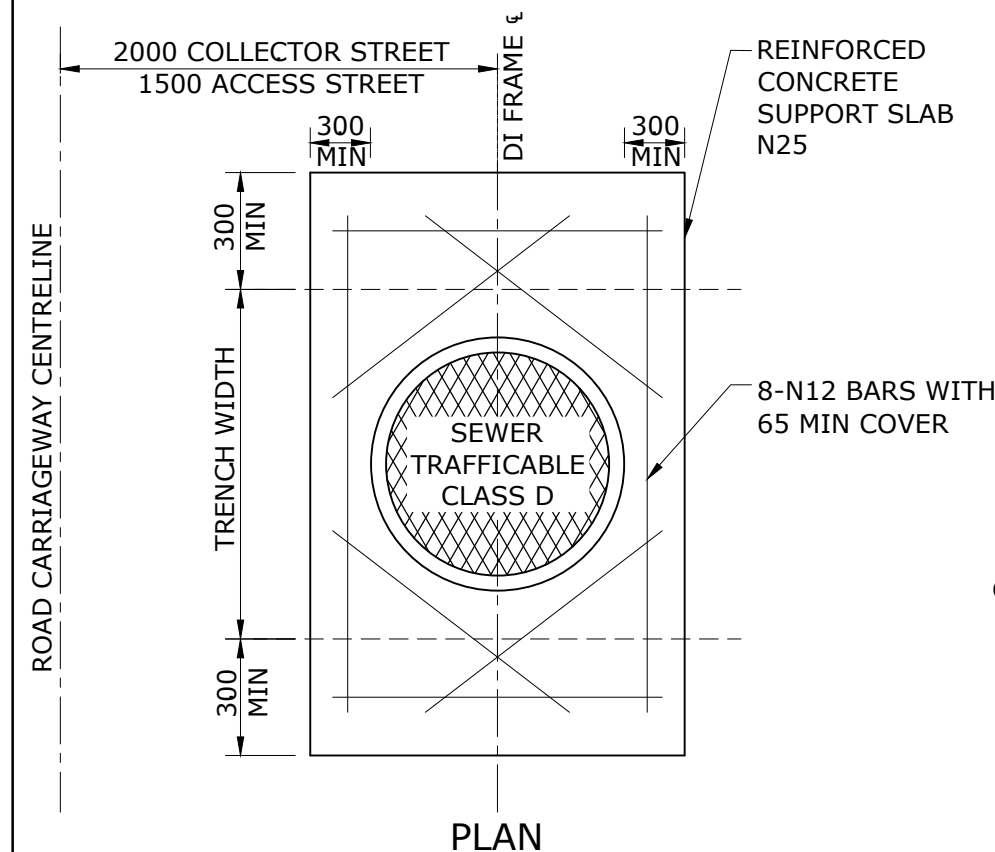
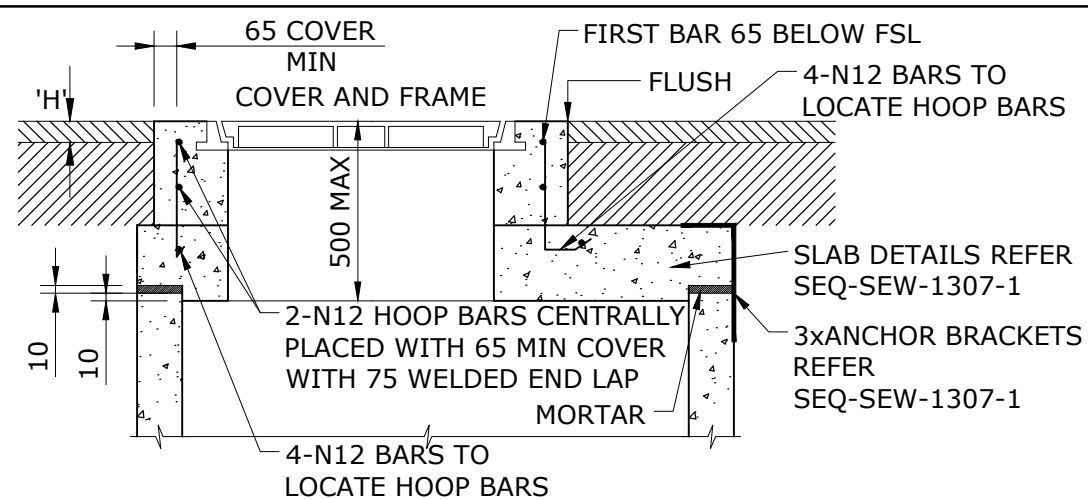


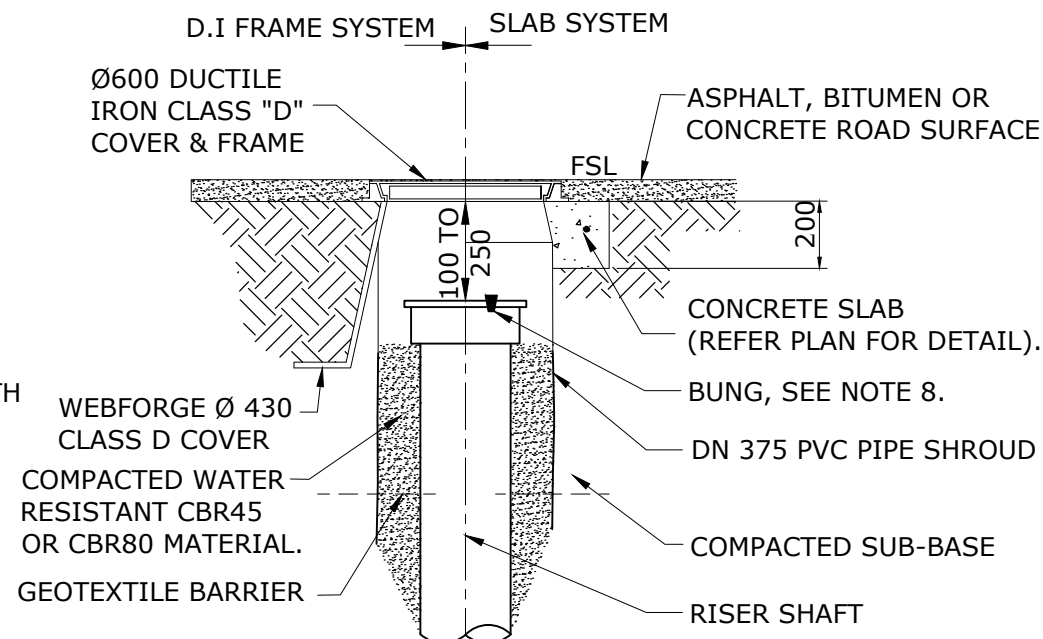
PRECAST ALLOTMENT INSTALLATION



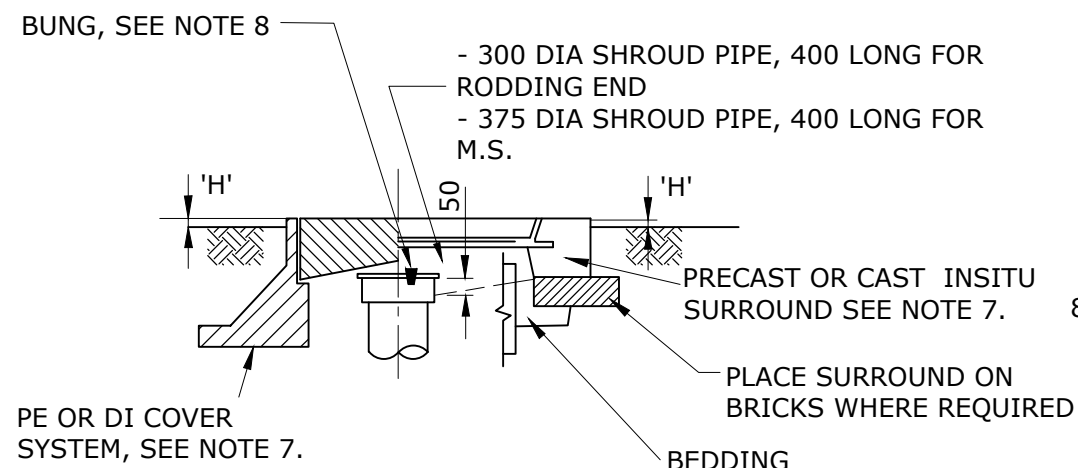
DIMENSION 'H'	
FINISHED LEVELS OF MH COVERS	
LOCATION	H
UNDEVELOPED AREAS	300
NEW SUBDIVISIONS	50
ROADS, LANE WAYS, FOOTWAYS & DRIVEWAYS	FLUSH
EXISTING DEVELOPED AREAS	25
OTHER AS SPECIFIED (EG ABOVE Q100 FLOOD LEVEL)	



CAST IN-SITU PAVED INSTALLATION



TRAFFICABLE MAINTENANCE AND RODDING SHAFT SURROUND DETAILS



NON-TRAFFICABLE MAINTENANCE AND RODDING SHAFT SURROUND DETAILS

SELECTION OF DN600 MH COVERS	
ALL COVERS TO BE WATER TIGHT, SEE NOTE 6	
LOCATION	CLASS
RESERVES, ALLOTMENTS, FOOTPATHS, VERGES	B - NON-TRAFFICABLE
ROADWAYS & DRIVEWAYS	D - TRAFFICABLE
LOCATIONS SUBJECT TO Q100 FLOODING AND SURCHARGE	CLASS B OR D WITH BOLT-DOWN (SEE NOTE 3)

NOTES:

- ALL DIMENSIONS IN MILLIMETRES.
- SEALING METHODS FOR COVER-FRAME SURROUND TO WALLS
 - MAKE JOINTS BETWEEN SHAFT TOP/MAKE-UP RING AND COVER SUPPORT RING USING BUTYL-MASTIC OR RUBBER RING.
 - APPLY BUTYL-MASTIC OR RING IN ACCORDANCE WITH MANUFACTURERS SPECIFICATION.
 - FOLLOWING (b) ABOVE, APPLY EXTERNALLY 4X100 LONG SECTIONS OF 'MEGAPOXY P1' OR EQUAL TO PRECAST SURROUND/RING JOINT TO REINFORCE JOINT.
- IN AREAS SUBJECT TO Q100 FLOODING AND SURCHARGE, USE CAST IN-SITU MH WITH ANCHOR BRACKETS SO THAT SEPARATION DURING SURCHARGE IS PREVENTED. SEE SEQ-SEW-1307-1.
- MAXIMUM PERMISSIBLE SLOPE OF COVERS:

CLASS "B"	1 IN 4
CLASS "D"	1 IN 10
- COVERS AND FRAMES, REFER CODE.
- CAST IN-SITU AND ALL CLASS D COVERS AND FRAMES SHALL BE TYPE 'd' WATERSEALED SOLID TOP IN ACCORDANCE WITH CLAUSE 1.5.3.1 OF AS3996.
 - STORMWATER PRECAST SURROUND, FRAME & LID MAY BE USED FOR ALL NON CARRIAGEWAY LOCATIONS EXCEPT THAT THE DI COVER SHALL BE MARKED FOR SEWERAGE PURPOSES.
 - SMARTSTREAM TOP HAT OR WEBFORGE CLASS 'B' COVER #DCC3B22 ALTERNATIVES TO SHROUD PIPE SYSTEM FOR NON TRAFFICABLE.
 - DUCTILE IRON COVERS SHALL BE EITHER 600mm OR 430mm DIAMETER AT CLASS "D" FOR ROAD CARRIAGE WAY INSTALLATION AND AT CLASS "B" FOR ALL OTHER LOCATIONS.
- LOCK DOWN QUICK RELEASE END CAPS SHALL BE SEALED BY A RUBBER RING, SCREW DOWN CAPS ARE NOT PERMITTED. PRIOR TO ON-MAINTENANCE, ALL M.S. END CAPS SHALL BE PROVIDED WITH 20-25MM DIA. RUBBER BUNGS IN 20MM DRILL HOLE. CONTRACTOR TO DRILL HOLE AND FIT BUNG FOLLOWING PRESSURE TEST PASS.

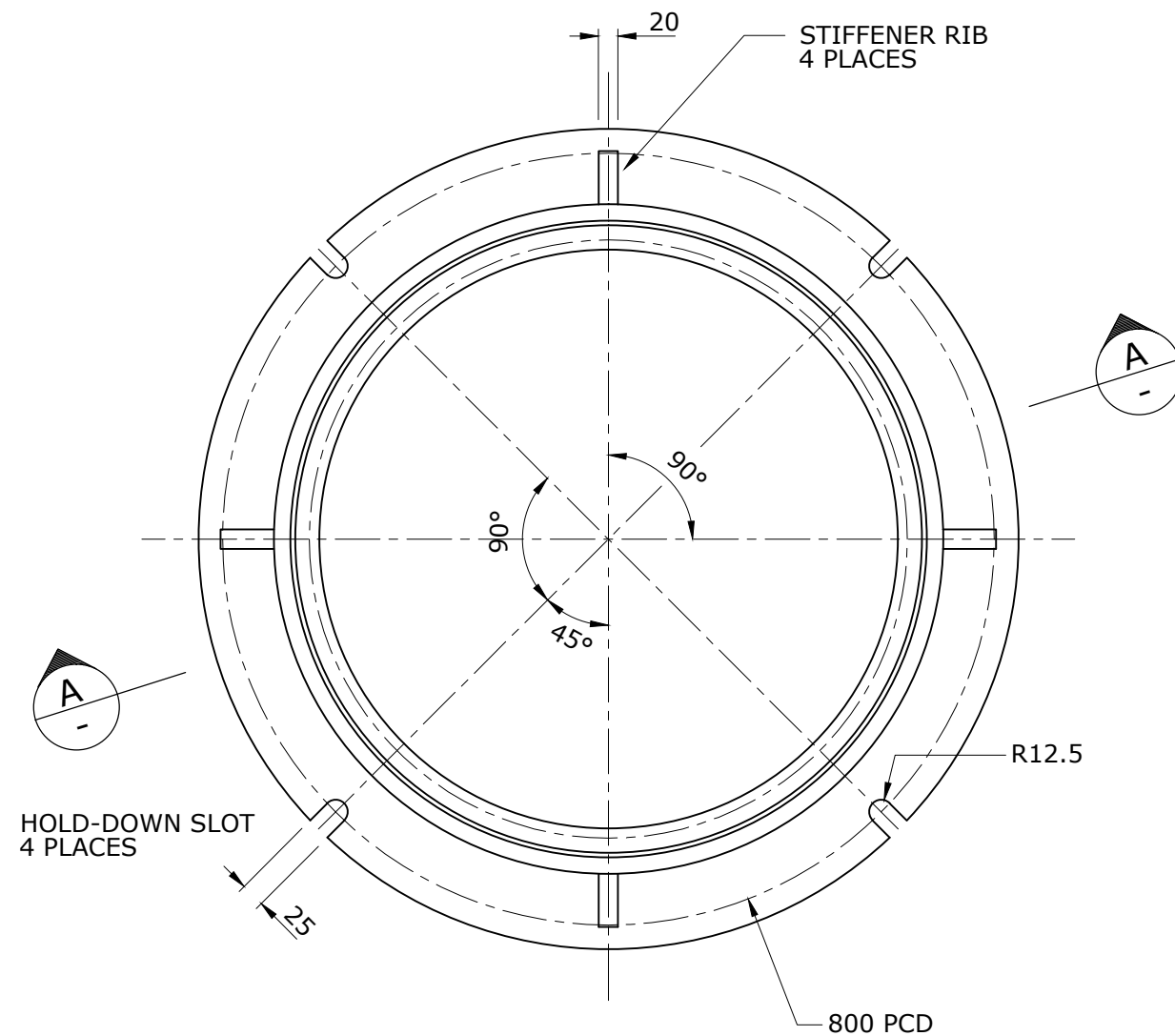
REV. No.	DATE	DESCRIPTION	AUTH.

**SEQ WATER
SERVICE PROVIDERS**

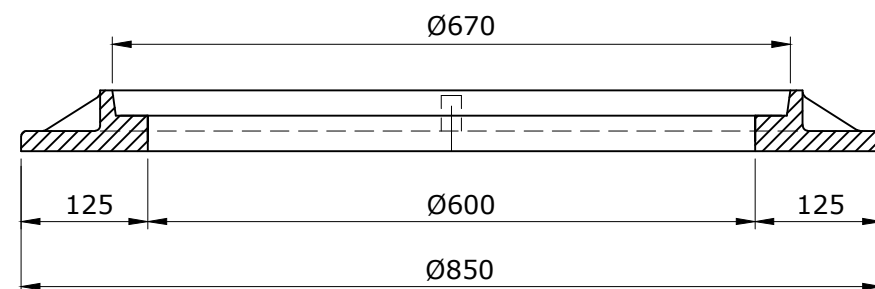
WORK PRACTICES MUST COMPLY WITH ALL APPLICABLE
OCCUPATIONAL HEALTH & SAFETY LEGISLATION

SEWERAGE STANDARD DRAWING
**TYPICAL MAINTENANCE HOLE COVER
AND SURROUND DETAIL**

GCCC	LCC	RCC	QUU	UW
DRAWING No.				VERSION
SEQ-SEW-1308-1				A
NOT TO SCALE				ORG DATE: 1/1/2013



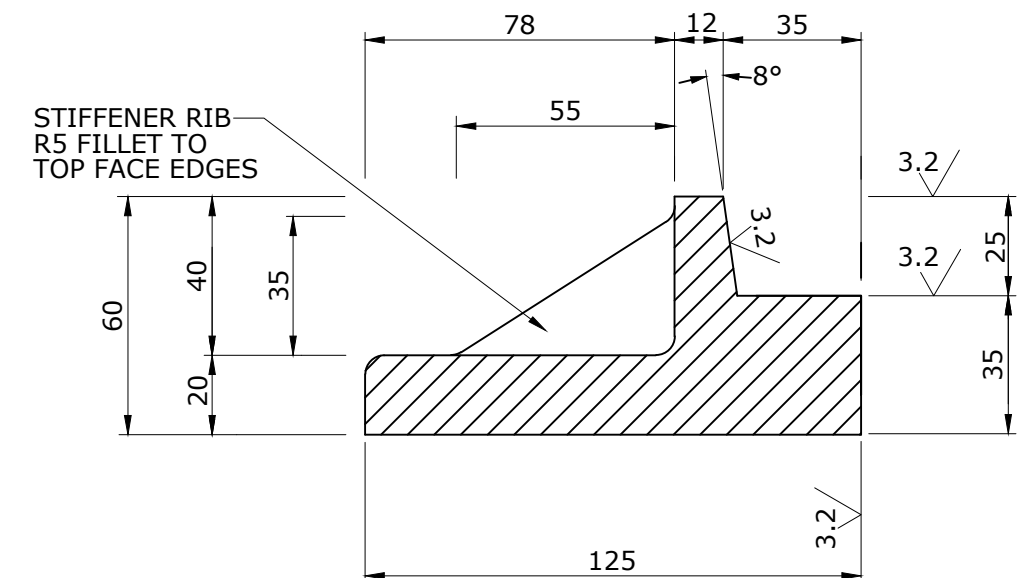
PLAN



SECTIONAL ELEVATION

MAINTENANCE HOLE FRAME

MASS: 59.5KG



TYPICAL SECTION

NOTES

- ALL EDGES TO BE SQUARE.
- ALL EDGES TO BE ARRISED UNLESS SHOWN OTHERWISE.
- ALL FILLETS TO BE 5mm RADIUS UNLESS SHOWN OTHERWISE.
- CASTING TO BE FREE OF BURRS AND PITS.
- MACHINE SURFACE SYMBOL 3.2
- MATERIAL: GREY CAST IRON (AS1830)
TENSILE STRENGTH: ISO 185/JL/225
HARDNESS: 145 - 215 (HB)
ULTIMATE DESIGN LOAD: 210 KN (AS3996)
- TOLERANCES:
CAST DIMENSIONS ±1.00mm
ANGLE PROFILE ±0.25°
MACHINED DIMENSIONS ±0.125mm
OVERALL MAJOR
DIAMETER OF COVER +0 -0.25mm
DFT OF COATING 50um
- ALL MACHINED SURFACES SHALL HAVE A COATING APPROVED AS FIT FOR THE PURPOSE OF PROVIDING A RUST PROOF, NON-STICK AND GAS/WATER PROOF JOINT.
- ALL NON MACHINED SURFACES TO BE BITUMINOUS COATED IN ACCORDANCE WITH AS 3750-4.
- ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT QUEENSLAND CODE, SPECIFICATIONS AND STANDARDS.
- COVERS AND FRAMES TO BE SUPPLIED ASSEMBLED.
- CERTIFICATION OF COMPLIANCE TO A.S. 3996 TO BE SUPPLIED FOR EACH CASTING.

FOR USE IN NON TRAFFICABLE LOCATIONS

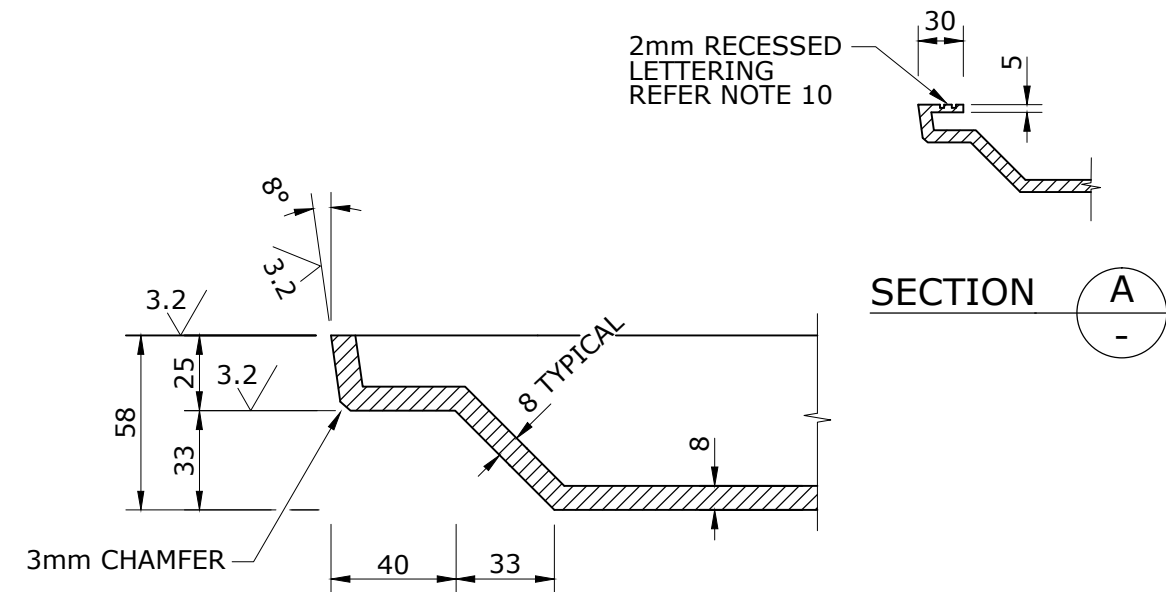
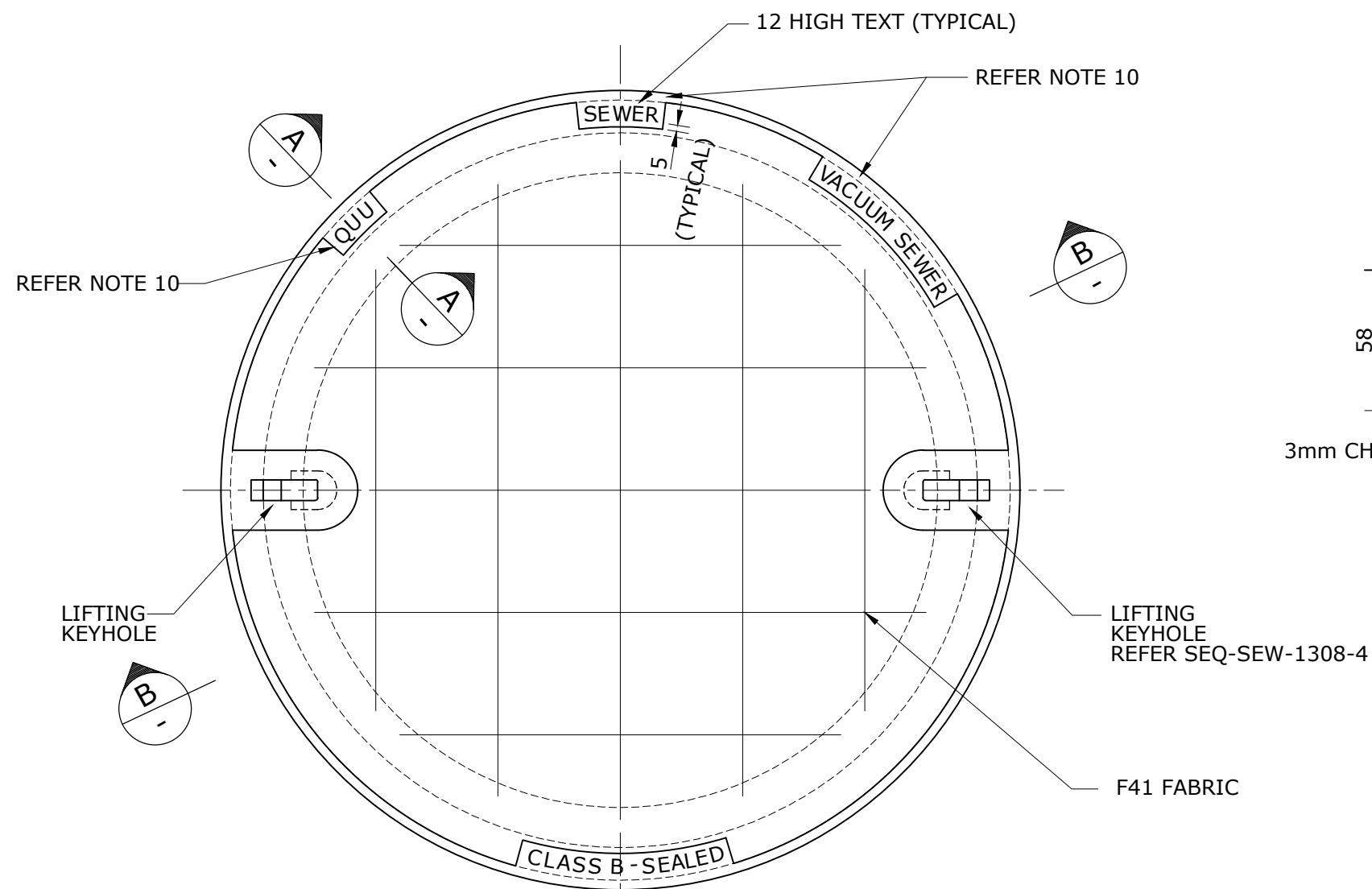
REV. No.	DATE	DESCRIPTION	AUTH.

SEQ WATER
SERVICE PROVIDERS

WORK PRACTICES MUST COMPLY WITH ALL APPLICABLE
OCCUPATIONAL HEALTH & SAFETY LEGISLATION

SEWERAGE STANDARD DRAWING
MAINTENANCE HOLE COVER
SEWER - CLASS B - CONCRETE INFILL
TYPICAL FRAME DETAILS

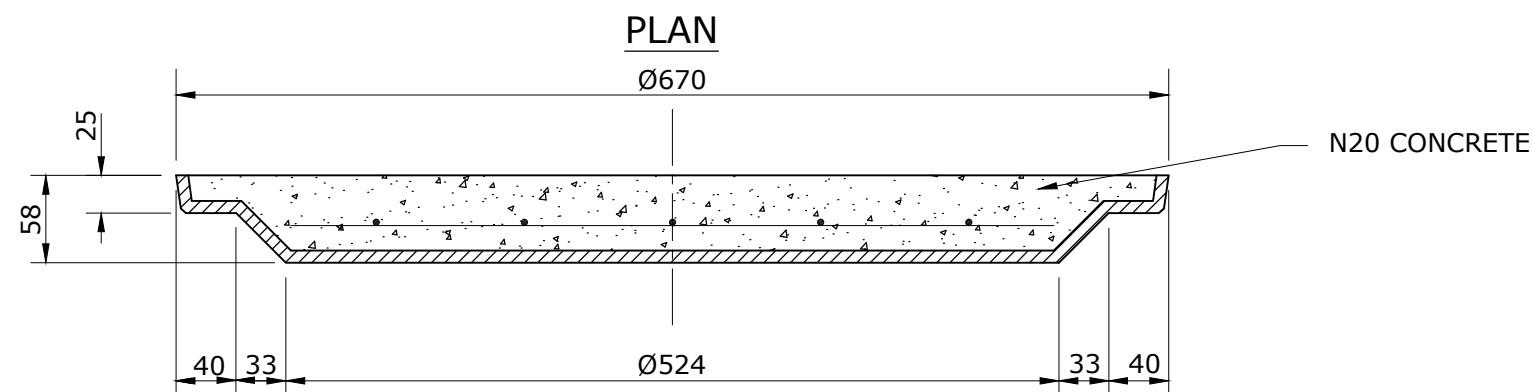
GECC	LCC	RCC	QUU	DW
DRAWING No.				VERSION
SEQ-SEW-1308-2				A
NOT TO SCALE				ORG DATE: 1/1/2013



TYPICAL EDGE DETAIL

NOTES

- ALL EDGES TO BE SQUARE.
- ALL EDGES TO BE ARRISED UNLESS SHOWN OTHERWISE.
- ALL FILLETS TO BE 5mm RADIUS.
- CASTING TO BE FREE OF BURRS AND PITS.
- MACHINE SURFACE SYMBOL 3.2
- MATERIAL: DUCTILE CAST IRON
TENSILE STRENGTH: ISO 1083/JS/600-3/S (AS1831) HARDNESS: 190 - 270 (HB)
ULTIMATE DESIGN LOAD: 80 KN (AS3996)
- TOLERANCES:
CAST DIMENSIONS $\pm 1.00\text{mm}$
ANGLE PROFILE $\pm 0.25^\circ$
MACHINED DIMENSIONS $\pm 0.125\text{mm}$
OVERALL MAJOR
DIAMETER OF COVER $+0 -0.25\text{mm}$
DFT OF COATING 50um
- ALL MACHINED SURFACES SHALL HAVE A COATING APPROVED AS FIT FOR THE PURPOSE OF PROVIDING A RUST PROOF, NON-STICK AND GAS/WATER PROOF JOINT.
- ALL NON MACHINED SURFACES TO BE BITUMINOUS COATED IN ACCORDANCE WITH AS 3750-4.
- IDENTIFICATION TAGS "SEWER" AND "VACUUM SEWER" TO BE REMOVED AS REQUIRED. SERVICE PROVIDER NAME WHERE REQUIRED.
- ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT QUEENSLAND CODE, SPECIFICATIONS AND STANDARDS.
- COVERS AND FRAMES TO BE SUPPLIED ASSEMBLED.
- CERTIFICATION OF COMPLIANCE TO A.S. 3996 TO BE SUPPLIED FOR EACH CASTING.



SECTIONAL ELEVATION

MAINTENANCE HOLE COVER

MASS: 25KG CASTING
58KG CASTING/CONCRETE INFILL

FOR USE IN NON TRAFFICABLE LOCATIONS

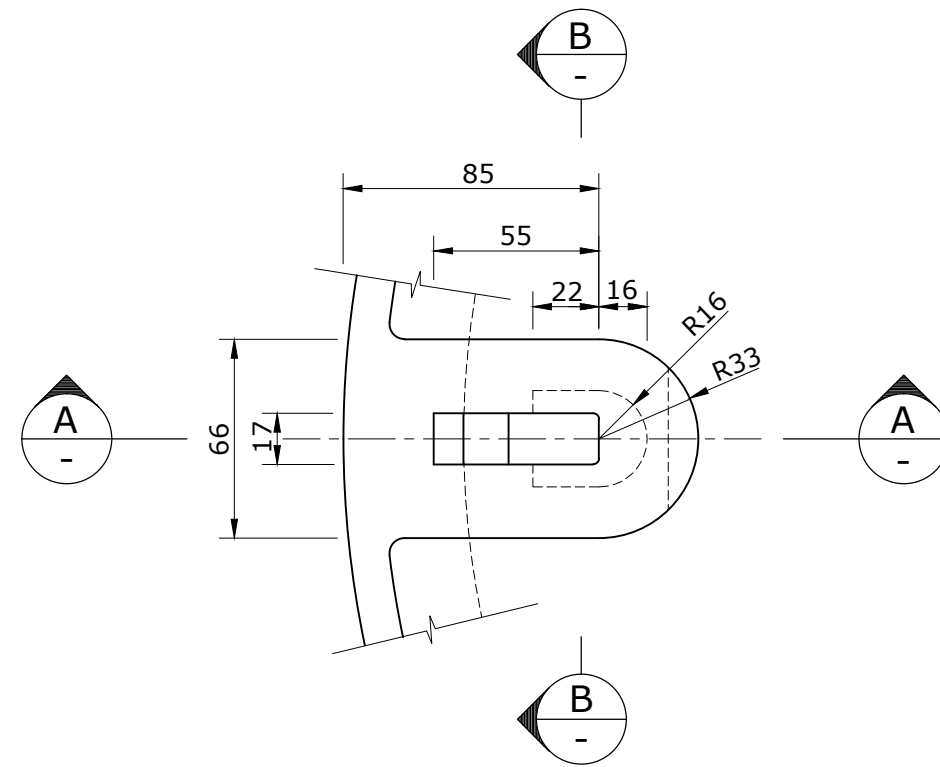
REV. No.	DATE	DESCRIPTION	AUTH.

SEQ WATER
SERVICE PROVIDERS

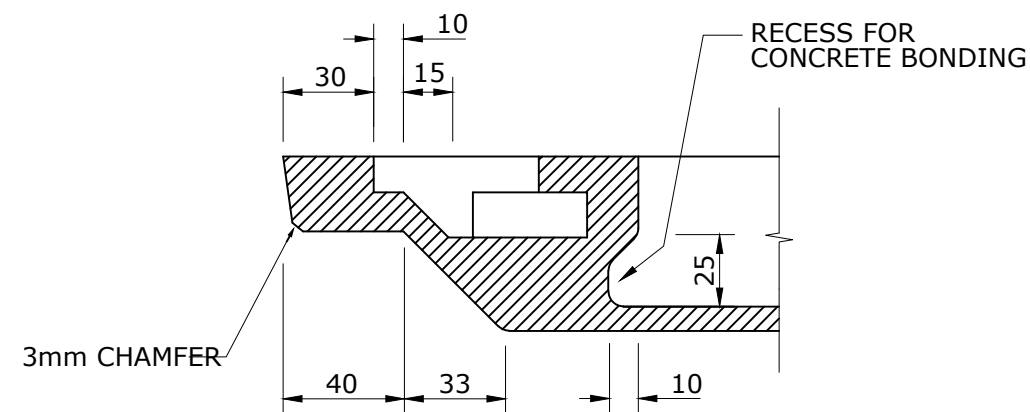
WORK PRACTICES MUST COMPLY WITH ALL APPLICABLE
OCCUPATIONAL HEALTH & SAFETY LEGISLATION

SEWERAGE STANDARD DRAWING
MAINTENANCE HOLE COVER
SEWER - CLASS B - CONCRETE INFILL
TYPICAL COVER DETAILS

GECC	LCC	RCC	QUU	DW
DRAWING No.				VERSION
SEQ-SEW-1308-3				A
NOT TO SCALE				ORG DATE: 1/1/2013

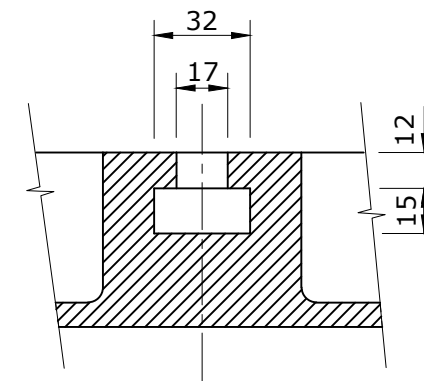


PLAN



SECTION A

KEYHOLE DETAIL

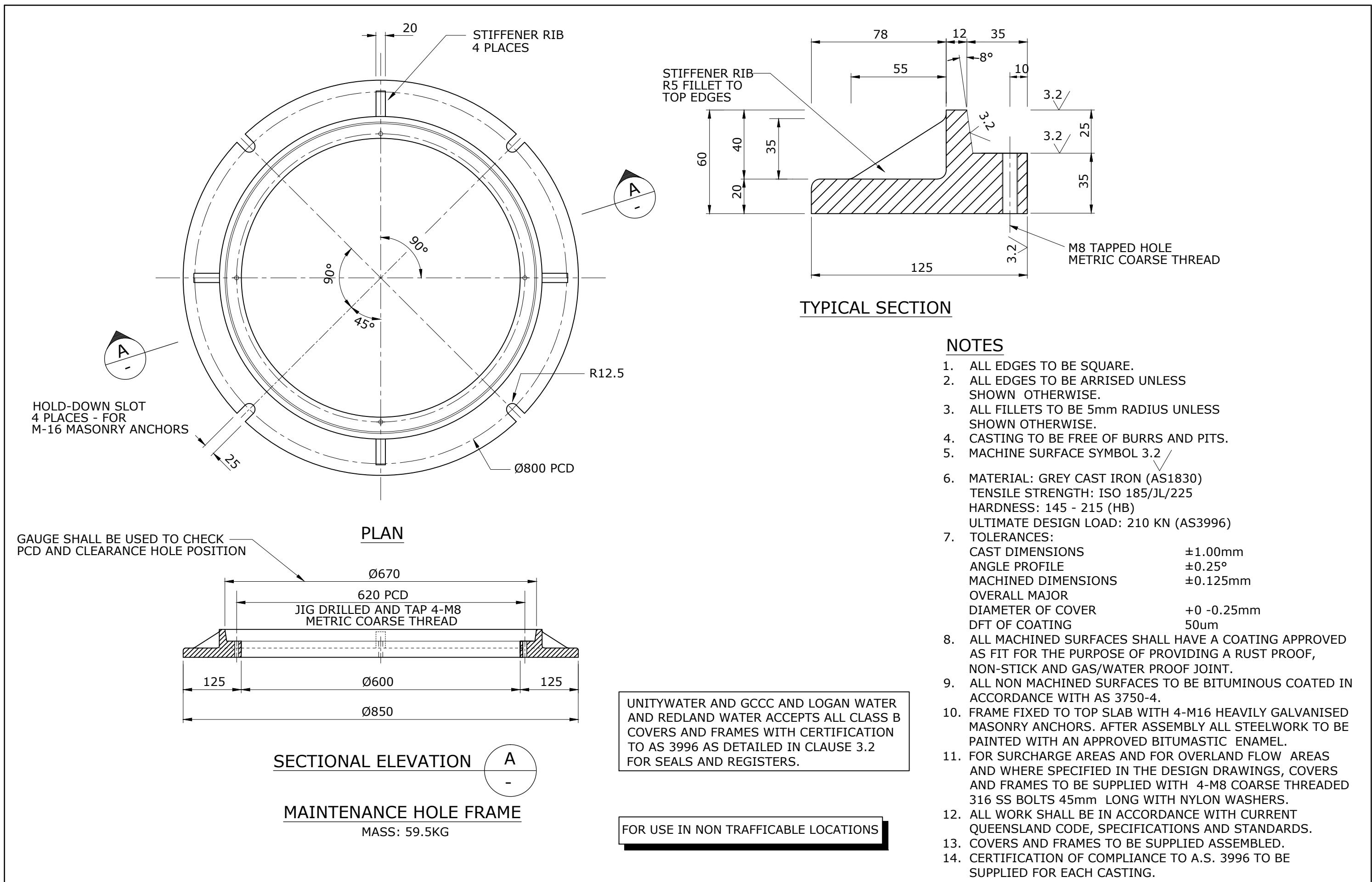


SECTION B

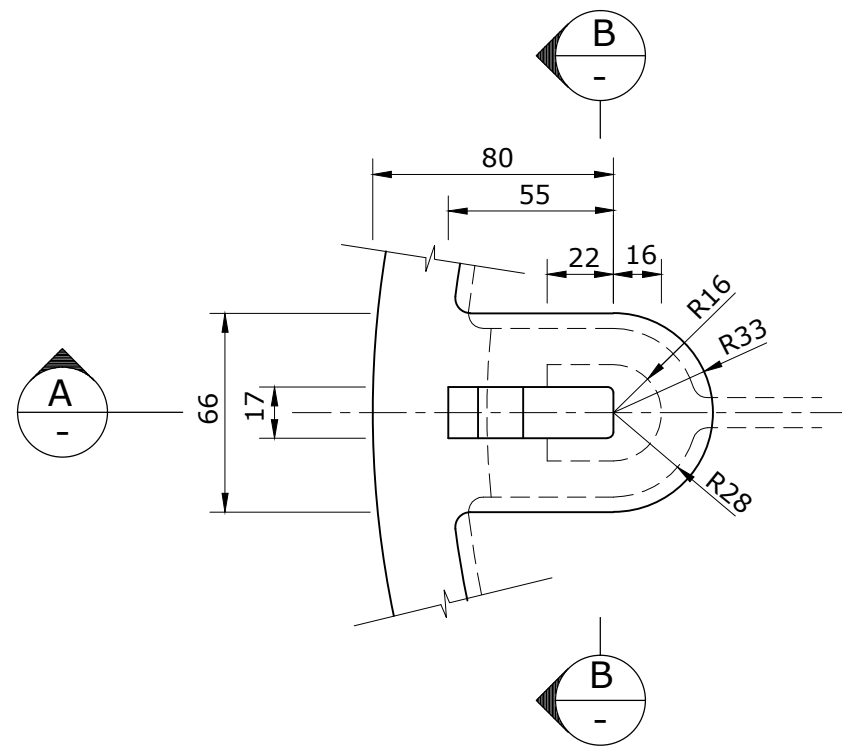
REFER SEQ-SEW-1308-3 FOR NOTES

FOR USE IN NON TRAFFICABLE LOCATIONS

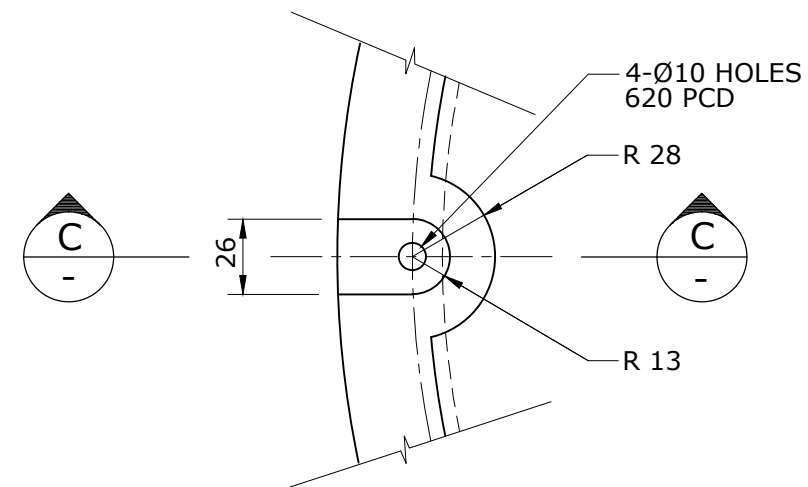
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							DRAWING No.										VERSION	
							SEQ-SEW-1308-4										A	
				WORK PRACTICES MUST COMPLY WITH ALL APPLICABLE OCCUPATIONAL HEALTH & SAFETY LEGISLATION			NOT TO SCALE				ORG DATE: 1/1/2013							



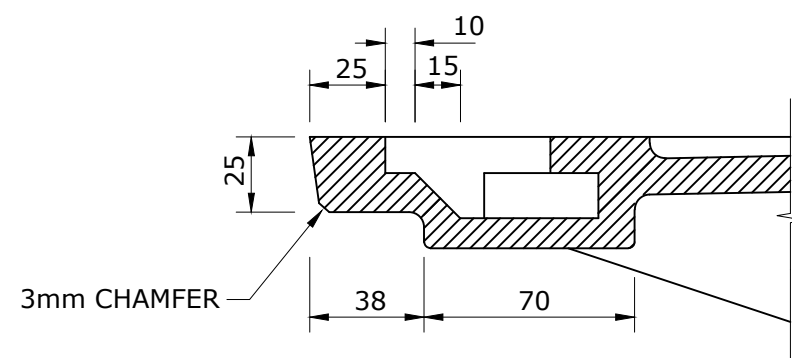
REV. No.	DATE	DESCRIPTION	AUTH.	SEQ WATER SERVICE PROVIDERS		SEWERAGE STANDARD DRAWING		GCCC	LCC	RCC	QUU	UW
						MAINTENANCE HOLE COVER SEWER - CLASS B - BOLT DOWN TYPICAL FRAME DETAILS		DRAWING No. SEQ-SEW-1308-5				VERSION A
				WORK PRACTICES MUST COMPLY WITH ALL APPLICABLE OCCUPATIONAL HEALTH & SAFETY LEGISLATION				NOT TO SCALE				ORG DATE: 1/1/2013



PLAN

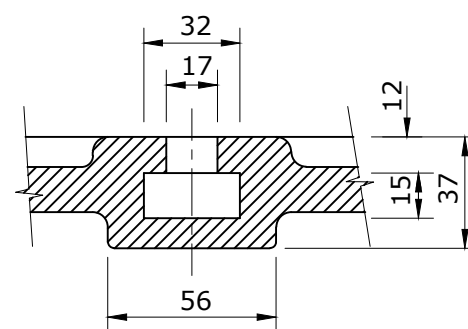


PLAN

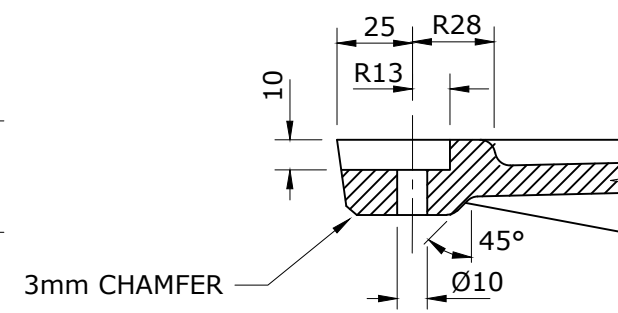


SECTION A

KEYHOLE DETAIL

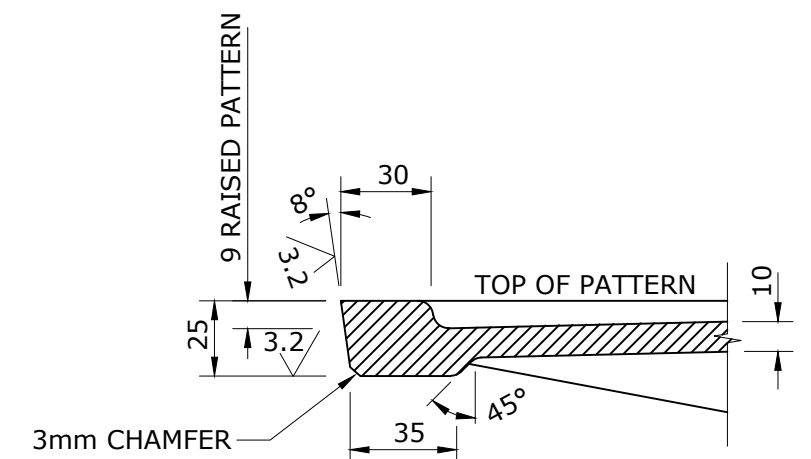


SECTION B



SECTION C

BOLT RECESS DETAIL

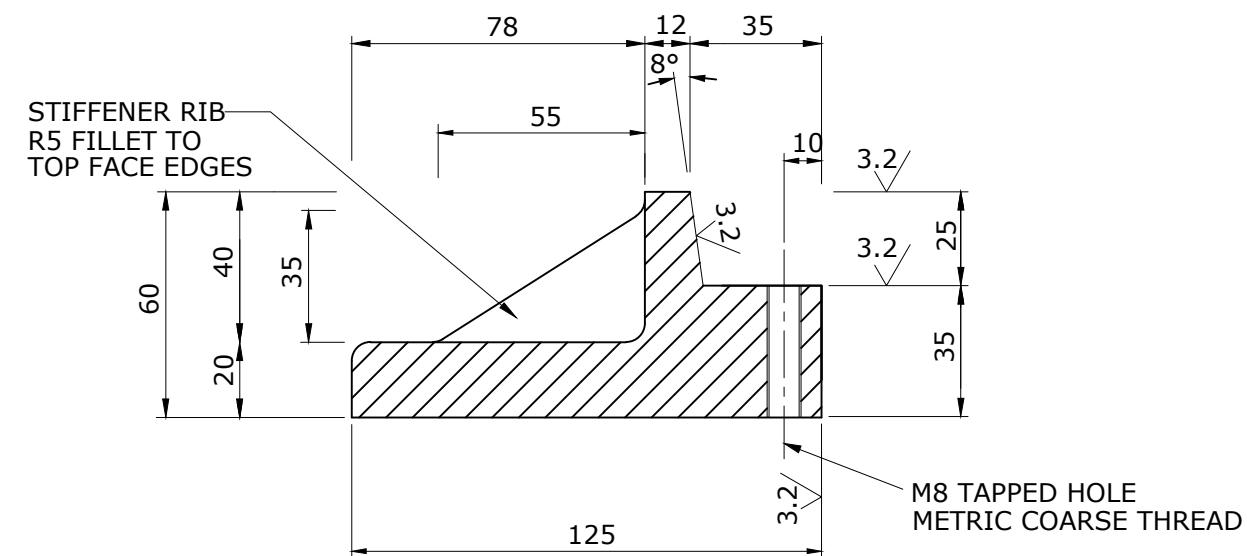
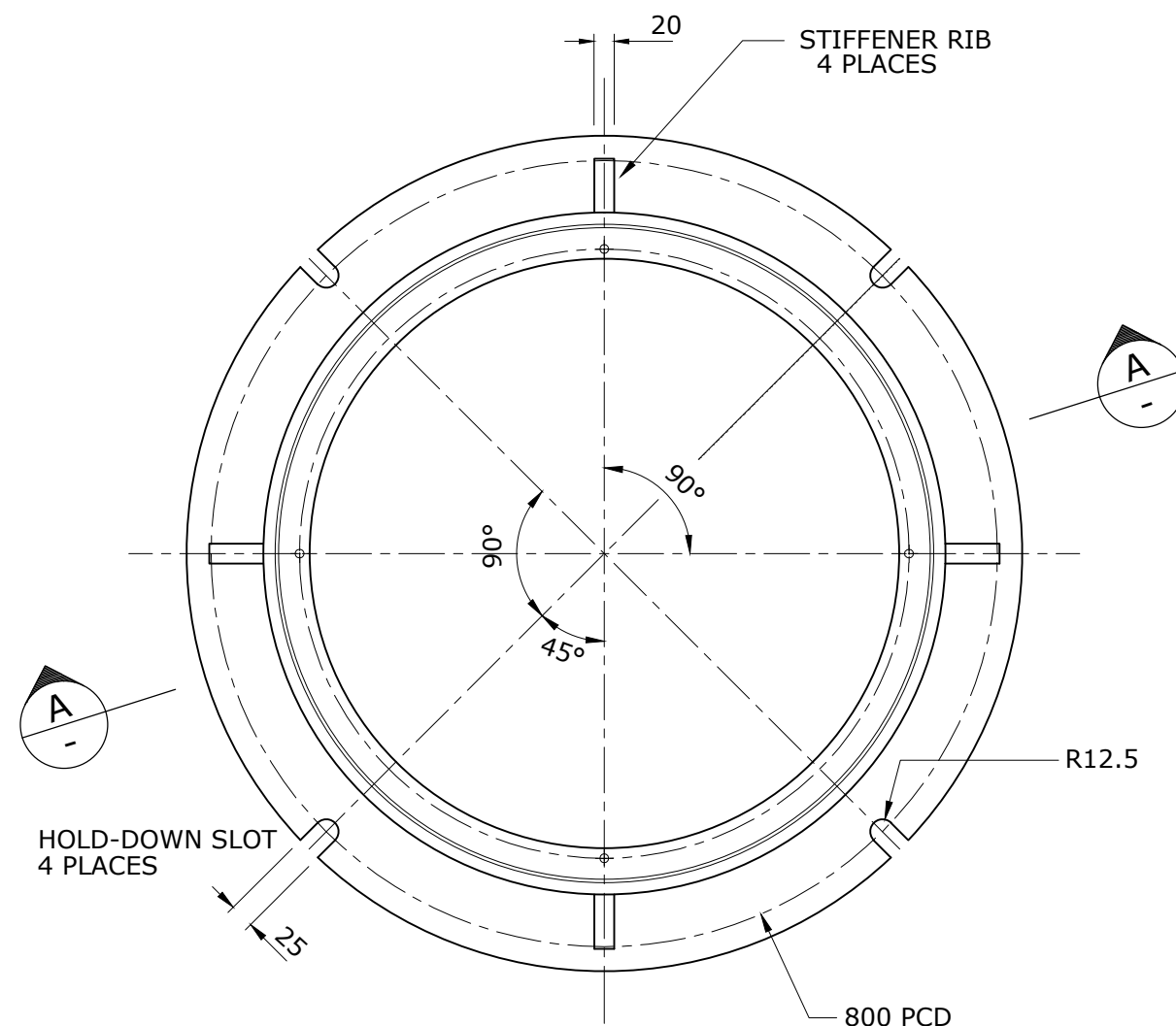


TYPICAL EDGE DETAIL

REFER SEQ-SEW-1308-6 FOR NOTES

FOR USE IN NON TRAFFICABLE LOCATIONS

REV. No.	DATE	DESCRIPTION	AUTH.	SEQ WATER SERVICE PROVIDERS		SEWERAGE STANDARD DRAWING MAINTENANCE HOLE COVER SEWER - CLASS B - BOLT DOWN TYPICAL COVER DETAILS		GCCC	LCC	RCC	QUU	UW
								DRAWING No.				VERSION
				WORK PRACTICES MUST COMPLY WITH ALL APPLICABLE OCCUPATIONAL HEALTH & SAFETY LEGISLATION				SEQ-SEW-1308-7				A
								NOT TO SCALE				ORG DATE: 1/1/2013



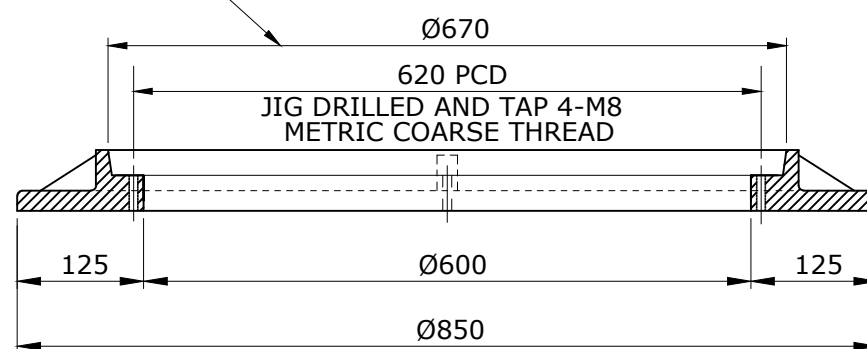
TYPICAL SECTION

NOTES

1. ALL EDGES TO BE SQUARE.
2. ALL EDGES TO BE ARRISED UNLESS SHOWN OTHERWISE.
3. ALL FILLETS TO BE 5mm RADIUS UNLESS SHOWN OTHERWISE.
4. CASTING TO BE FREE OF BURRS AND PITS.
5. MACHINE SURFACE SYMBOL 3.2
6. MATERIAL: GREY CAST IRON (AS1830)
TENSILE STRENGTH: ISO 185/JL/225
HARDNESS: 145 - 215 (HB)
ULTIMATE DESIGN LOAD: 210 KN (AS3996)
7. TOLERANCES:
CAST DIMENSIONS $\pm 1.00\text{mm}$
ANGLE PROFILE $\pm 0.25^\circ$
MACHINED DIMENSIONS $\pm 0.125\text{mm}$
OVERALL MAJOR DIAMETER OF COVER $+0 -0.25\text{mm}$
DFT OF COATING 50um
8. ALL MACHINED SURFACES SHALL HAVE A COATING APPROVED AS FIT FOR THE PURPOSE OF PROVIDING A RUST PROOF, NON-STICK AND GAS/WATER PROOF JOINT.
9. ALL NON MACHINED SURFACES TO BE BITUMINOUS COATED IN ACCORDANCE WITH AS 3750-4.
10. COVERS, FRAMES AND 60mm RISER RINGS TO BE SUPPLIED ASSEMBLED.
11. ALL WORK SHALL BE IN ACCORDANCE WITH CURRENT QUEENSLAND CODE, SPECIFICATIONS AND STANDARD DRAWINGS.
12. CERTIFICATION OF COMPLIANCE TO A.S. 3996 TO BE SUPPLIED FOR EACH CASTING.

GAUGE SHALL BE USED TO CHECK
PCD AND CLEARANCE HOLE POSITION

PLAN



SECTIONAL ELEVATION

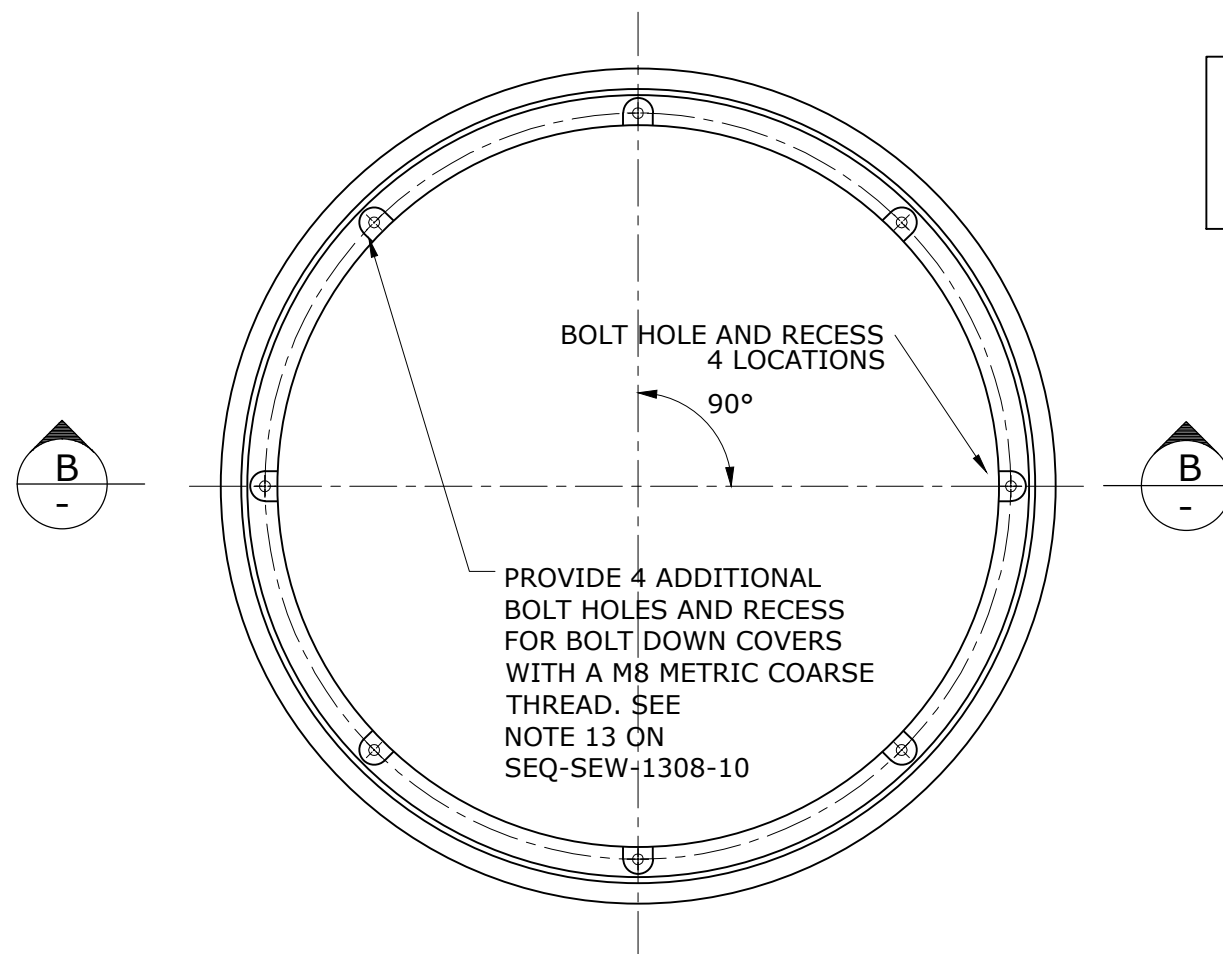
MAINTENANCE HOLE BASE FRAME

MASS: 59.5KG

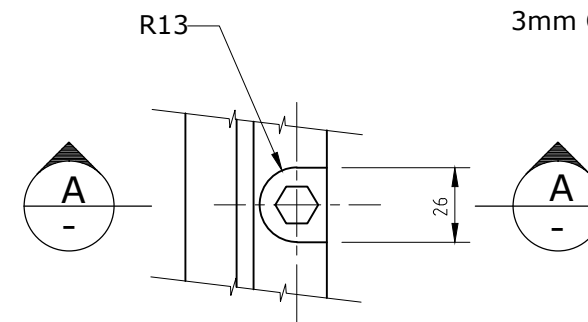
UNITYWATER AND GCCC AND LOGAN
WATER AND REDLAND WATER ONLY
ACCEPTS THIS CLASS D FRAME, RISER
AND COVER SYSTEM OR EQUAL WITH
CERTIFICATION TO AS 3996.

FOR USE IN TRAFFICABLE ROADWAY
LOCATIONS. THIS BASE FRAME SHALL BE
USED WITH THE 60 RISER RING SHOWN
IN SEQ-SEW-1308-9.

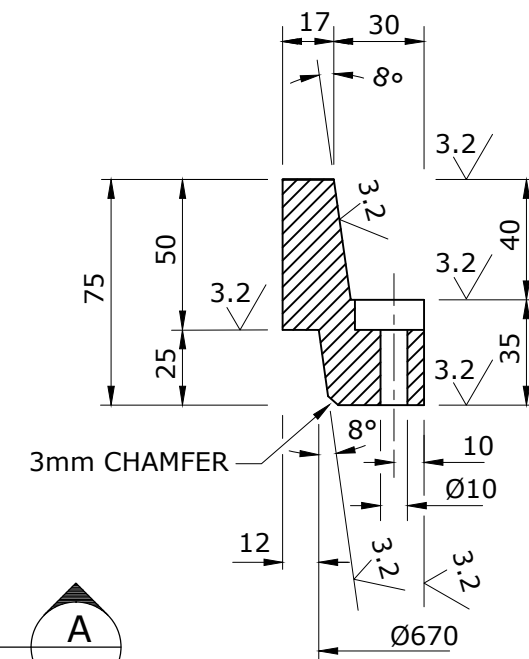
REV. No.	DATE	DESCRIPTION	AUTH.	SEQ WATER SERVICE PROVIDERS		SEWERAGE STANDARD DRAWING MAINTENANCE HOLE COVER SEWER - CLASS D - BOLT DOWN TYPICAL BASE FRAME DETAILS		GCCC	LCC	RCC	QUU	UW
								DRAWING No. SEQ-SEW-1308-8				VERSION A
				WORK PRACTICES MUST COMPLY WITH ALL APPLICABLE OCCUPATIONAL HEALTH & SAFETY LEGISLATION				NOT TO SCALE				ORG DATE: 1/1/2013



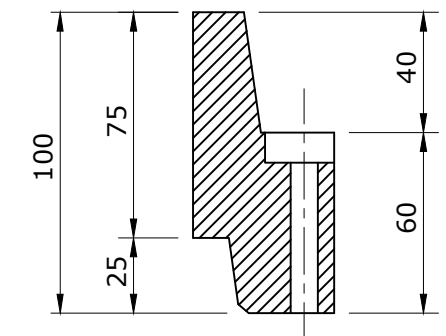
UNITYWATER AND GCCC AND LOGAN WATER AND REDLAND WATER ONLY ACCEPTS THIS CLASS D FRAME, RISER AND COVER SYSTEM OR EQUAL WITH CERTIFICATION TO AS 3996 SEE SEQ-SEW-1308-8



PLAN OF BOLT RECESS



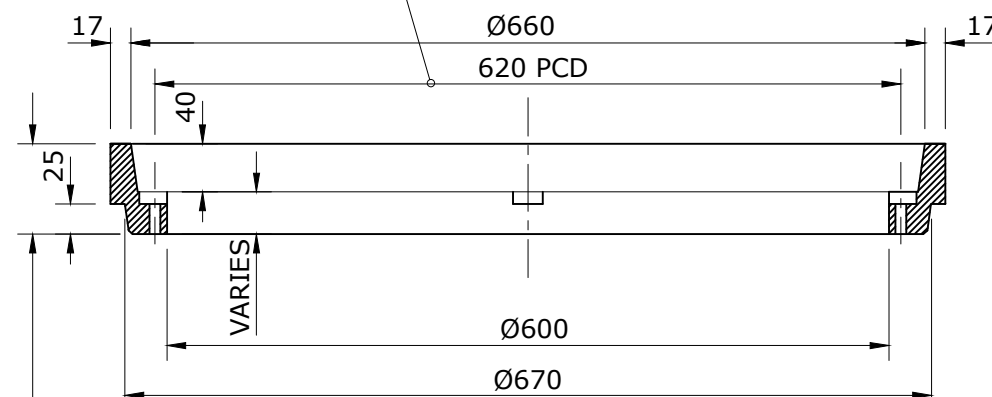
35mm RISER
MASS : 27.5KG



60mm RISER
MASS : 32KG

GAUGE SHALL BE USED TO CHECK PCD AND CLEARANCE HOLE POSITION

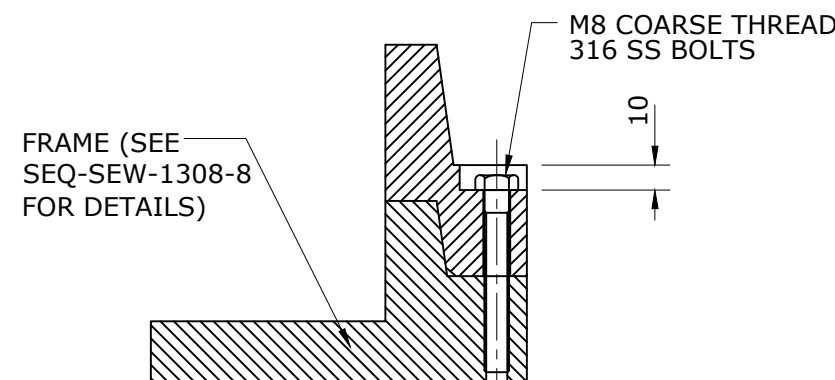
PLAN



RISER HEIGHT VARIES (SEE DETAILS)

SECTION B

RISER RING



SECTION A

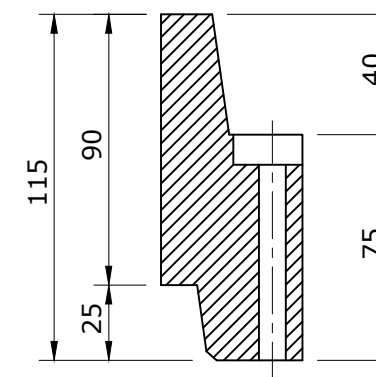
TYPICAL ASSEMBLY

4 x BOLTS: 60mm LONG FOR 35mm RISER
90mm LONG FOR 60mm RISER
100mm LONG FOR 75mm RISER
115mm LONG FOR 90mm RISER

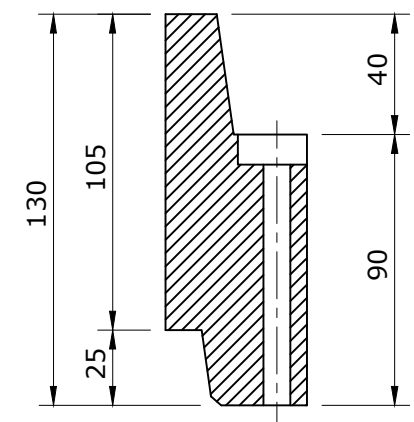
ADDITIONAL BOLTS SEE NOTE 13 ON SEQ-SEW-1308-10

REFER SEQ-SEW-1308-10 FOR NOTES

FOR USE IN TRAFFICABLE ROADWAY LOCATIONS.



75mm RISER
MASS : 38KG



90mm RISER
MASS : 44KG

REFER TO 35mm RISER FOR TYPICAL DIMENSIONS TO ALL RISERS.

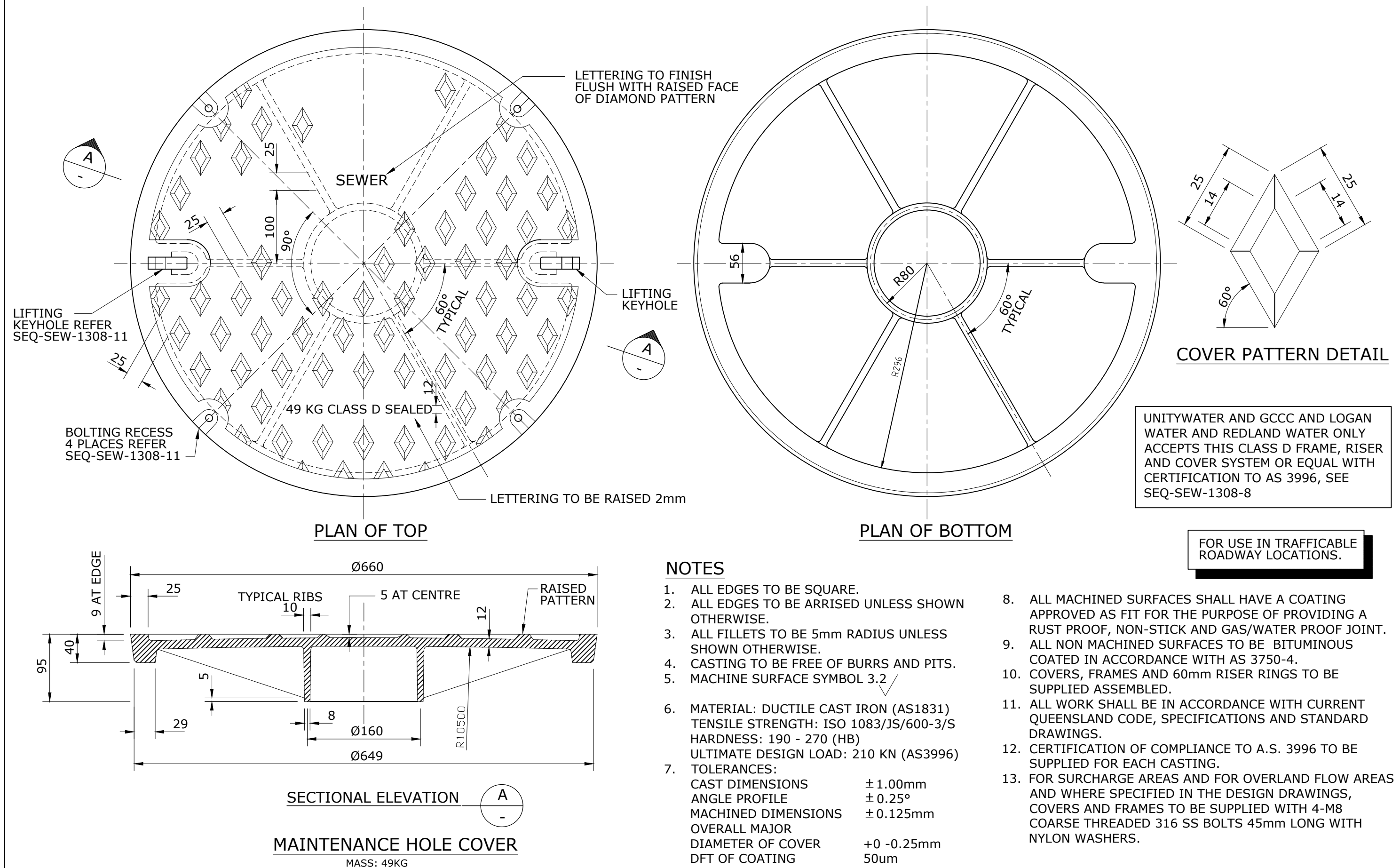
REV. No.	DATE	DESCRIPTION	AUTH.

SEQ WATER
SERVICE PROVIDERS

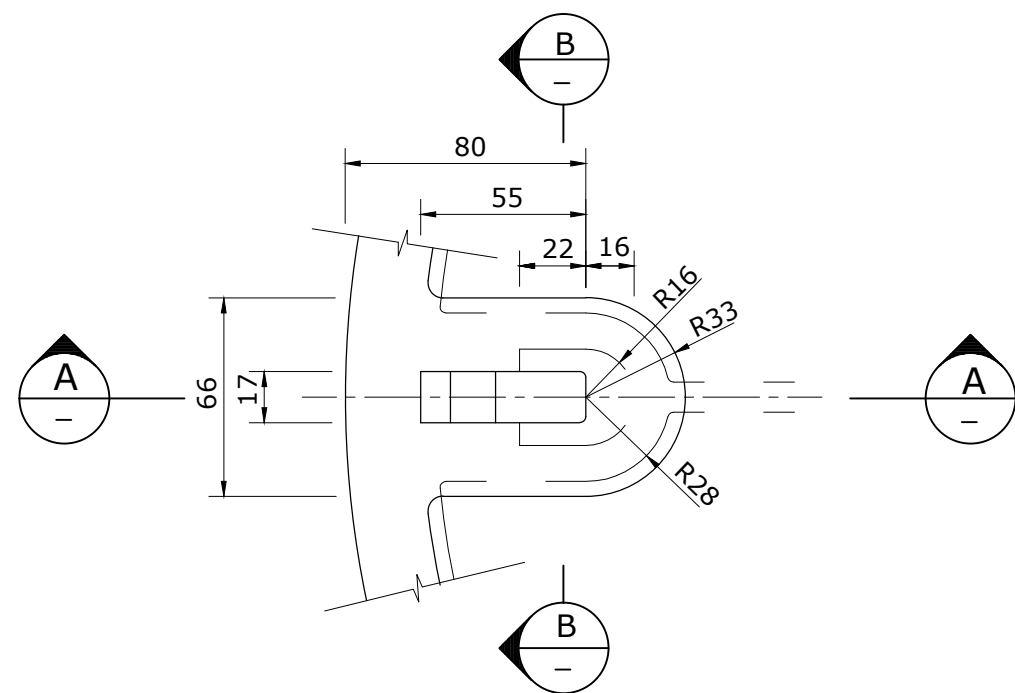
WORK PRACTICES MUST COMPLY WITH ALL APPLICABLE
OCCUPATIONAL HEALTH & SAFETY LEGISLATION

SEWERAGE STANDARD DRAWING
MAINTENANCE HOLE COVER
SEWER - CLASS D - BOLT DOWN
TYPICAL RISER RING DETAILS

GCCC	LCC	RCC	QUU	UW
DRAWING No.				VERSION
SEQ-SEW-1308-9				A
NOT TO SCALE				ORG DATE: 1/1/2013

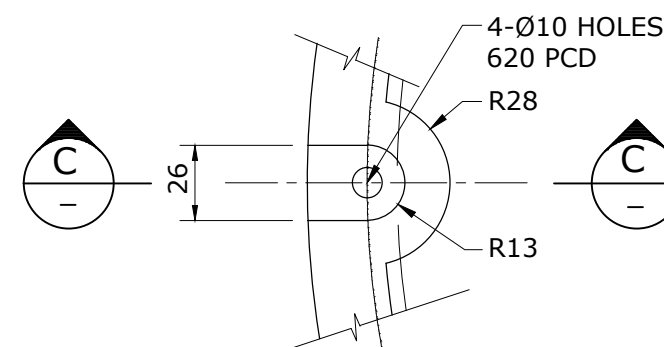


REV. No.	DATE	DESCRIPTION	AUTH.	SEQ WATER SERVICE PROVIDERS		SEWERAGE STANDARD DRAWING MAINTENANCE HOLE COVER SEWER - CLASS D - BOLT DOWN TYPICAL COVER DETAILS		GCCC	LCC	RCC	QUU	UW
								DRAWING No. SEQ-SEW-1308-10				VERSION A
				WORK PRACTICES MUST COMPLY WITH ALL APPLICABLE OCCUPATIONAL HEALTH & SAFETY LEGISLATION				NOT TO SCALE			ORG DATE: 1/1/2013	

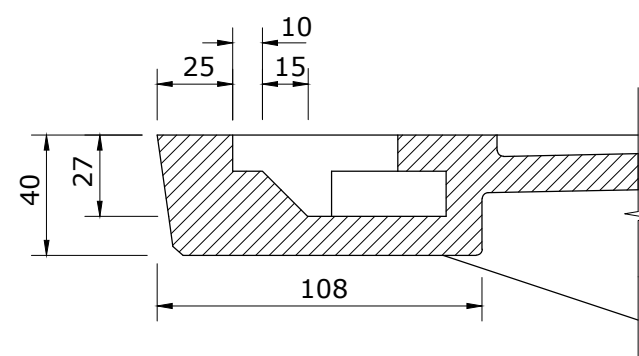


PLAN

UNITYWATER AND GCCC AND LOGAN WATER AND REDLAND WATER ONLY ACCEPTS THIS CLASS D FRAME, RISER AND COVER SYSTEM OR EQUAL WITH CERTIFICATION TO AS 3996 SEE SEQ-SEW-1308-8

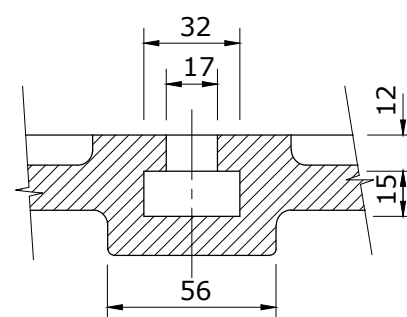


PLAN

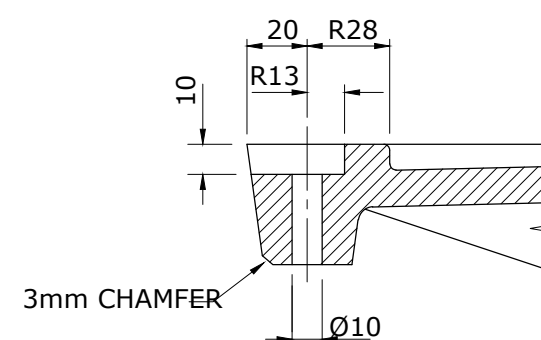


SECTION A
-

KEYHOLE DETAIL

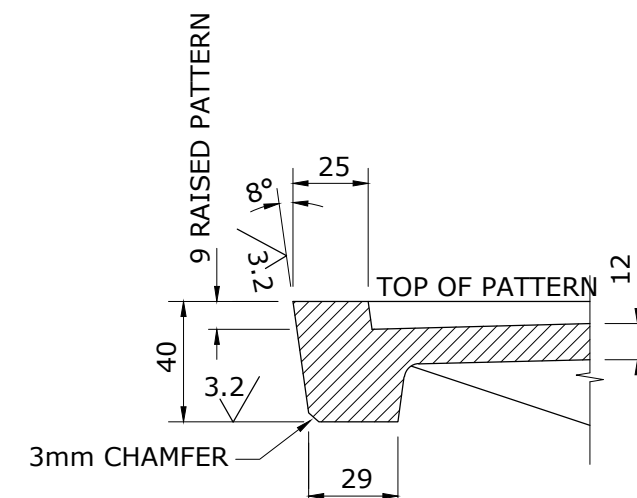


SECTION B
-



SECTION C
-

BOLT RECESS DETAIL

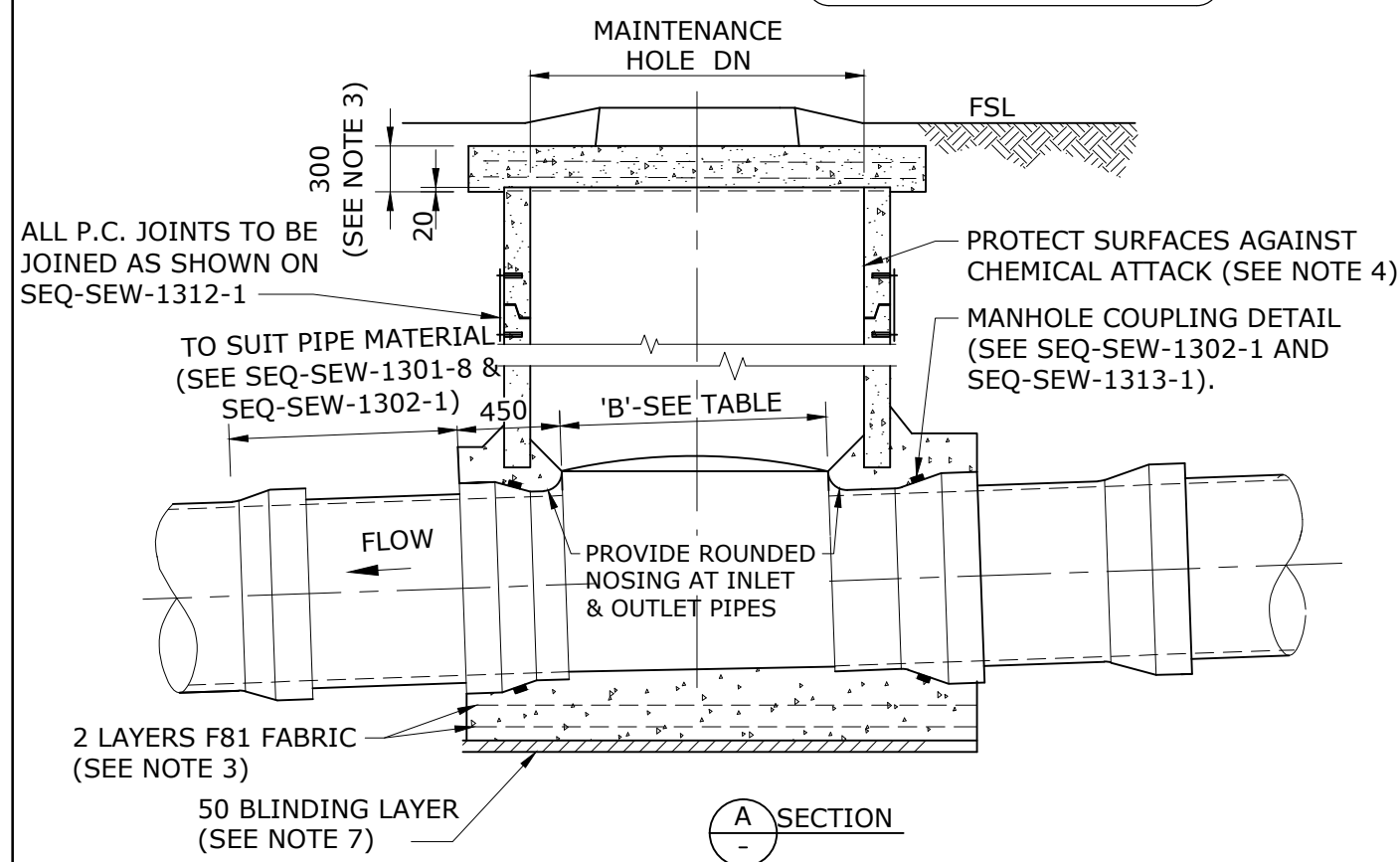
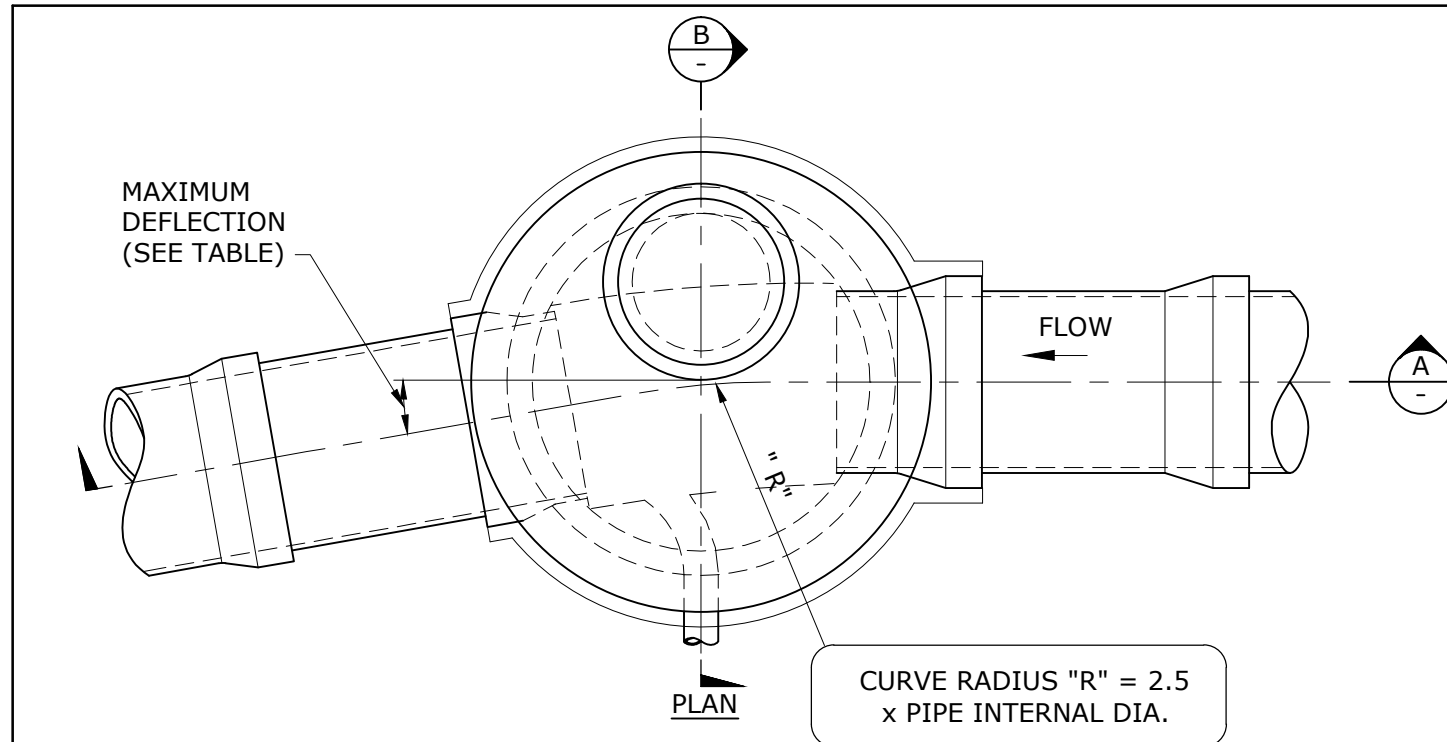


TYPICAL EDGE DETAIL

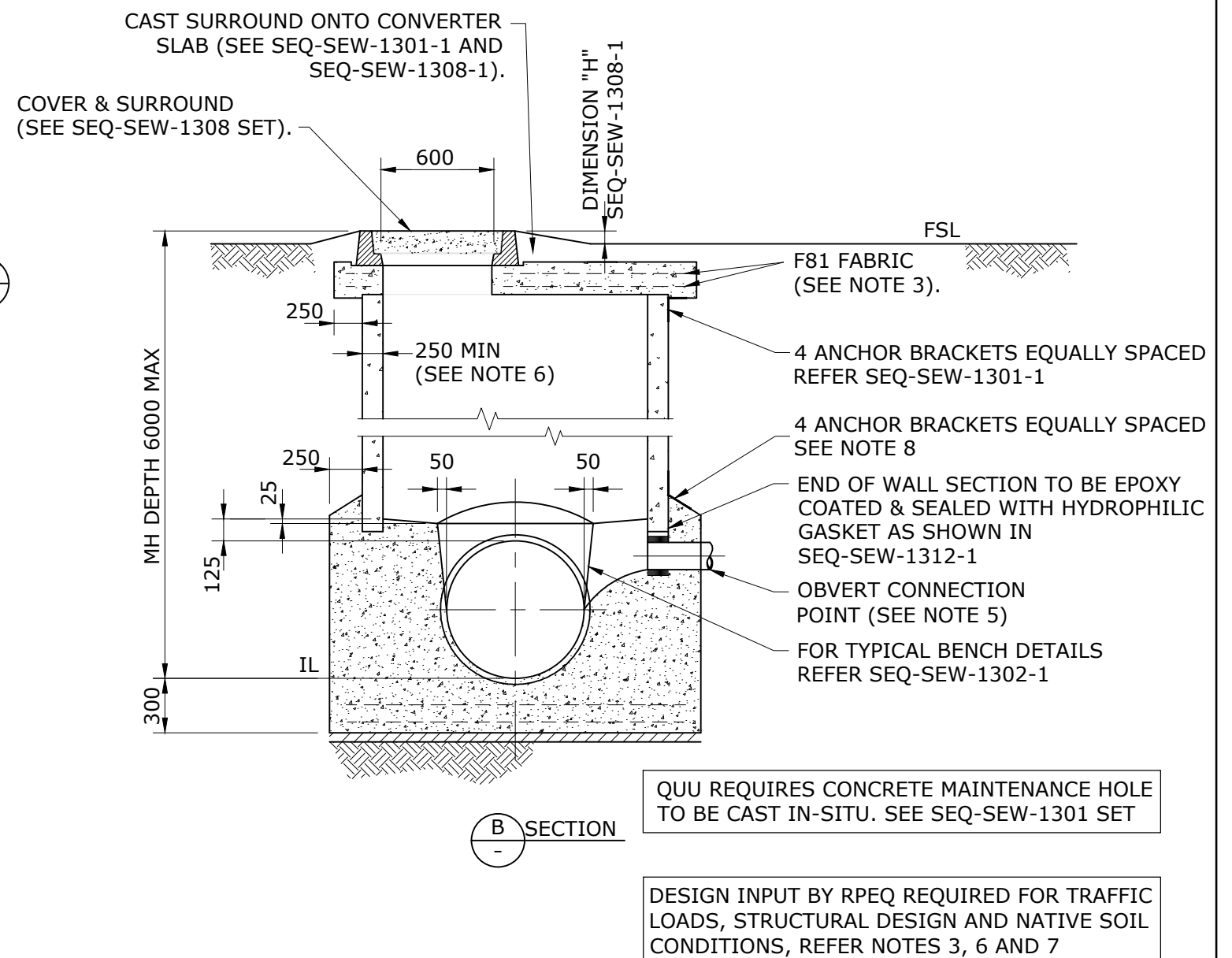
REFER SEQ-SEW-1308-10 FOR NOTES

FOR USE IN TRAFFICABLE ROADWAY LOCATIONS.

REV. No.	DATE	DESCRIPTION	AUTH.	SEQ WATER SERVICE PROVIDERS		SEWERAGE STANDARD DRAWING		GCCC	LCC	RCC	QUU	UW
						MAINTENANCE HOLE COVER		DRAWING No.				VERSION
				WORK PRACTICES MUST COMPLY WITH ALL APPLICABLE OCCUPATIONAL HEALTH & SAFETY LEGISLATION		SEWER - CLASS D - BOLT DOWN		SEQ-SEW-1308-11				A
								NOT TO SCALE				ORG DATE: 1/1/2013
						TYPICAL COVER DETAILS						



SEWER SIZE	MAXIMUM HORIZONTAL DEFLECTION AT CHAMBER	NOMINAL MH DIAMETER	'B'
DN 600 TO 675	35°	DN 1500	1100
	45°	DN 1800	1400
DN 750	40°	DN 1800	1400



NOTES:

- ALL DIMENSIONS IN MILLIMETRES.
- CONCRETE TO BE N32 MIN
- SLAB AND BASE REINFORCEMENT AS PER STRUCTURAL DESIGN WITH 65 MINIMUM COVER.
- INSIDE SURFACE OF MH AND UNDERSIDE OF ROOF AND OPENING TO HAVE EPOXY COATING, PVC LINING OR PE LINING AS SPECIFIED IN THE CODE. BENCH TO BE STANDARD MORTAR, REFER SEQ-SEW-1302-1.
- ALTERNATIVELY INCORPORATE VERTICAL DROP FOR HIGH LEVEL SEWERS SEE SEQ-SEW-1306-1.
- WALL THICKNESS TO BE 225 MIN AT S40 WHERE LOCATED IN AGGRESSIVE SOILS, HIGH WATER TABLE AND SALINE ENVIRONMENTS. PROVIDE 0.2 THICK SOLVENT FREE EPOXY COATING TO OUTSIDE FACE OF WALLS.
- FORMAT SHOWN BASED ON > 100KPa ALLOWABLE BEARING PRESSURE OF NATIVE SOIL.
- BOTTOM ANCHOR BRACKET 12x75 SS316 PLATE 300 LONG WITH Ø18 BOLT HOLES 40 FROM ENDS AND FIXED AS SHOWN ON SEQ-SEW-1301-1. BRACKET ANGLE TO SUIT BUILT FORM OF PRECAST WALL AND CAST BASE JOINT.

REV. No.	DATE	DESCRIPTION	AUTH.

SEQ WATER SERVICE PROVIDERS

WORK PRACTICES MUST COMPLY WITH ALL APPLICABLE OCCUPATIONAL HEALTH & SAFETY LEGISLATION

SEWERAGE STANDARD DRAWING
"Y" TYPE MAINTENANCE HOLE
SEWERS DN600 AND DN750
TYPICAL ARRANGEMENT

GCCC	LCC	RCC	QUU	UW
DRAWING No.				VERSION
SEQ-SEW-1309-1				A
NOT TO SCALE				ORG DATE: 1/1/2013