. Aluminium surfaces in contact with concrete shall be painted with two coats of alkali resistant bituminous paint.
7. uPVC or GRP pipes cast into access chamber wall shall be coated or sanded for the length of wall penetration to ensure bonding.
8. ACCESS - Ladders or steps are not required.
9. Roof design to Austroads W7 wheel load, dynamic factor 0.4.
10. All dimensions in millimetres.

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE
F	REINFORCING DETAILS AMENDED	12/2017
E	IRC ADDED	11/2016
D	AMEND DRAWING REFERENCE NOTE 1	10/2016
C	GRC AND LSC ADDED	11/2014
B	RRC AMENDMENTS	05/2011
A	POST AMALGAMATION REVIEW	01/2010

**DISCLAIMER.**

The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damages, direct or indirect, caused by, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

# Capricorn Municipal Development Guidelines

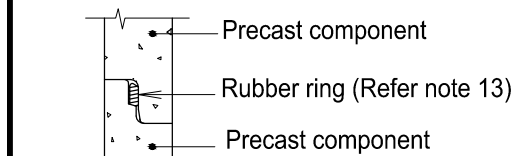
Incorporating:

Banana Shire Council (BSC)	Livingstone Shire Council (LSC)
Central Highlands Regional Council (CHRC)	Maranoa Regional Council (MRC)
Gladstone Regional Council (GRC)	Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)	

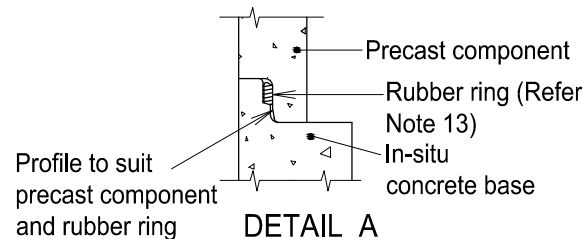
ACCESS CHAMBERS  
1050mm NOM. DIA.  
INSITU CONSTRUCTION

ROADS						
STANDARD DRAWING						
CMDG-S-020						
REV.	A	B	C	D	E	F





DETAIL B

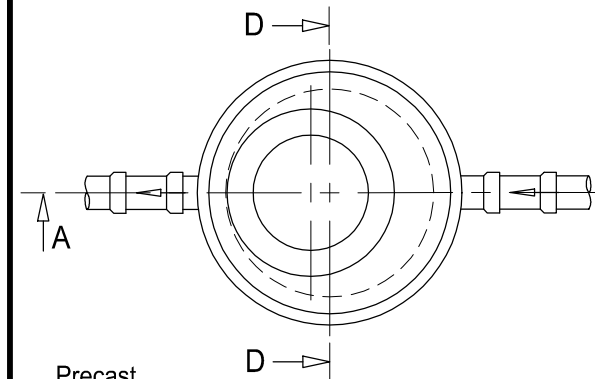


DETAIL A

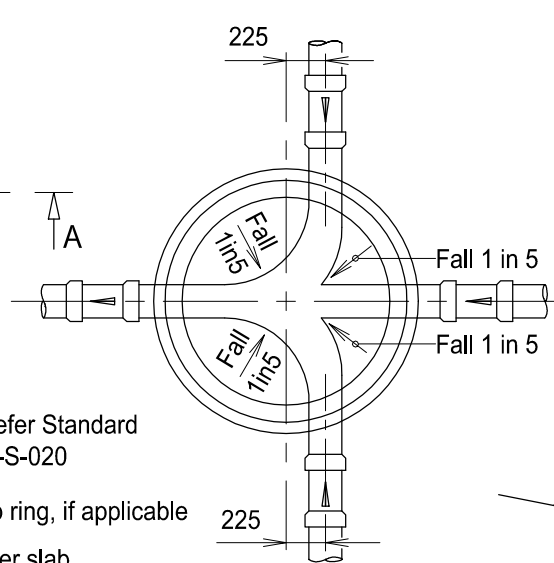
INLET DROP - DEPTH RANGE						
PIPE SIZE	V C PIPE			uPVC PIPE		
	TYPE A	TYPE B	TYPES C&D	TYPE A	TYPE B	TYPES C&D
Ø150	40 to 300	300 to 600	over 350	40 to 300	300 to 600	over 600
Ø225	40 to 300	500 to 800	over 550	40 to 300	500 to 1000	over 1000
Ø300	40 to 300	600 to 900	over 700	40 to 300	600 to 1500	over 1500
Ø375	40 to 300	700 to 1000	over 900	40 to 300	1000 to 2100	over 2100

MINIMUM DEPTHS	
Outlet Pipe Size	Minimum Depth to Outlet Invert
Ø150	1500 + (Type A fall-100)
Ø225	1575 + (Type A fall-100)
Ø300	1650 + (Type A fall-100)
Ø375	1725 + (Type A fall-100)

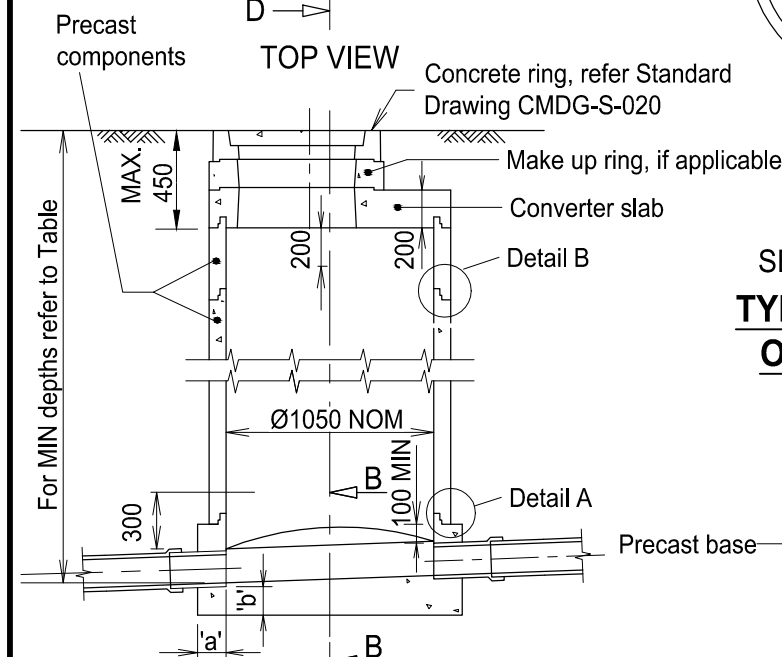
CRITICAL DIMENSIONS		
Depth to outlet invert	Thickness	
	'a'	'b'
Minimum to 3000	150	150
3000 to 6000	225	300



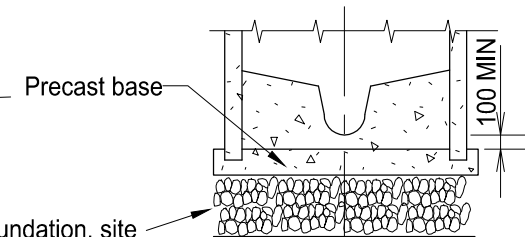
TOP VIEW



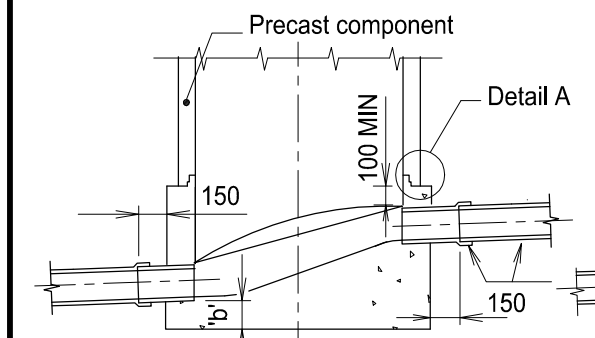
SECTIONAL PLAN  
TYPICAL LAYOUT  
OF CHANNELS



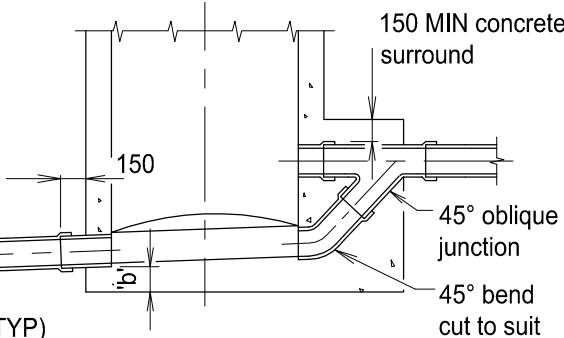
SECTION A - A



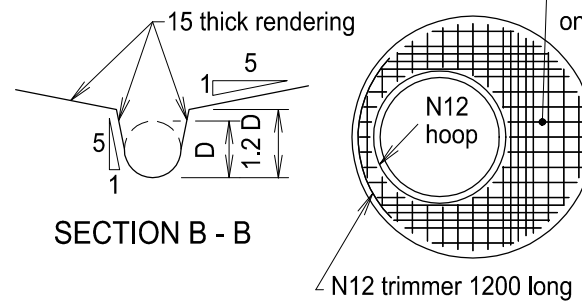
PART SECTION D - D  
PRECAST BASE



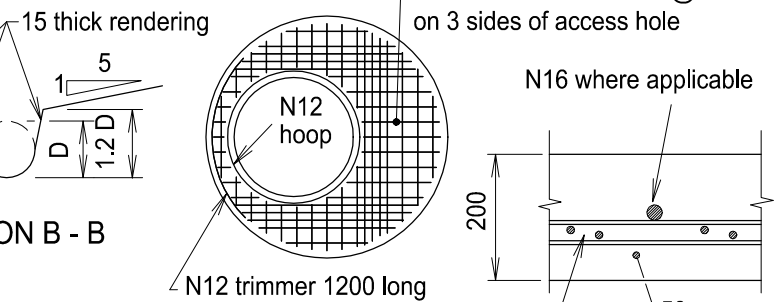
INLET TYPE A



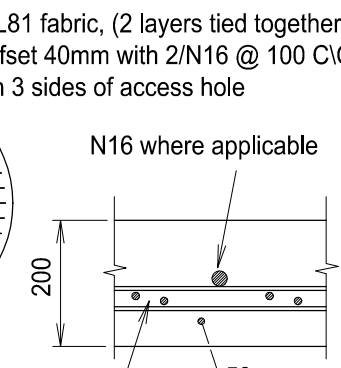
INLET TYPE B



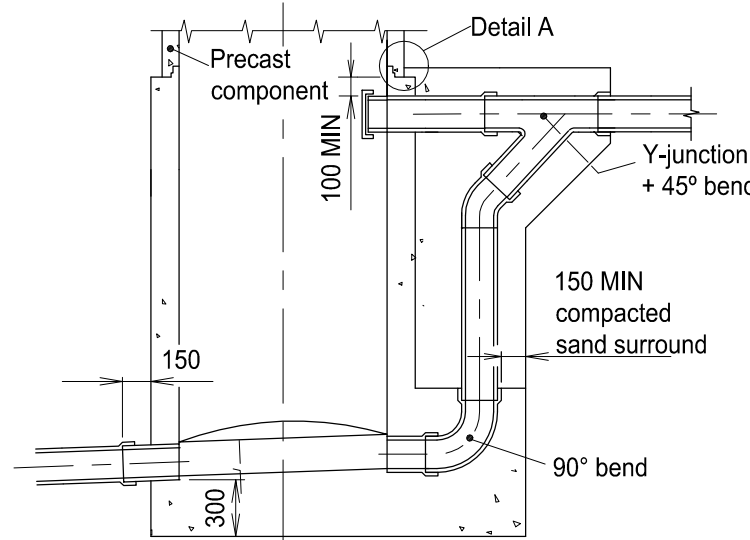
SECTION B - B



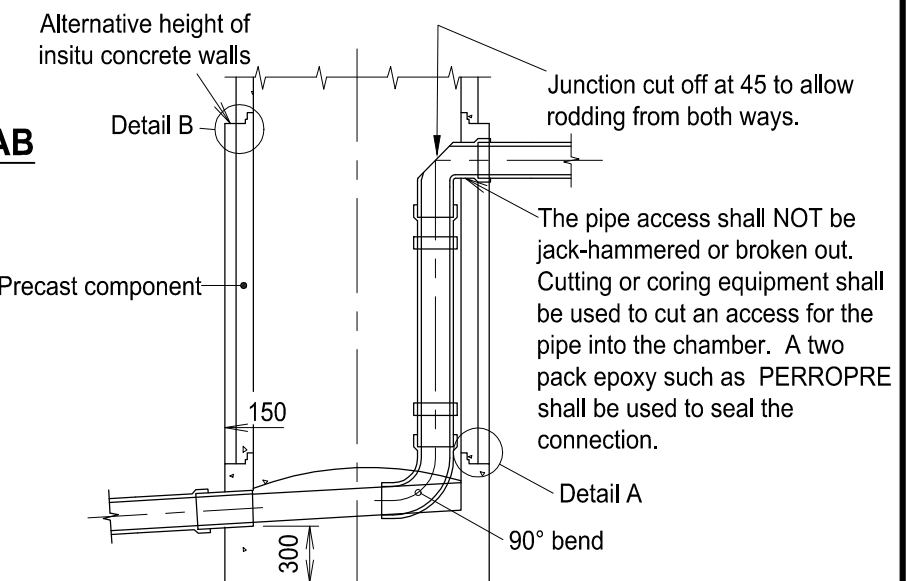
PLAN



PART SECTION  
CONVERTER SLAB



INLET TYPE C  
(EXTERNAL)



INLET TYPE D  
(INTERNAL)

## NOTES

- Minimum fall through chambers shall be in accordance with standard sewer manhole base detail drawing CMDG-S-024. Squat cones shall be in non-trafficable areas.
- Concrete shall be:
  - Class N32 for in-situ concrete.
  - Class N40 for pre-cast segments.
 Both in accordance with AS 1379 and AS 3600.
- All fasteners shall be Grade AS2837/316 stainless steel. Unless otherwise noted, fasteners shall be as described below.
  - Fixing to concrete - bolts shall be approved anchors.
  - Fixing to metalwork - bolts shall be HEX head bolts.
- Nylon or polythene separation inserts shall be used between stainless steel fasteners and aluminium sections.
- Anti-galling lubricant "Loctite 222 or 567" or similar shall be used on all threads and between all stainless steel abutting surfaces.
- Aluminium surfaces in contact with concrete shall be painted with two coats of alkali resistant bituminous paint.
- uPVC or GRP pipes cast into walls shall be coated or sanded for the length of wall penetration to ensure bonding.
- Deleted.
- ACCESS - Ladders or steps are not required.
- Alternative converter slab designed to Austroads W7 wheel load, dynamic factor 0.4. Precast converter slabs must be designed to same standards.
- All dimensions in millimetres.
- Squat cones shall be used in non traffic areas.
- Lubricate concrete surface and rubber ring before placing precast components.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	No	Yes	Yes	Yes	Yes
Maximum internal drops per 1050Ø access chamber	2	1		1	2	1	2
Applicable DWG	For GRC CMDG-S-021A						

REVISIONS	DATE
H IRC ADDED	11/2016
G NOTE 8 DELETED (PRECAST CHAMBERS)	10/2016
F GRC APPLICABILITY CHANGE	03/2015
E GRC AND LSC ADDED	09/2014
D NOTE ADDED RE: PRESSURE MAINS	04/2013
C AMENDED TYPE D DROP - MORTAR BEHIND	02/2013
DELETE NOTE RE: PRECAST CHAMBERS APPLICABILITY TABLE CHANGES	
B RRC AMENDMENTS	
A ORIGINAL ISSUE	01/2010

**DISCLAIMER.**  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

## Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC) Livingstone Shire Council (LSC)  
Central Highlands Regional Council (CHRC) Maranoa Regional Council (MRC)  
Gladstone Regional Council (GRC) Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

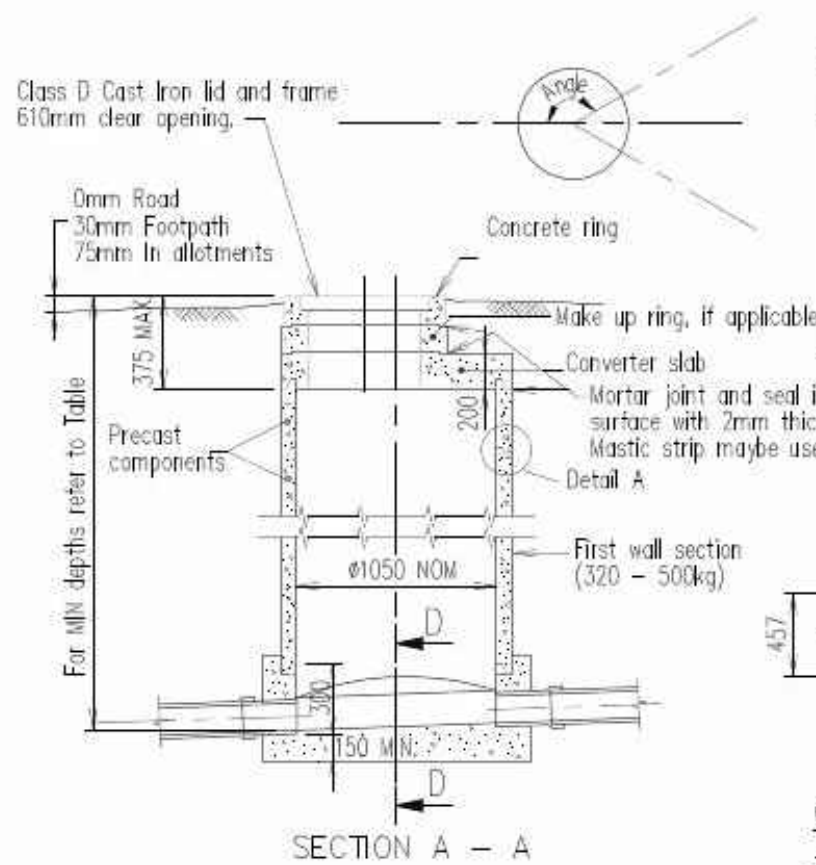
## ACCESS CHAMBERS 1050mm NOM. DIA. PRECAST COMPONENTS

## ROADS

## STANDARD DRAWING

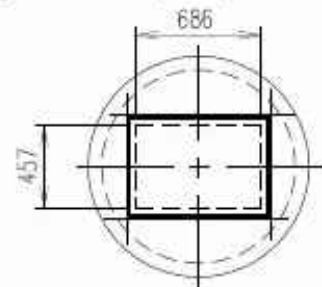
## CMDG-S-021

REV.	A	B	C	D	E	F
	G	H	I			

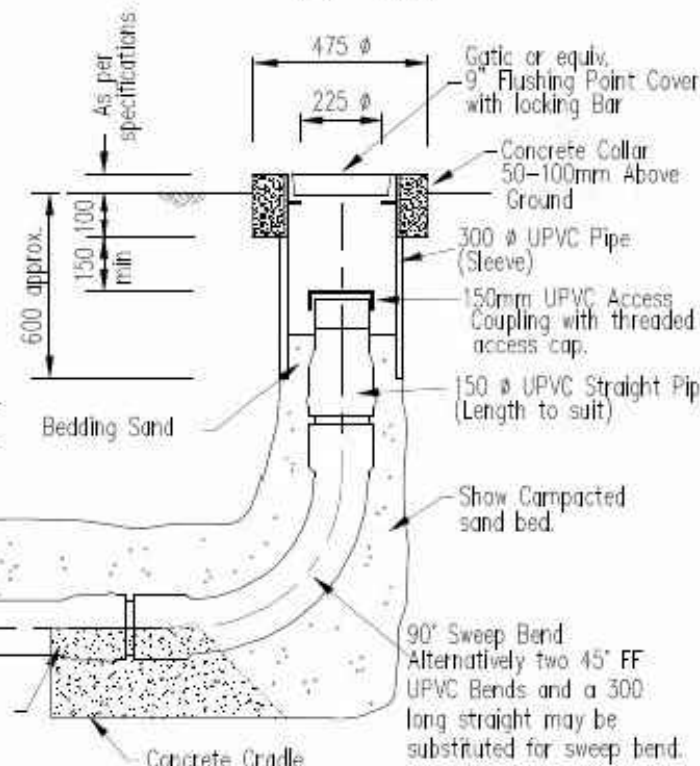
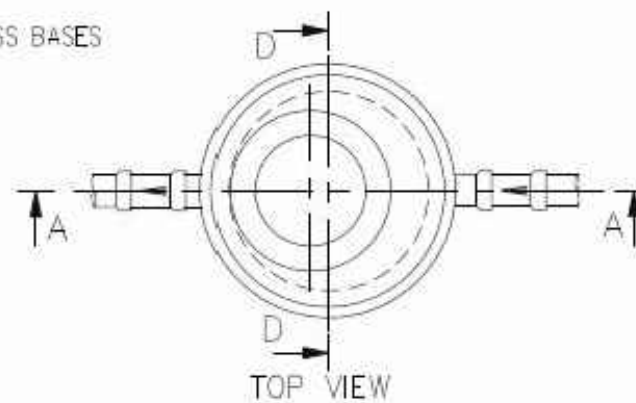


ANGLES AVAILABLE IN FIBREGLASS BASES

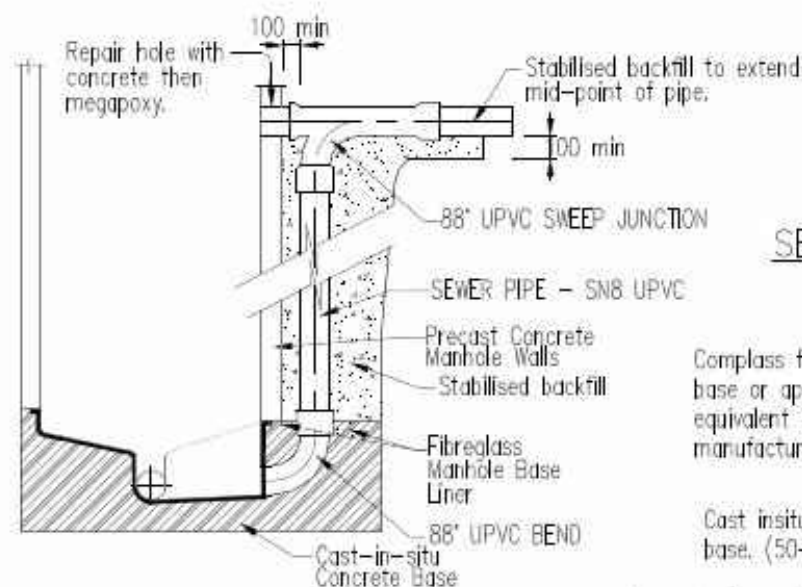
Angle	Drop thru Chamber
90-112°	40mm
112-125°	40mm
125-140°	40mm
140-150°	20mm
150-170°	(Y Pattern) 20mm
Straight	20mm



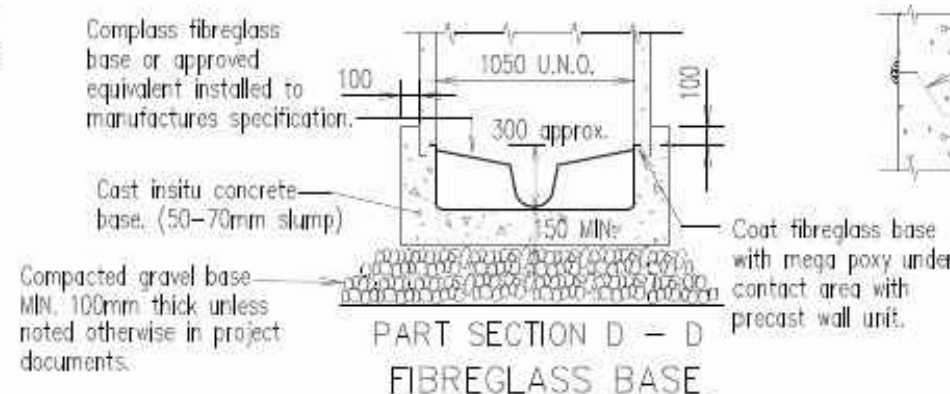
CONVERTER SLAB  
— SQUARE COVER



SECTIONAL ELEVATION - TERMINAL MAINTENANCE SHAFT



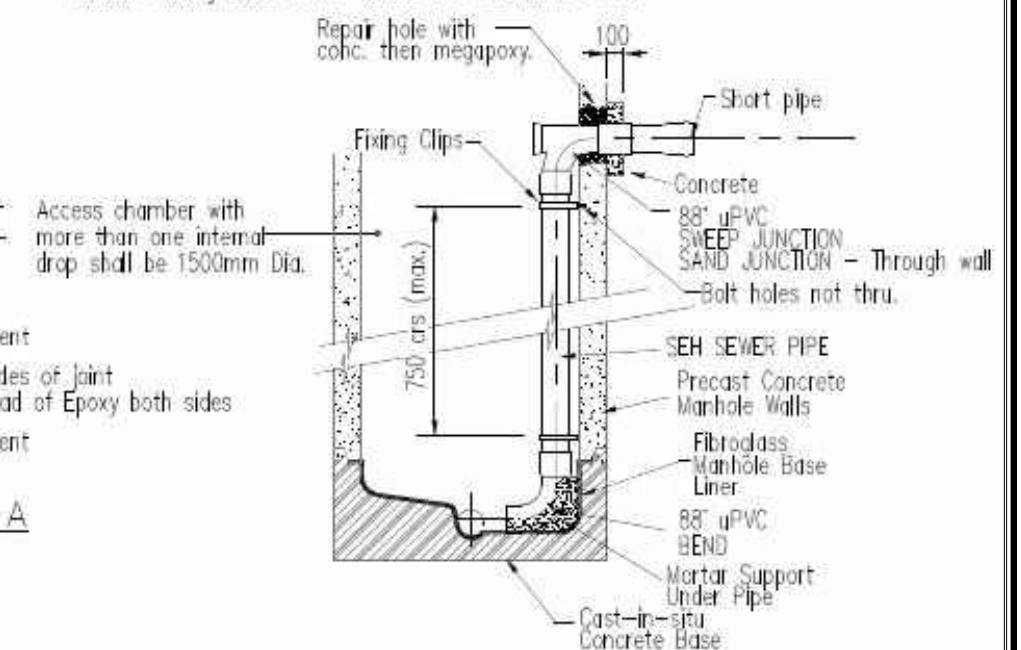
EXTERNAL DROP DETAIL  
Gladstone City Council only.



DETAIL A

NOTES

- Concrete shall be
  - Class N32 for in-situ concrete
  - Class N40 for pre-cast segments
 both in accordance with AS 1379 and AS 3600.
- All fasteners shall be Grade A283/316 stainless steel. Unless otherwise noted, fasteners shall be as described below.
  - Fixing to concrete - bolts shall be approved anchors.
  - Fixing to metalwork - bolts shall be HEX head bolts.
- Nylon or polythene separation inserts shall be used between stainless steel fasteners and aluminium sections.
- Anti-galling lubricant "Lactite 222 or 567" or similar shall be used on all threads and between all stainless steel abutting surfaces.
- Aluminium surfaces in contact with concrete shall be painted with two coats of alkali resistant bituminous paint.
- uPVC or GRP pipes cast into walls shall be coated or sanded for the length of wall penetration to ensure bonding.
- Precast chambers shall not be used where:
  - sewer lines accept pumped flows
  - sewer lines are greater than 4375
  - chambers are greater than 6.0m in depth
- One 6mm hole will be allowed to be drilled into a bench to vent base and witness concrete slurry. "Drummy" benches may need to be filled with sand/cement slurry mixture. All holes in base to be sealed with megapoxy or equivalent.
- Alternative converter slab designed to Austroads W7 wheel load, dynamic factor 0.4. Precast converter slabs must be designed to same standards.
- All precast concrete components shall be manufactured by a manufacturer with an accredited quality assurance program from Standards Australia under AS 3902 - 1987/ISO 9002 - 1987.
- All dimensions in millimetres.
- All sewer pipe to be Class SN8 UPVC
- Fixing clips to be Grade 316 Stainless Steel. Brackets would be required either side of all bends at 750mm MAX. spacings. Brackets to be at least 25mm wide x 2mm thick. Bracket fixing bolts to be Grade 316 Stainless Steel.



INTERNAL DROP DETAIL  
Calliope Shire Council only.

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No

REVISIONS	DATE
B IRC ADDED	12/2016
A ORIGINAL ISSUE	03/2015

**DISCLAIMER.**  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

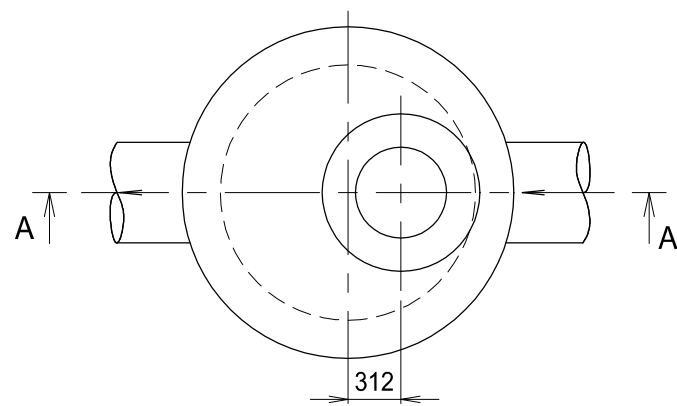
**Capricorn Municipal Development Guidelines**

Incorporating:  
Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Isaac Regional Council (IRC)  
Livingstone Shire Council (LSC)  
Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)

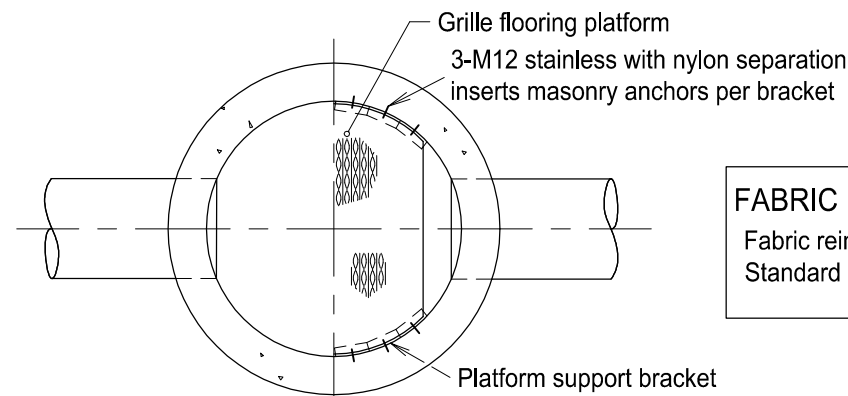
**ACCESS CHAMBERS  
1050mm NOM. DIA.  
PRECAST COMPONENTS**

**ROADS  
STANDARD  
DRAWING  
CMDG-S-021A**

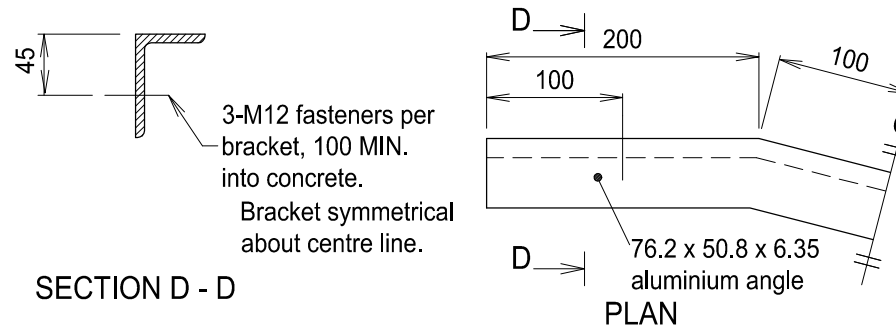
REV. A B



PLAN



SECTION B - B

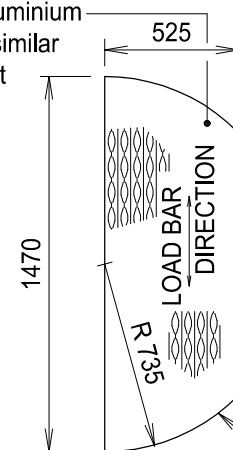


SECTION D - D

PLAN

### GRILLE PLATFORM SUPPORT BRACKET

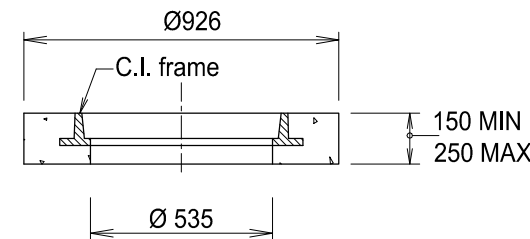
Ampligrip 440 aluminium grille flooring or similar approved product



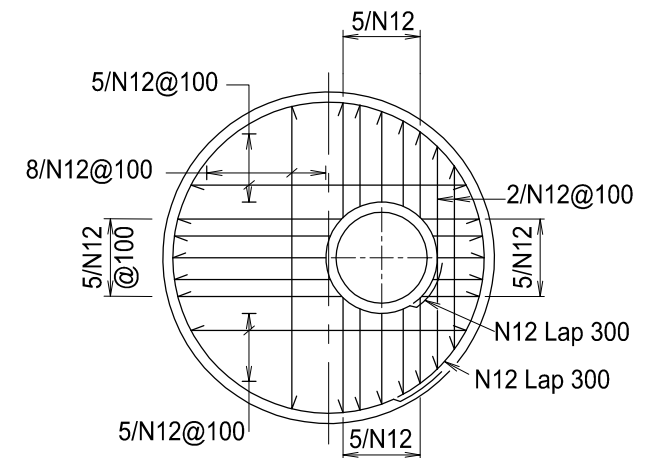
Provide trim bar all round

### GRILLE FLOORING DETAILS

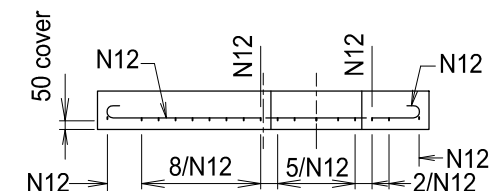
PROVIDE 4 NO APPROVED STAINLESS STEEL RETAINING CLIPS



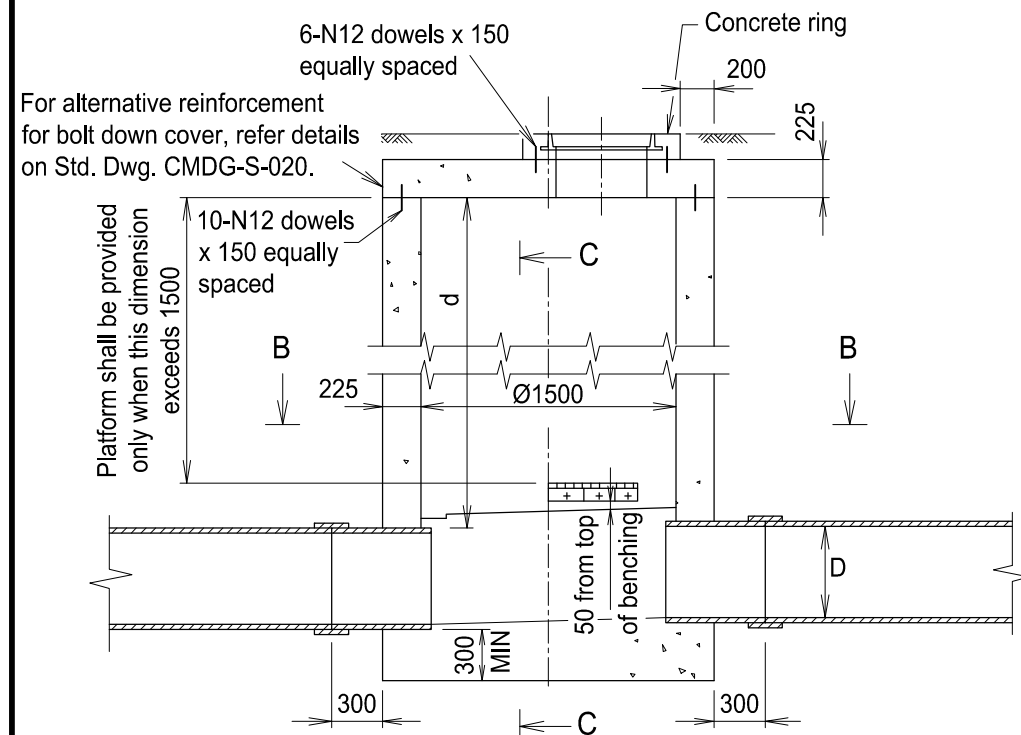
SECTIONAL ELEVATION  
**CONCRETE RING**



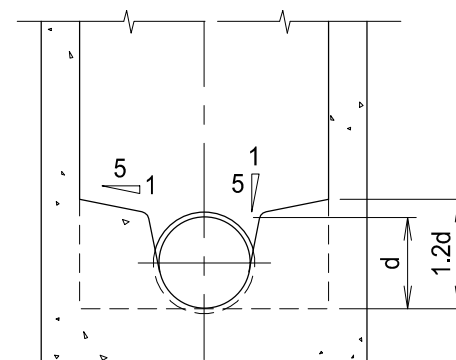
PLAN



SECTIONAL ELEVATION  
**ROOF SLAB REINFORCEMENT**



SECTION A - A



SECTION C - C

### NOTES:

1. Minimum fall through chambers shall be in accordance with standard sewer manhole base detail drawing CMDG-S- 024.
2. Concrete N32 in accordance with AS 1379 and AS 3600.
3. All fasteners Grade AS 2837/316 stainless steel.
4. Nylon or polythene separation inserts shall be used between stainless steel fasteners & aluminium sections.
5. Anti-galling lubricant "Loctite 222 or 567" or similar shall be used on all threads and between all stainless steel abutting surfaces.
6. Aluminium surfaces in contact with concrete shall be painted with two coats of alkali resistant bituminous paint.
7. uPVC or GRP pipes cast into chamber walls shall be coated or sanded for the length of wall penetration to ensure bonding.
8. Unless noted otherwise angles, bars and tubes shall be aluminium alloy 6061 T6 to AS1664.
9. Provide 2 NO safety bars at 300 centres for outlet pipes larger than Ø600.
10. Wall thickness for chamber greater than 6.0m deep should be design specific.
11. Reinforcement. N Bars to AS 1302. Fabric to AS 1304.
12. Deleted.
13. Roof design based on Austroads W7 wheel load, dynamic factor 0.4.
14. All dimensions in millimetres.

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Maximum internal drops per 1500Ø access chamber	2	1	1	1	2	1	2

REVISIONS	DATE
H REINFORCING DETAILS AMENDED	12/2017
G IRC ADDED	11/2016
F NOTE 1. DRAWING REFERENCE AMENDED	10/2016
E NOTE 12 DELETED	03/2015
D GRC AND LSC ADDED	09/2014
C APPLICABILITY CHANGES	01/2013
B RRC AMENDMENTS	05/2011
A ORIGINAL ISSUE	01/2010

DISCLAIMER.  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

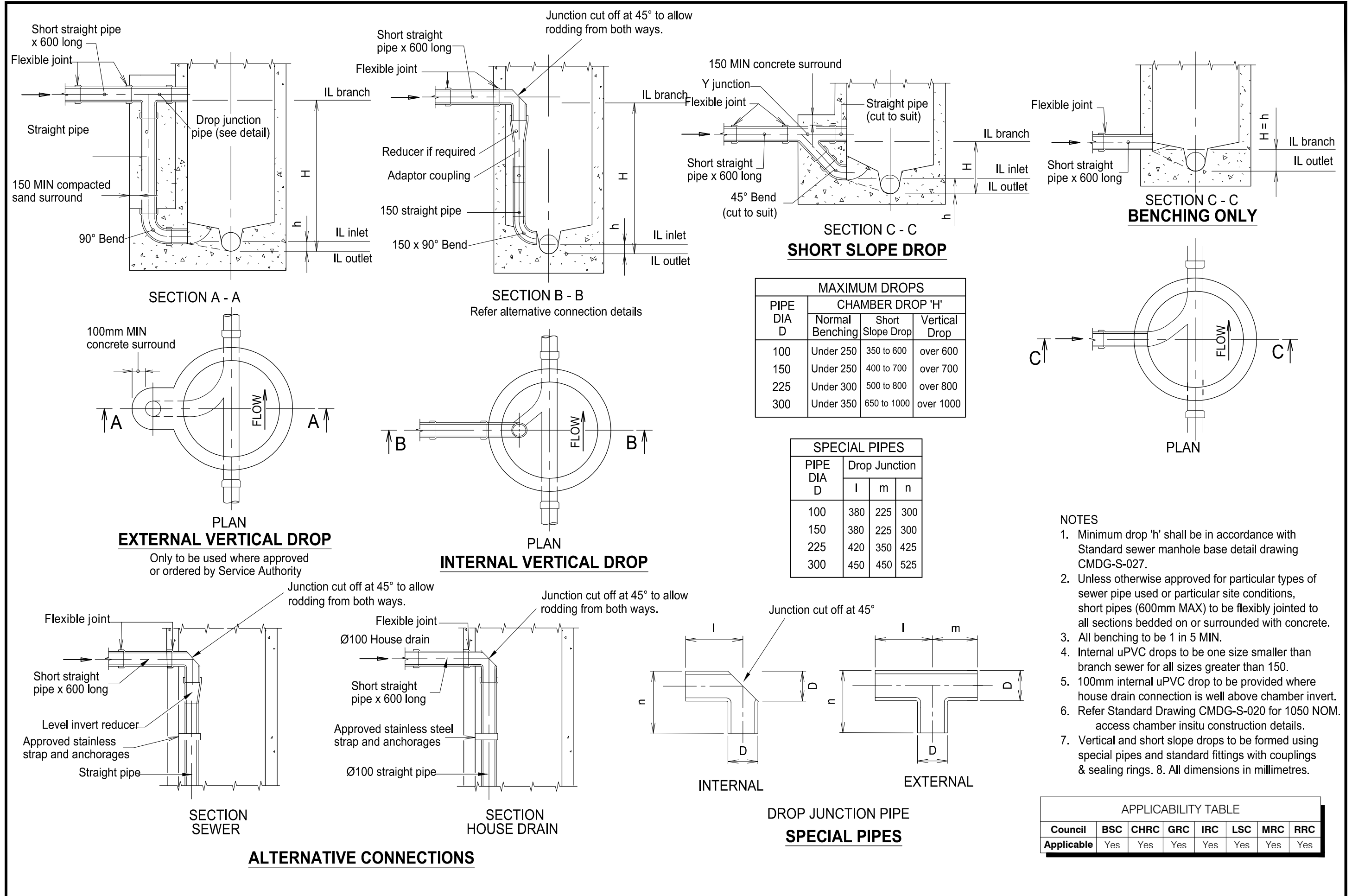
### Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC) Livingstone Shire Council (LSC)  
Central Highlands Regional Council (CHRC) Maranoa Regional Council (MRC)  
Gladstone Regional Council (GRC) Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

### ACCESS CHAMBERS 1500mm NOM. DIA. INSITU CONSTRUCTION

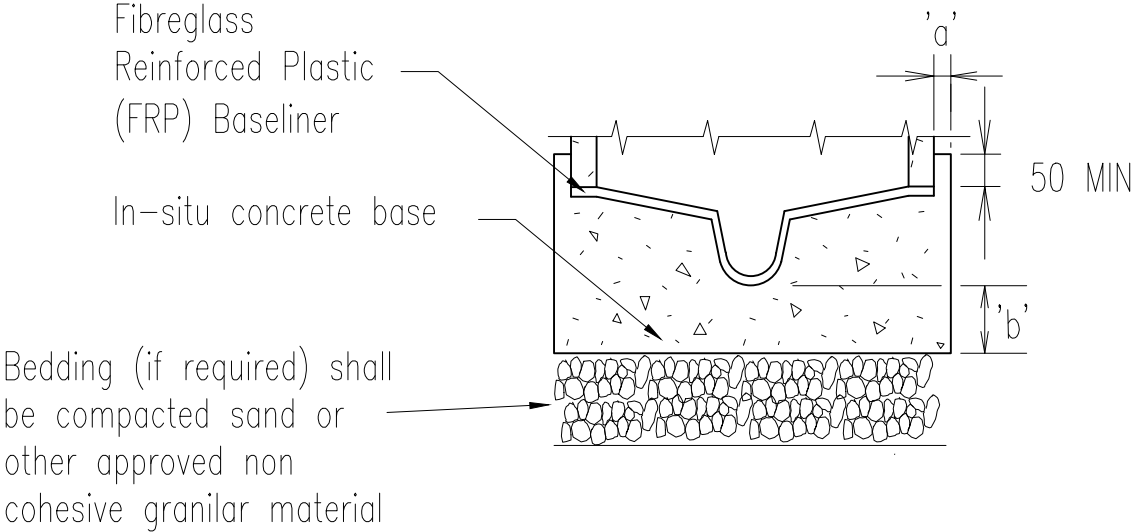
ROADS						
STANDARD DRAWING CMDG-S-022						
REV.	A	B	C	D	E	F
REV.	G	H				



REVISIONS			DATE	DISCLAIMER.			Capricorn Municipal Development Guidelines			ACCESS CHAMBERS ALTERNATIVE DROPS INSITU CONSTRUCTION			ROADS		
F	IRC ADDED		11/2016	The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.			Incorporating: Banana Shire Council (BSC) Central Highlands Regional Council (CHRC) Gladstone Regional Council (GRC) Isaac Regional Council (IRC) Livingstone Shire Council (LSC) Maranoa Regional Council (MRC) Rockhampton Regional Council (RRC)			STANDARD DRAWING CMDG-S-023			REV. A B C D E F		
E	GRC AND LSC ADDED		02/2014												
D	INSPECTION OPENING ADDED		04/2013												
C	REMOVE TAPER TO DROP		02/2013												
B	DELETE NOTE RE: INTERNAL DROPS														
B	RRC AMENDMENTS		05/2011												
A	ORIGINAL ISSUE		01/2010												

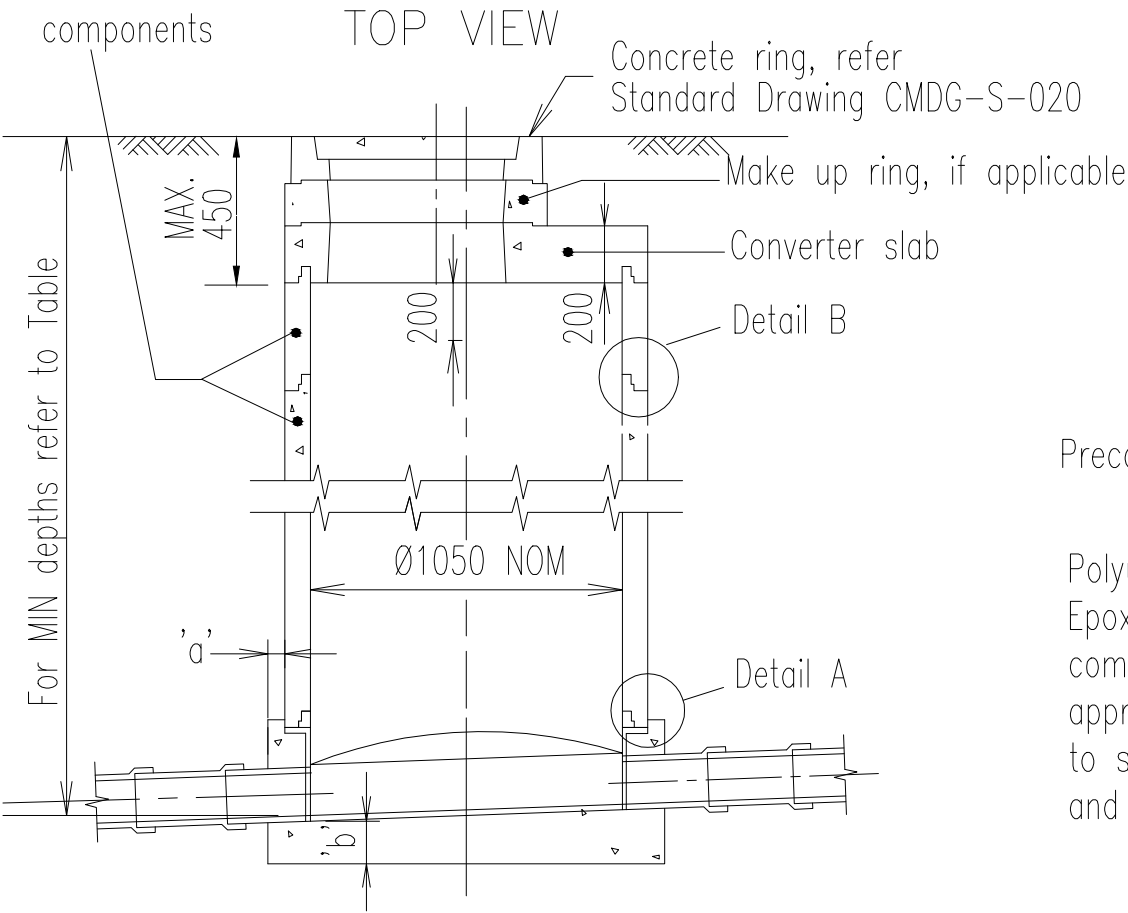
CRITICAL DIMENSIONS		
Depth to outlet invert	Thickness	
	a	b
Minimum to 3000	150	150
3000 to 6000	225	300

TYPICAL LAYOUT

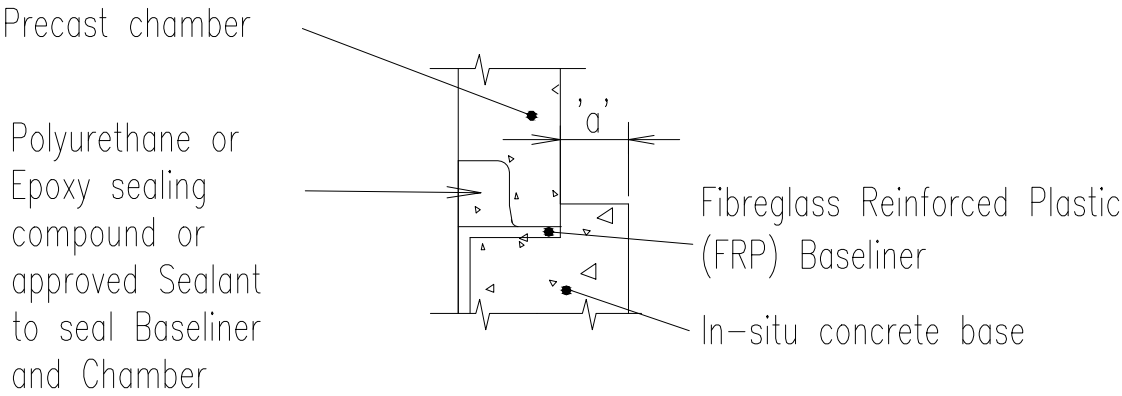


BASELINER

- NOTES
- 1. Minimum fall through chambers shall be in accordance with standard sewer manhole base detail drawing CMDG-S-005. Squat cones shall be in non-trafficable areas.
  - 2. Concrete shall be –
    - (a) Class N32 for in-situ concrete.
    - (b) Class N40 for pre-cast segments.both in accordance with AS 1379 and AS 3600.
  - 3. All fasteners shall be Grade AS2837/316 stainless steel. Unless otherwise noted, fasteners shall be as described below.
    - (a) Fixing to concrete – bolts shall be approved anchors.
    - (b) Fixing to metalwork – bolts shall be HEX head bolts.
  - 4. Nylon or polythene separation inserts shall be used between stainless steel fasteners and aluminium sections.
  - 5. Anti-galling lubricant "Loctite 222 or 567" or similar shall be used on all threads and between all stainless steel abutting surfaces.
  - 6. Aluminium surfaces in contact with concrete shall be painted with two coats of alkali resistant bituminous paint.
  - 7. uPVC or GRP pipes cast into walls shall be coated or sanded for the length of wall penetration to ensure bonding.
  - 8. Deleted.
  - 9. ACCESS – Ladders or steps are not required.
  - 10. Alternative converter slab designed to Austroads W7 wheel load, dynamic factor 0.4. Precast converter slabs must be designed to same standards.
  - 11. All dimensions in millimetres.
  - 12. Squat cones shall be used in non traffic areas.



DETAIL A



APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Applicable DWG							

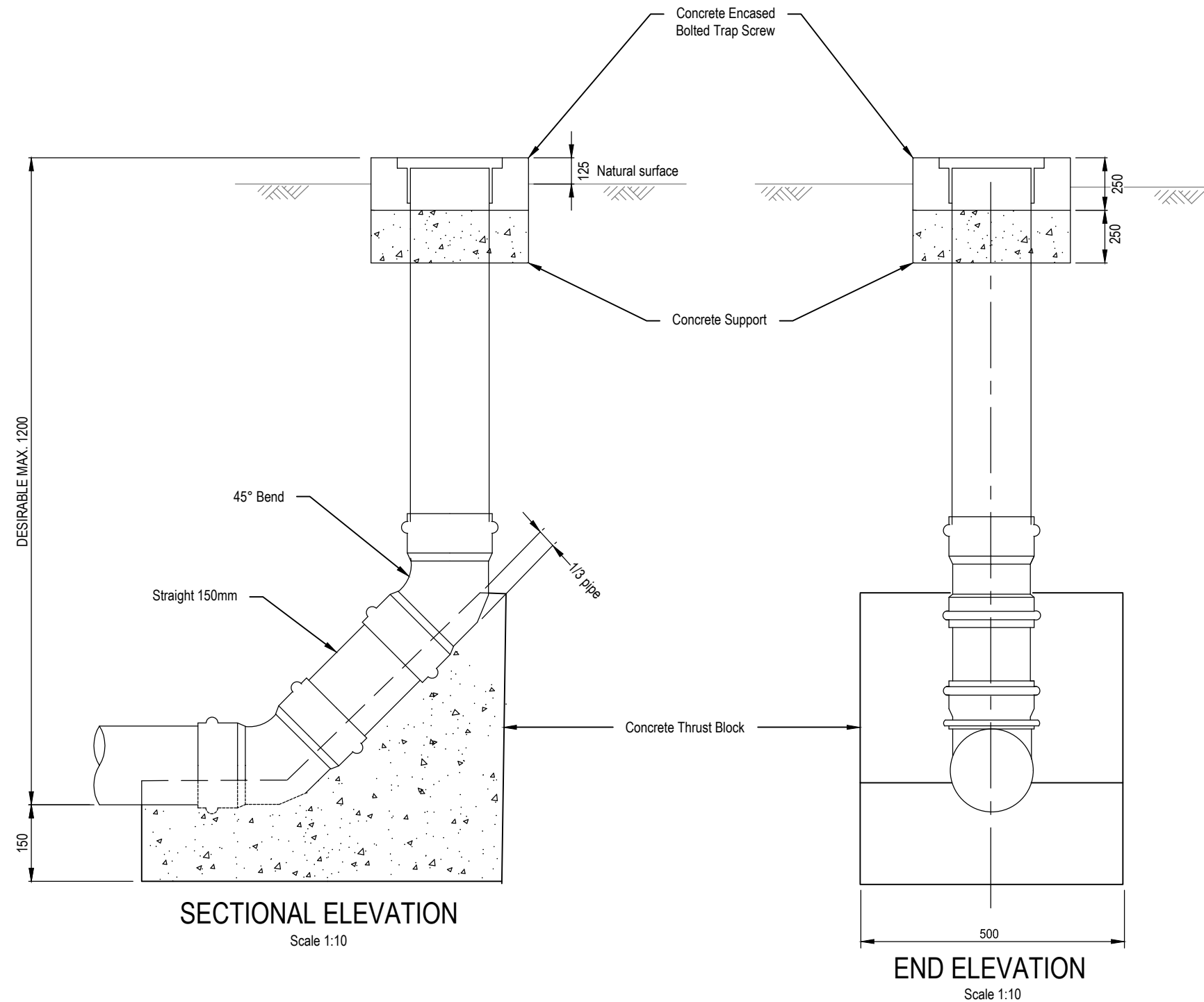
REVISIONS		DATE
F	IRC ADDED	11/2016
E	NOTE 8 DELETED (PRECAST CHAMBERS)	10/2016
D	GRC AND LSC ADDED	01/2015
C	REPLACED DRAWING REGISTER	02/2013
B	BASELINER CONSTRUCTION_RRC	12/2010
A	POST AMALGAMATION REVIEW	10/2003

DISCLAIMER.  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

Capricorn Municipal Development Guidelines  
Incorporating:  
Banana Shire Council (BSC) Livingstone Shire Council (LSC)  
Central Highlands Regional Council (CHRC) Maranoa Regional Council (MRC)  
Gladstone Regional Council (GRC) Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

ACCESS CHAMBERS  
1050mm NOM. DIA.  
BASELINER CONSTRUCTION

SEWERAGE STANDARD DRAWING CMDG-S-024							
REV.	A	B	C	D	E	F	



### NOTES:

- Concrete shall be Class N20 in accordance with AS 1379 and AS 3600.
- All Dimensions in Millimeters.
- All Pipework to be 150Ø PVC DWV SN8 unless stated otherwise.
- Where proprietary Precast Concrete Surrounds are used, Dimensions may be varied to suit Manufacturer's Standard Specifications.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	Yes	No	Yes	Yes	Yes	Yes
Applicable DWG	GRC details CMDG-S-021A						

REVISIONS		DATE
G	MAX DEPTH REMOVED,MRC APPLICABILITY CHANGED	05/2022
F	IRC ADDED	11/2016
E	AMEND GRC APPLICABILITY	13/2015
D	GRC AND LSC ADDED	09/2014
C	BSC APPLICABILITY NO	01/2013
B	RRC AMENDMENTS	05/2011

DISCLAIMER.  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

### Capricorn Municipal Development Guidelines

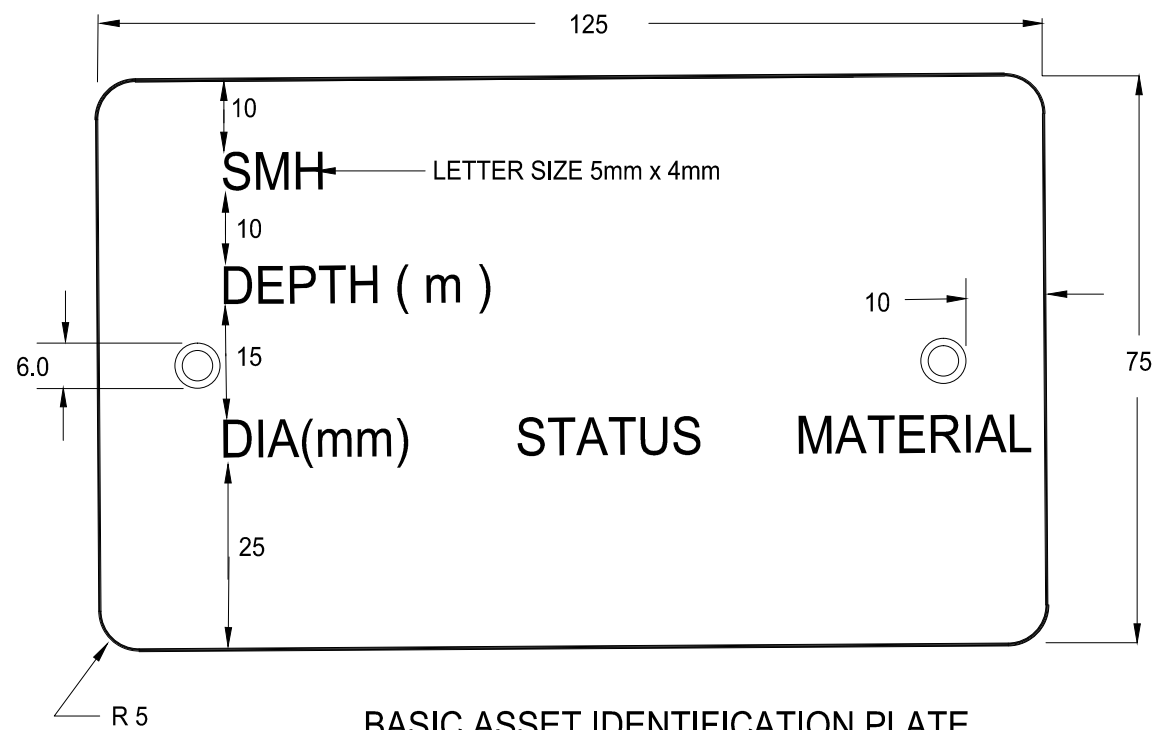
Incorporating:  
Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Livingstone Shire Council (LSC)

Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

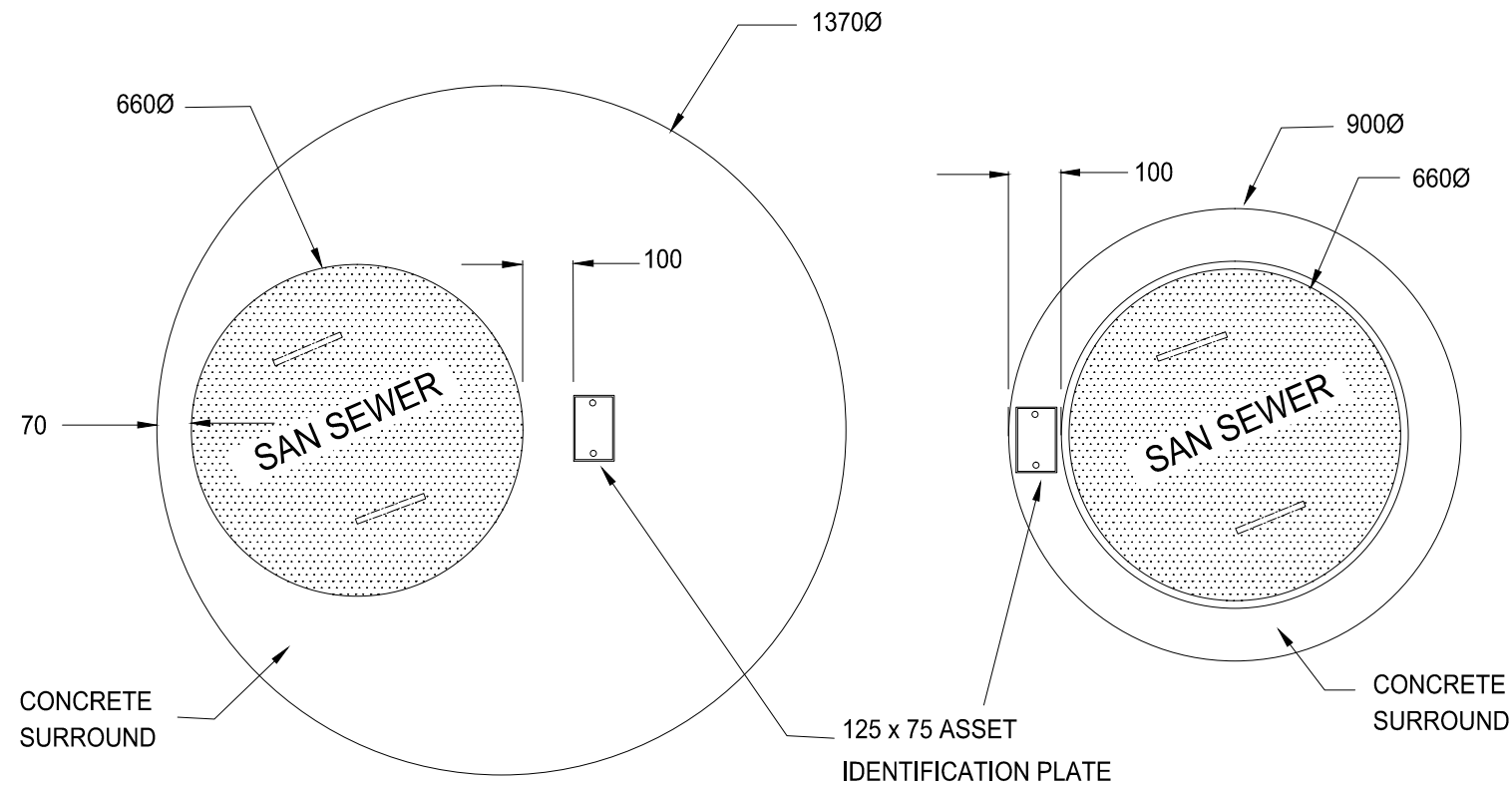
### ACCESS CHAMBERS LAMPHOLE DETAILS

SEWER	
STANDARD DRAWING	A3
CMDG-S-026	
REV.	B C D E F G



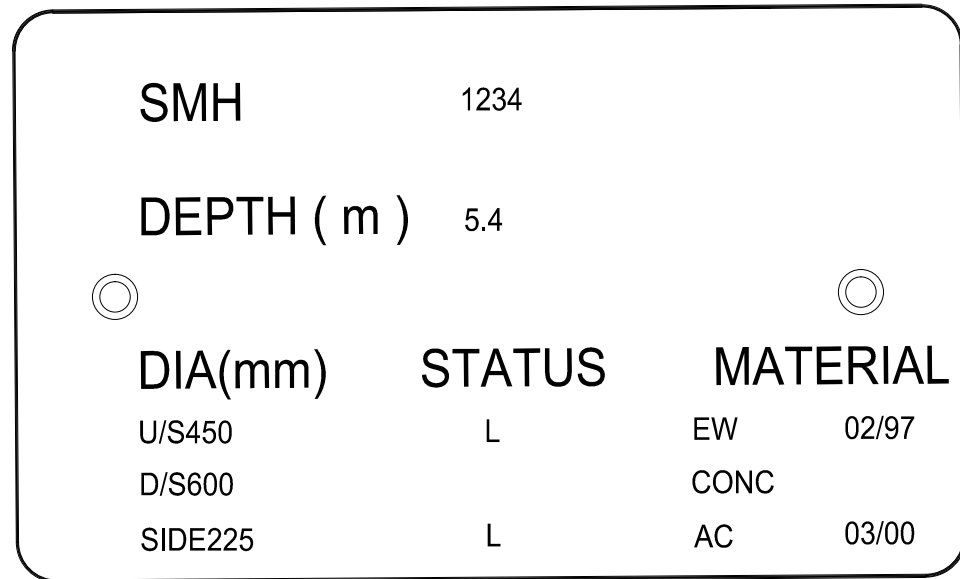


**BASIC ASSET IDENTIFICATION PLATE  
TO BE SUPPLIED BY RELEVANT AUTHORITY**



**TOP VIEW  
MANHOLE TYPE A**

**TOP VIEW  
MANHOLE TYPE B**



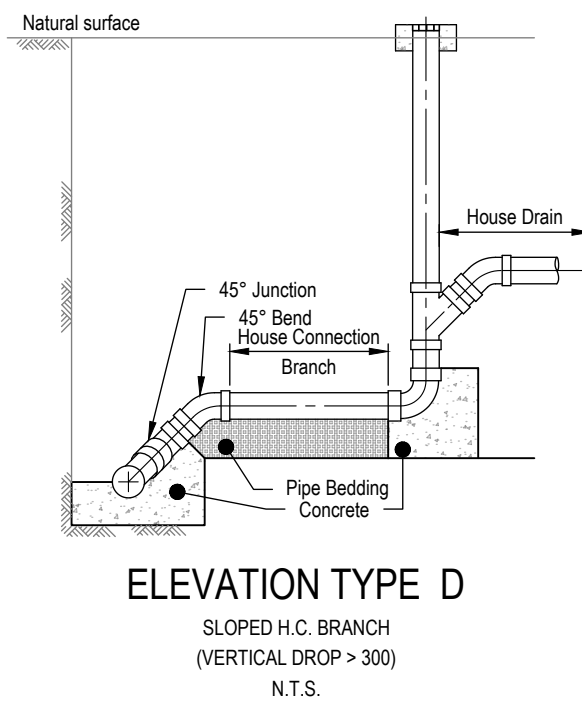
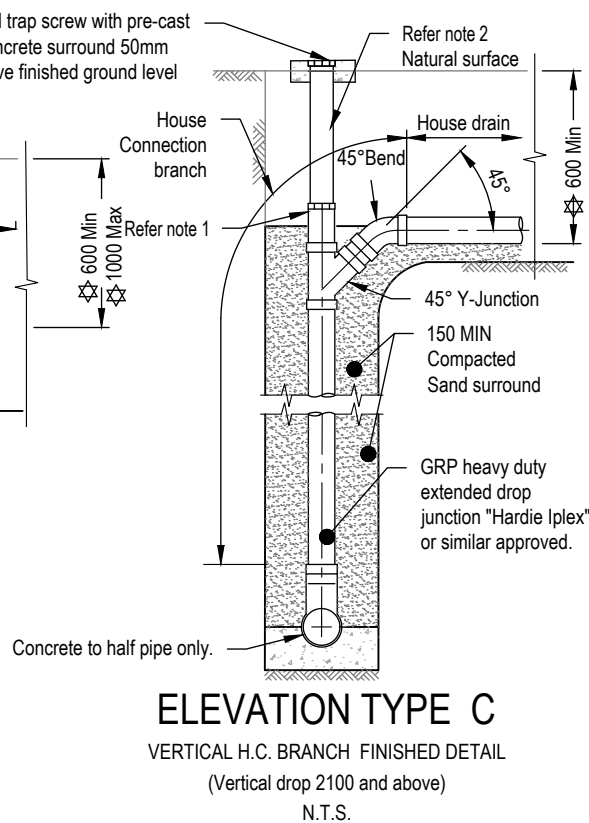
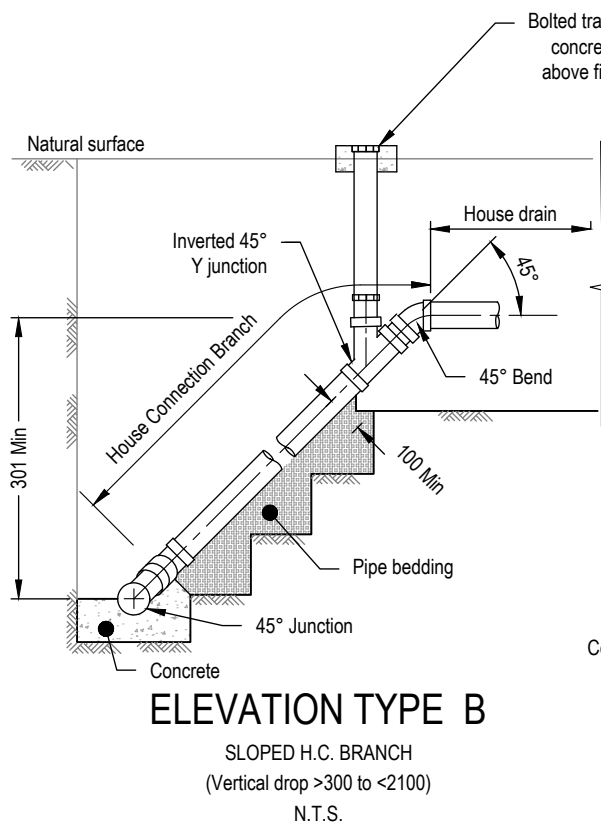
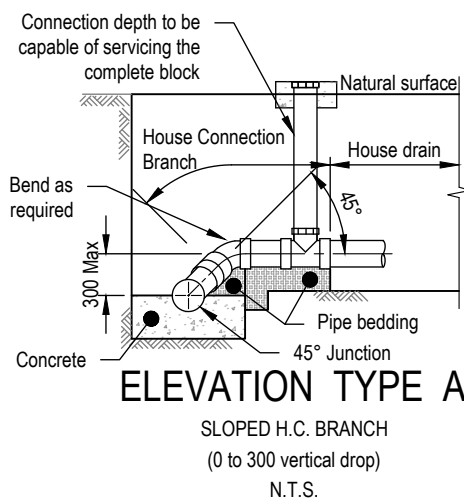
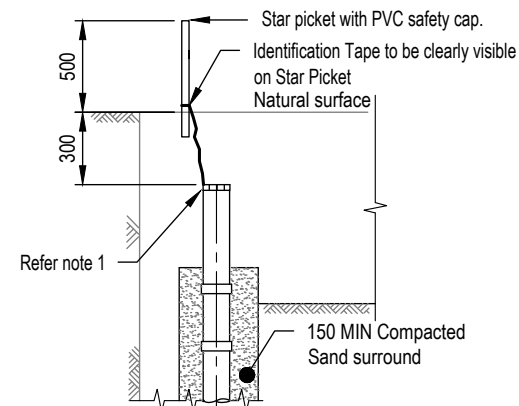
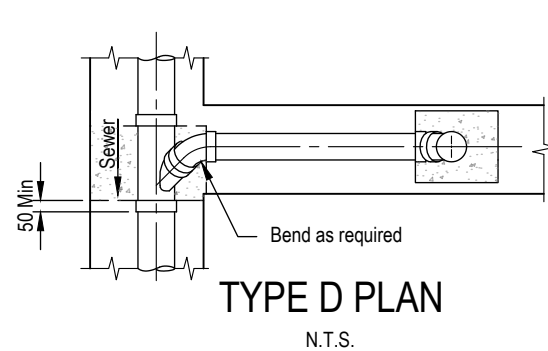
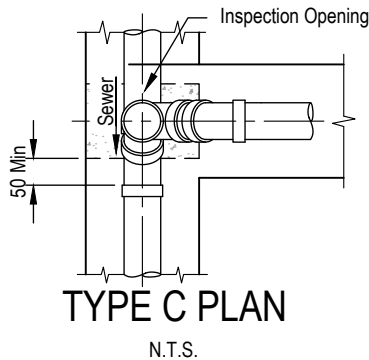
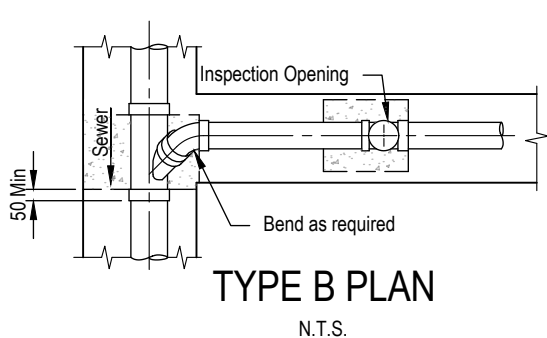
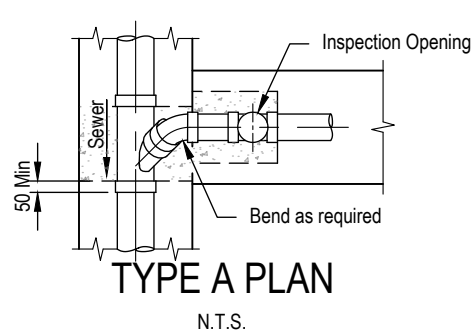
**EXAMPLE IDENTIFICATION PLATE WHEN AFFIXED TO MANHOLE SURROUND**

**NOTES**

- 3mm ALUMINIUM PLATE 125mm LONG x 75mm WIDE
- 6mm HOLES TO BE BORED IN PLATE.
- PLATES ARE TO BE FIXED TO THE CONCRETE SURFACE OF EACH SEWER MANHOLE USING MONEL(NON CORROSIVE ZINC ALLOY) METAL "SURE DRIVE" PINS 5mm x 22mm.
- ASSET NUMBER IS TO BE STAMPED ON TO THE PLATE ie SMH 1234
- DEPTH TO INVERT SHOWN AS 5.4 INDICATES THAT THE DEPTH OF THE MANHOLE (TOP OF MANHOLE AT EXISTING SURFACE LEVEL TO INVERT LEVEL BEING THE INTERNAL BASE)
- DIAMETER OF PIPE TO BE SHOWN ie U/S450 INDICATES 450mm BORE UPSTREAM, D/S600 INDICATES 600mm BORE DOWNSTREAM, SIDE225 INDICATES 225mm BORE SIDE LINE ENTERING PIT ALSO
- MATERIAL TO BE SHOWN AS CONCRETE = CONC EARTHENWARE = EW ASBESTOS CEMENT = AC PLASTIC= PVC
- STATUS IF PIPE HAS BEEN LINED IT IS TO BE INDICATED BY THE LETTER "L"
- DATE MONTH AND YEAR THAT PIPE WAS LINED IS ie 02/97 = FEB 1997
- CI MANHOLES IN ROAD - PLATES TO BE AFFIXED TO UNDER SIDE OF COVER
- ALL DIMENSIONS IN MILLIMETRES

**APPLICABILITY TABLE**

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	No	Yes	No
Applicable DWG							

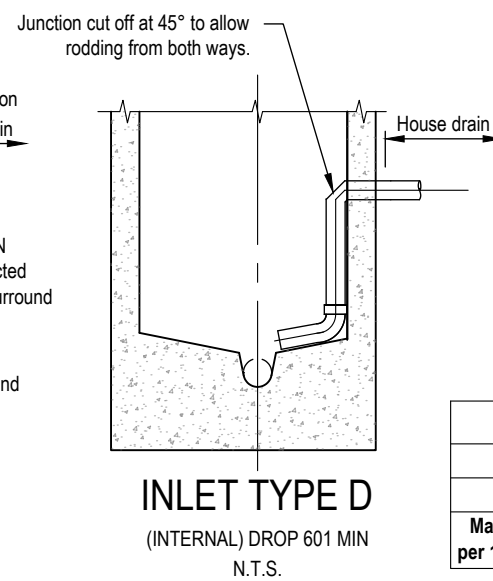
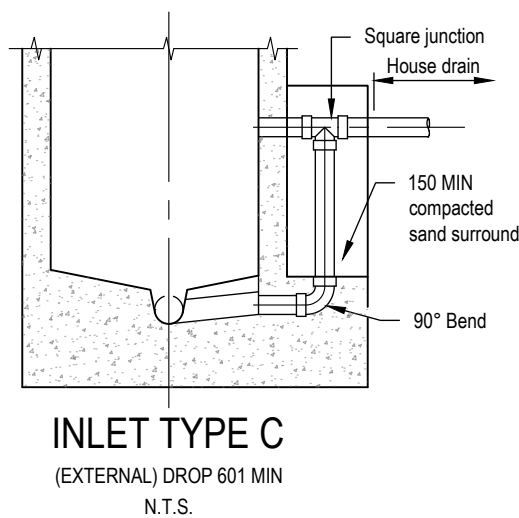
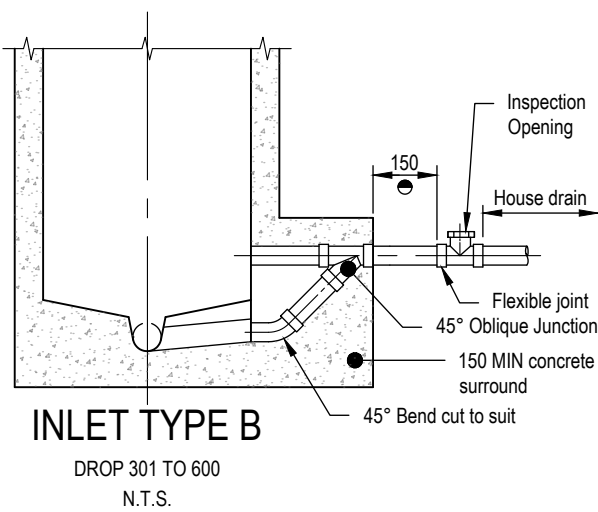
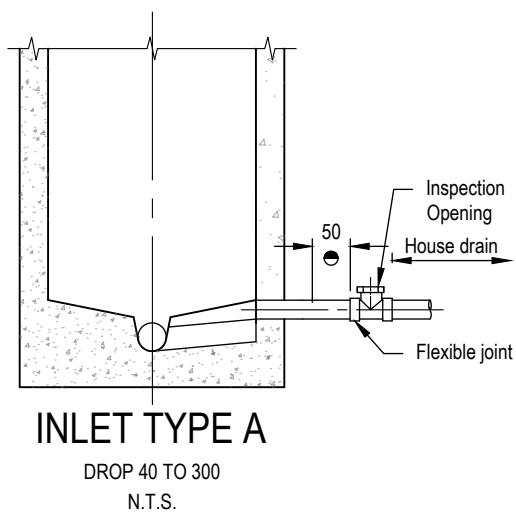


## NOTES

1. Jump ups to be left 300mm below surface at time of subdivision with star picket marker.
2. Raising of jump ups to be carried out at time of connection.
3. Concrete (excluding access chambers) N20 in accordance with AS1379 & AS3600.
4. Pipe materials and fittings shall have a 'Standards Mark' under the National Plumbing Certification Scheme.
5. Where rigid pipes are used in sewers a 500 long pipe shall be located on each side of the house connection branch.
6. All dimensions in millimetres.

☆ The maximum depth to the inspection pipe may be varied only if there is insufficient cover to serve the block

● Length of short pipe shall be 400mm.



APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Maximum internal drops per 1050Ø access chamber	2	1	1	1	2	1	2

REVISIONS	DATE
H VERTICAL CONNECTION ADDED, TYPE 2 DETAIL REMOVED	08/2022
G IRC ADDED	11/2016
F AMEND GRC PPE DEVELOPMENT TYPE DETAIL	03/2015
E GRC AND LSC ADDED	09/2014
D INSPECTION OPENING ADDED CHRC APPLICABILITY AMENDED	04/2013
C INLET TYPE NAMES, INLET TYPE A DROP AMENDED	02/2013

DISCLAIMER.  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

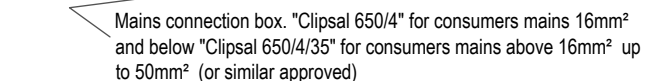
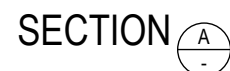
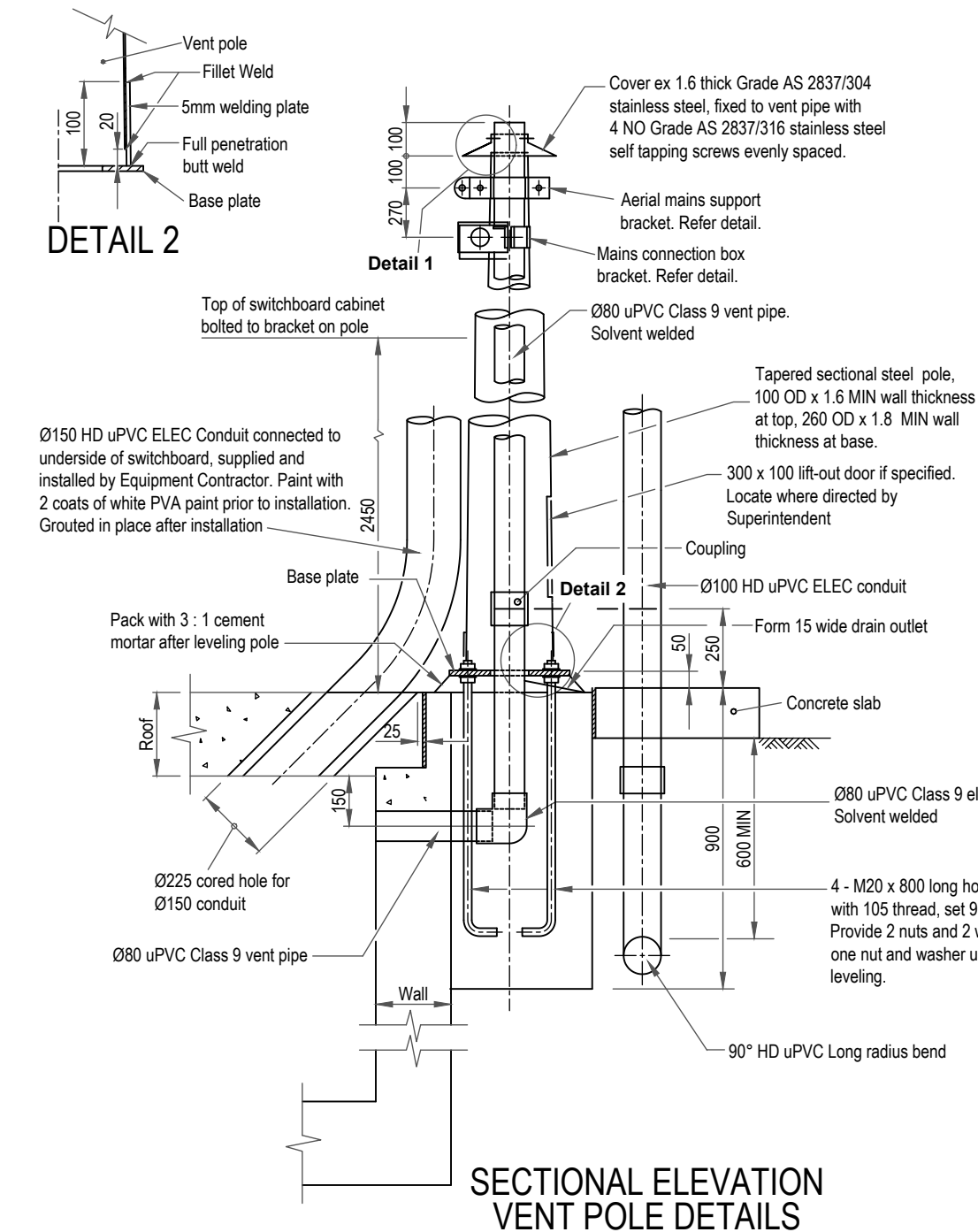
## Capricorn Municipal Development Guidelines

Incorporating:  
Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Livingstone Shire Council (LSC)

Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

## HOUSE CONNECTION BRANCHES

SEWER	
STANDARD DRAWING	A3
CMDG-S-030	
REV.	C D E F G H



## ELEVATION MAINS CONNECTION BOX BRACKET

1. Concrete S32 in accordance with AS 1379 and AS 3600.
2. Wind loads have been calculated for Terrain Category 2 and 3 in accordance with AS1170.2. Mt = 1. Region B.
3. Unless noted otherwise, steelwork shall be hot dip galvanized after fabrication to AS/NZS 4680.
4. All bolts, nuts and washers shall be Grade AS 2837.316 stainless steel.
5. Anti-galling lubricant "Loctite 222 or 567" or similar approved shall be used on all threads and between all stainless steel abutting surfaces.
6. Reinforcement identification is in accordance with Section 3 of AS 1100.501.
7. Reinforcing bars to AS/NZS 4671. Reinforcement cover 50mm MIN.
8. All electrical conduits to AS 2053.
9. All dimensions in millimetres.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE
A	PREVIOUSLY DRAWING S-051 REVISION E	09/2022

**DISCLAIMER.**

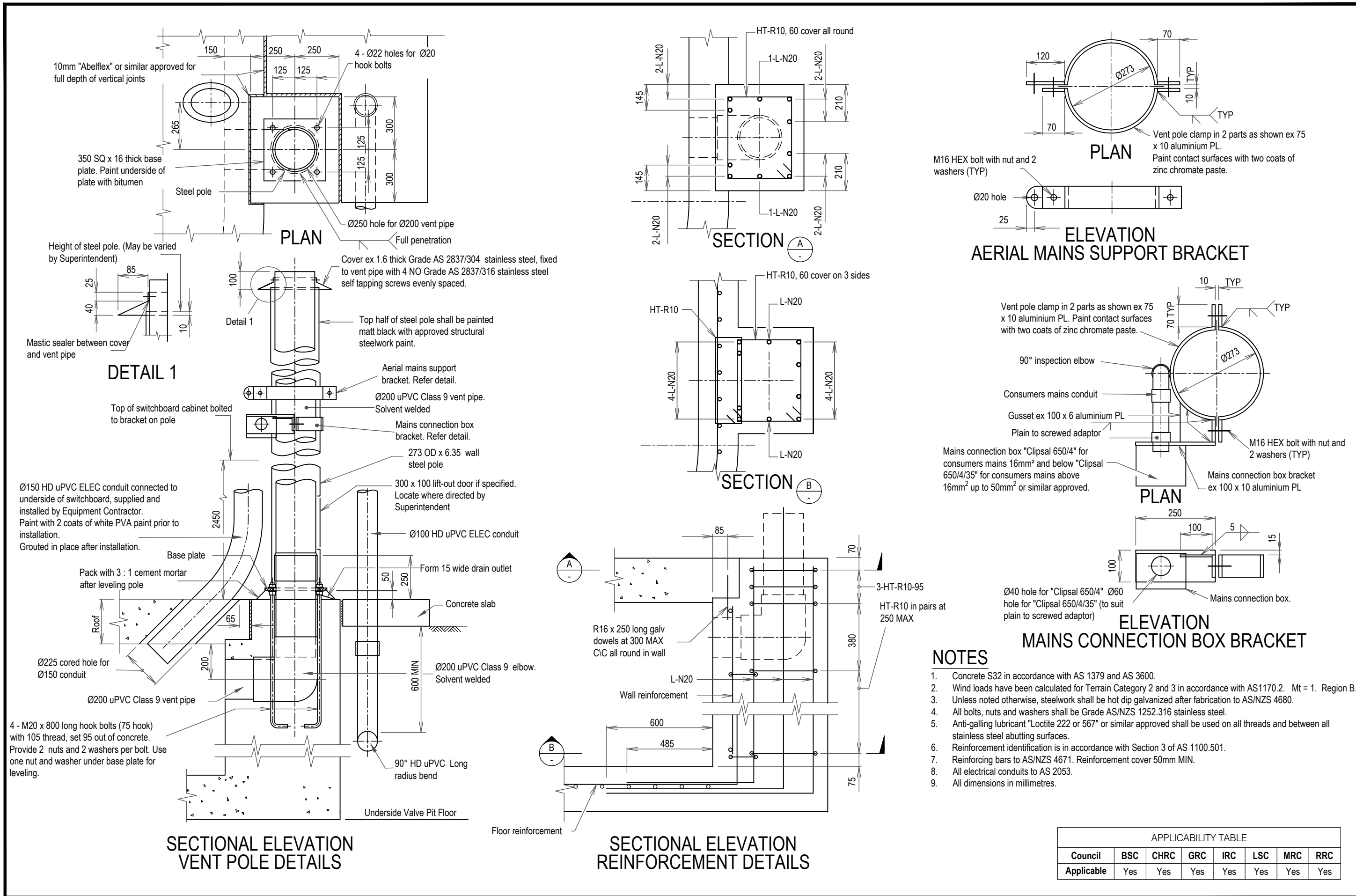
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

# Capricorn Municipal Development Guidelines

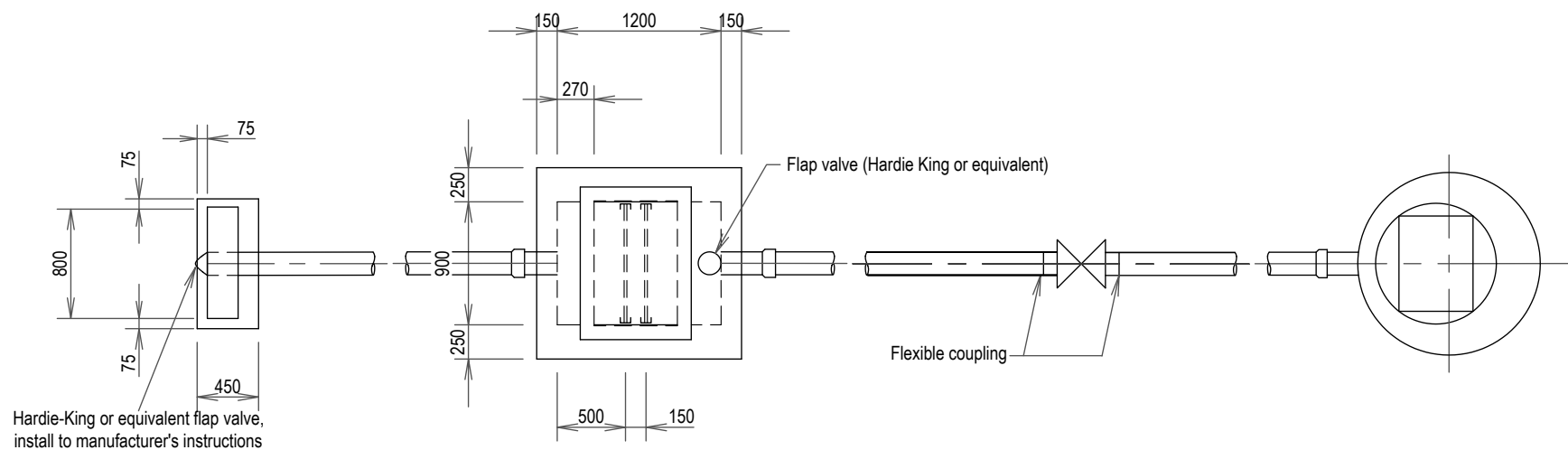
Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Livingstone Shire Council (LSC)

SUBMERSIBLE SEWERAGE  
PUMPING STATION  
6.0m VENT POLE  
TERRAIN CAT. 2 & 3

SEWER						
STANDARD DRAWING					A3	
CMDG-S-035						
REV.	A					



REVISIONS		DATE	DISCLAIMER.		Capricorn Municipal Development Guidelines		SUBMERSIBLE SEWERAGE PUMPING STATION		SEWER	
			The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.		Incorporating:		12.0m VENT POLE		STANDARD DRAWING	
					Banana Shire Council (BSC)		TERRAIN CAT. 2 & 3		A3	
					Central Highlands Regional Council (CHRC)				CMDG-S-036	
					Gladstone Regional Council (GRC)				REV. A	
A		PREVIOUSLY DRAWING S-052 REVISION E	09/2022		Livingstone Shire Council (LSC)					

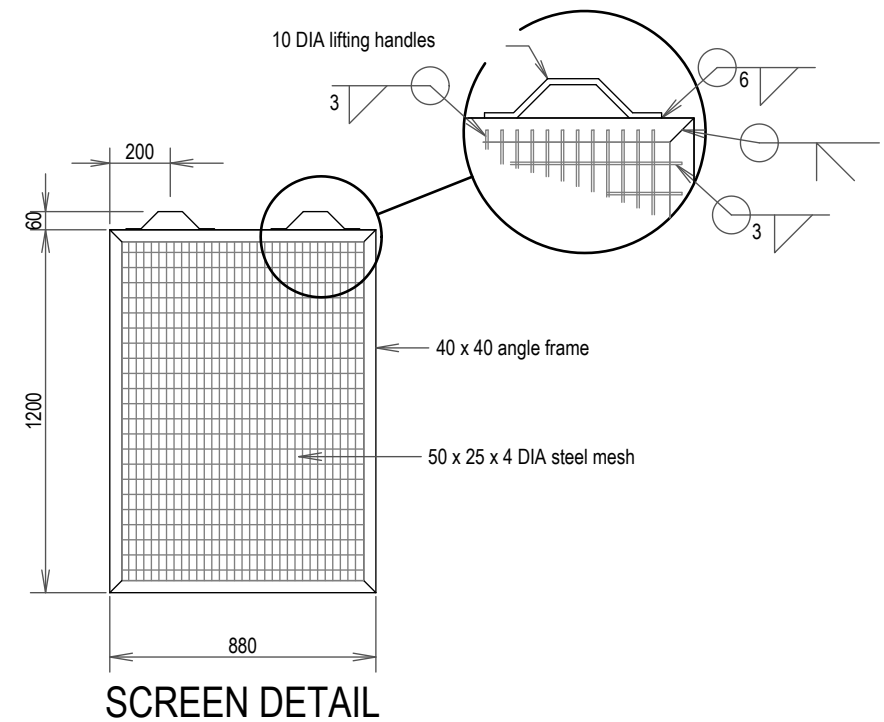


OUTLET

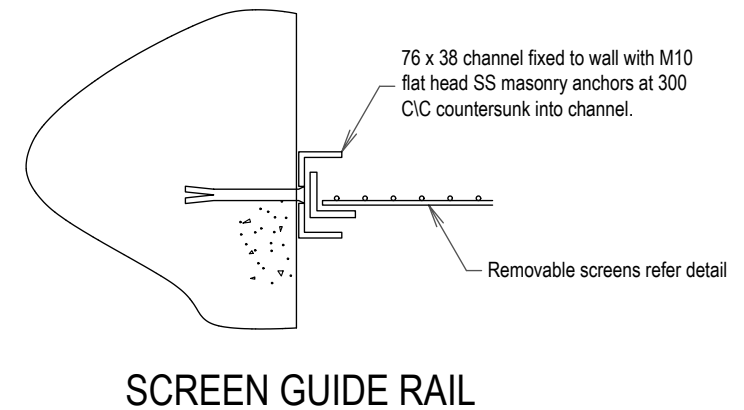
OVERFLOW CHAMBER  
PLAN

VALVE

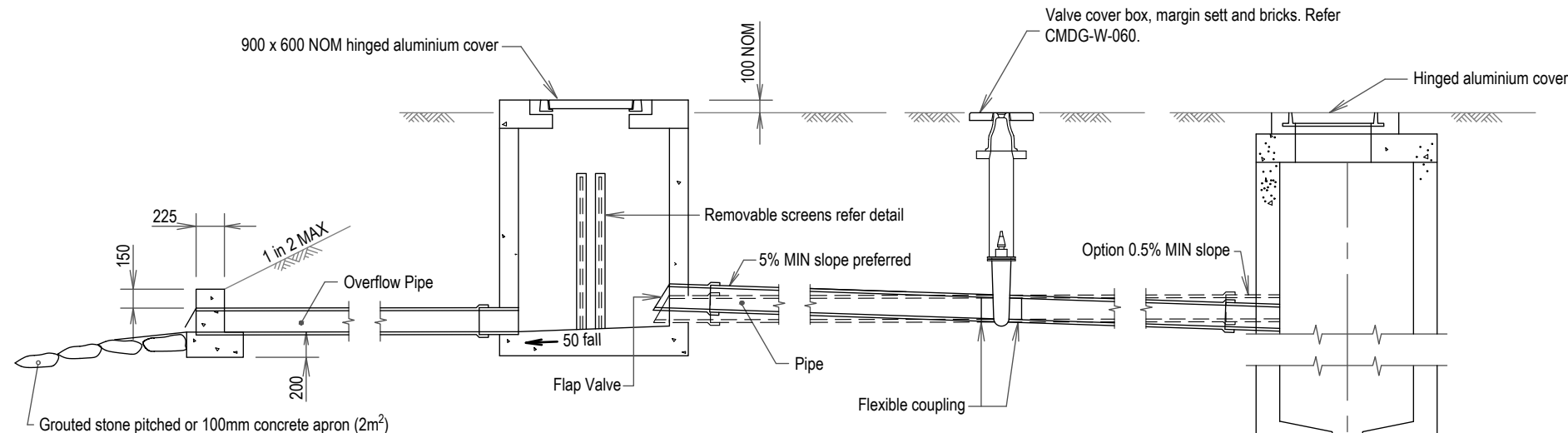
RECEIVING ACCESS CHAMBER



SCREEN DETAIL



SCREEN GUIDE RAIL



OUTLET

OVERFLOW CHAMBER

VALVE

RECIEVING ACCESS CHAMBER

## NOTES:

1. Pipes shown are diagrammatic only, refer project drawings for layout and levels.
2. Concrete N32 in accordance with AS 1379 and AS 3600.
3. All steelwork hot dip galvanized to AS/NZS 4680 after fabrication.
4. All bars and angles Grade 250 to AS 3679.
5. All bolts, nuts and washers shall be Grade AS/NZS 1252.316 stainless steel with approved anti-galling compound.
6. All welds to AS 1554. All welding symbols comply with AS 1101.3.
7. The covers shall be gas tight similar to those produced by Halco Engineering. All components of access covers and frames shall be fabricated from aluminium alloy 6061-T6, to AS 2848. All embedded surfaces shall be painted with two coats of alkali resistant bituminous paint. The covers shall be designed as a platform in accordance with AS 1657. Fabrication details shall be submitted to the Superintendent for approval prior to manufacture.
8. If covers are subject to vehicular loading, use appropriately rated C.I. covers.
9. All dimensions in millimetres.

SECTIONAL ELEVATION

RECIEVING ACCESS CHAMBER

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE	DISCLAIMER.				SEWER	
			The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.				STANDARD DRAWING	A3
A		PREVIOUSLY DRAWING S-058 REVISION F	09/2022				CMDG-S-037	
							REV.	A

## Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC) Maranoa Regional Council (MRC)  
 Central Highlands Regional Council (CHRC) Rockhampton Regional Council (RRC)  
 Gladstone Regional Council (GRC) Isaac Regional Council (IRC)  
 Livingstone Shire Council (LSC)

## PUMP STATION OVERFLOW

SEWERAGE PUMP STATIONS  
STANDARD DRAWING INDEX

DRAWING NUMBER	DRAWING TITLE	REVISION
CMDG-S-040	STANDARD DRAWING INDEX	C
CMDG-S-041	NOTES AND CONSTRUCTION AUTHORISATION	C
CMDG-S-042	PUMP AND SYSTEM CURVES	C
CMDG-S-043	SITE LAYOUT REQUIREMENTS	C
CMDG-S-044	HYDRAULIC DESIGN DETAIL	C
CMDG-S-045	PUMPWELL FLOOR AND ROOF DETAILS	C
CMDG-S-046	OVERFLOW ARRANGEMENT	C
CMDG-S-047	EMERGENCY STORAGE TANK	C
CMDG-S-048	EMERGENCY STORAGE SCHEMATIC	C
CMDG-S-049	FLOW METER AND PIGGING PITS	C
CMDG-S-050	ELECTRICAL SERVICES LAYOUT 4-22kW	C
CMDG-S-051	ELECTRICAL SERVICES LAYOUT 30-105kW	C
CMDG-S-052	RAIN GAUGE POST	C
CMDG-S-053	BACK FLOW PREVENTION	C
CMDG-S-054	ODOUR FILTER, BOLLARDS, ROADS AND LANDSCAPING	C
CMDG-S-055	LABELS	C
CMDG-S-056	FENCE AND GATE DETAILS	C
CMDG-S-057	SCOUR AND AIR VALVE DETAILS	C
CMDG-S-058	PIPING AND INSTRUMENTATION DIAGRAM	C

EQUIPMENT FUNCTION	PREFERRED COMPONENT
0-22kW PUMPS	KSB, FLYGT(XYLEM), GRUNDFOS, OR EQUIVALENT
30-105kW PUMPS	KSB, FLYGT(XYLEM), GRUNDFOS, OR EQUIVALENT
FLOW METERS	ABB WATERMASTER OR 24V DC
VENTILATION	MCBERNS OR EQUIVALENT
KNIFE VALVES	FULL STAINLESS STEEL CONSTRUCTION TYCO OR EQUIVALENT
SLUICE VALVES	RESILIENT SEAT O-RING SEALED TYCO OR EQUIVALENT
REFLUX VALVES	BALL CHECK FBE COATED CI SINKING EPDM BALL JOHN VALVES OR EQUIVALENT

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS		DATE	<div>DISCLAIMER.</div> <div>The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.</div>	Capricorn Municipal Development Guidelines				SEWERAGE PUMP STATIONS STANDARD DRAWING INDEX				SEWER	
				<div>Incorporating:</div> <div><div>Banana Shire Council (BSC)</div><div>Central Highlands Regional Council (CHRC)</div><div>Gladstone Regional Council (GRC)</div><div>Livingstone Shire Council (LSC)</div></div> <div><div>Maranoa Regional Council (MRC)</div><div>Rockhampton Regional Council (RRC)</div><div>Isaac Regional Council (IRC)</div></div>								STANDARD DRAWING	A3
								CMDG-S-040					
								REV.	A				
A	PREVIOUSLY DRAWING S-050A REVISION B	09/2022											



INFORMATION ON THIS DRAWING SHALL APPLY UNLESS NOTED OTHERWISE ON THE DRAWINGS OR IN THE SPECIFICATIONS

DESIGN

D1. THE PUMP STATION HAS BEEN DESIGNED IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS INCLUDING THE FOLLOWING:  
AS 1170.0:2002 (+A5:2011) STRUCTURAL DESIGN ACTIONS - GENERAL PRINCIPLES  
AS 1170.1:2002 (+A2:2009) STRUCTURAL DESIGN ACTIONS - PERMANENT, IMPOSED AND OTHER ACTIONS  
AS 1170.2:2011 STRUCTURAL DESIGN ACTIONS - WIND ACTIONS  
AS 1170.4:2007 STRUCTURAL DESIGN ACTIONS - EARTHQUAKE ACTIONS IN AUSTRALIA  
AS 1657:1992 FIXED PLATFORMS, WALKWAYS, STAIRWAYS AND LADDERS - DESIGN, CONSTRUCTION AND INSTALLATION  
AS / NZS 1664:1997 (+A1:1999) SAA ALUMINIUM STRUCTURES CODE  
AS 3600:2009 (+A1:2010) CONCRETE STRUCTURES  
AS 3735:2001 CONCRETE STRUCTURES RETAINING LIQUIDS

GENERAL

G1. NO DIMENSION SHALL BE OBTAINED BY SCALING.  
G2. ALL DIMENSIONS ARE IN MILLIMETRES U.N.O.  
G3. ALL LEVELS ARE IN METRES U.N.O.  
G4. ALL DIMENSIONS ARE TO BE VERIFIED ON SITE BY THE CONTRACTOR BEFORE FABRICATION AND CONSTRUCTION.  
G5. FIGURED DIMENSIONS SHALL BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.  
G6. REFER ALL DISCREPANCIES TO THE WSM BEFORE PROCEEDING WITH THE WORKS.  
G7. VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.  
G8. ALL DRAWINGS MUST BE APPROVED BY GRC BEFORE COMMENCING WORK.  
G9. DRAWINGS TO BE READ IN CONJUNCTION WITH SPECIFICATIONS.  
G10. THE APPLICANT SHALL BE RESPONSIBLE FOR PROTECTING STRUCTURES AGAINST FLOTATION DURING CONSTRUCTION.  
G11. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS, THE REQUIREMENTS OF RELEVANT SAA CODES, BCA AND THE LOCAL LAWS AND ORDINANCES OF THE RELEVANT GOVERNMENT AUTHORITY.  
G12. NO PENETRATIONS, CHASES OR TEMPORARY FIXTURES ARE PERMITTED WITHOUT PRIOR APPROVAL FROM THE WSM. ALL DRAWINGS SHALL BE CHECKED AGAINST ARCHITECTURAL AND SERVICES DRAWINGS FOR PENETRATIONS, CONDUITS AND PIPES ETC.  
G13. PUMPS MUST BE ABLE TO BE REMOVED FROM, AND REINSTALLED INTO THE WET WELL, WITHOUT DISMANTLING ANY EQUIPMENT, PIPEWORK, BRACKETS OR COVERS.

PIPEWORK

P1. WHERE CONNECTING TO EXISTING PIPEWORK, THE LEVEL AND DIAMETER OF THE EXISTING PIPEWORK, SHALL BE CONFIRMED BY THE CONTRACTOR, PRIOR TO THE CONNECTION.  
P2. ALL FLANGES SHALL BE IN ACCORDANCE WITH AS 4087.  
P3. ALL FLANGE BOLT HOLE ORIENTATIONS SHALL BE OFF-CENTRE U.N.O.  
P4. ALL FLANGE BOLT SETS SHALL BE GRADE 316 S/STEEL.  
P5. FLANGE GASKET MATERIAL AND THICKNESS SHALL BE IN ACCORDANCE WITH AS 4087.  
P6. THRUST AND PUDDLE FLANGES SHALL BE CAST CENTRALLY WITHIN WALLS UNLESS SHOWN OTHERWISE.  
P7. ALL FLANGED, SPIGOT AND SOCKET DICL PIPEWORK SHALL BE CLASS PN35.  
P8. ALL GATE AND REFLUX VALVES SHALL BE INTERNALLY AND EXTERNALLY COATED WITH A POLYMERIC COATING.  
P9. ALL GATE VALVES SHALL BE RESILIENT SEATED AND O-RING SEALED.

ELECTRICAL

E1. THE LOCATION OF ALL CONDUITS SHALL BE CONFIRMED BY THE WATER SERVICE PROVIDER PRIOR TO CONSTRUCTION OF THE SWITCHBOARD SLAB.  
E2. REFERENCE SHALL BE MADE TO CMDG ELECTRICAL ENGINEERING STANDARDS.  
E3. FOR ELECTRICAL WORKS STANDARDS REFER GRC-ES001: ELECTRICAL WORK.  
E4. FOR PREFERRED ELECTRICAL COMPONENTS REFER GRC-ES002: PREFERRED ELECTRICAL COMPONENTS.  
E5. FOR PRE-FABRICATED SWITCHROOM STANDARDS REFER GRC-ES003.  
E6. FOR STANDARD LIGHT POWER DB REFER GRC-ES005.  
E7. FOR STANDARD ELECTRICAL & VALVE EQUIPMENT LABELS REFER GRC-ES008: ELECTRICAL AND VALVE EQUIPMENT IDENTIFICATION LABELS.  
E8. FOR PLAIN REINFORCED PRESTRESSED CONCRETE STANDARDS GRC-ES011: PLAIN, REINFORCED AND PRE-STRESSED CONCRETE (JWP-88-001).  
E9. FOR FABRICATED METALWORKS STANDARDS REFER GRC-ES013: FABRICATED METALWORK (JWP-88-002).  
E10. FOR STANDARD CONSTRUCTION REQUIREMENTS FOR SEWER PUMP STATIONS REFER GRC-ES016: STANDARD CONSTRUCTION REQUIREMENTS SEWER PUMP STATIONS.

ABBREVIATIONS

A1. ABBREVIATIONS SHALL BE IN ACCORDANCE WITH STANDARDS AUSTRALIA PUBLICATION "SYMBOLS AND ABBREVIATIONS FOR BUILDING AND CONSTRUCTION" EXCEPT AS FOLLOWS:-

ECDP	ELECTRICAL CONDUIT DRAW PIT
FL	FLANGE
FSL	FINISHED SURFACE LEVEL
GJ	GIBAULT JOINT
RRJ	RUBBER RING JOINT
SP	SPIGOT
SC	SOCKET
S/STEEL	STAINLESS STEEL
STD DRG	STANDARD DRAWING
TWL	TOP WATER LEVEL
BWL	BOTTOM WATER LEVEL
UNO	UNLESS NOTED OTHERWISE
PWWF	PEAK WET WEATHER FLOW
PDWF	PEAK DRY WEATHER FLOW
ADWF	AVERAGE DRY WEATHER FLOW
MDWF	MINIMUM DRY WEATHER FLOW

AUTHORISED FOR CONSTRUCTION

ALL boxes MUST be signed prior to Construction

AUTHORISED BY APPLICANT

We certify that all the information provided on this drawing will ensure that the pump station is fully suited for its intended use and that it complies with all Council specifications and/or requirements.

Applicant / Applicants Authorised Officer Date:\_\_\_\_\_

AUTHORISED BY DESIGN ENGINEER

We certify that all the information provided on this drawing will ensure that the pump station is fully suited for its intended use and that it complies with all Council specifications and/or requirements.

Design Engineer / Design Engineers Authorised Officer RPEQ: \_\_\_\_\_ Date:\_\_\_\_\_

AUTHORISED BY OWNER

We certify that all the information provided on this drawing will ensure that the pump station is fully suited for its intended use and that it complies with all Council specifications and/or requirements.

Owner / Owners Authorised Officer Date:\_\_\_\_\_

AUTHORISED BY LOCAL GOVERNMENT AUTHORITY

You are advised that Council have NOT undertaken a detailed dimensional or design check and that this review in no way relieves your company of the responsibility for ensuring that all variable dimensions, levels, equipment and workmanship is in compliance with the relevant codes and specifications and for ensuring that the pump station design and equipment is fully suited for its intended use.

Water Services Manager OR Delegate Date:\_\_\_\_\_

AUTHORISED BY LOCAL GOVERNMENT AUTHORITY

You are advised that Council have NOT undertaken a detailed dimensional or design check and that this review in no way relieves your company of the responsibility for ensuring that all variable dimensions, levels, equipment and workmanship is in compliance with the relevant codes and specifications and for ensuring that the pump station design and equipment is fully suited for its intended use.

Technical Services Manager OR Delegate Date:\_\_\_\_\_

AUTHORISED BY LOCAL GOVERNMENT AUTHORITY

You are advised that Council have NOT undertaken a detailed dimensional or design check and that this review in no way relieves your company of the responsibility for ensuring that all variable dimensions, levels, equipment and workmanship is in compliance with the relevant codes and specifications and for ensuring that the pump station design and equipment is fully suited for its intended use.

Director of Engineering Services OR Delegate Date:\_\_\_\_\_

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Livingstone Shire Council (LSC)

Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

SEWERAGE PUMP STATIONS  
NOTES AND CONSTRUCTION  
AUTHORISATION

SEWER

STANDARD  
DRAWING A3

CMDG-S-041

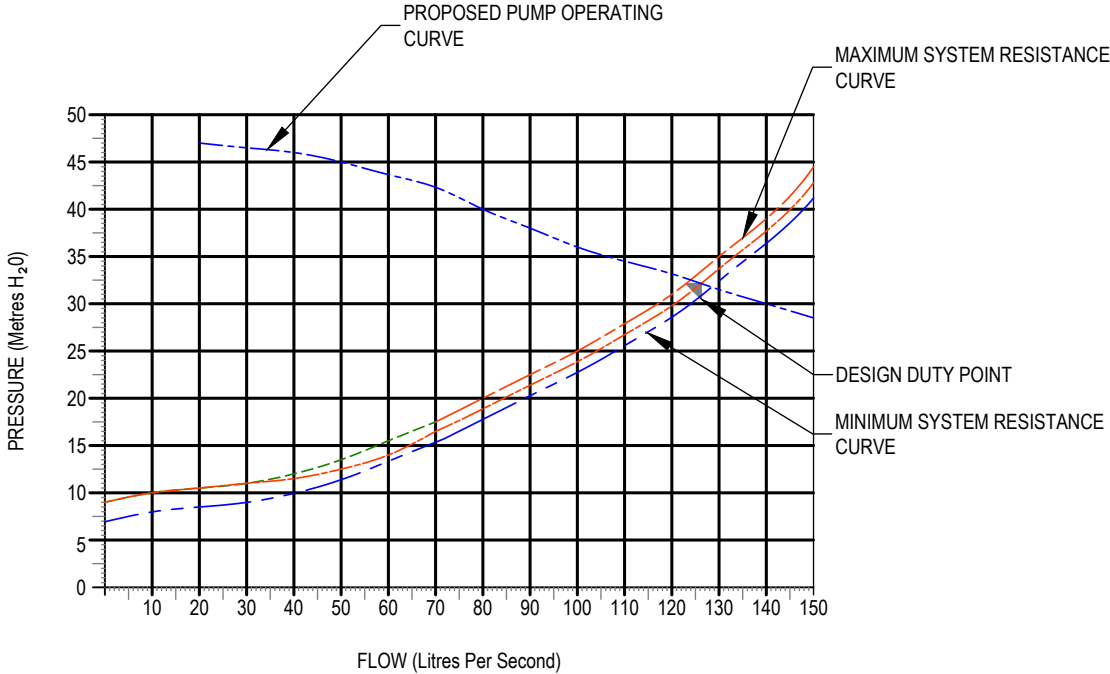
REV. A

DISCLAIMER.

The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

NOTES:

1. FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
2. VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
3. ALL SHOP DRAWINGS MUST BE APPROVED BY COUNCIL BEFORE COMMENCING WORK.
4. DRAWINGS TO BE READ IN CONJUNCTION WITH RELEVANT SPECIFICATIONS.
5. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.
6. THE CURVES SHOWN ON THIS DRAWING ARE GIVEN AS A SAMPLE ONLY AND SHOW A STATION WITH ONE DUTY PUMP OPERATING AND AT A SINGLE SPEED.
7. FOR STATIONS WITH MORE THAN ONE DUTY PUMP ADDITIONAL CURVES ARE REQUIRED FOR EACH ADDITIONAL PUMP RUNNING.
8. FOR INSTALLATIONS WITH VARIABLE SPEED DRIVES PUMP CURVES ARE REQUIRED FOR PUMP SPEED AT 5Hz INCREMENTS FROM 25Hz TO 50 Hz
9. THE PROJECT DRAWING MUST CONTAIN CURVES WHICH REFLECT THE PUMPS INSTALLED.
10. THE TABLES SHOWN ON THIS DRAWING MUST BE POPULATED AND INCLUDED IN THE PROJECT DRAWINGS.
11. PUMP DUTY POINT TO BE BASED ON THE GRC DESIGN GUIDELINES AND WSA 04-2005
12. PUMP TO BE CAPABLE OF ACHIEVING DUTY POINTS OVER THE RANGE BETWEEN THE MAXIMUM AND MINIMUM CURVES.



RISING MAIN DETAILS	
PIPE NOMINAL DIAMETER	
PIPE MATERIAL	
PIPE MANUFACTURER	
PIPE INTERNAL DIAMETER	mm
PIPE OUTSIDE DIAMETER	mm
PIPE PN RATING	
VELOCITY AT 50 Hz FROM TWL	
VELOCITY AT MINIMUM Hz FROM BWL	
RISING MAIN VOLUME	m <sup>3</sup>

FLOW DETAILS				
FLOW RATES	FLOW RATE INTO PUMPING STATION (L/s)	VELOCITY IN RISING MAIN (m/s)	NUMBER OF PUMP STARTS PER HOUR	RISING MAIN RETENTION TIME (mins.)
PWWF				
PDWF				
ADWF				
MDWF				

PUMP DETAILS			
NUMBER OF DUTY PUMPS			
NUMBER OF STANDBY PUMPS			
TOTAL NUMBER OF PUMPS			
	PUMP 1	PUMP 2	
PUMP MANUFACTURER			
PUMP MODEL			
PUMP TYPE			
- SUBMERSIBLE			
- GRINDER			
- DRY			
PUMP IMPELLER DIAMETER			
PUMP MANUFACTURER CURVE No.			
OPERATING POINT (1 PUMP)	L/s @	m	L/s @ m
OPERATING POINT (2 PUMPS)	L/s @	m	L/s @ m
SHUT OFF HEAD	m		m
COOLING JACKET	Yes/No		Yes/No
NPSHr	m		m
DISCHARGE DIAMETER 'X'	ϕ 'X'	mm	ϕ 'X' mm
DISCHARGE STYLE (OFFSET OR CENTRE)			
GUIDE RAIL SIZE	mm		mm
SHAPE OF GUIDE RAILS			
NUMBER OF GUIDE RAILS PER PUMP			
PUMP MASS	kg each		kg each
MOTOR MANUFACTURER			
MOTOR kW RATING	kW @	PF	kW @ PF
MOTOR VOLTAGE	V	Phase	V Phase
MOTOR SPEED AT 50 Hz			
MOTOR START TYPE			
NUMBER OF POLES			
FULL LOAD CURRENT	Amps		Amps
THERMAL OL or CEF or CET			
CB TYPE & RATING	Amps		Amps
NUMBER OF CORES PER PHASE			
THERMISTOR CABLE INCLUDED	Yes/No		Yes/No
MOTOR CABLE LENGTH	Metres		Metres
SYSTEM H-Q CURVE SHOWN	Yes/No		Yes/No
PUMP H-Q CURVE SHOWN	Yes/No		Yes/No

SWITCHBOARD DETAILS	
RATING	Amps
ELECTRICAL MAINS SIZE	mm <sup>2</sup>

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS		DATE	<div>DISCLAIMER.</div> <div>The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.</div>	<div>Capricorn Municipal Development Guidelines</div> <div>Incorporating:</div> <div>Banana Shire Council (BSC) Central Highlands Regional Council (CHRC) Gladstone Regional Council (GRC) Livingstone Shire Council (LSC)</div> <div>Maranoa Regional Council (MRC) Rockhampton Regional Council (RRC) Isaac Regional Council (IRC)</div>	<div>SEWERAGE PUMP STATIONS</div> <div>PUMP AND SYSTEM CURVES</div>	SEWER	
						STANDARD DRAWING	
						A3	
						CMDG-S-042	
						REV. A	
A	PREVIOUSLY DRAWING S-050B REVISION B	09/2022					



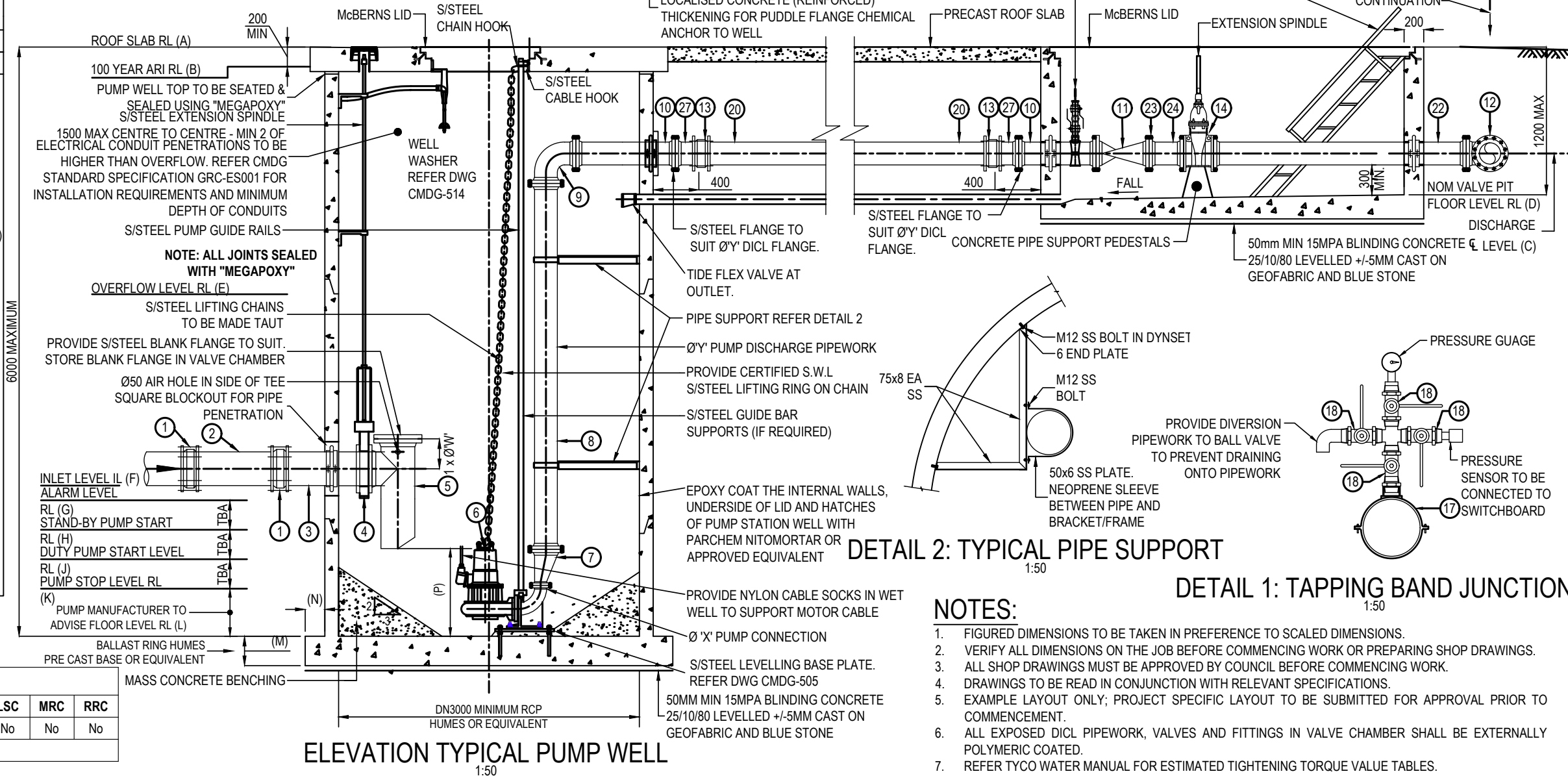
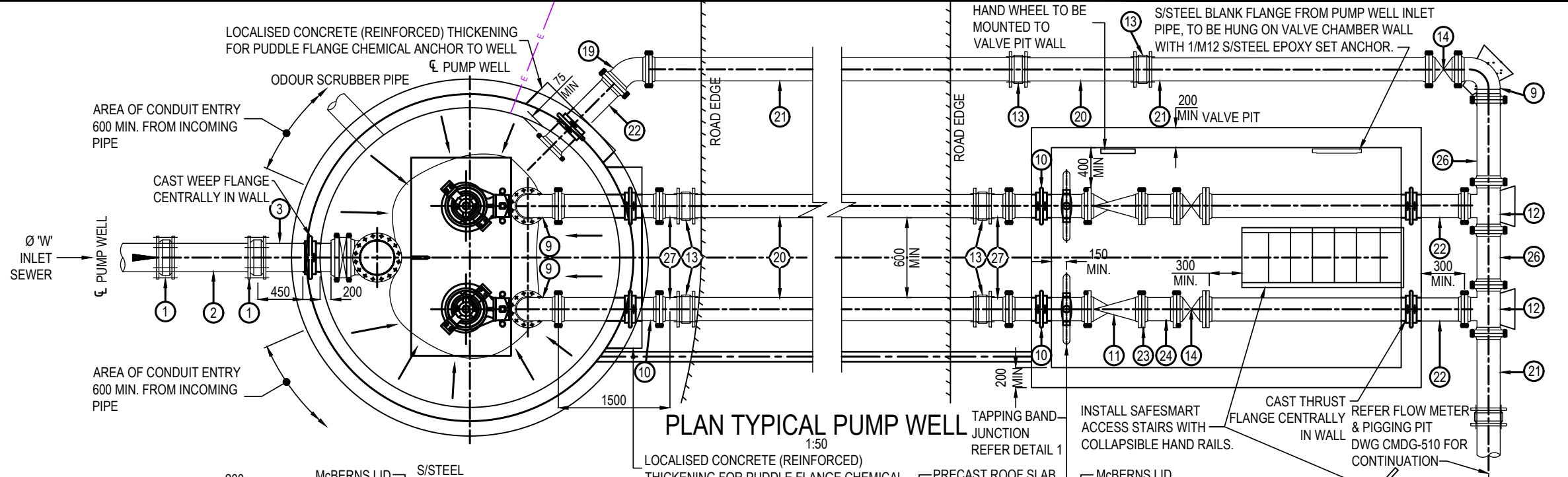


Station Number	_____
Location	_____
	_____
Pump Station Roof Slab	RL (A) _____
100 year ARI	RL (B) _____
Discharge C Level	RL (C) _____
Valve Pit Floor Level	RL (D) _____
Overflow Level	RL (E) _____
Inlet Level (Pipe Invert)	IL (F) _____
Alarm Level	RL (G) _____
Standby Pump Start	RL (H) _____
Duty Pump Start Level (TWL)	RL (J) _____
Pump Stop Level (BWL)	RL (K) _____
Floor Level	RL (L) _____
Ballast Ring	RL (M) _____
Dimension	'N' _____
Dimension	'P' _____
Inlet Sewer	Ø"W' _____
Pump Discharge Pipework	Ø"Y' _____
Sewer Pressure Main	Ø"Z' _____
Pump Connection	Ø"X' _____
Design Inflow Rate (ADWF)	_____
Estimated System Storage between Standby Pump Start	_____
Volume	_____
Time	_____

ITEM	DESCRIPTION
------	-------------

1	Ø"W Gibault Joint
2	Ø"W SP-SP S/Steel Pipe
3	Ø"W FL-SP S/Steel Tailpipe With Puddle Flange
4	Ø"W Lugged S/Steel Bi-directional Knife Gate Valve Complete with Support Bracket to Wall of Pump Station
5	Ø"W x Ø"W MDPE SP-FLxFL Fabricated Tee Complete With S/Steel Backing Rings
6	Submersible Wastewater Pump
7	Ø"X x Ø"Y FL-FL S/Steel Offset Taper (if required)
8	Ø"Y FL-FL S/Steel Pipe
9	Ø"Y x 90° FL-FL S/Steel Bend
10	Ø"Y FL-SP S/Steel Pipe With Puddle Flange and Adaptor Flange within Valve Chamber
11	Ø"Y REFLUX Valve, Ball Type NRV
12	Ø"Y FL-FLxFL DICL Tee
13	Ø"Y Gibault Joint
14	Ø"Y FL GATE Valve
15	Ø"Y FL-FL DICL Electro Magnetic Flow Meter
16	Ø"Y FL-FL-FL DICL "Y" Tee
17	Ø"Y Tapping Saddle Ø20 BSP Outlet
18	Ø20 BSP Ball Valve
19	Ø"Y 45° BEND FL-FL
20	Ø"Y SP-SP DICL PIPE
21	Ø"Y FL-SP DICL PIPE
22	Ø"Y FL-FL DICL PIPE With Puddle Flange
23	Ø"Y UNI-FLANGE
24	Ø"Y 350mm LONG FL-FL DICL PIPE (Spool)
25	Ø"Y - 150mm DICL FL-FL TAPER (Con)
26	Ø"Y FL-FL DICL Pipe
27	Ø"Y FL-SP CONNECTOR

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							



## DETAIL 2: TYPICAL PIPE SUPPORT

### DETAIL 1: TAPPING BAND JUNCTION

NOTES:

1. FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
2. VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
3. ALL SHOP DRAWINGS MUST BE APPROVED BY COUNCIL BEFORE COMMENCING WORK.
4. DRAWINGS TO BE READ IN CONJUNCTION WITH RELEVANT SPECIFICATIONS.
5. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.
6. ALL EXPOSED DUCT PIPEWORK, VALVES AND FITTINGS IN VALVE CHAMBER SHALL BE EXTERNALLY POLYMERIC COATED.
7. REFER TYCO WATER MANUAL FOR ESTIMATED TIGHTENING TORQUE VALUE TABLES.

REVISIONS		DATE
A	PREVIOUSLY S-050D REVISION C	09/2022

**DISCLAIMER.**

The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

# Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Livingstone Shire Council (LSC)

Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

## SEWERAGE PUMP STATIONS HYDRAULIC DESIGN DETAILS

SEWER				
STANDARD DRAWING				A3
CMDG-S-044				
REV.	A			

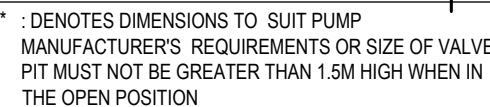
1. FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
2. VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
3. ALL SHOP DRAWINGS MUST BE APPROVED BY COUNCIL BEFORE COMMENCING WORK.
4. DRAWINGS TO BE READ IN CONJUNCTION WITH RELEVANT SPECIFICATIONS.
5. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.
6. SAFETY GRATE TO BE A NON-COATED ALUMINUM SUITABLE FOR HIGH CORROSIVE ENVIRONMENT.
7. STAINLESS STEEL PLATE TO BE INSTALLED ON UNDERSIDE OF PUMP STATION ACCESS LID, INDICATING PUMP 1 AND PUMP 2 AS DETAILED ON CMDG-S-055.



1:50  
25mm 316 STEEL PLATE TO BE SIZED & DESIGNED BASED ON PUMP SELECTION



1:10  
ALL MATERIALS GRADE 316 S/STEEL



ALL ALUMINIUM FLOOR PLATE COVERS  
SHALL BE EXTERNALLY COATED WITH  
'ENVELON - TREDGRIP' OR SIMILAR  
APPROVED WATER BASED, RUBBERISED  
NON-SLIP FINISH COLOUR - YELLOW

## PLAN VIEW - ROOF SLAB

1:50



1:50

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS		DATE
A	PREVIOUSLY DRAWING S-050E REVISION B	09/2022

**DISCLAIMER.**

The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

# Capricorn Municipal Development Guidelines

### Incorporating:

Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Livingstone Shire Council (LSC)

Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

# SEWERAGE PUMP STATIONS HYDRAULIC DESIGN DETAILS

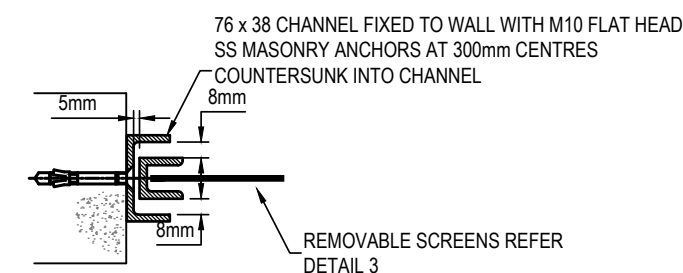
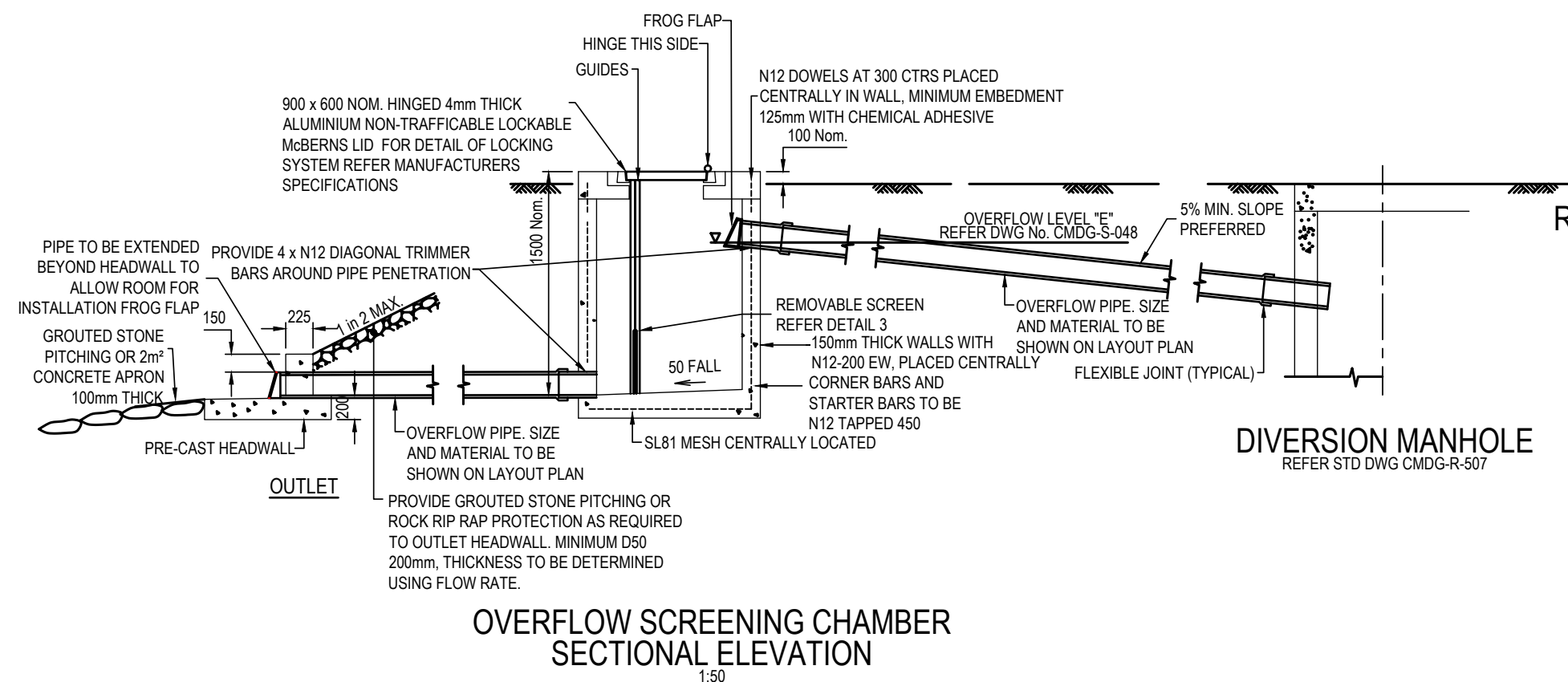
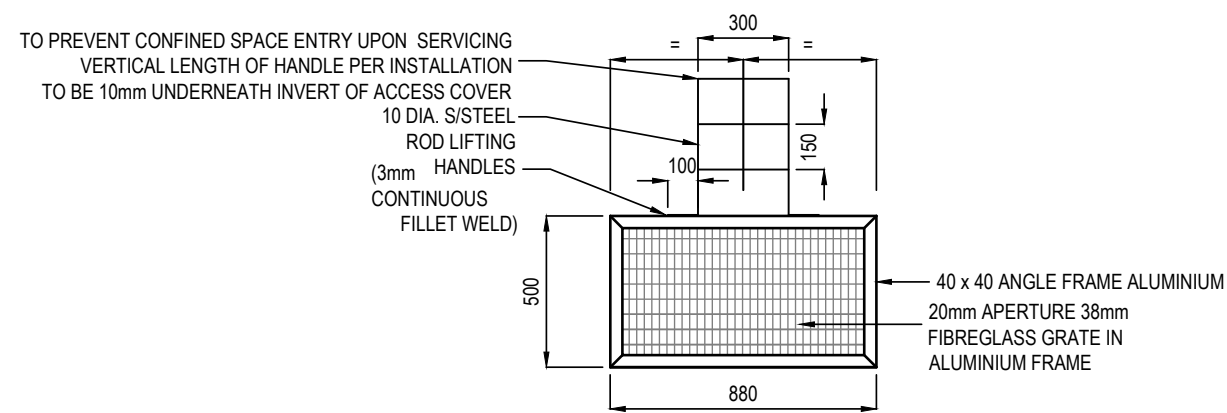
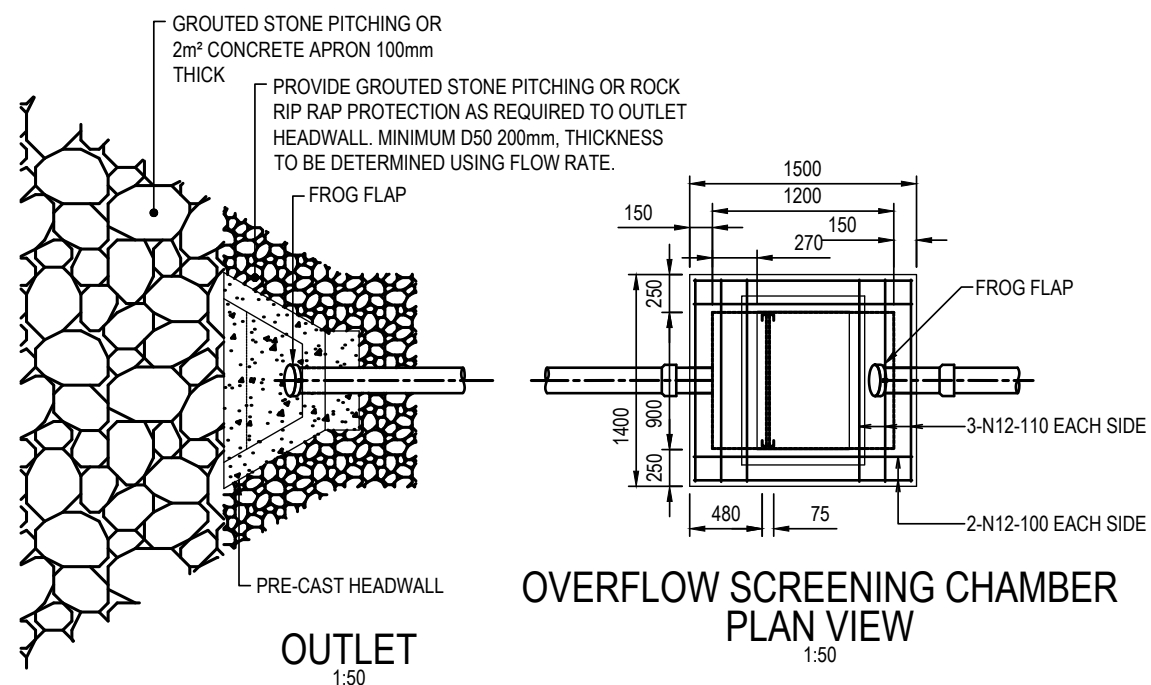
SEWER

STANDARD  
DRAWING

A3

CMDG-S-045

REV. A



- # NOTES:
1. FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
  2. VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
  3. ALL SHOP DRAWINGS MUST BE APPROVED BY COUNCIL BEFORE COMMENCING WORK.
  4. DRAWINGS TO BE READ IN CONJUNCTION WITH RELEVANT SPECIFICATIONS.
  5. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS		DATE
A	PREVIOUSLY DRAWING S-050F REVISION B	09/2022

**DISCLAIMER.**

The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

## Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Livingstone Shire Council (LSC)

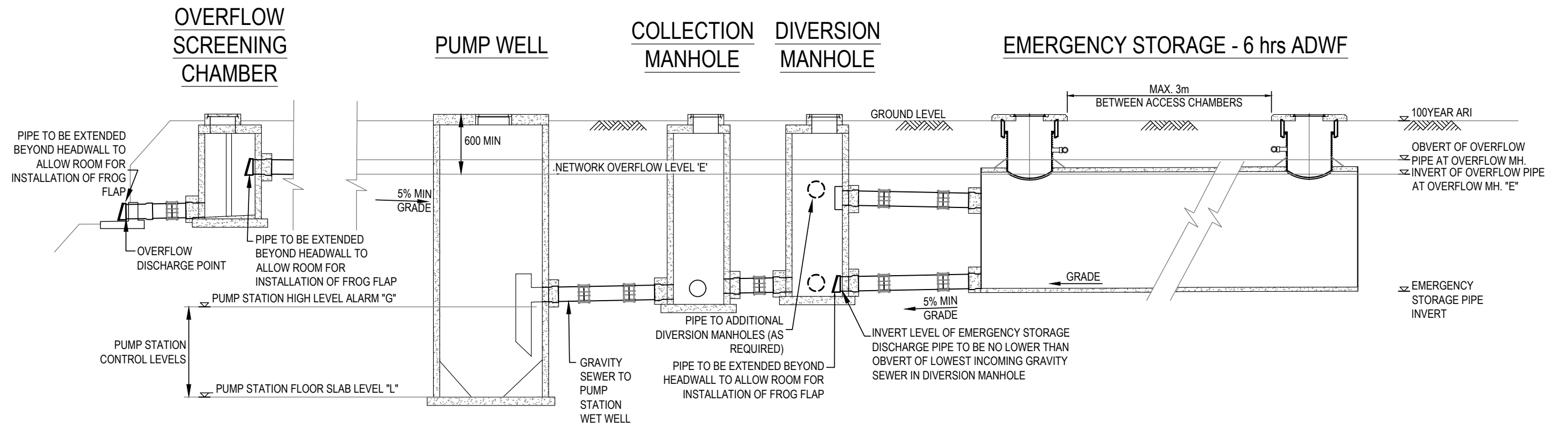
Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

## SEWERAGE PUMP STATIONS OVERFLOW ARRANGEMENT

SEWER			
STANDARD DRAWING		A	
CMDG-S-046			
REV.	A		







SCHEMATIC ELEVATION  
1:100

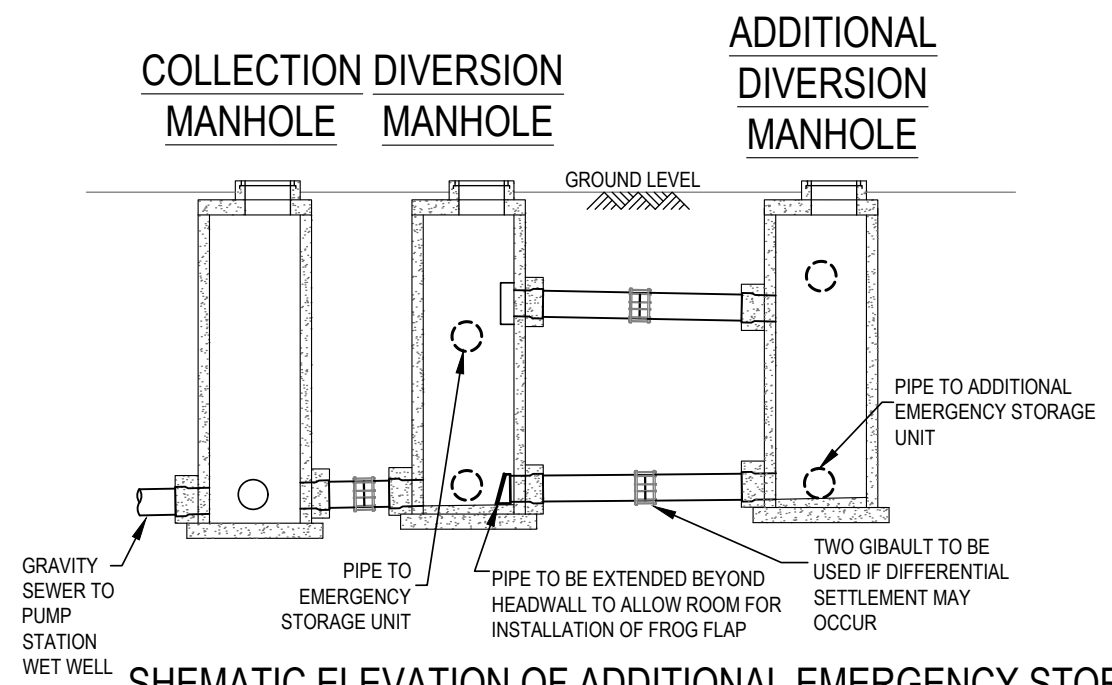
WELL DETAILS

Station Number -----  
Location -----

Pump Station Roof Slab	RL (A)	-----
100 year ARI	RL (B)	-----
Discharge C Level	RL (C)	-----
Valve Pit Floor Level	RL (D)	-----
Overflow Level	RL (E)	-----
Inlet Level (Pipe Invert)	IL (F)	-----
Alarm Level	RL (G)	-----
Standby Pump Start	RL (H)	-----
Duty Pump Start Level (TWL)	RL (J)	-----
Pump Stop Level (BWL)	RL (K)	-----
Floor Level	RL (L)	-----
Ballast Ring	RL (M)	-----
Dimension	'N'	-----
Dimension	'P'	-----
Inlet Sewer	Ø"W"	-----
Pump Discharge Pipework	Ø"Y"	-----
Sewer Pressure Main	Ø"Z"	-----
Design Inflow Rate (ADWF)		-----
Estimated System Storage between Standby Pump Start		-----
Volume		----- kL
Time		----- hr

NOTES:

1. NETWORK OVERFLOW LEVEL 'E' =
  - LOWEST OVERFLOW RELIEF GULLY (ORG) LEVEL IN THE CATCHMENT
  - LESS 300mm SAFETY FACTOR
  - LESS HEAD LOSS BETWEEN ORG AND OVERFLOW POINT
  - LESS OVERFLOW PIPE DIAMETER
2. FOR CONTROL LEVELS WITHIN PUMP STATION REFER STANDARD DRAWING CMDG-S-044
3. VENT PIPE CONNECTIONS TO BE SET MINIMUM 100mm ABOVE OVERFLOW OBVERT LEVEL
4. ALL COVERS TO EMERGENCY STORAGE TANK AND MANHOLES TO BE 150MM ABOVE FINISHED GROUND LEVEL
5. FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
6. VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
7. ALL SHOP DRAWING MUST BE APPROVED BY COUNCIL BEFORE COMMENCING WORK.
8. DRAWINGS TO BE READ IN CONJUNCTION WITH RELEVANT SPECIFICATIONS.
9. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.



SCHEMATIC ELEVATION OF ADDITIONAL EMERGENCY STORAGE UNIT MANHOLE AND PIPEWORK ARRANGEMENT  
1:100

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

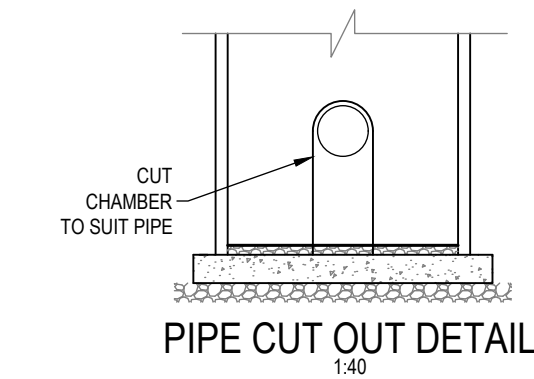
REVISONS	DATE
A	PREVIOUSLY DRAWING S-050H REVISION B
	09/2022

DISCLAIMER.  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

Capricorn Municipal Development Guidelines  
Incorporating:  
Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Livingstone Shire Council (LSC)  
Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

SEWERAGE PUMP STATIONS  
EMERGENCY STORAGE SCHEMATIC

SEWER	
STANDARD DRAWING	A3
CMDG-S-048	
REV.	A



1. FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
2. VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
3. ALL SHOP DRAWINGS MUST BE APPROVED BY COUNCIL BEFORE COMMENCING WORK.
4. DRAWINGS TO BE READ IN CONJUNCTION WITH RELEVANT SPECIFICATIONS.
5. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.
6. VALVE MARGINS AND EXTENSION PIPES TO BE PROVIDED FOR ALL UNDERGROUND SLUICE VALVES.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS		DATE
A	PREVIOUSLY DRAWING S-050I REVISION B	09/2022

**DISCLAIMER.**

The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Livingstone Shire Council (LSC)

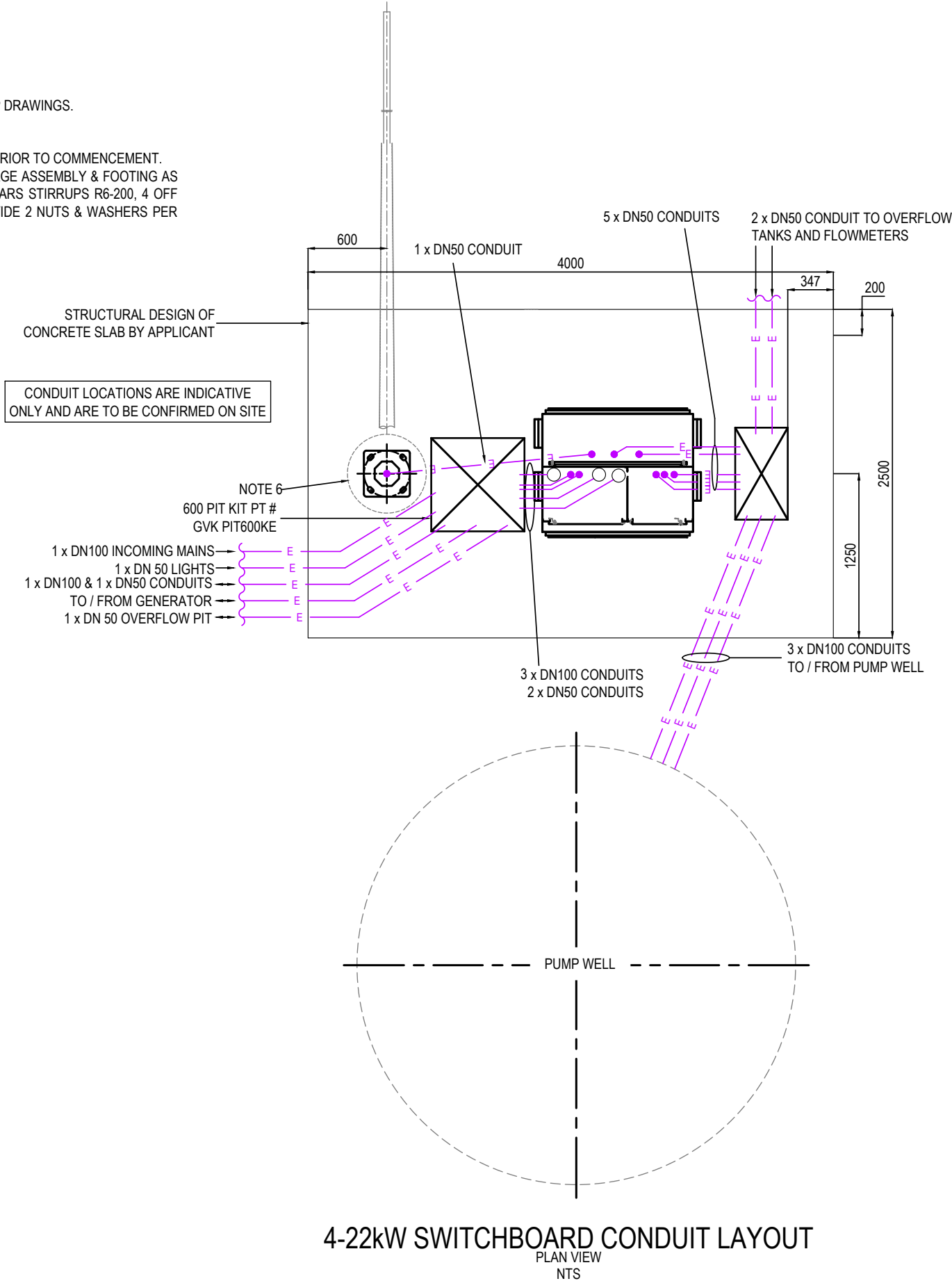
Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

## SEWERAGE PUMP STATIONS FLOW METER AND PIGGING PITS

SEWER					
STANDARD DRAWING					A3
CMDG-S-049					
REV.	A				

NOTES:

1. FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
2. VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
3. ALL SHOP DRAWINGS MUST BE APPROVED BY COUNCIL BEFORE COMMENCING WORK.
4. DRAWINGS TO BE READ IN CONJUNCTION WITH RELEVANT SPECIFICATIONS.
5. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.
6. AUSPOLE 6MTR. HINGED WATERCORP SPEC, REFER TO AUS-1806-11-D0-R0;RAG BOLT CAGE ASSEMBLY & FOOTING AS PER MANUFACTURERS DETAIL/LOCAL SLAB THICKENING 600Ø X 1450D, 8 X N20 MAIN BARS STIRRUPS R6-200, 4 OFF M20 X 800MM LONG HOOK BOLTS 105MM THREAD, SET 95MM ABOVE CONCRETE; PROVIDE 2 NUTS & WASHERS PER BOLT, USE ONE NUT & WASHER UNDER BASE PLATE FOR LEVELLING.
7. ORIENTATION OF SWITCHBOARD MAY BE CHANGED UPON SUBMITTAL.



APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS		DATE
C	PREVIOUSLY DRAWING S-050J REV B, LAYOUT AMENDED	09/2022
B	IRC ADDED	11/2016
A	ORIGINAL CMDG ISSUE	05/2015
1	AMENDMENTS	-
0	ORIGINAL ISSUE	05/2012

DISCLAIMER.	
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.	

Capricorn Municipal Development Guidelines		
Incorporating:		
Banana Shire Council (BSC)	Maranoa Regional Council (MRC)	
Central Highlands Regional Council (CHRC)	Rockhampton Regional Council (RRC)	
Gladstone Regional Council (GRC)	Isaac Regional Council (IRC)	
Livingstone Shire Council (LSC)		

SEWERAGE PUMP STATIONS ELECTRICAL SERVICES LAYOUT 4-22kW	
---	--

SEWER	
STANDARD DRAWING	A3
CMDG-S-050	
REV.	0   1   A   B   C

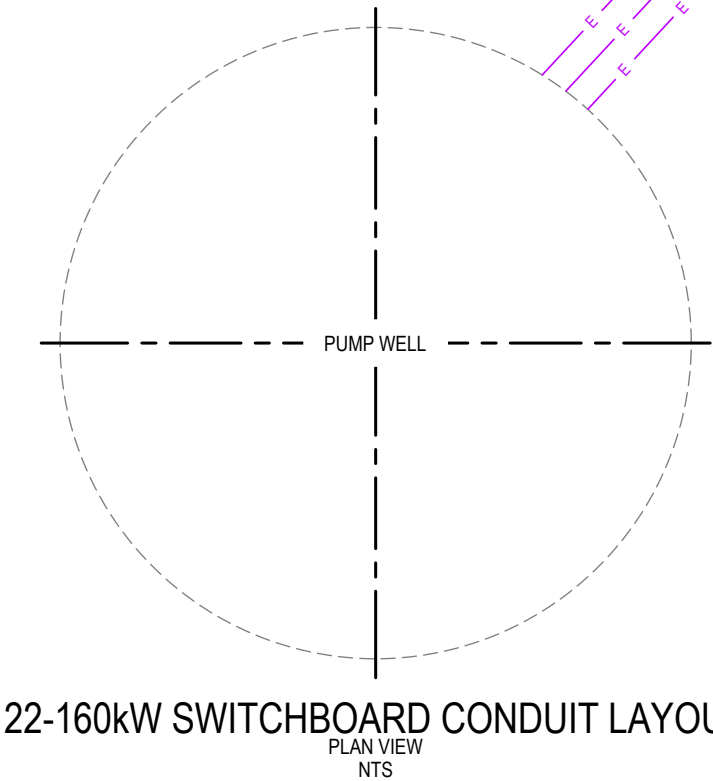
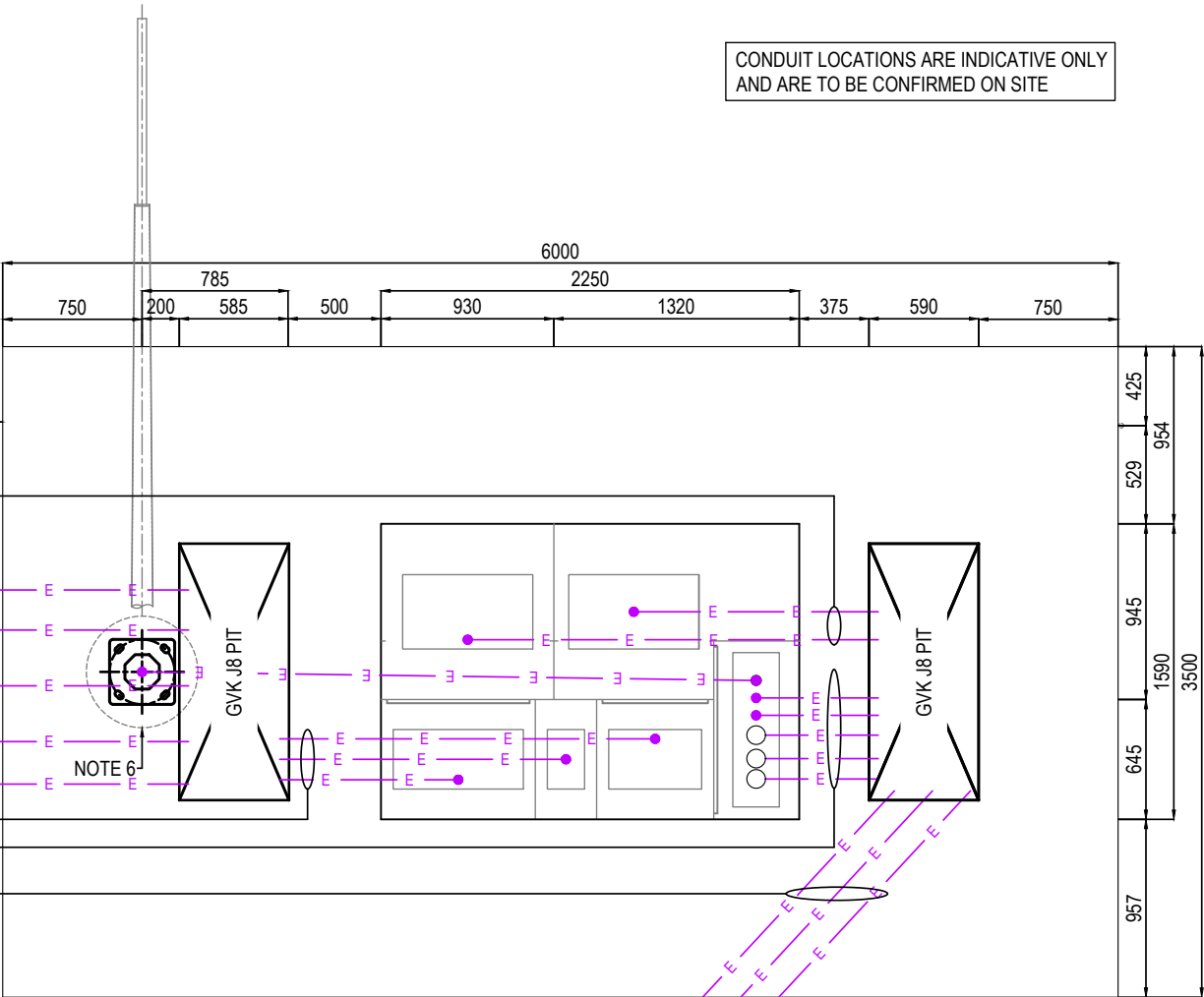
NOTES:

1. FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
2. VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
3. ALL SHOP DRAWINGS MUST BE APPROVED BY COUNCIL BEFORE COMMENCING WORK.
4. DRAWINGS TO BE READ IN CONJUNCTION WITH RELEVANT SPECIFICATIONS.
5. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.
6. AUSPOLE 6MTR. HINGED WATERCORP SPEC, REFER TO AUS-1806-11-D0-R0;RAG BOLT CAGE ASSEMBLY & FOOTING AS PER MANUFACTURERS DETAIL/LOCAL SLAB THICKENING 600Ø X 1450D, 8 X N20 MAIN BARS STIRRUPS R6-200, 4 OFF M20 X 800MM LONG HOOK BOLTS 105MM THREAD, SET 95MM ABOVE CONCRETE; PROVIDE 2 NUTS & WASHERS PER BOLT, USE ONE NUT & WASHER UNDER BASE PLATE FOR LEVELLING.
7. ORIENTATION OF SWITCHBOARD MAY BE CHANGED UPON SUBMITTAL.

STRUCTURAL DESIGN OF  
CONCRETE SLAB BY APPLICANT

2 x DN100 CONDUITS

LIGHTS  
INCOMING MAINS  
3 x DN100 CONDUITS  
TO / FROM GENERATOR  
1 x DN50 CONDUIT  
TO / FROM OVERFLOW TANKS  
1 x DN50 CONDUIT RAIN GAUGE  
3 x DN100 CONDUITS  
2 x DN50 CONDUITS  
3 X DN100 CONDUITS  
TO / FROM PUMP WELL



22-160kW SWITCHBOARD CONDUIT LAYOUT

PLAN VIEW  
NTS

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS		DATE
F	PREVIOUSLY DRAWING S-050K REV B, LAYOUT AMENDED	09/2022
E	REINFORCING DETAILS AMENDED	12/2017
D	IRC ADDED	11/2016
C	GRC AND LSC ADDED	09/2014
B	RRC AMENDMENTS	05/2011
A	ORIGINAL ISSUE	01/2012

DISCLAIMER.	
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.	

Capricorn Municipal Development Guidelines	
Incorporating:	
Banana Shire Council (BSC)	Maranoa Regional Council (MRC)
Central Highlands Regional Council (CHRC)	Rockhampton Regional Council (RRC)
Gladstone Regional Council (GRC)	Isaac Regional Council (IRC)
Livingstone Shire Council (LSC)	

SEWERAGE PUMP STATIONS ELECTRICAL SERIVES LAYOUT 30-160kW	

SEWER	
STANDARD DRAWING	A3
CMDG-S-051	
REV.	A   B   C   D   E   F

NOTES:

1.

FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
2.

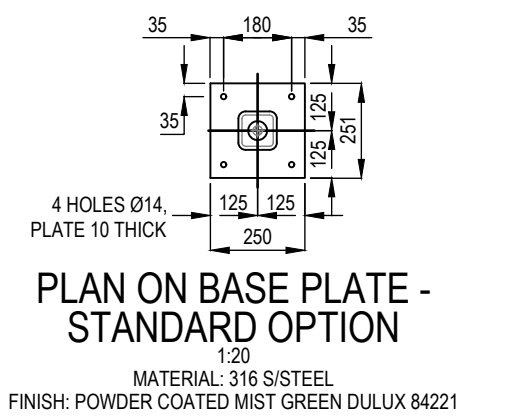
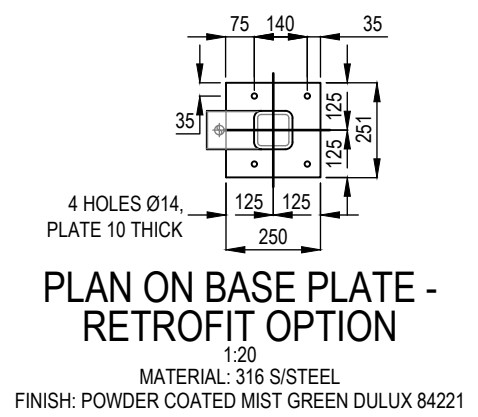
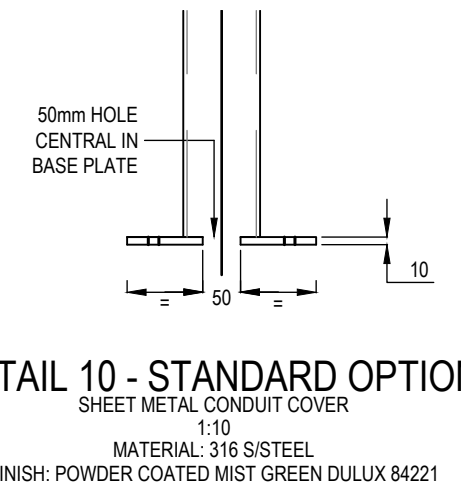
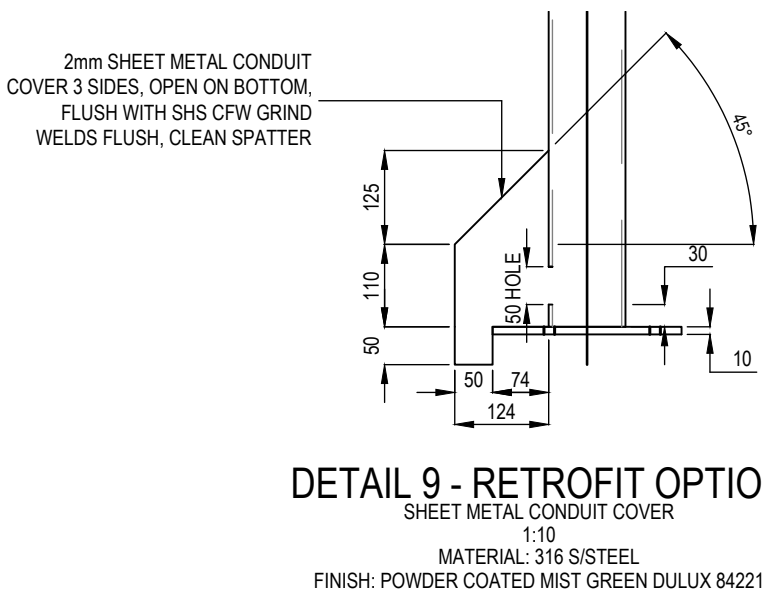
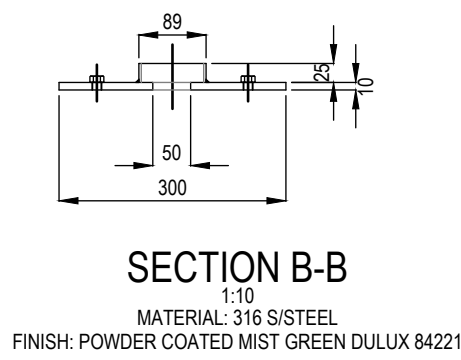
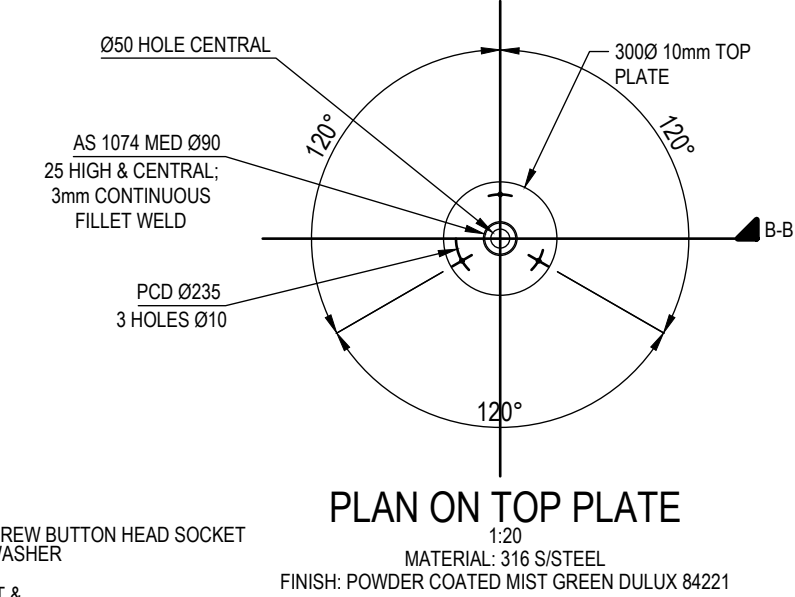
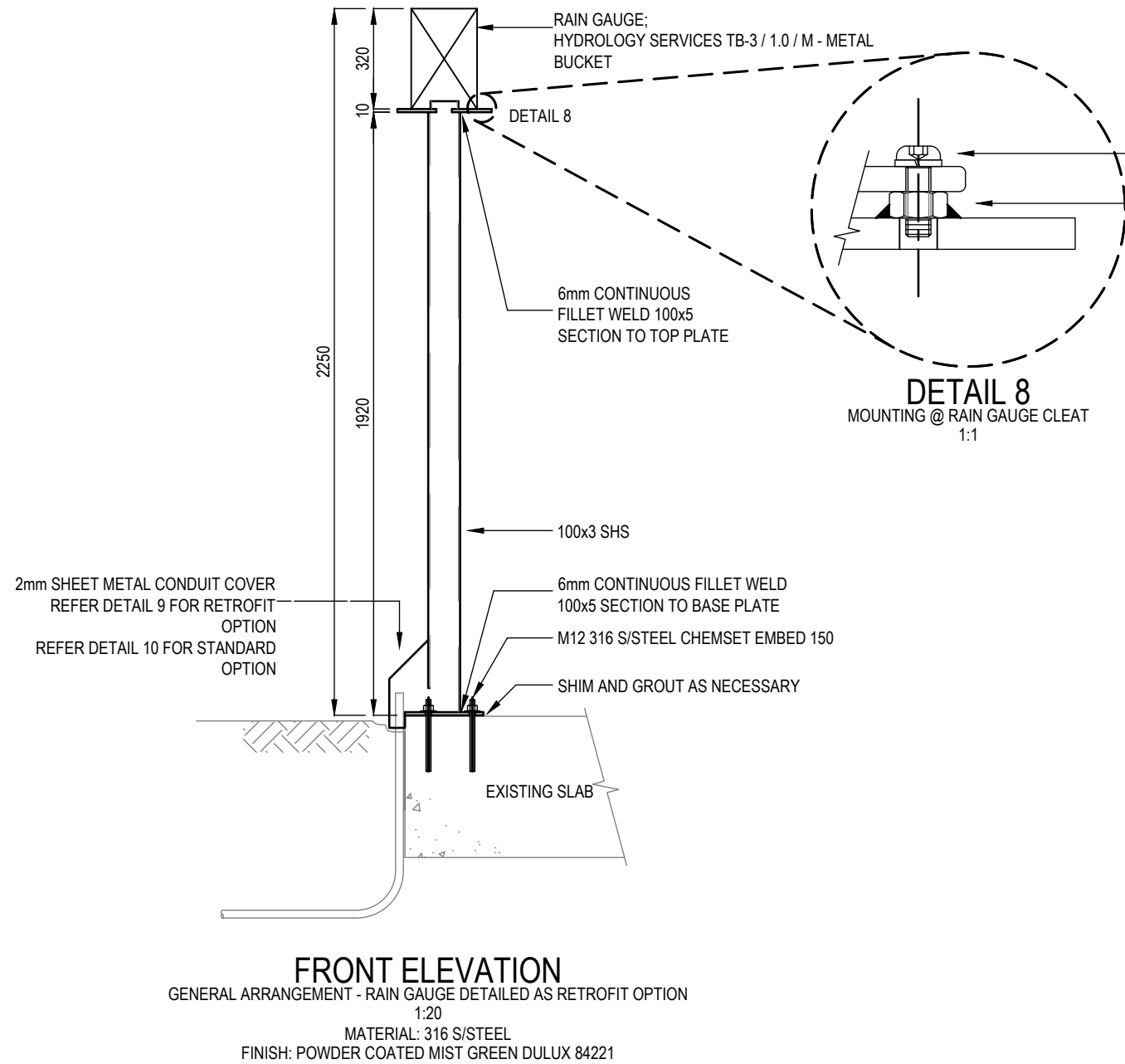
VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
3.

ALL SHOP DRAWINGS MUST BE APPROVED BY COUNCIL BEFORE COMMENCING WORK.
4.

DRAWINGS TO BE READ IN CONJUNCTION WITH RELEVANT SPECIFICATIONS.
5.

EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.
6.

ALL PRE-FABRICATED STRUCTURAL MEMBERS, SHEET, NUTS & BOLTS ETC. TO BE 316 S/STEEL & POWDER COATED PALE EUCALYPT - DULUX 84221.



APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS			DATE	<p>DISCLAIMER.</p> <p>The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.</p>		<p>Capricorn Municipal Development Guidelines</p> <p>Incorporating:</p> <div><div>Banana Shire Council (BSC)</div><div>Central Highlands Regional Council (CHRC)</div><div>Gladstone Regional Council (GRC)</div><div>Livingstone Shire Council (LSC)</div></div> <div><div>Maranoa Regional Council (MRC)</div><div>Rockhampton Regional Council (RRC)</div><div>Isaac Regional Council (IRC)</div></div>		<p>SEWERAGE PUMP STATIONS</p> <p>RAIN GAUGE POST</p>		SEWER		
STANDARD DRAWING		A3										
CMDG-S-052												
REV.	A	B	C							D	E	F

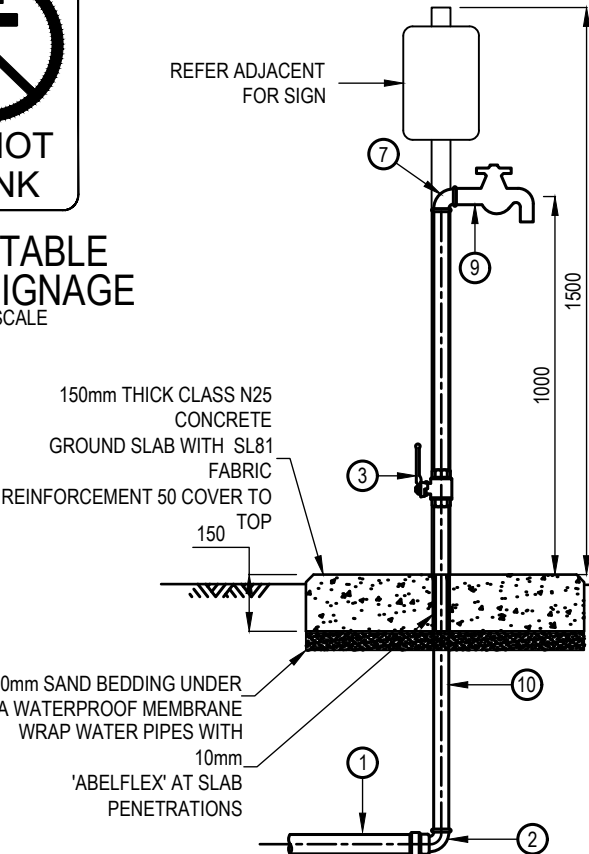


BILL OF MATERIALS

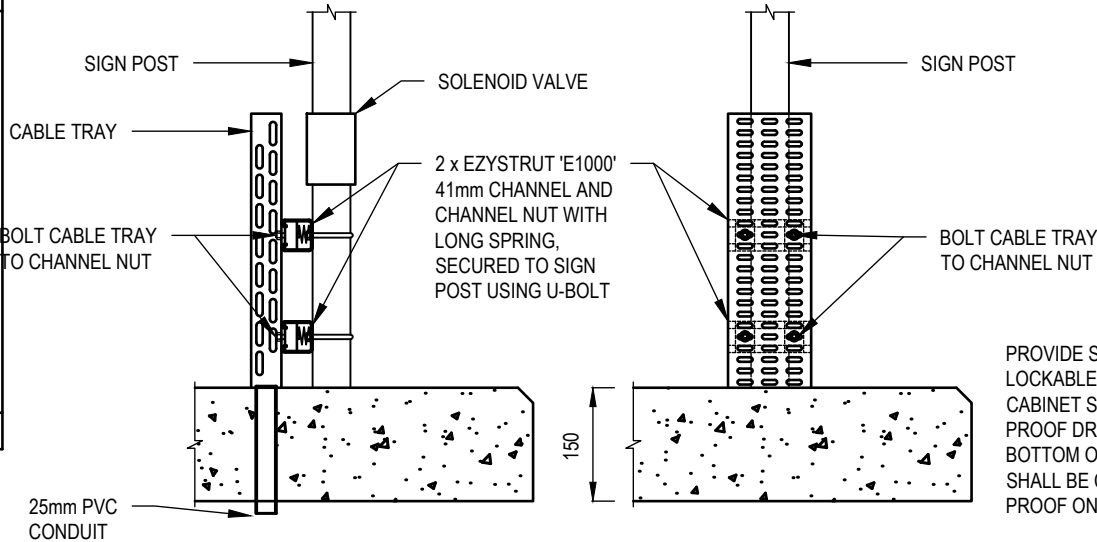
ITEM	DESCRIPTION
1	DN40 PN16 POLYETHYLENE WATER SERVICE
2	DN40 90° BEND STAINLESS STEEL WITH POLY TO STAINLESS ADAPTOR
3	DN40 STAINLESS STEEL BALL VALVE
4	DN40 TO DN25 TAPPER
5	DN25 STAINLESS STEEL STRAINER
6	DN25 STAINLESS STEEL RPZ DEVICE
7	DN25 90° BEND STAINLESS STEEL FL-FL SOCKETS
8	DN25 STAINLESS STEEL BALL VALVE
9	HOSE COCK
10	DN40 STAINLESS STEEL TUBE
11	DN25 STAINLESS STEEL BSP ADAPTOR WITH TUBE END
12	DN25 STAINLESS STEEL TUBE
13	90° CAMLOCK FITTING
14	NYLON CABLE SOCK
15	SPRINKLER SENNINGER IWOB - 26mm NOZZLE

ALL FITTINGS TO BE BLUCHER AUSTRALIA MAPRESS STAINLESS STEEL PRESSURE FITTINGS

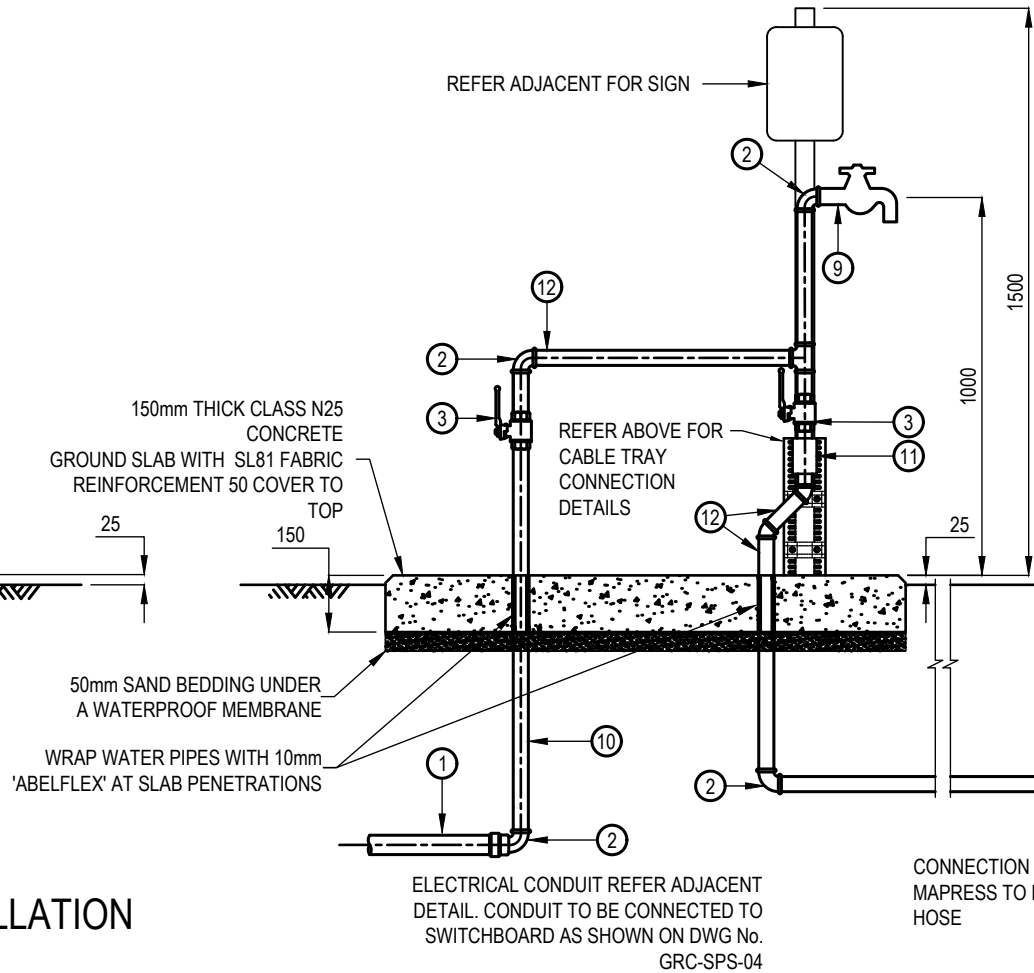
NON-POTABLE WATER NOTICE TO BE INSTALLED ABOVE HOSE COCK



GENERAL HOSE COCK INSTALLATION  
VALVE PIT  
1:20 U.N.O.

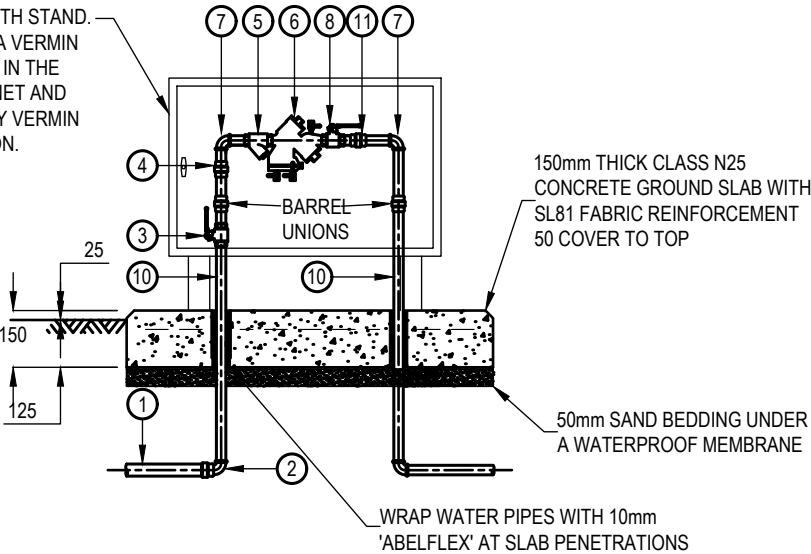


CABLE TRAY DETAIL  
1:10 U.N.O.

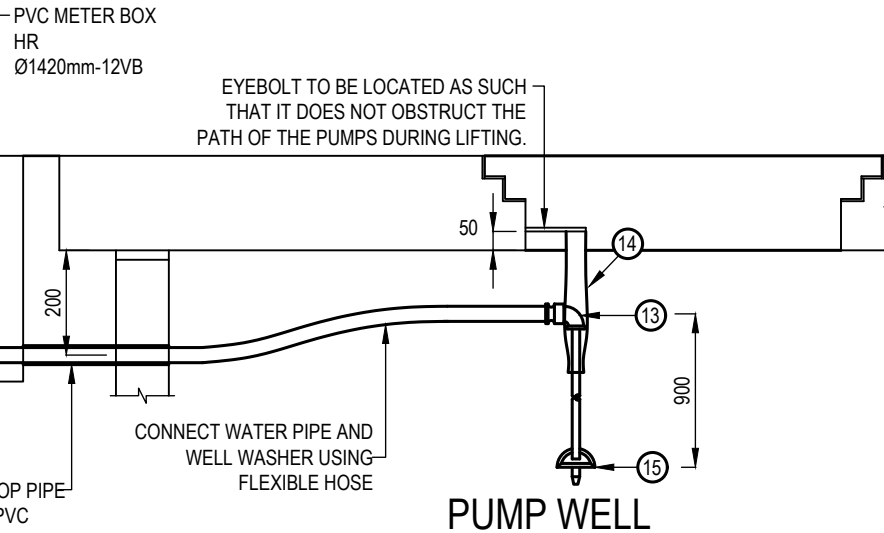


HOSE COCK AT PUMP WELL  
1:20 U.N.O.

PROVIDE STAINLESS STEEL LOCKABLE CABINET WITH STAND. CABINET SHALL HAVE A VERMIN PROOF DRAIN ORIFICE IN THE BOTTOM OF THE CABINET AND SHALL BE COMPLETELY VERMIN PROOF ON COMPLETION.



RPZD BACK FLOW PREVENTION DEVICE  
1:20 U.N.O.



PUMP WELL

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS	DATE
A	DETAILS ADDED. PREVIOUSLY DRAWING S-050M REV B

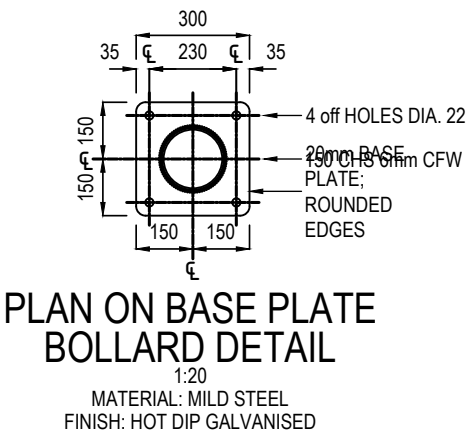
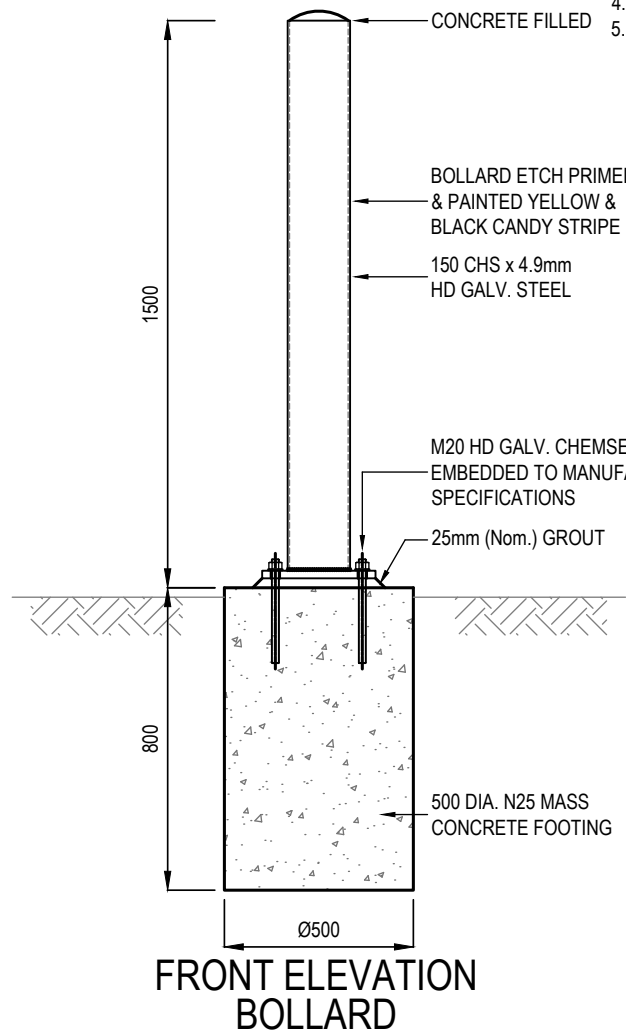
DISCLAIMER. The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.
---

Capricorn Municipal Development Guidelines	
Incorporating:	
Banana Shire Council (BSC)	Maranoa Regional Council (MRC)
Central Highlands Regional Council (CHRC)	Rockhampton Regional Council (RRC)
Gladstone Regional Council (GRC)	Isaac Regional Council (IRC)
Livingstone Shire Council (LSC)	

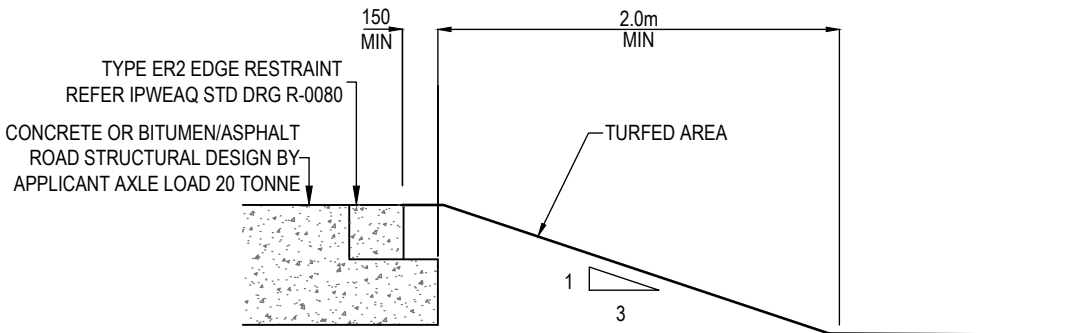
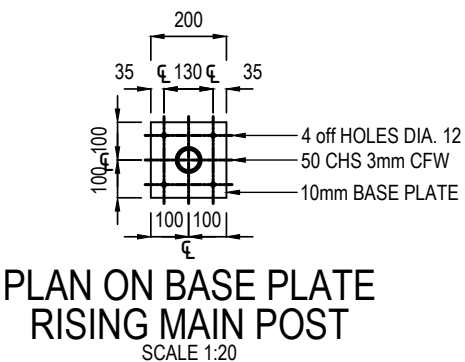
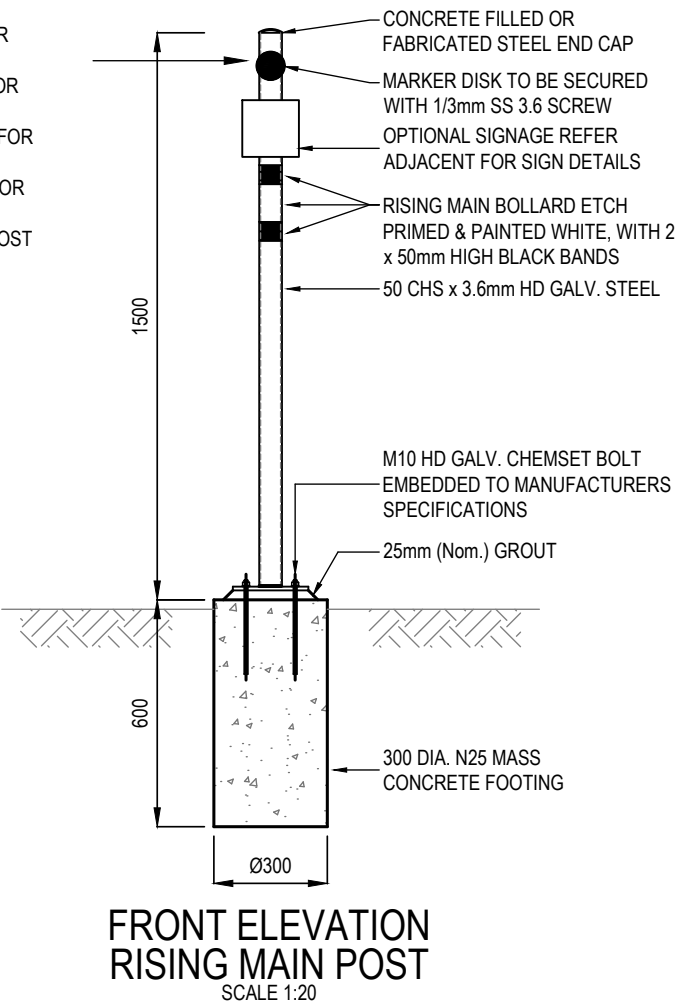
SEWERAGE PUMP STATIONS BACK FLOW PREVENTION	
--	--

SEWER STANDARD DRAWING	
A3	
CMDG-S-053	
REV.	A

- NOTES:**
- FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
  - VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
  - ALL SHOP DRAWINGS MUST BE APPROVED BY COUNCIL BEFORE COMMENCING WORK.
  - DRAWINGS TO BE READ IN CONJUNCTION WITH RELEVANT SPECIFICATIONS.
  - EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.



- MARKER DISK COLOUR INDICATORS
- YELLOW REFLECTOR FOR AIR VALVE
  - BLUE REFLECTOR FOR ISOLATION VALVE
  - RED REFLECTOR FOR SCOUR VALVE
  - WHITE GENERAL POST INDICATOR

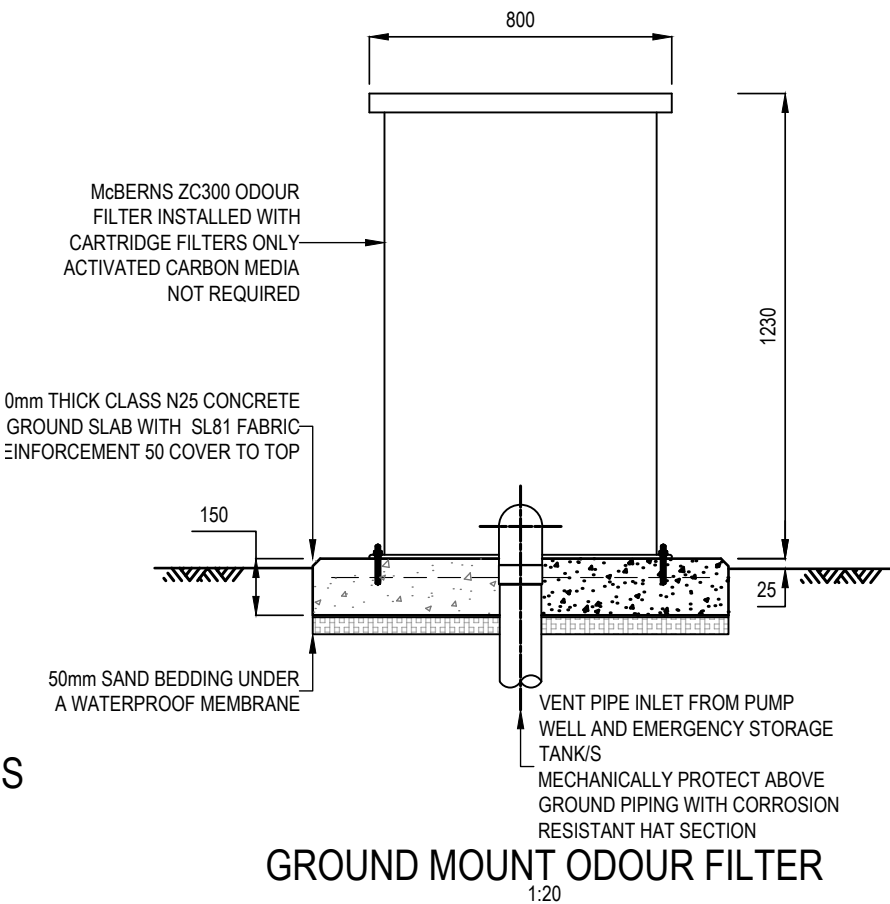
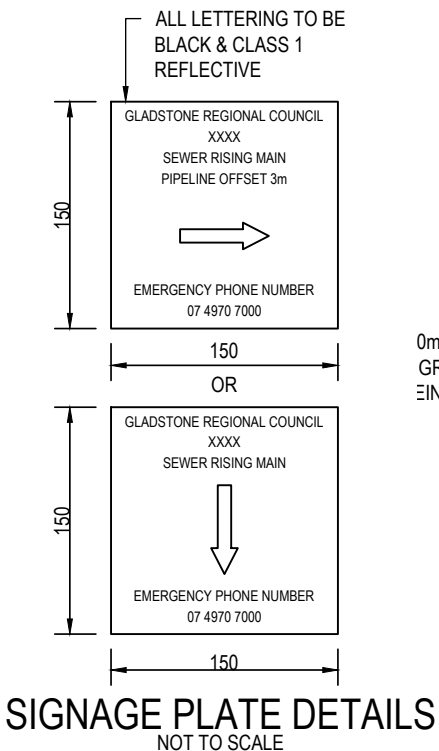


**LANDSCAPING**

- SUPPLY AND ESTABLISH TURF ON ALL SURFACES NOT PAVED AS APPROVED. TOPSOIL STRIPPED PRIOR TO CONSTRUCTION SHALL BE REPLACED ON ALL SURFACES NOT PAVED, INCLUDING BATTER SLOPES.

**PAVEMENT**

- PAVEMENT SHALL BE DRY AND THOROUGHLY BROOMED BEFORE SURFACING IS UNDERTAKEN.
- ANY DEPRESSIONS GREATER THAN 25mm SHALL BE TACK COATED AND BROUGHT UP TO THE LEVEL OF THE PAVEMENT.
- PAVEMENT SHALL COMPLY WITH MAIN ROADS SPECIFICATION "UNBOUND PAVEMENTS" MRS 11.05
- ASPHALTIC CONCRETE SHALL COMPLY WITH MAIN ROADS SPECIFICATION "DENSE GRADED ASPHALT PAVEMENTS" MRS 11.30



APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS		DATE
A	PREVIOUSLY DRAWING S-050N REVISION B	09/2022

**DISCLAIMER.**  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

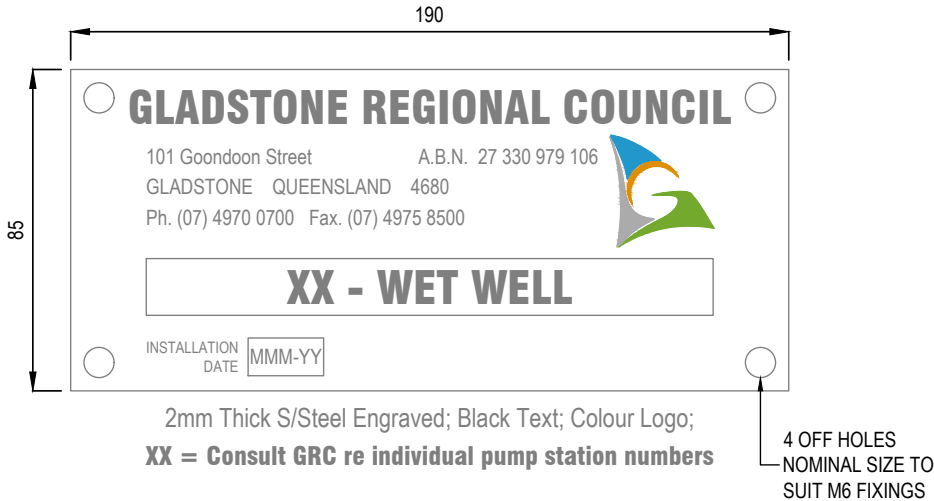
**Capricorn Municipal Development Guidelines**  
Incorporating:  
Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Livingstone Shire Council (LSC)  
Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

**SEWERAGE PUMP STATIONS  
ODOUR FILTER, BOLLARDS, ROADS  
AND LANDSCAPING**

SEWER	
STANDARD DRAWING	A3
CMDG-S-054	
REV.	A

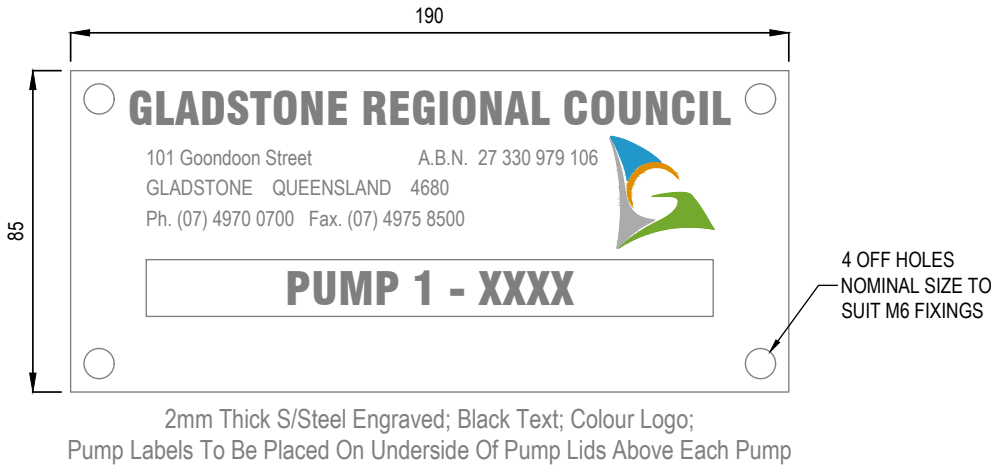
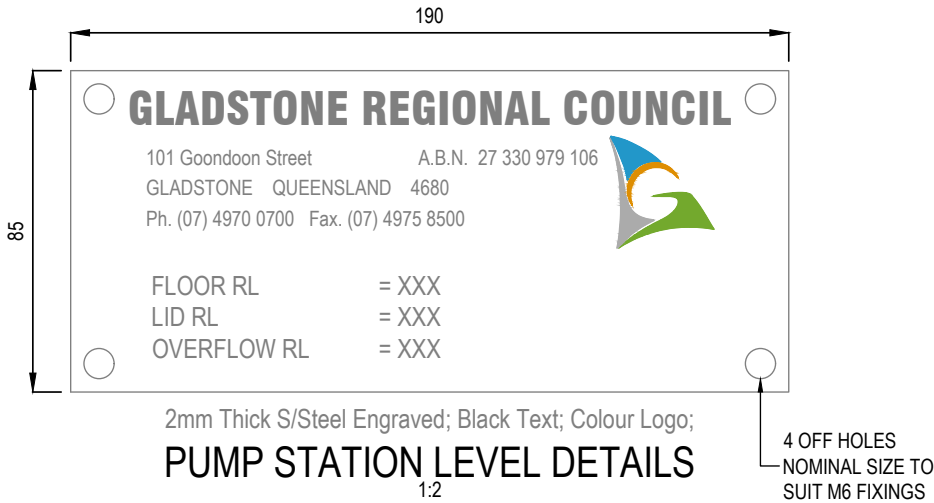
NOTES:

1. FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
2. VERIFY ALL DIMENSIONS ON THE JOB BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
3. ALL SHOP DRAWINGS MUST BE APPROVED BY COUNCIL BEFORE COMMENCING WORK.
4. DRAWINGS TO BE READ IN CONJUNCTION WITH RELEVANT SPECIFICATIONS.
5. EXAMPLE LAYOUT ONLY; PROJECT SPECIFIC LAYOUT TO BE SUBMITTED FOR APPROVAL PRIOR TO COMMENCEMENT.
6. REFER GRC TAGGING AND LABELLING SPECIFICATION FOR REQUIREMENTS.



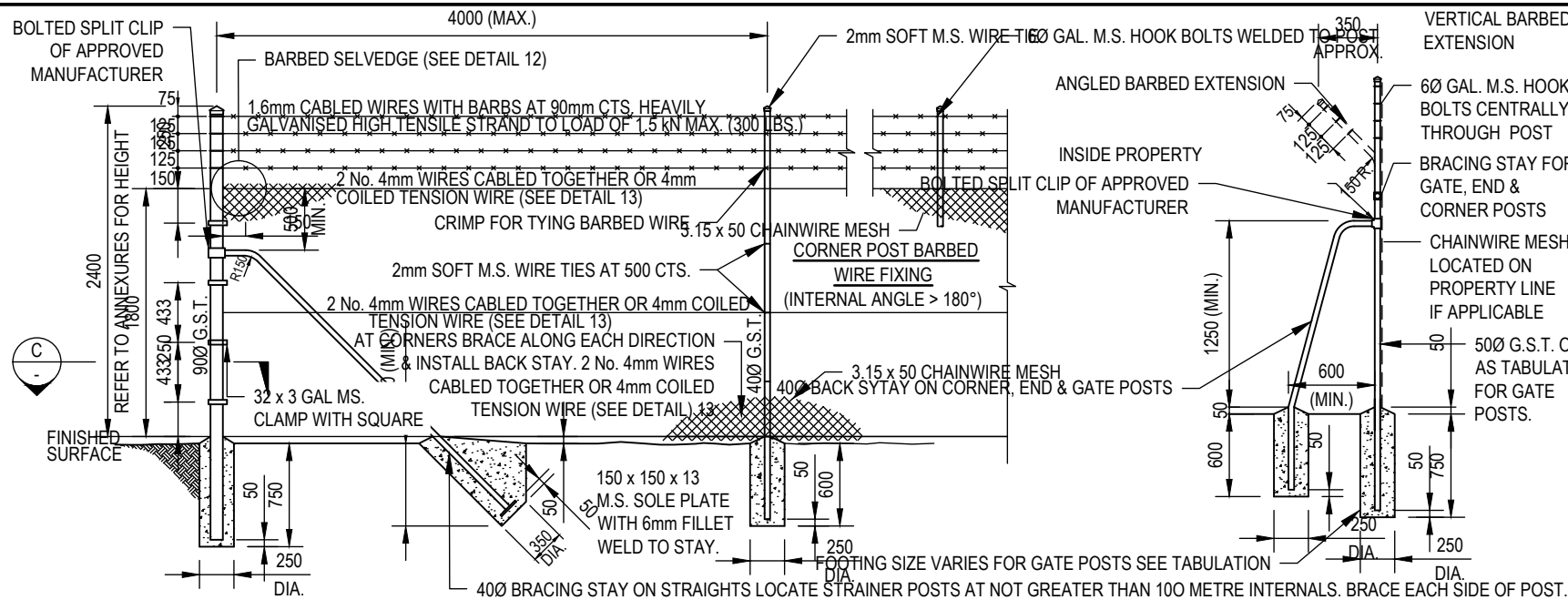
FABRICATE AND INSTALL LABELS FOR THE FOLLOWING ITEMS OF PLANT:

- XX - VALVE PIT
- XX - FLOW METER CHAMBER
- XX - PIGGING CHAMBER
- XX - COLLECTION MAN HOLE
- XX - OVERFLOW MAN HOLE
- XX - OVERFLOW TANK 1
- XX - OVERFLOW TANK 2
- XX - OVERFLOW SCREEN CHAMBER
- XX - SCOUR VALVE
- XX - RPZ DEVICE



APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS		DATE	<div>DISCLAIMER. The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.</div>	Capricorn Municipal Development Guidelines		SEWERAGE PUMP STATIONS LABELS		SEWER	
								STANDARD DRAWING	A3
								CMDG-S-055	
								REV.	A
A	PREVIOUSLY DRAWING S-0500 REVISION B	09/2022							

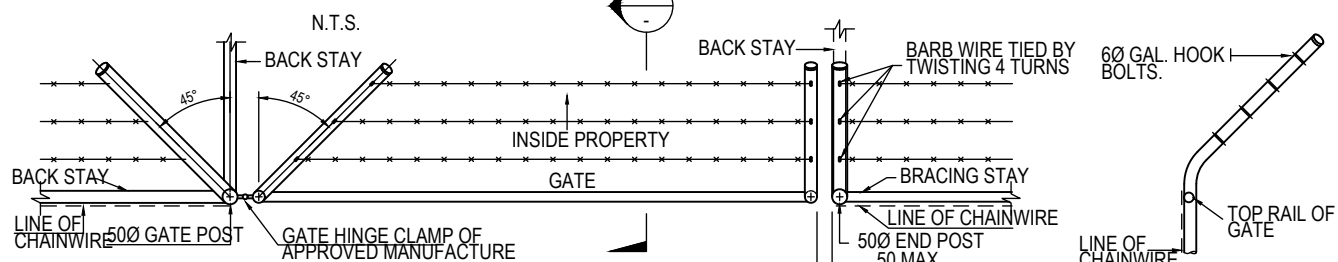


**CORNER, END & STRAINER POST**  
(USE BACK STAY FOR GATE, END & CORNER POSTS)  
SCALE 1:50

**BRACING STAY**  
FOR GATE CORNER, END & STRAINER POSTS  
SCALE 1:50

**INTERMEDIATE POST**  
SCALE 1:50

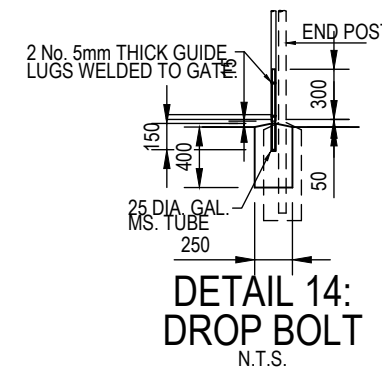
**BACK STAY FOR GATE, END & CORNER POSTS**  
SCALE 1:50



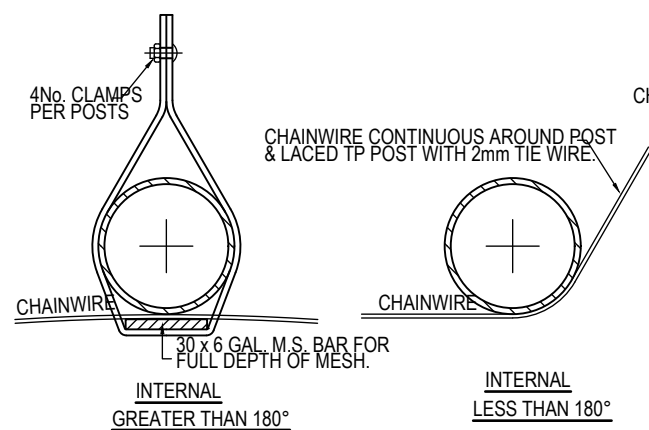
**ANGLED BARBED EXTENSION ON GATES**  
N.T.S.

**SECTION D-D**  
N.T.S.

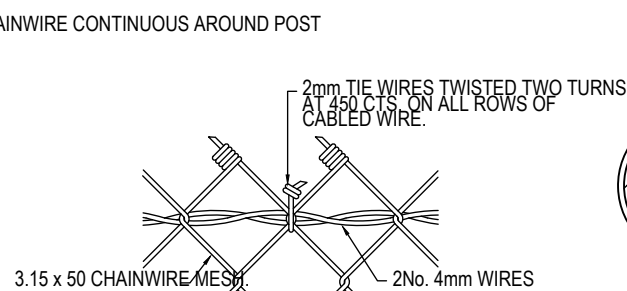
**FOOTING SIZE WHEN IN ROCK**  
N.T.S.



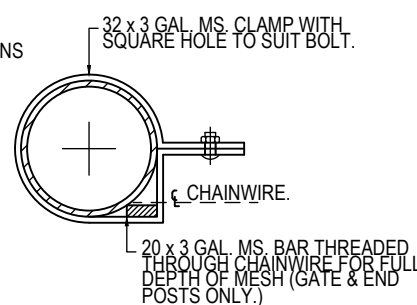
**DETAIL 14: DROP BOLT**  
N.T.S.



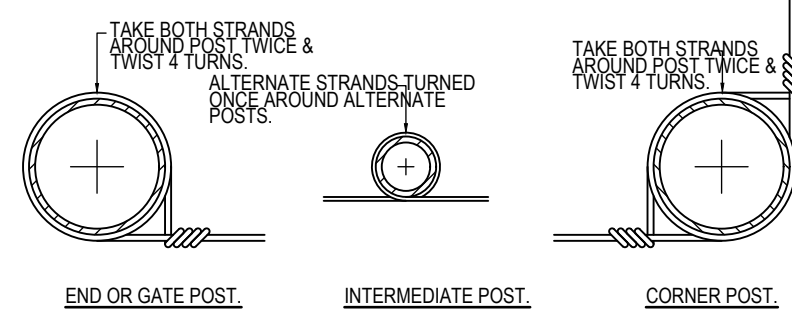
**MESH CONNECTION DETAILS AT FENCE LINE ANGLES**  
N.T.S.



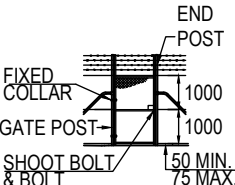
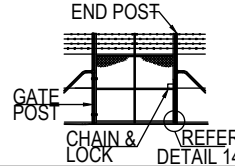
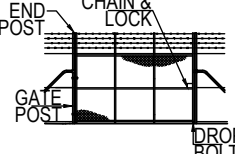
**DETAIL 12**  
N.T.S.



**SECTION C-C**  
N.T.S.



**DETAIL 13: CABLED WIRE CONNECTIONS**  
N.T.S.

GATES:- FRAMES, POSTS AND FOOTINGS								
WIDTH OF LEAF		OUTER FRAME	INNER BRACING	DIAG. BRACING	GATE POST	GATE POST FOOTINGS		NUMBER REQUIRED
		(NOMINAL DIAMETERS.)				DIA.	DEPTH	
1000			32	25	-	50	250	1000
1500		32	25	-	50	250	1000	-
2000		32	25	-	50	250	1000	-
2500		32	25	-	80	300	1000	-
3500		40	32	-	100	400	1100	-

NOTE: OMIT HANDHOLES WHEN OPENING FROM ONE SIDE ONLY IS REQUIRED.

## NOTE:

- ALL FENCES SHALL COMPLY WITH AUSTRALIAN STANDARD 1725 - SECURITY FENCES AND GATE POSTS TO BE MEDIUM THICKNESS.
- CHARACTERISTIC COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 20MPa. AT 28 DAYS MAX. AGGREGATE SIZE 20mm
- SHAPE GROUND ALONG FENCE LINE TO ELIMINATE GAPS GREATER THAN 50mm UNDER THE SELVEDGE, TO A WIDTH OF ONE METRE EACH SIDE.
- PAINT ALL DAMAGED SECTIONS WITH ZINC RICH PAINT (2 COATS)
- POST CAPS SHALL BE DRIVE ON FITTED TO ALL POSTS TO APPROVAL.
- ALL DIMENSIONS ARE IN MILLIMETRES.
- BRACED PANELS MAY BE USED IN ACCORDANCE WITH CLAUSE 45,AS1725
- WHERE FENCE CROSSES OPEN DRAIN PROVIDE 40 DIA. G.M.S. POSTS AT 300 CAST IN CONCRETE TO 600 BELOW F.S.L.

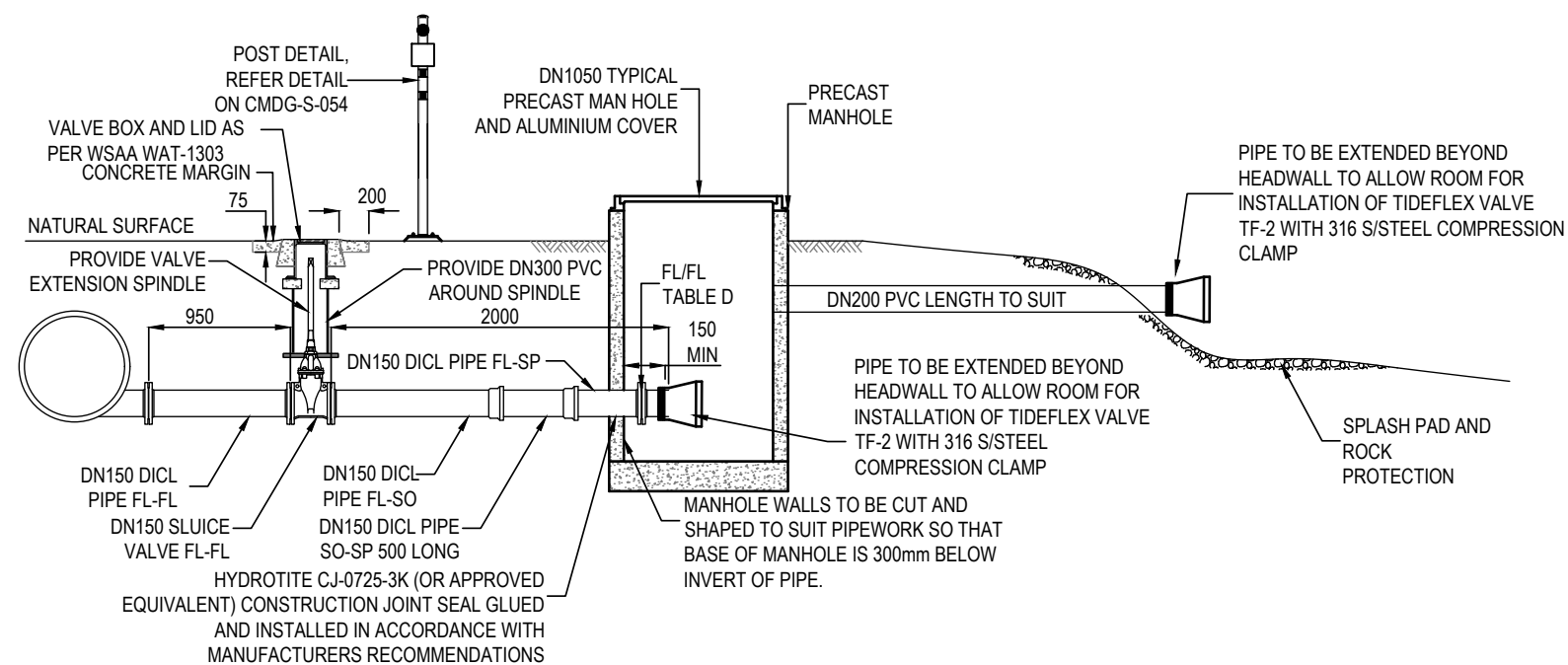
REVISIONS	DATE
A	PREVIOUSLY DRAWING S-050P REVISION B
	09/2022

**DISCLAIMER.**  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

**Capricorn Municipal Development Guidelines**  
Incorporating:  
Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Livingstone Shire Council (LSC)  
Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

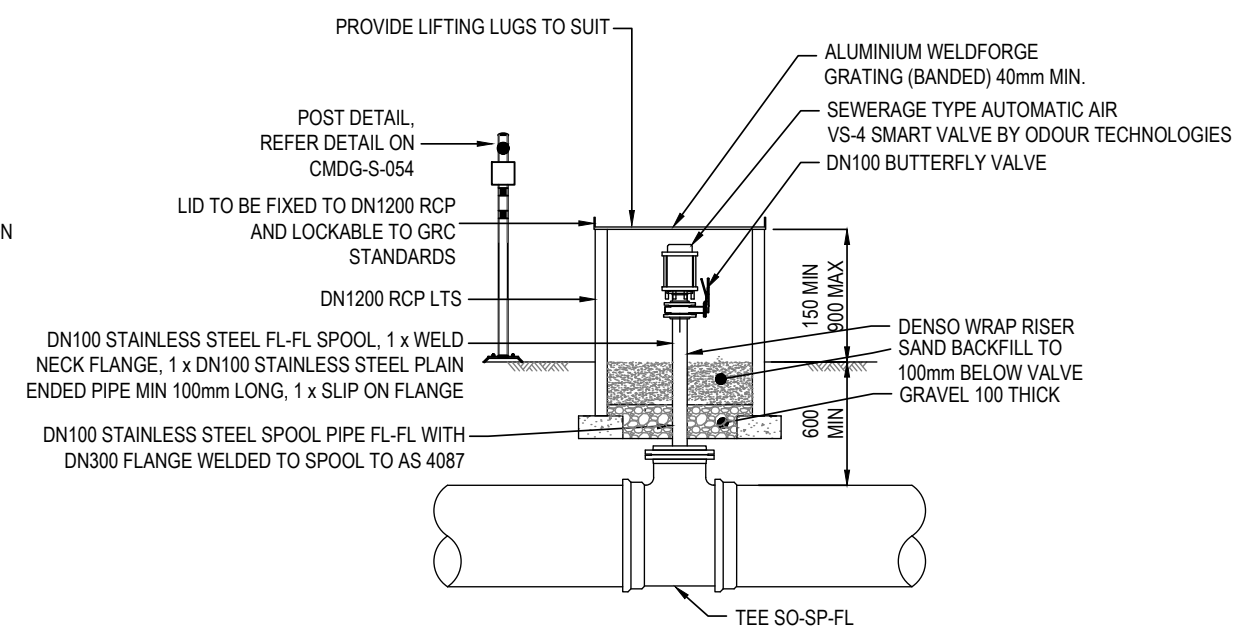
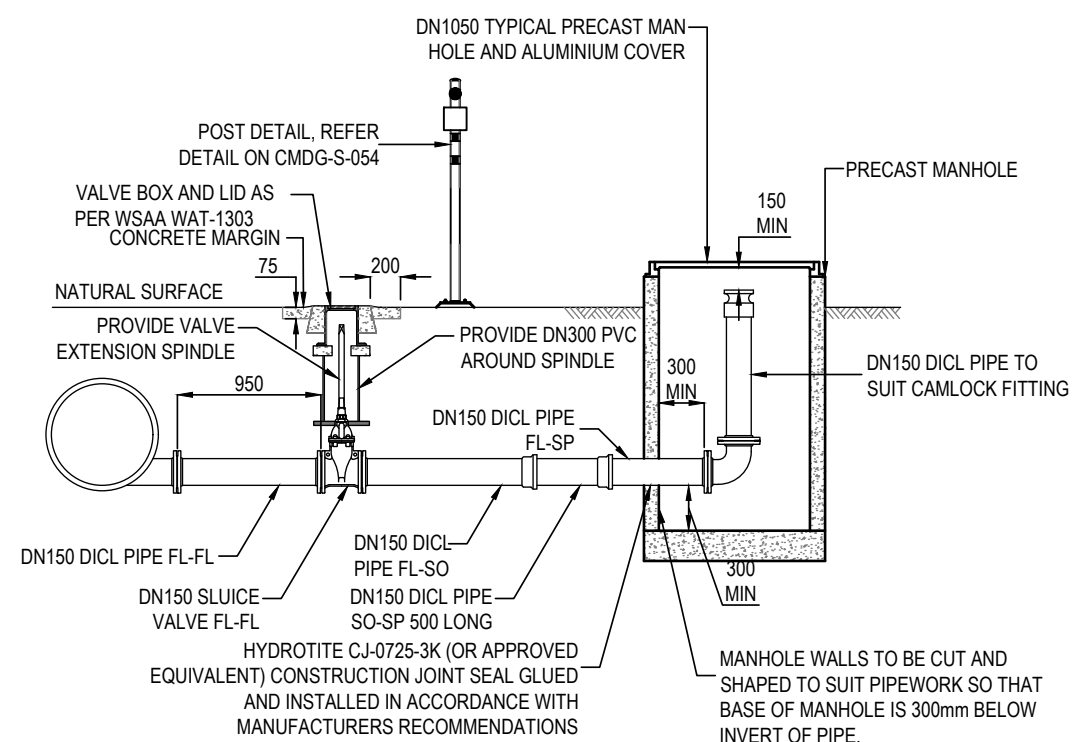
**SEWERAGE PUMP STATIONS FENCE AND GATE DETAILS**

SEWER	
STANDARD DRAWING	A3
CMDG-S-056	
REV.	A



- NOTE:

1. FOR FURTHER DETAILS REFER WSAA STD DWG WAT-1307.
2. IF RISING MAIN IS HIGHER THEN DISCHARGE POINT MANHOLE IS NOT REQUIRED



## TYPICAL AIR RELEASE VALVE

SCALE 1:50

NOTE: AIR VALVE TO BE LOCATED ABOVE GROUND WATER  
LEVEL, AIR VALVE AND RCP TO BE LIFTED 900 MAX ABOVE  
GROUND TO SUIT

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	No	No	Yes	No	No	No	No
Applicable DWG							

REVISIONS		DATE
A	DETAIL ADDED PREVIOUSLY DRAWING S-0500 REV B	09/2022

**DISCLAIMER.**

The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

## Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Livingstone Shire Council (LSC)

Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

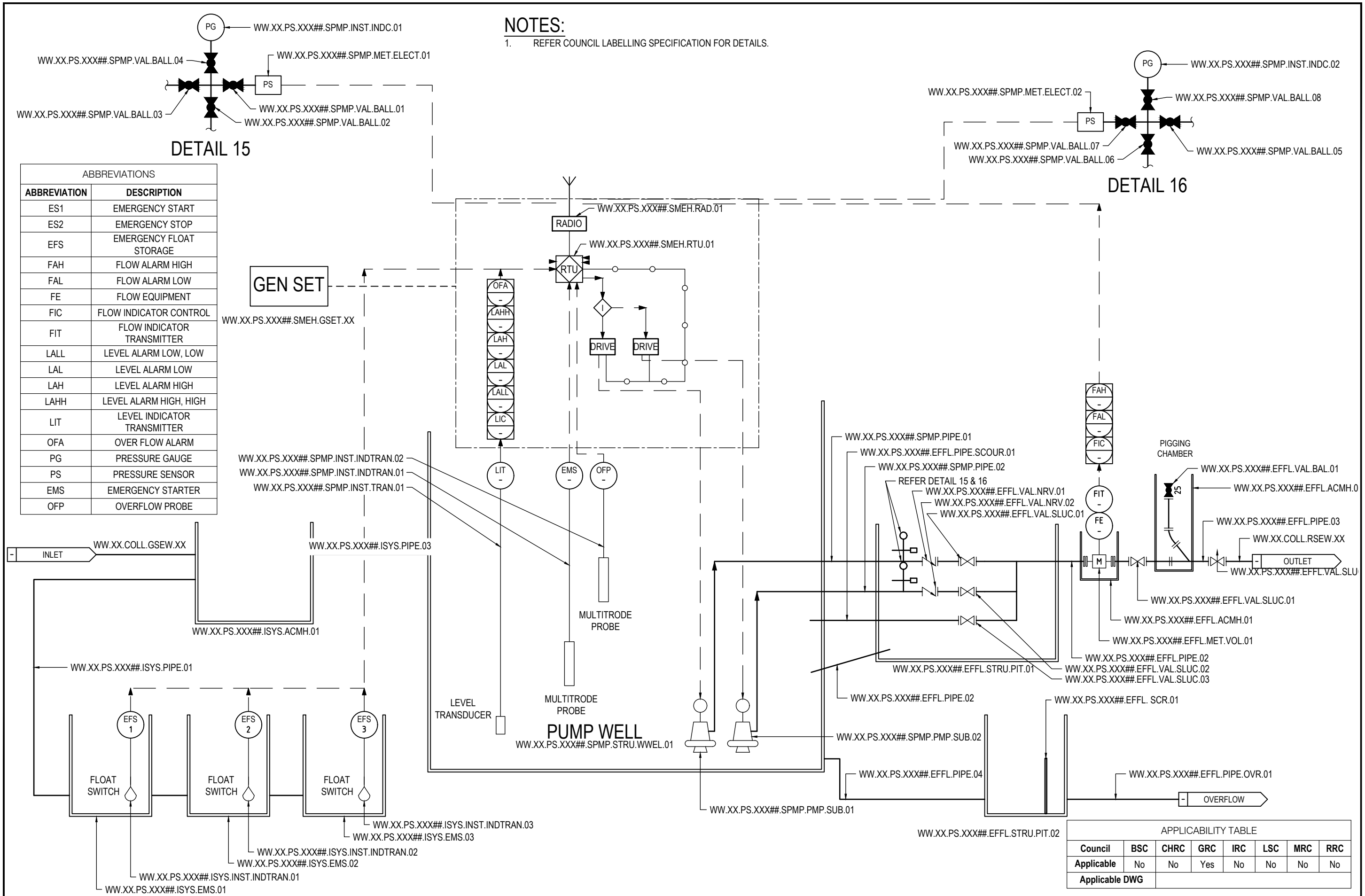
## SEWERAGE PUMP STATIONS SCOUR AND AIR VALVE DETAILS

SEWER

STANDARD DRAWING	A3
---------------------	----

CMDG-S-057

REV.	A					
------	---	--	--	--	--	--



REVISIONS		DATE
G	PREVIOUSLY DRAWING S-050R REVISION B	09/2022
F	MRC APPLICABILITY TO YES	12/2021
E	IRC ADDED	11/2016
D	GRC AND LSC ADDED	09/2014
C	MRC APPLICABILITY - NO	04/2013
B	RRC AMENDMENTS	05/2011

DISCLAIMER.

The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Livingstone Shire Council (LSC)

Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)  
Isaac Regional Council (IRC)

SEWERAGE PUMP STATIONS  
PIPING AND INSTRUMENTATION DIAGRAM

CMDG-S-058

REV. B C D E F G

TABLE OF FITTINGS

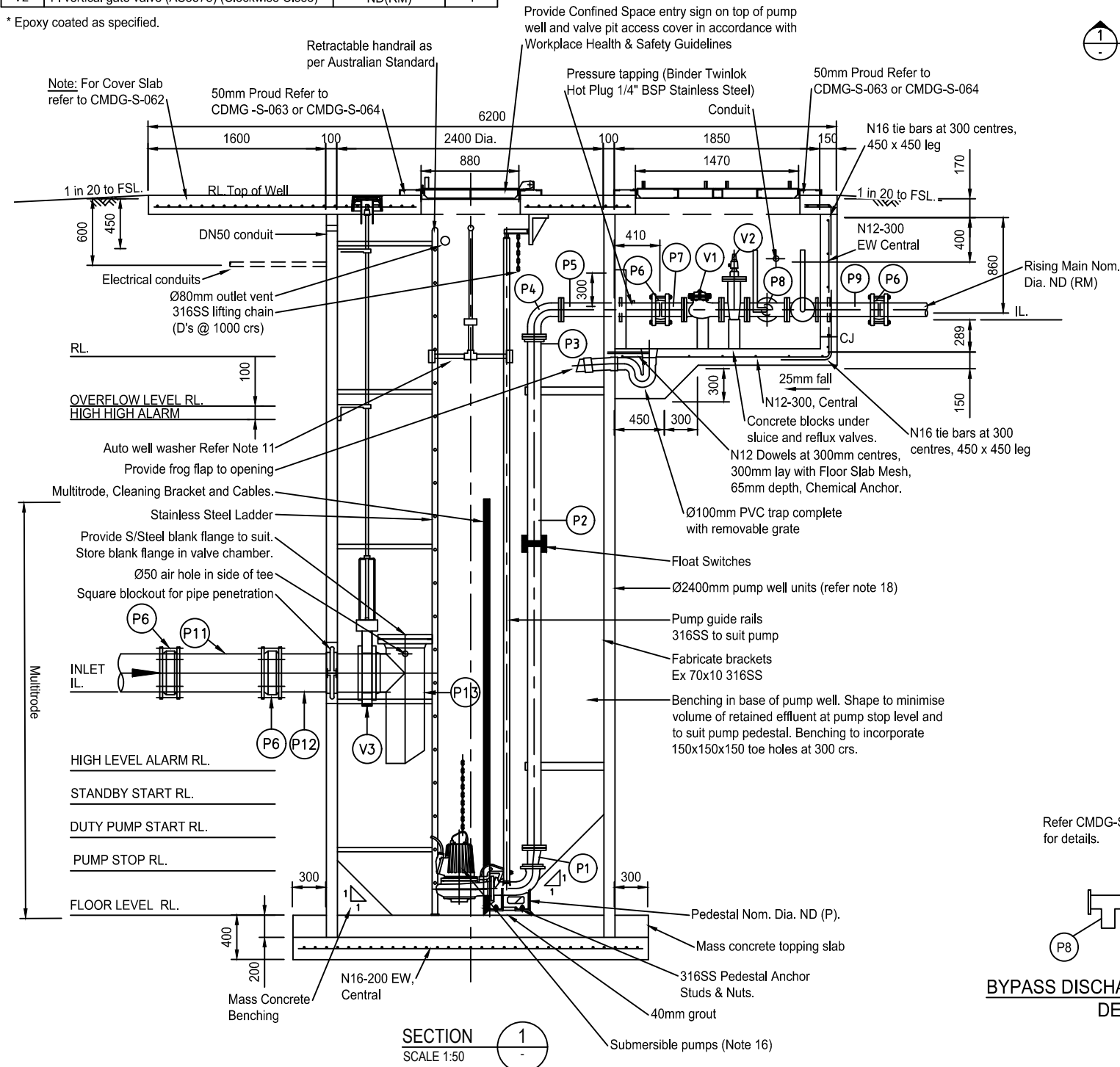
No.	DESCRIPTION	DIA.	No. OFF
P1*	FI Eccentric Taper	ND(P) ND(RM)	2
P2*	FI/PI pipe x length to suit	ND(RM)	3
P3*	Uniflange	ND(RM)	3
P4*	FI 90° bend	ND(RM)	4
P5*	FI/PL pipe x length to suit with "puddle" flange and 1/4" BSP Pressure tapping	ND(RM)	2
P6*	Gibault joint	ND(RM)	3
P7*	FI/PI connector	ND(RM)	2
P8*	FI Tee	ND(RM) x ND(RM)	2
P9*	FI/PL pipe x length to suit with "puddle" flange	ND(RM)	1
P10*	80mm Camlock Coupling	80	1
V1	FI reflux valve (AS2658) with Magnetic Limit Switch	ND(RM)	2
V2	FI vertical gate valve (AS3578) (Clockwise Close)	ND(RM)	4

\* Epoxy coated as specified.

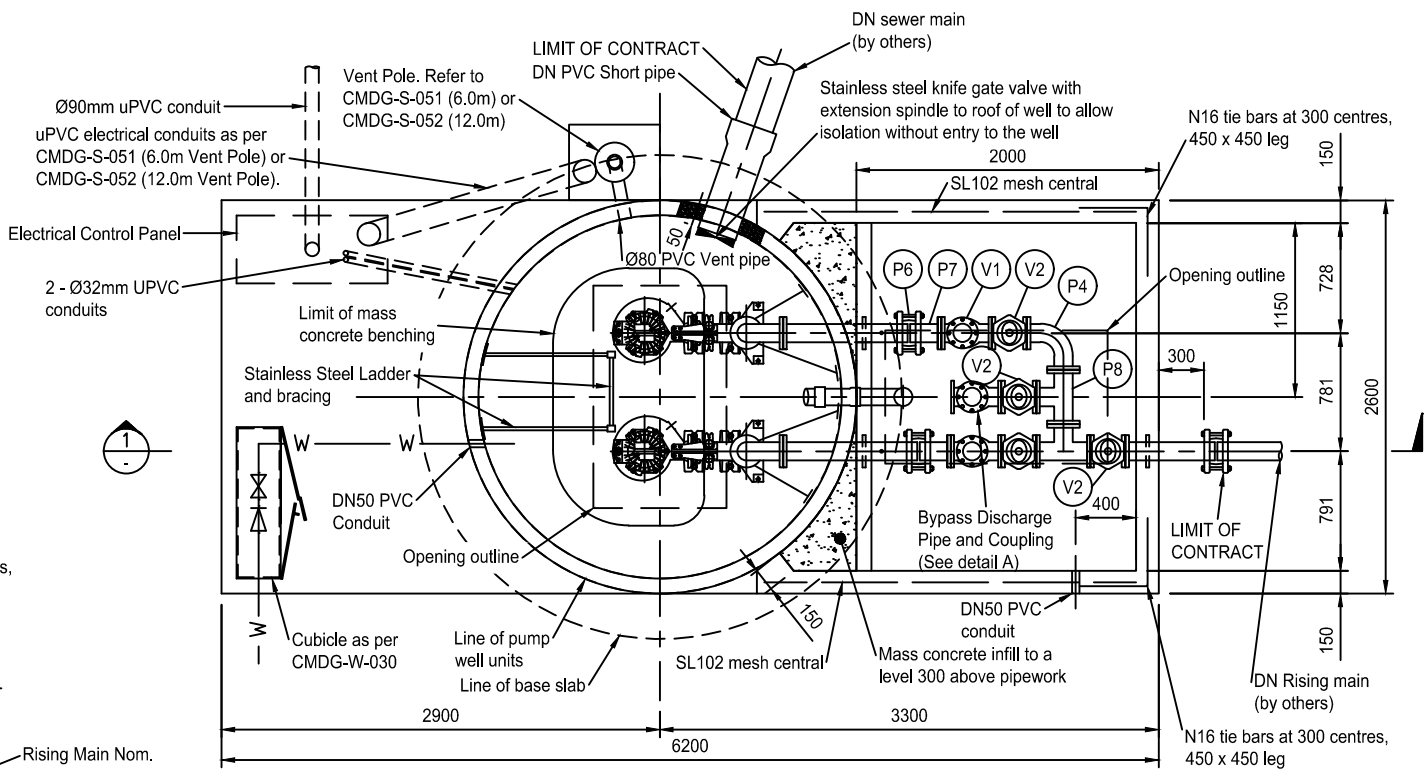
TABLE OF FITTINGS

No.	DESCRIPTION	DIA.	No. OFF
P6*	Gibault Joint	ND(INLET)	2
P11	SP-SP S/Steel Pipe	ND(INLET)	1
P12	FL-SP S/Steel Tailpipe with Puddle Flange	ND(INLET)	1
V3	Lugged S/Steel Bi-Directional Knife Gate Valve Complete with Support Bracket to wall of Pump Station	ND(INLET)	1
P13	MDPE SP-FLxFL Fabricated Tee Complete with Gibault joint	ND(INLET)	1

\* Epoxy coated as specified.



SECTION 1  
SCALE 1:50



SECTIONAL PLAN  
1:50

NOTES

- All concrete shall have a minimum characteristic strength (F<sub>c</sub>) of N40 to AS3600 at 28 days.
- Cored holes left in the well for pipe work shall be tapered being 25 larger in diameter than the flange at the inside face and 50 larger at the outside face.
- Steel wire fabric to be in accordance with A.S.1304, latest revision.
- Steel reinforcing bars shall be high-tensile hot-rolled deformed bar in accordance with AS.1302, latest revision.
- Laps in reinforcing shall be 300 minimum for rebar and 1 (one) mesh spacing for fabric.
- Concrete cover to reinforcement shall be a minimum of 65 in all cases except where noted otherwise.
- Stainless steel pipe brackets at 1000 maximum centres fixed to wall with 2-M10 SS. approved Masonry Fasteners.
- Location of conduits to be confirmed by Council Engineer prior to construction of plinth.
- All pipe work penetration to be grouted up using non shrink grout.
- Corrosion Protection of discharge chamber or pump well alternatives:
  - All internal surfaces shall be smooth and free of holes and lightly sandblasted or acid-etched before painting with Peerless Epigen 1311 or Parchem Nitocote EP410 in two coats with a total dry film thickness of 600 microns. The concrete surface shall have cured for at least 28 days; or
  - A fabricated chamber liner of polyethylene shall be placed before the wall and top slab is poured or use a complete polyethylene manhole system such as Iplex EZI pit or Wavin Tegra; or
  - An alternative method of corrosion protection approved by the Service Authority.
- Auto well washer to be secured to the pump well wall via a pivoting wall mount bracket supplied by the Manufacturer. Provide 4 - grade 316 SS Dynabolts or equivalent for wall mount. 24V AC solenoid valve for well washer to be connected to a relay in the main switch board. Provide 50mm 'RMC Model 909' or equivalent Reduced Pressure Zone back flow prevention device installed in accordance with AS 3500. Solenoid valve must be installed between RPZ and washer head. Water inlet for washer head is 3/4" BSP (NPT) male. Exact position of washer to be confirmed by Superintendent.
- All pipes and fittings within pump well and valve pit to be FBE (Fusion Bonded Epoxy) coated.
- All conduits from pump well to be filled with an approved void filler following installation of cables.
- All UPVC conduits and pipe work location to be subject to Council Engineers prior approval.
- Confirm pump stop level with Manufacturer for minimum submergence requirements.
- Pump Duty and Pump selection to be confirmed by Council Engineer.
- Switchboard to have 1m clearance to any obstructions.
- Precast units must be RPEQ approved. Humes precast sewage pumping station dimensions shown.
- Refer to AS 1657 - 2013 Fixed platforms, walkways, stairways and ladders - design, construction and installation for ladder requirements.
- Refer also to standard drawings CMDG-S-051, CMDG-S-052, CMDG-S-062, CMDG-S-063, CMDG-S-064 & CMDG-W-030.

APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	No	Yes	Yes	Yes	Yes
Chamber Ladder Requirement	No	No	No	No	Yes	No	Yes
Applicability DWG	GRC details on SPS drawing set						

REVISIONS	DATE
I DROP PIPE ADDED / GRAVITY INLET DELETED	03/2018
H SCALES, CUBICLE LOCATION & LAYOUT AMENDED	10/2017
G IRC ADDED	11/2016
F DIMENSIONS CORRECTED	08/2015
E GRC AND LSC ADDED	09/2014
D CORRECTION OF ALL DIMENSIONS	06/2013
C RETRACTABLE LADDER ADDED	05/2011

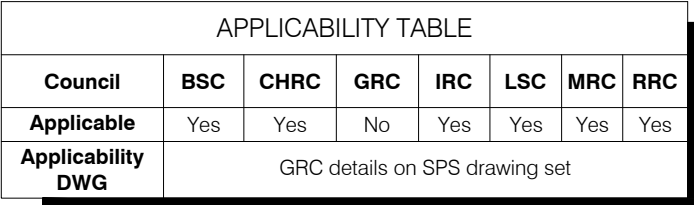
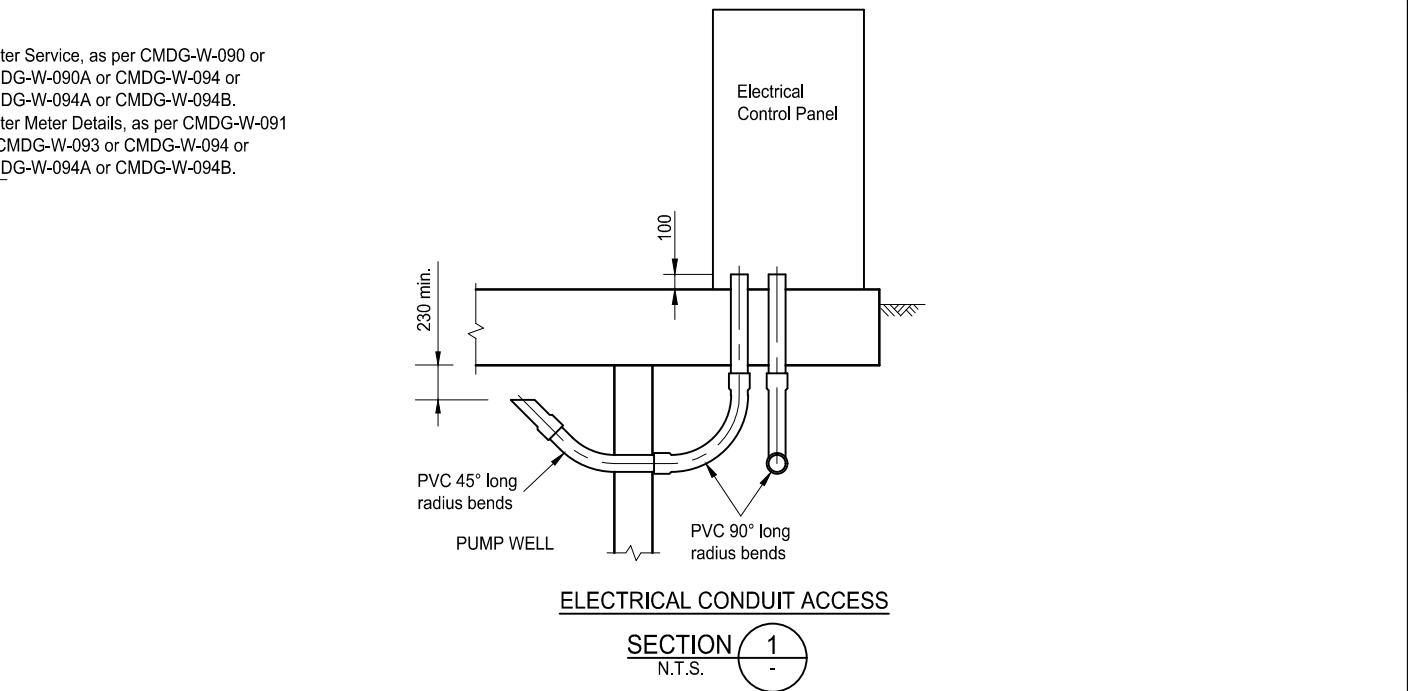
DISCLAIMER.
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

Capricorn Municipal Development Guidelines	
Incorporating:	
Banana Shire Council (BSC)	Livingstone Shire Council (LSC)
Central Highlands Regional Council (CHRC)	Maranoa Regional Council (MRC)
Gladstone Regional Council (GRC)	Rockhampton Regional Council (RRC)
Isaac Regional Council (IRC)	

SUBMERSIBLE SEWAGE PUMPING STATION GENERAL ARRANGEMENT 2400MM DIA.
--

SEWERAGE
STANDARD DRAWING
CMDG-S-061
REV. D E F G H I





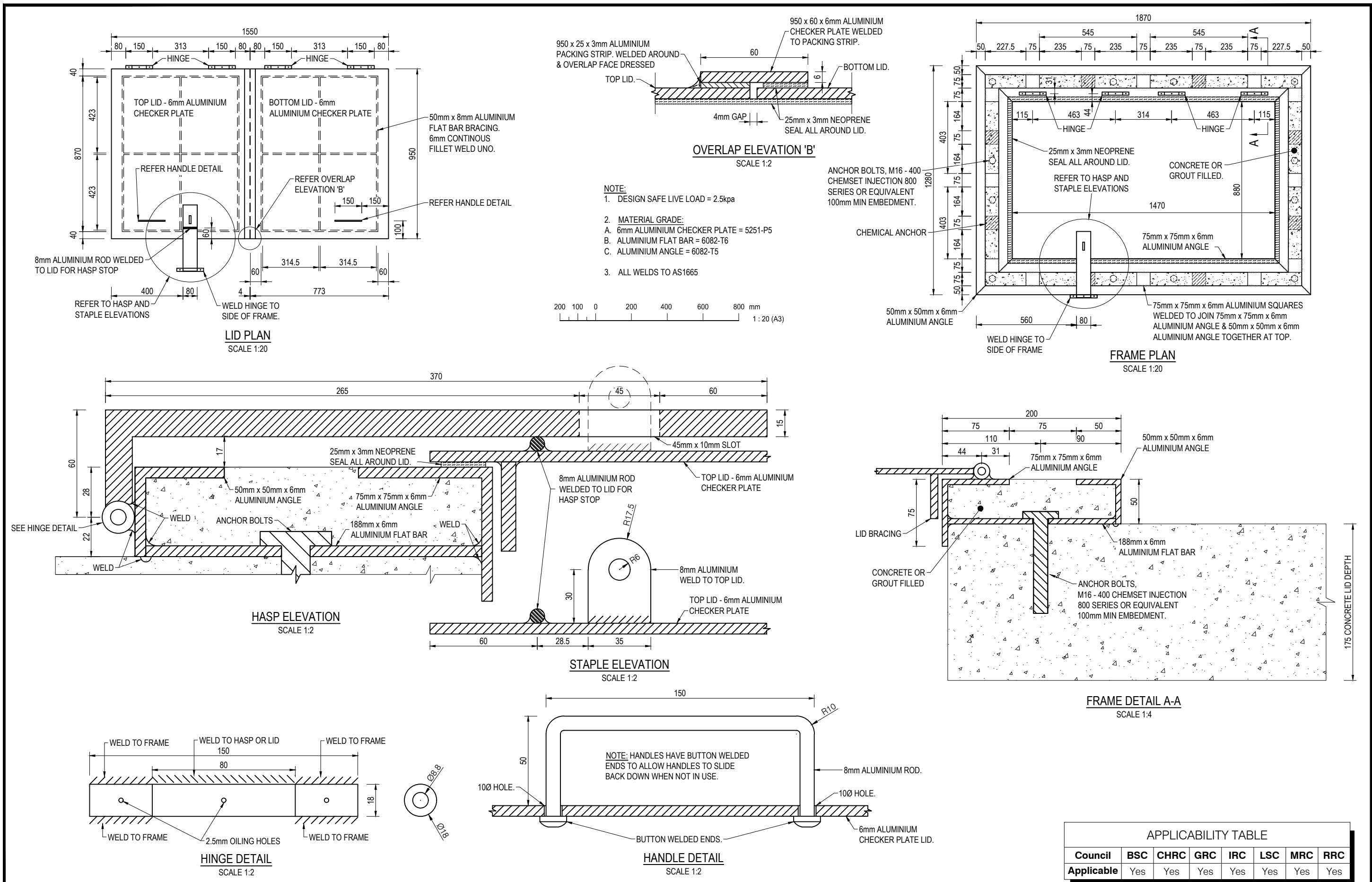
- LEGEND**
- |               |                        |
|---------------|------------------------|
| — — — — —     | Access Road            |
| — E —————     | Electrical Supply      |
| — / ————— / — | Fence or Boundary Line |
| — S —————     | Gravity Sewer main     |
| — SRM —————   | Sewer Rising Main      |
| — W —————     | Water Supply           |

**DISCLAIMER.**

The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

SUBMERSIBLE SEWAGE  
PUMPING STATION  
GENERAL ARRANGEMENT - 2400mm DIA.  
TYPICAL SITE PLAN

SEWERAGE						
STANDARD DRAWING						
CMDG-S-062						
REV	A	B	C	D	E	F
REV	H	I				



REVISIONS		DATE
E	SCALES & LID ARRANGEMENT AMENDED	10/2017
D	IRC ADDED	11/2016
C	GRC AND LSC ADDED	09/2014
B	RRC AMENDMENTS	05/2011
A	POST AMALGAMATION REVIEW	10/2003

**DISCLAIMER.**

The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

**Capricorn Municipal Development Guidelines**

Incorporating:

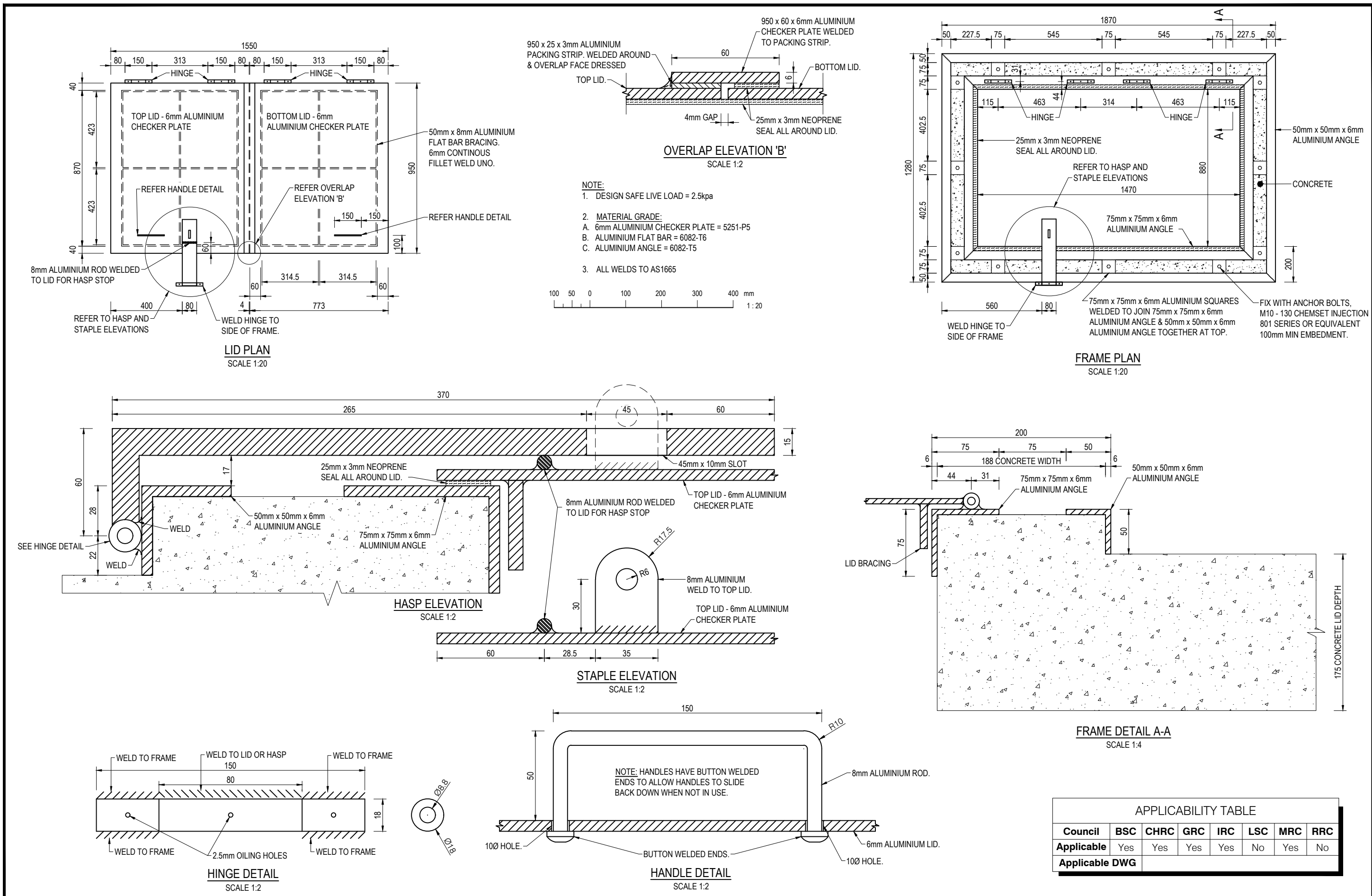
Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Isaac Regional Council (IRC)

Livingstone Shire Council (LSC)  
Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)

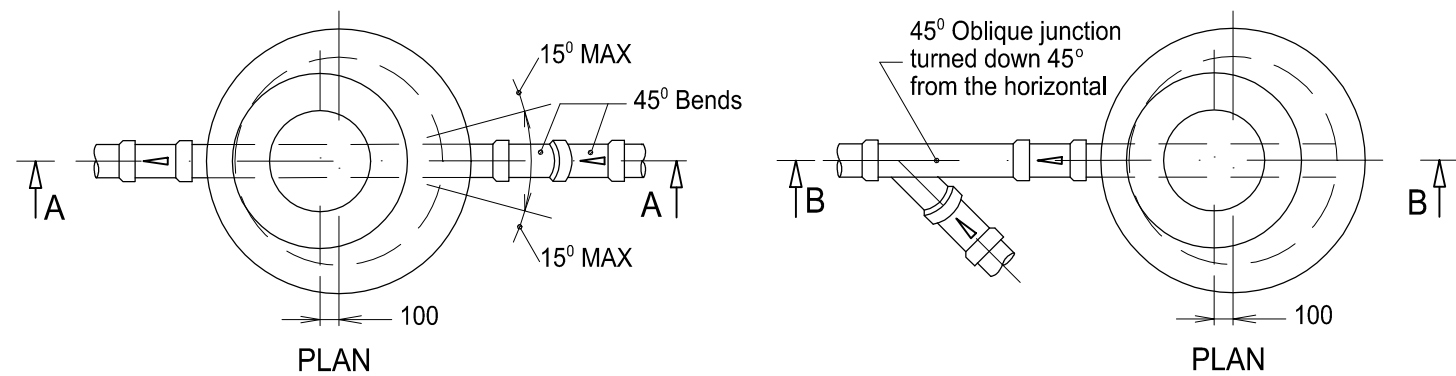
**SUBMERSIBLE SEWAGE PUMPING STATION LID DETAILS**

SEWERAGE  
STANDARD  
DRAWING  
CMDG-S-063

REV. A B C D E

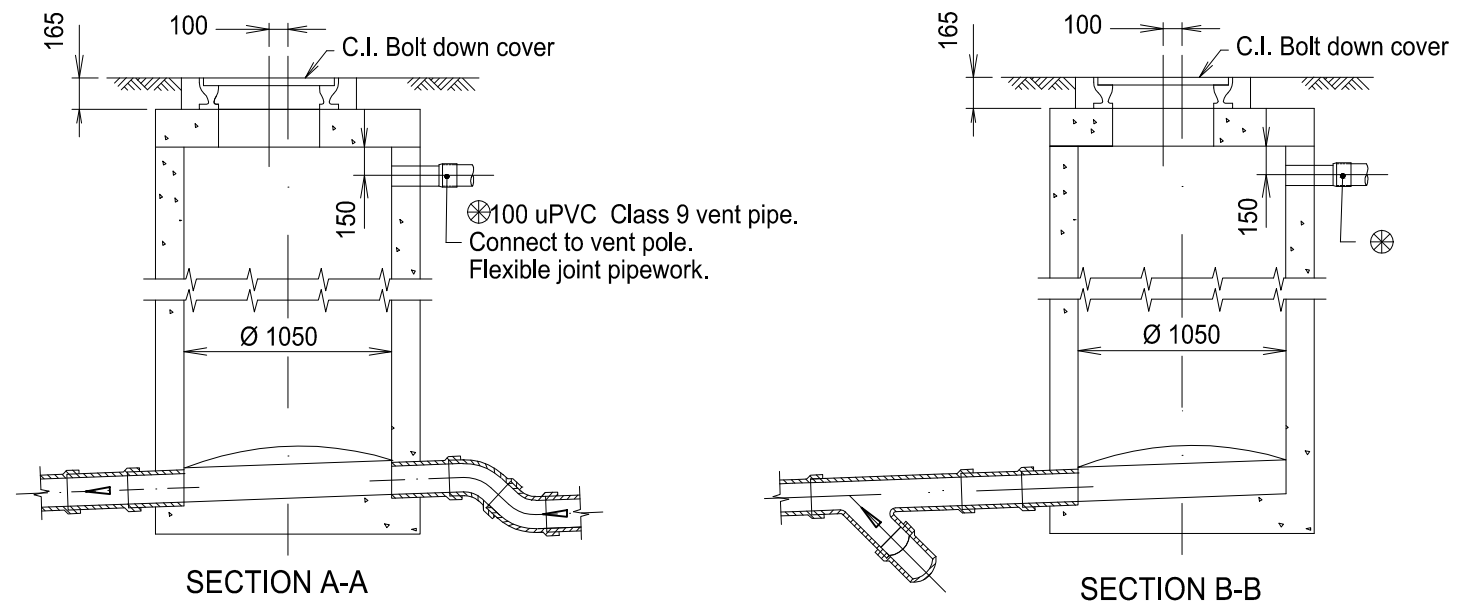


REVISIONS		DATE	<p>DISCLAIMER.</p> <p>The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.</p>	<p><b>Capricorn Municipal Development Guidelines</b></p> <p>Incorporating:</p> <p>Banana Shire Council (BSC) Central Highlands Regional Council (CHRC) Gladstone Regional Council (GRC) Isaac Regional Council (IRC)</p> <p>Livingstone Shire Council (LSC) Maranoa Regional Council (MRC) Rockhampton Regional Council (RRC)</p>	<p><b>SUBMERSIBLE SEWAGE PUMPING STATION LID DETAILS</b></p>	SEWERAGE					
STANDARD DRAWING											
CMDG-S-064											
REV.	A	B				C	D	E			



NOTES:

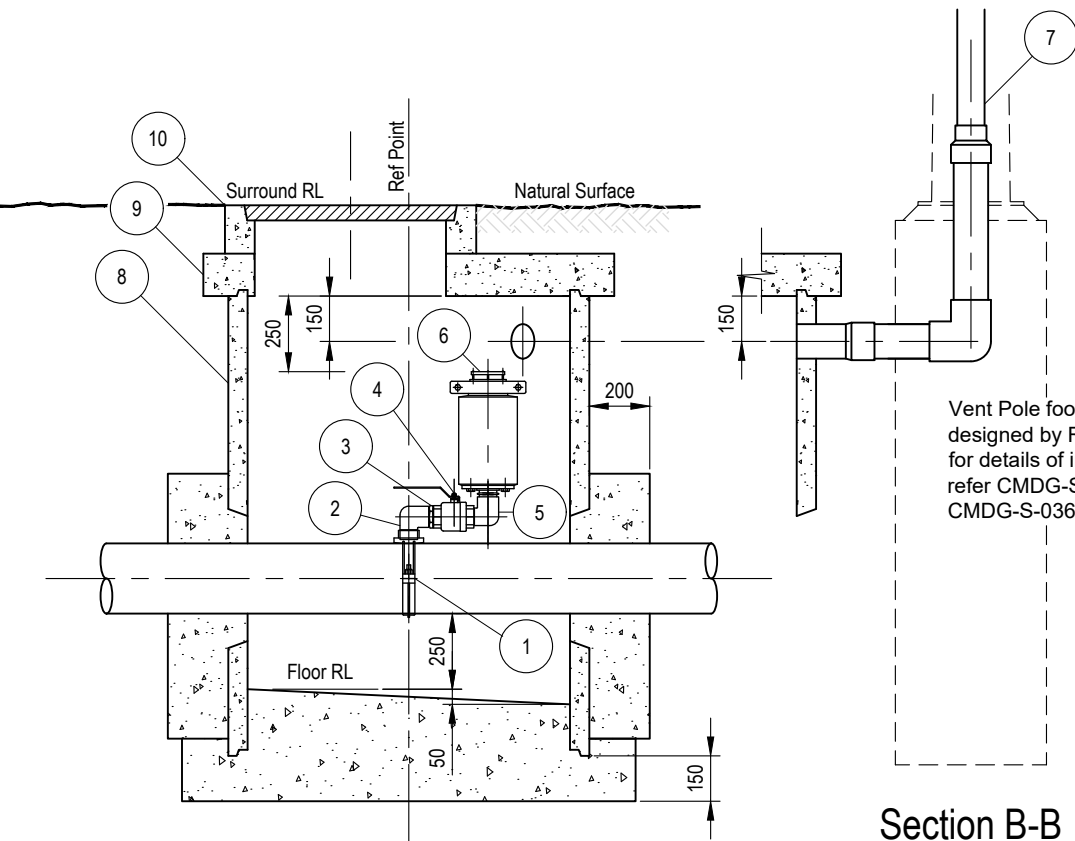
- Discharge Chambers, refer project drawings.
- Backfill in vent trench shall be compacted to at least the same density as the surrounding soil.
- Wind loads have been calculated for Terrain Category 2 and 3 in accordance with AS 1170.2. Mt=1. Region B.
- Design parameters for soil properties:- Clay -  $C_u \geq 15$  Kpa  
Loose Sand - Relative Density  $\geq 15\%$   
Water Table at surface level
- Concrete N32 in accordance with AS 1379 and AS 3600.
- All steelwork hot dip galvanized after fabrication to AS 1650.
- Bars Grade 250 to AS 1302. Plate Grade 250 to AS 3678.
- All bolts & washers Grade AS 2837/316 stainless steel. Nuts and vent pole cover Grade AS 2837/304 stainless steel.
- Anti-galling lubricant "Loctite 222 or 567" or similar approved shall be used on all threads and between all stainless steel abutting surfaces.
- Corrosion Protection of discharge chamber or pump well alternatives:
  - Polyethylene chambers are preferred.
  - All internal surfaces shall be smooth and free of holes and lightly sandblasted or acid-etched before painting with Peerless Epigen 1311 or Parchem Nitocote EP410 in two coats with a total dry film thickness of 600 microns. The concrete surface shall have cured for at least 28 days; or
  - A fabricated chamber liner of polyethylene shall be placed before the wall and top slab is poured or use a complete polyethylene manhole system such as Iplex EZI pit or Wavin Tegra; or
  - An alternative method of corrosion protection approved by the Service Authority.
- Any chamber within 100m downstream of rising main discharge to be protected in similar manner to discharge chamber.
- All dimensions in millimetres.



PRESSURE MAIN DISCHARGE CHAMBER

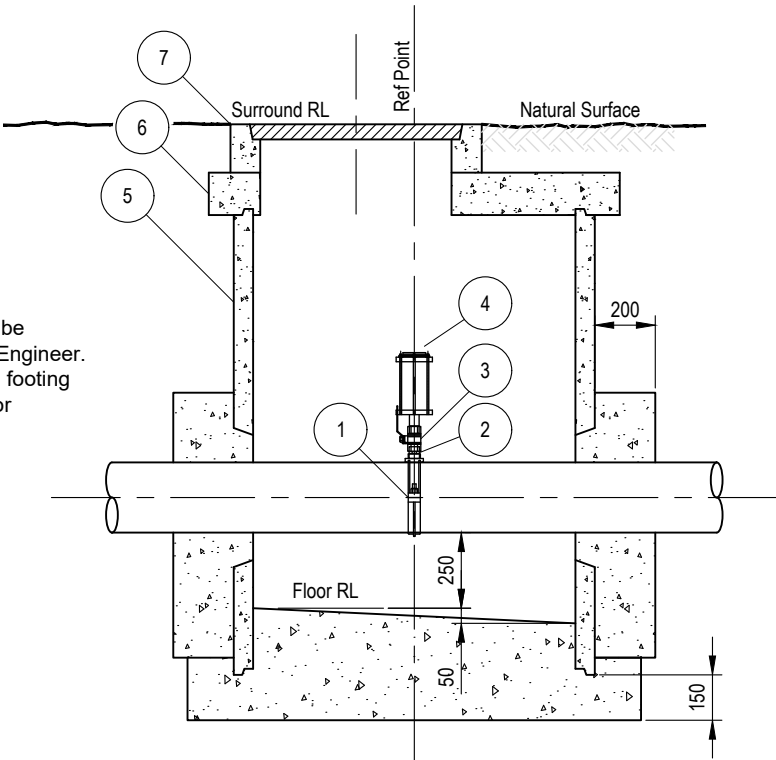
APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE	<div>DISCLAIMER.</div> <div>The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.</div>	Capricorn Municipal Development Guidelines		<div>PRESSURE MAIN</div> <div>DISCHARGE DETAILS</div>		SEWERAGE	
				STANDARD					
D	IRC ADDED	11/2016		DRAWING					
E	GRC AND LSC ADDED	09/2014		CMDG-S-070					
C	VENT POLE DETAILS REMOVED	01/2013							
B	RRC AMENDMENTS	04/2010							
A	ORIGINAL ISSUE	01/2010							

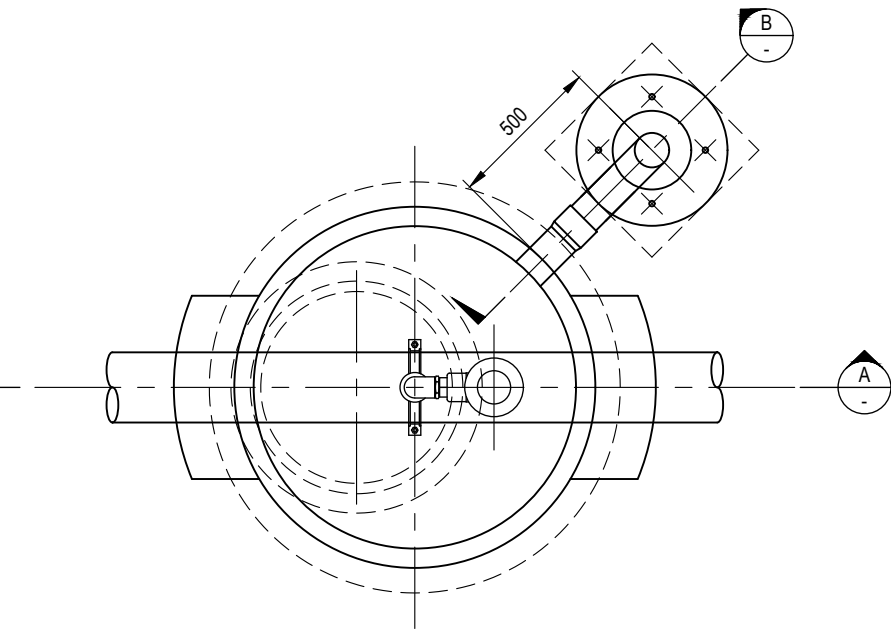


Section A-A  
Not to Scale

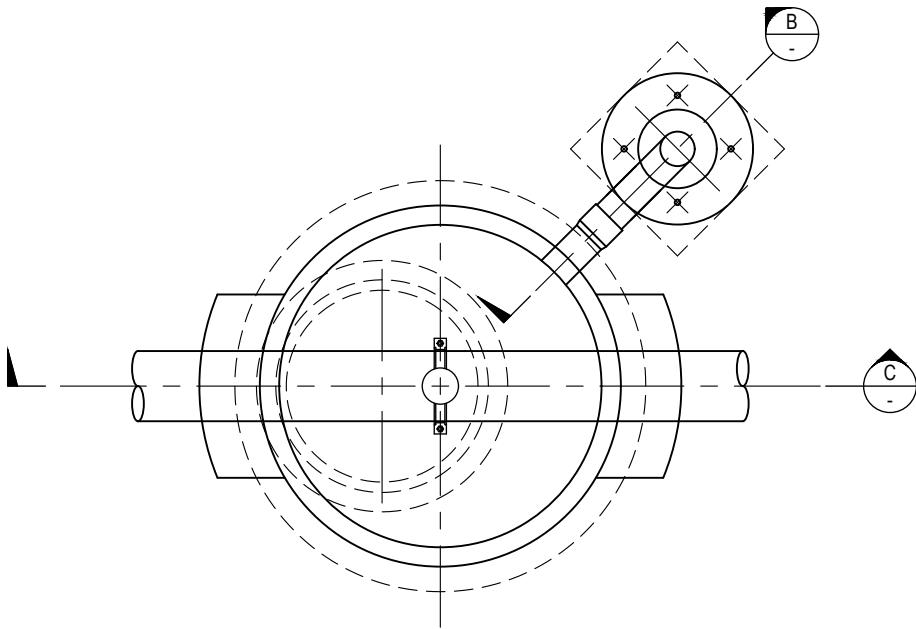
Section B-B  
Not to Scale



Section C-C  
Not to Scale



Plan  
Air Valve (Sewer R/Main)  
Typical Details  
Not to Scale



Plan  
Air Valve (Effluent R/Main)  
Typical Details  
Not to Scale

### Items Schedule (Sewer R/Main)

ITEM	DESCRIPTION	DIA(MM)	REQD
1	Tapping Band (Screwed)	??x50	1
2	SS Elbow (Screwed) M&F	50	1
3	SS Nipple (Screwed) M&M	50	1
4	SS Ball Valve (Screwed) F&F	50	1
5	SS Elbow (Screwed) M&F	50	1
6	GFR "Vent Master" Air Valve	50	1
7	Vent Pipe	-	1
8	RC Shaft (length to suit)	1050	1
9	RC Convertor Slab	1050	1
10	RC Surround & CI Cover	600	1

### Items Schedule (Effluent R/Main)

ITEM	DESCRIPTION	DIA(MM)	REQD
1	Tapping Band (Screwed)	200x50	1
2	Brass Nipple (Screwed) M&M	25	1
3	Brass Ball Valve (Screwed) F&F	25	1
4	"Vent-o-Mat" Air Valve (Screwed)	25	1
5	RC Shaft (length to suit)	1050	1
6	RC Convertor Slab	1050	1
7	RC Surround & CI Cover	600	1

### NOTES:

- All dimensions are in metres unless otherwise shown.
- Concrete to be 32MPa and in accordance with AS. 1379 and AS. 3600.
- Reinforcement to be in accordance with AS. 4671.
- All flanges to be in accordance with AS. 2129 - Table C U.N.O.
- Air Valve marker posts to be installed in accordance with CMDG-W-060.
- Precast Reinforced Concrete Chamber components to be Humes 1050 Access Chamber Epoxy Jointed or similar approved equivalent.
- RC Convertor Slab, RC Surround & CI Cover to be rotated to provide optimum access to pit.
- RC Surround to be supplied with Cast Iron frame to suit solid Cast Iron bolt down San Sew Cover.
- For details of Vent Pole refer to CMDG-S-035 or CMDG-S-036.
- Where foundation bearing pressure is less than 50 kPa, excavate and replace unsatisfactory material with compacted CBR15 material to the depth ordered by the Works Supervisor.

#### APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	No	Yes	Yes	Yes	Yes
Applicable DWG	CMDG-S-057						

REVISIONS	DATE
G DRAWING REFERENCES UPDATED, STYLE UPDATED	04/2023
F IRC ADDED	11/2016
E DIMENSIONS EXPRESSED IN MM GRC APPLICABILITY CHANGE	03/2015
D GRC AND LSC ADDED	09/2014
C VENT POLE DWG REFERENCE AMENDED	01/2013
B RRC AMENDMENTS	05/2011

DISCLAIMER.  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

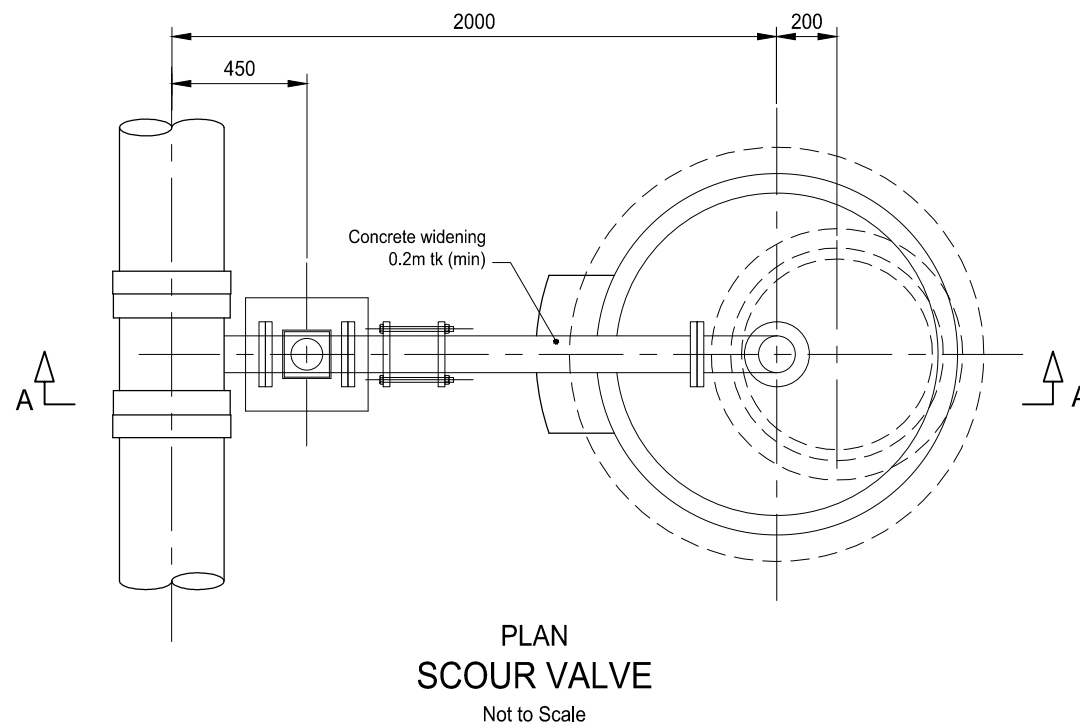
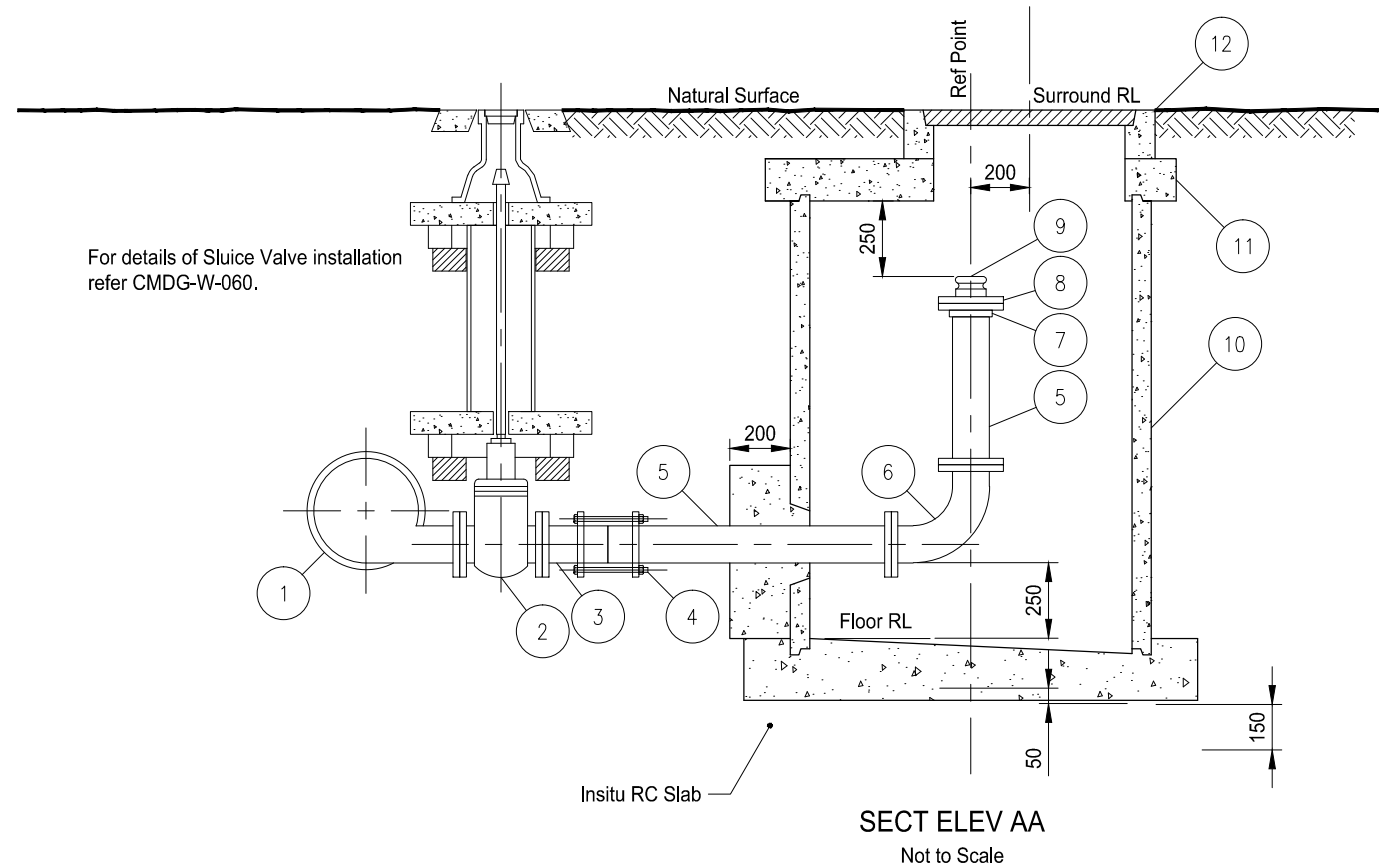
### Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC) Maranoa Regional Council (MRC)  
Central Highlands Regional Council (CHRC) Rockhampton Regional Council (RRC)  
Gladstone Regional Council (GRC) Isaac Regional Council (IRC)  
Livingstone Shire Council (LSC)

## AIR VALVES CONSTRUCTION DETAILS

SEWER	
STANDARD DRAWING	A3
CMDG-S-072	
REV.	B   C   D   E   F   G



ITEMS SCHEDULE			
ITEM	DESCRIPTION	DIA (mm)	REQD
1	Scour Tee Soc/Soc/FI	??x100	1
2	Sluice Valve FI/FI	100	1
3	Convector FI/Sp	100	1
4	Gibault	100	1
5	Pipe - (length to suit) Sp/FI	100	2
6	90° Bend FI/FI	100	1
7	Adapta Flange	100	1
8	Reducing Flange	100x80	1
9	Camlock Coupling	80	1
10	RC Shaft (length to suit)	1050	1
11	RC Convector Slab	1050	1
12	RC Surround & Cover	600	1

#### NOTES:

- All dimensions are in metres unless otherwise shown.
- Concrete to be 32MPa and in accordance with AS. 1379 and AS. 3600.
- Reinforcement to be in accordance with AS. 1304.
- All flanges to be in accordance with AS. 2129 - Table C U.N.O.
- Scour Valve marker posts to be installed in accordance with CMDG-W-060.
- Precast Reinforced Concrete Chamber components to be Humes 1050 Access Chamber Epoxy Jointed or similar approved equivalent.
- RC Convector Slab, RC Surround & CI Cover to be rotated to provide optimum access to pit.
- RC Surround to be supplied with Cast Iron frame to suit solid Cast Iron bolt down San Sew Cover.
- Where foundation bearing pressure is less than 50 kPa, excavate and replace unsatisfactory material with compacted CBR15 material to the depth ordered by the Works Supervisor.

APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	No	Yes	Yes	Yes	Yes
Applicable DWG	GRC SPS drawing GRC-SPS-24						

REVISIONS		DATE
E	IRC ADDED	11/2016
D	GRC APPLICABILITY CHANGE	03/2015
C	GRC AND LSC ADDED	09/2014
B	RRC AMENDMENTS	05/2011
A	POST AMALGAMATION REVIEW	01/2010

**DISCLAIMER.**  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

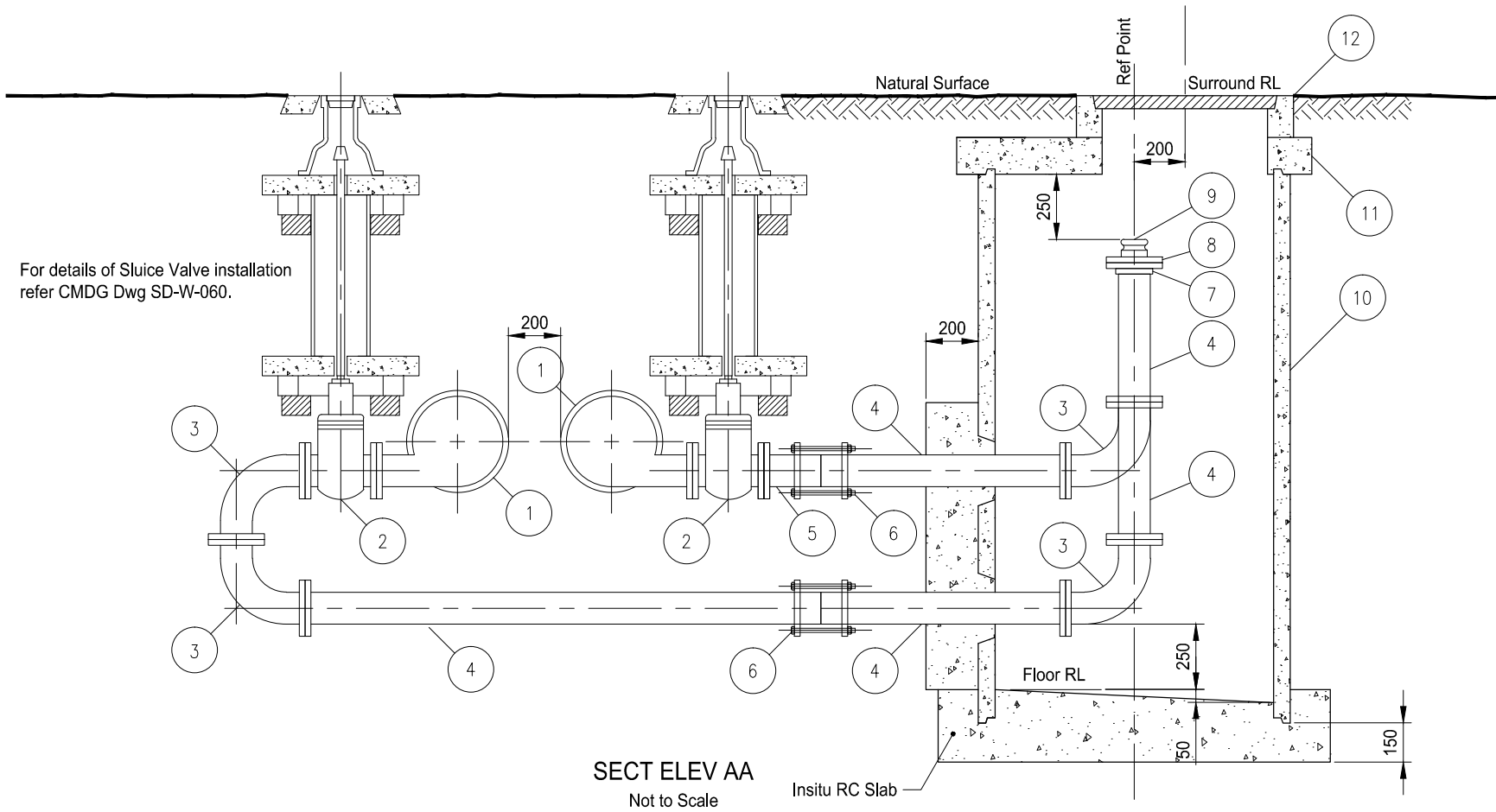
### Capricorn Municipal Development Guidelines

Incorporating:  
Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Isaac Regional Council (IRC)  
Livingstone Shire Council (LSC)  
Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)

### SCOUR VALVE-100dia CONSTRUCTION DETAILS

ROADS							
STANDARD DRAWING							
CMDG-S-073							
REV.	A	B	C	D	E		

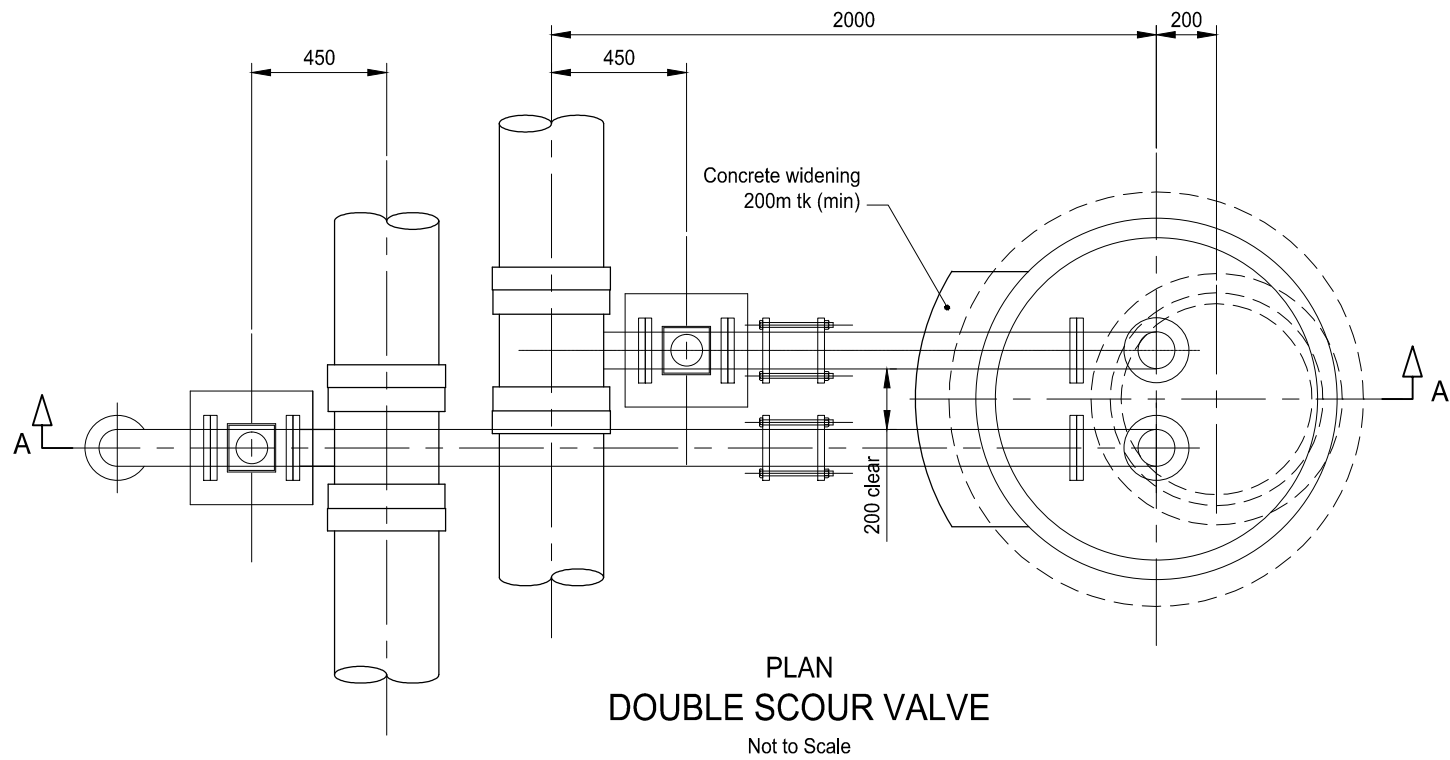




ITEMS SCHEDULE			
ITEM	DESCRIPTION	DIA	REQD
1	Scour Tee Soc/Soc/FI	??x100	2
2	Sluice Valve FI/FI	100	2
3	90° Bend FI/FI	100	4
4	Pipe (length to suit) FI/FI	100	5
5	Convertor FI/Sp	100	2
6	Gibault	100	2
7	Adapta Flange	100	2
8	Reducing Flange	100x80	2
9	Camlock Coupling	80	2
10	RC Shaft (length to suit)	1050	1
11	RC Convertor Slab	1050	1
12	RC Surround & Cover	600	1

NOTES:

1. All dimensions are in metres unless otherwise shown.
2. Concrete to be 32MPa and in accordance with AS. 1379 and AS. 3600.
3. Reinforcement to be in accordance with AS. 1304.
4. All flanges to be in accordance with AS. 2129 - Table C U.N.O.
5. Scour Valve marker posts to be installed in accordance with CMDG-W-060.
6. Precast Reinforced Concrete Chamber components to be Humes 1050 Access Chamber Epoxy Jointed or similar approved equivalent.
7. RC Convertor Slab, RC Surround & CI Cover to be rotated to provide optimum access to pit.
8. RC Surround to be supplied with Cast Iron frame to suit solid Cast Iron bolt down San Sew Cover.
9. Where foundation bearing pressure is less than 50 kPa, excavate and replace unsatisfactory material with compacted CBR15 material to the depth ordered by the Works Supervisor.



APPLICABILITY TABLE							
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE
E	IRC ADDED	11/2016
D	DIMENSIONS EXPRESSED IN mm	03/2013
C	GRC AND LSC ADDED	09/2014
B	RRC AMENDMENTS	05/2011
A	POST AMALGAMATION REVIEW	01/2010

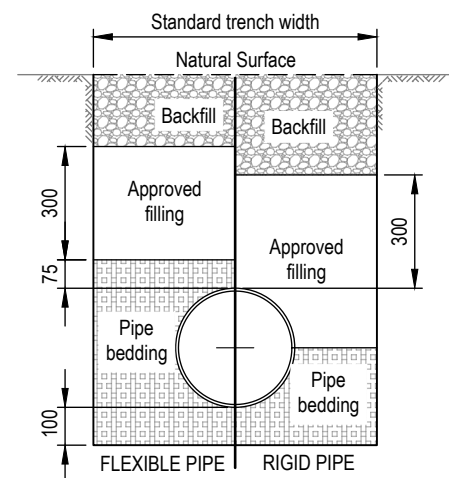
DISCLAIMER.  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

Capricorn Municipal Development Guidelines

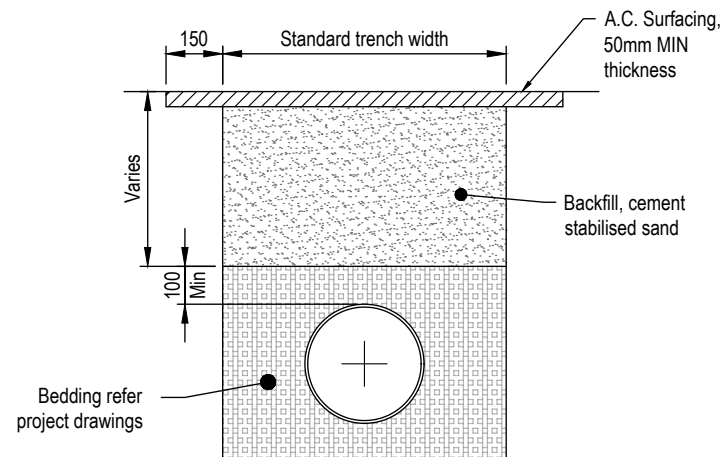
Incorporating:  
Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Isaac Regional Council (IRC)  
Livingstone Shire Council (LSC)  
Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)

DOUBLE SCOUR SEWER VALVE  
CONSTRUCTION DETAILS

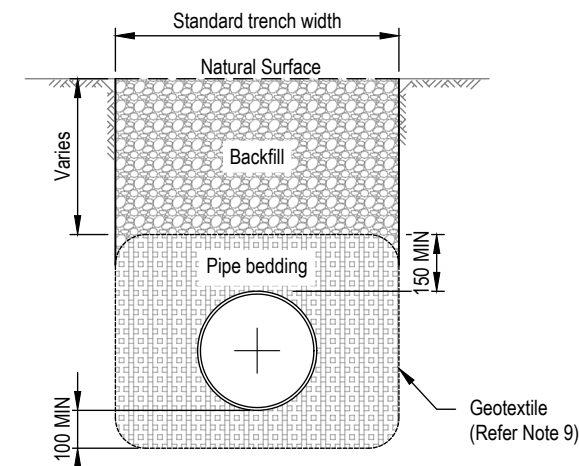
ROADS							
STANDARD DRAWING CMDG-S-074							
REV.	A	B	C	D	E		



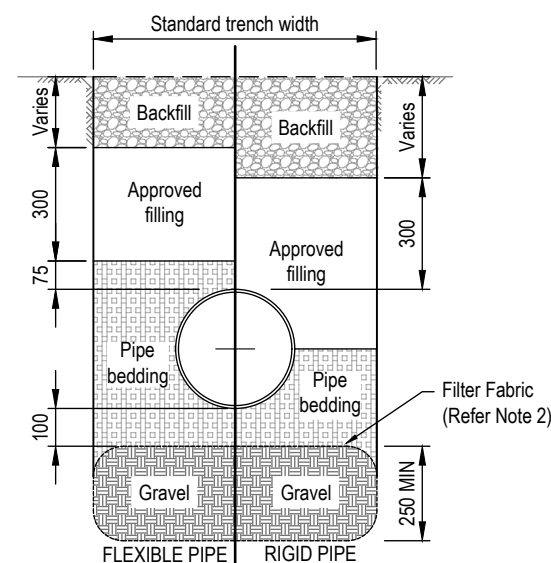
TYPE 1 - STANDARD SUPPORT  
1:20



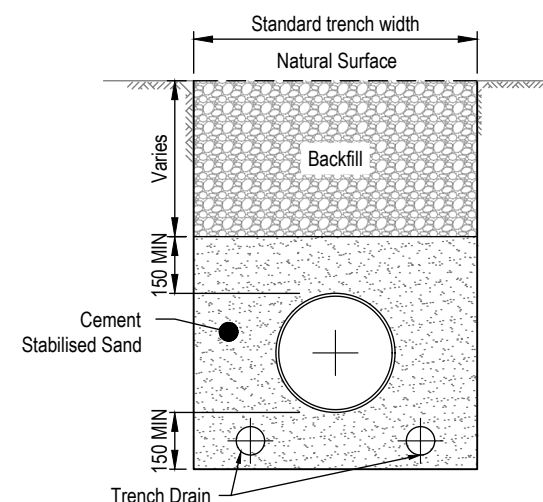
TYPE 2 - UNDER EXISTING ROADS  
1:20



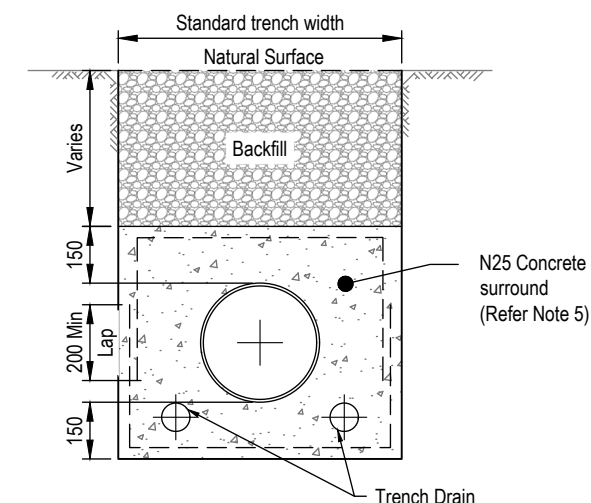
TYPE 3 - GEOTEXTILE WRAPPED  
1:20



TYPE 4 - GEOTEXTILE WRAPPED  
ROCK/GRAVEL PILLOW  
1:20



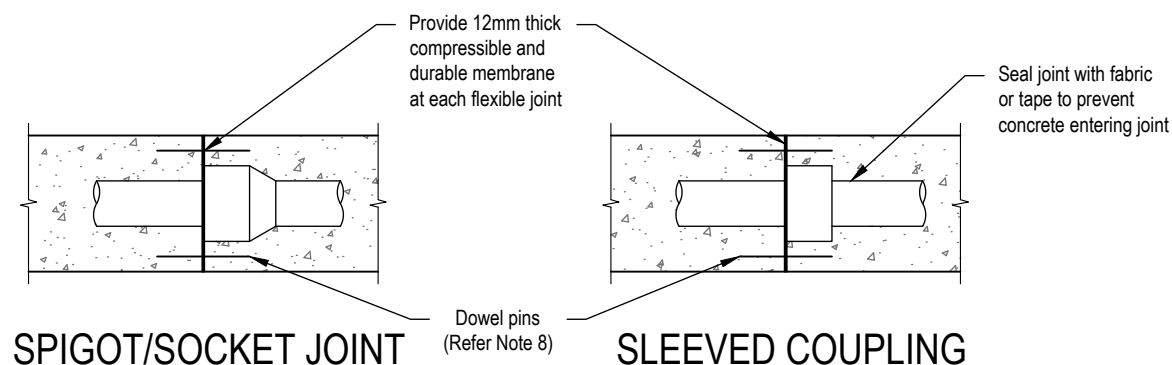
TYPE 5 - CEMENT STABILISED  
1:20



TYPE 6 - CONCRETE SURROUND  
1:20

## NOTES:

- Pipe bedding classification
  - Rigid Pipes: Vitrified clay, steel, ductile iron, fibre cement and concrete.
  - Flexible Pipes: Unplasticised polyvinyl chloride, glass filament reinforced thermosetting plastics, acrylonitrile butadiene styrene and polyethylene.
- An approved geotextile fabric shall be used in all trenches around crushed rock pipe bedding.
- The road surface finish shall be asphaltic concrete or other surface specified in the project drawings or by the Superintendent.
- Sand surround (compacted in 150mm layers) > 70% D.I. or 95% standard compaction in bedding and side support. Density index (D.I.) as per A.S.1289.5.1.1: 1998 Standard compaction as per A.S. 1289.5.1.1: 2017.
- Concrete N25 in accordance with AS 1379 and AS 3600.
- All dimensions in millimetres.
- Cement stabilised sand (3% by weight) or well graded crushed rock to be 25:1 sand cement (placed dry).
- Provide dowel pins, as detailed in design drawings at each concrete encasement joint to prevent pipe damage.
- Lay geotextile filter fabric against trench floor and walls such that it fully encases the embedment.
  - Press fabric into the voids before installing embedment to prevent fabric tearing
  - Provide a minimum of 250mm overlap at all fabric joints.

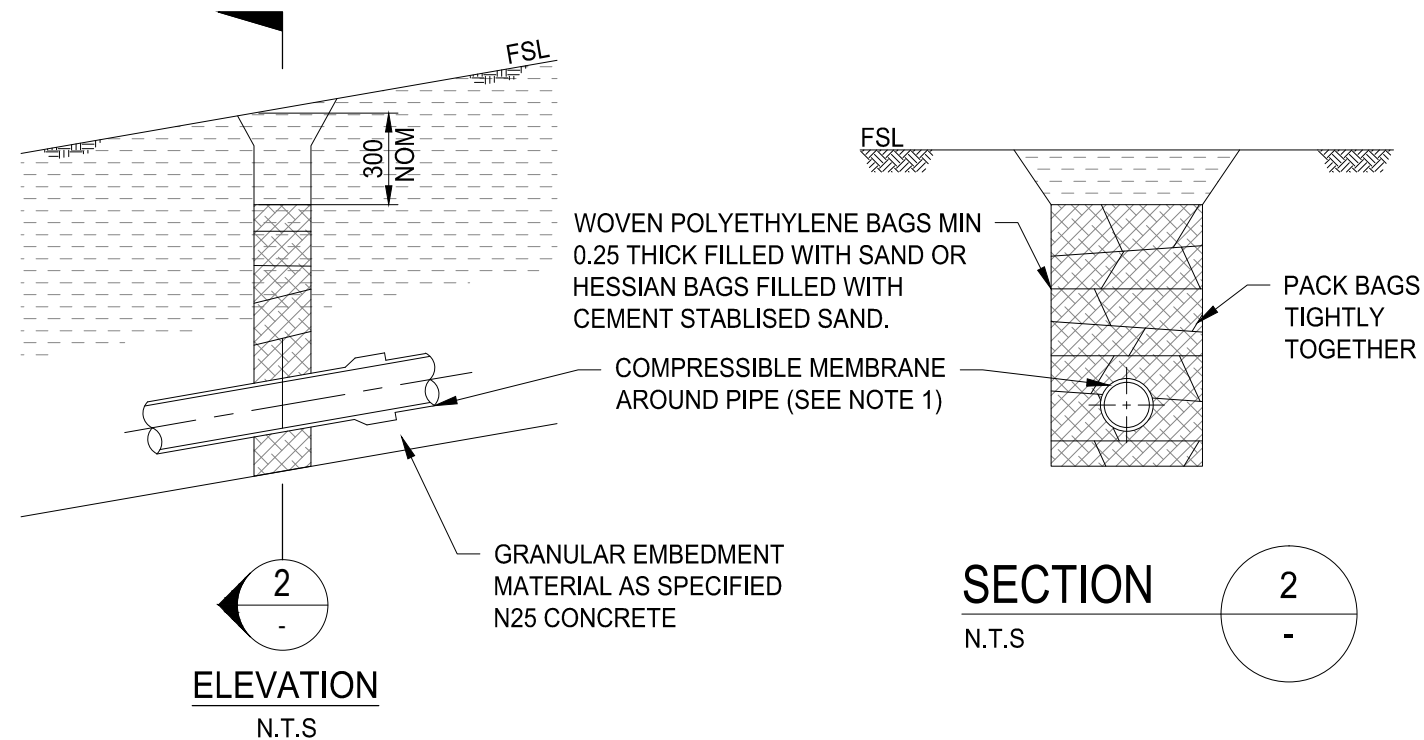
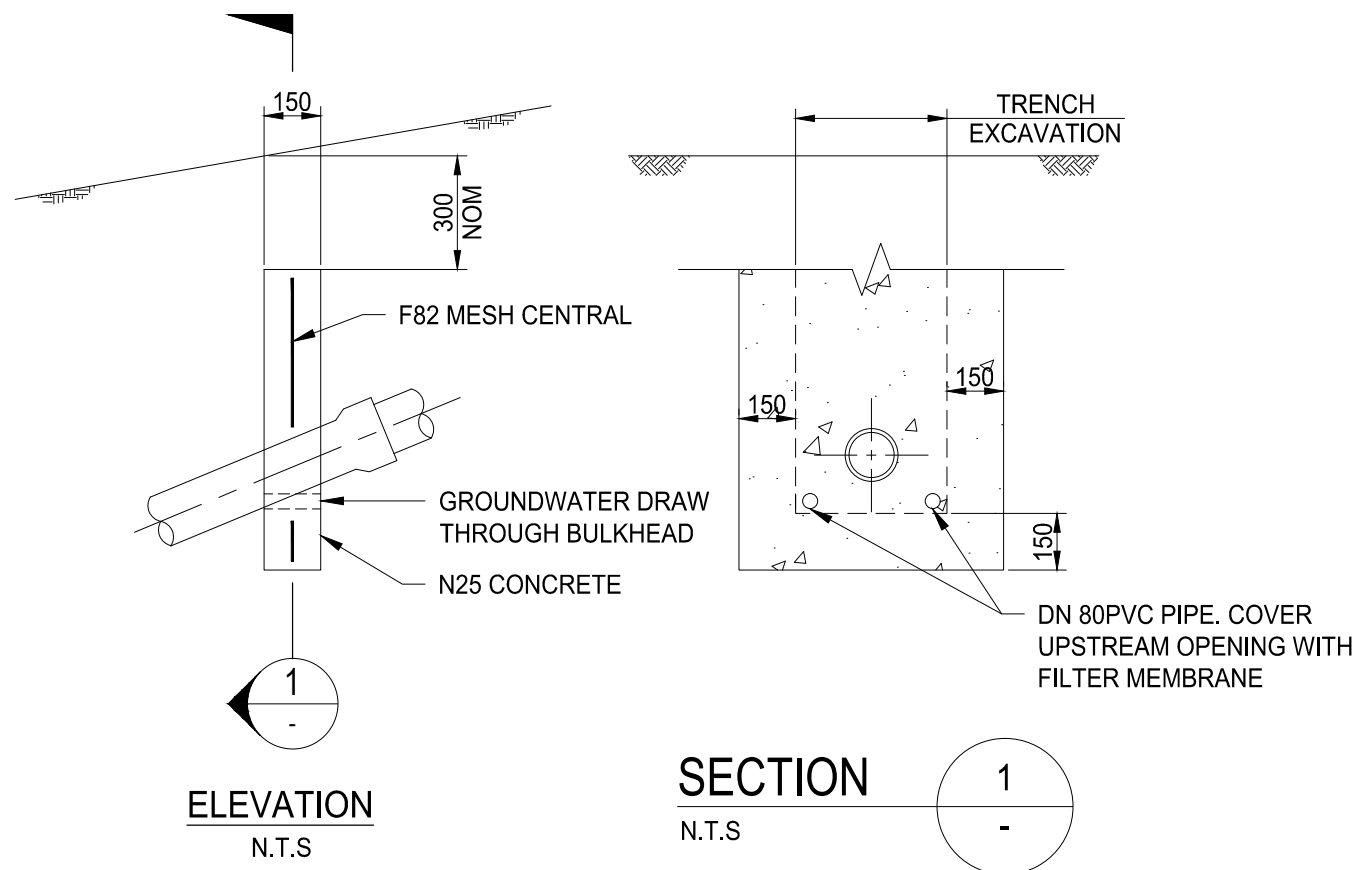


CONCRETE ENCASEMENT JOINT DETAILS  
1:50

STANDARD TRENCH WIDTHS												
Diameter of Pipe	100	150	225	300	375	450	525	600	675	750	825	900
Trench Width	600	600	675	750	825	900	1000	1075	1150	1300	1375	1450

APPLICABILITY TABLE								
Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC	
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE	DISCLAIMER.			Capricorn Municipal Development Guidelines		SEWER CONSTRUCTION PIPELINE CONSTRUCTION TYPES		SEWER	
E	REWORK OF TRENCH PROFILES	07/2022	The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.			Incorporating:		CMDG-S-090		STANDARD DRAWING	A3
D	IRC ADDED	11/2016				Banana Shire Council (BSC)					
C	GRC AND LSC ADDED	09/2014				Central Highlands Regional Council (CHRC)					
B	RRC AMENDMENTS	05/2011				Gladstone Regional Council (GRC)					
A	POST AMALGAMATION REVIEW	01/2010				Livingstone Shire Council (LSC)					
										REV. A B C D E	



## TRENCHSTOPS

## CONCRETE BULKHEADS

### NOTES:

1. Compressible membrane around pipe to be 3mm thick rubber.
2. Concrete bulkhead / trenchstop spacing based on standard pipe length 5.5m (DICI) and 2.44m (RCP)  
Refer designer for bulkhead / trenchstop spacing for non standard pipe lengths
3. Key concrete bulkhead into sides and bottom of trench against a bearing surface of undisturbed soil.
4. Concrete class N25

### CONCRETE BULKHEAD / TRENCHSTOPS FOR UPVC (3m LENGTHS)

REQUIREMENT FOR CONCRETE BULKHEADS		TRENCHSTOPS
GRADIENT	SPACING (m)	SPACING (m)
1 in 2	3.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 3	6.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 4	10.0	4.000
1 in 5	12.0	5.000
1 in 6	14.0	6.000

### CONCRETE BULKHEAD / TRENCHSTOPS FOR UPVC (6m LENGTHS)

REQUIREMENT FOR CONCRETE BULKHEADS		TRENCHSTOPS
GRADIENT	SPACING (m)	SPACING (m)
1 in 2	6.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 3	12.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 4	18.0	4.000
1 in 5	22.0	5.000
1 in 6	27.0	6.000

### CONCRETE BULKHEAD / TRENCHSTOPS FOR DICI (5.5m LENGTHS)

REQUIREMENT FOR CONCRETE BULKHEADS		TRENCHSTOPS
GRADIENT	SPACING (m)	SPACING (m)
1 in 2	5.5 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 3	11.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 4	11.000	4.000
1 in 5	16.500	5.000
1 in 6	22.000	6.000

### CONCRETE BULKHEAD / TRENCHSTOPS FOR RCP (2.44m LENGTHS)

REQUIREMENT FOR CONCRETE BULKHEADS		TRENCHSTOPS
GRADIENT	SPACING (m)	SPACING (m)
1 in 2	2.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 3	3.0 + CONCRETE SURROUND	CONCRETE SURROUND
1 in 4	7.800	4.000
1 in 5	9.800	5.000
1 in 6	11.700	6.000

### APPLICABILITY TABLE

Council	BSC	CHRC	GRC	IRC	LSC	MRC	RRC
Applicable	Yes	Yes	Yes	Yes	Yes	Yes	Yes

REVISIONS		DATE
C	IRC ADDED	11/2016
B	UPVC REQUIREMENTS ADDED	03/2015
A	NEW DRAWING	01/2015

**DISCLAIMER.**  
The authors and sponsoring organisations shall have no liability or responsibility to the user or any other person or entity with respect to any liability, loss or damage caused or alleged to be caused, directly or indirectly, by the adoption and use of these Standard Drawings including, but not limited to, any interruption of service, loss of business or anticipatory profits, of consequential damages resulting from the use of these Standard Drawings. Persons must not rely on these Standard Drawings as the equivalent of, or a substitute for, project-specific design and assessment by an appropriately qualified professional.

## Capricorn Municipal Development Guidelines

Incorporating:

Banana Shire Council (BSC)  
Central Highlands Regional Council (CHRC)  
Gladstone Regional Council (GRC)  
Isaac Regional Council (IRC)  
Livingstone Shire Council (LSC)  
Maranoa Regional Council (MRC)  
Rockhampton Regional Council (RRC)

## SEWER CONSTRUCTION BULKHEAD AND TRENCHSTOP DETAILS

ROADS							
STANDARD DRAWING							
CMDG-S-091							
REV.	A	B	C				