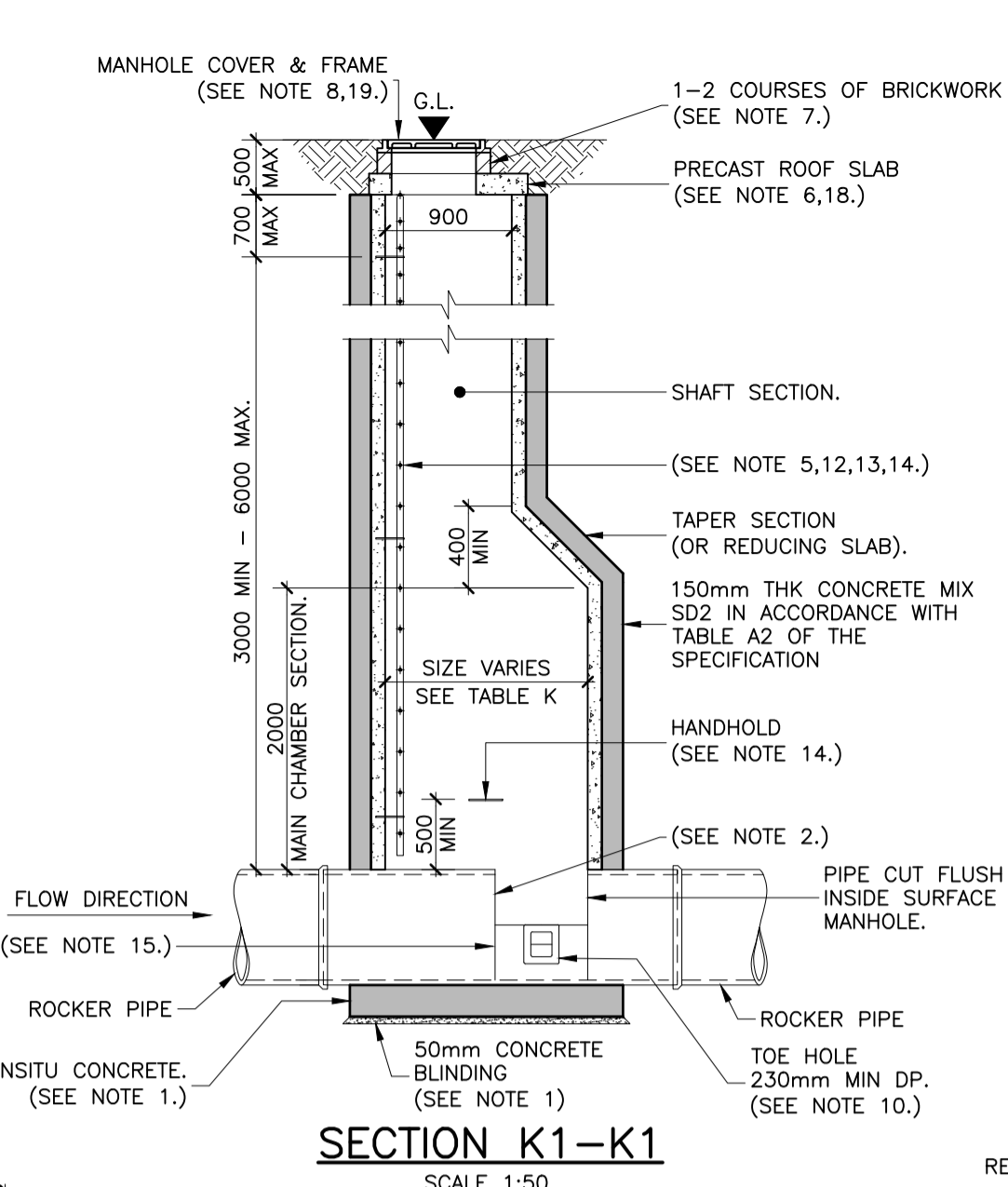


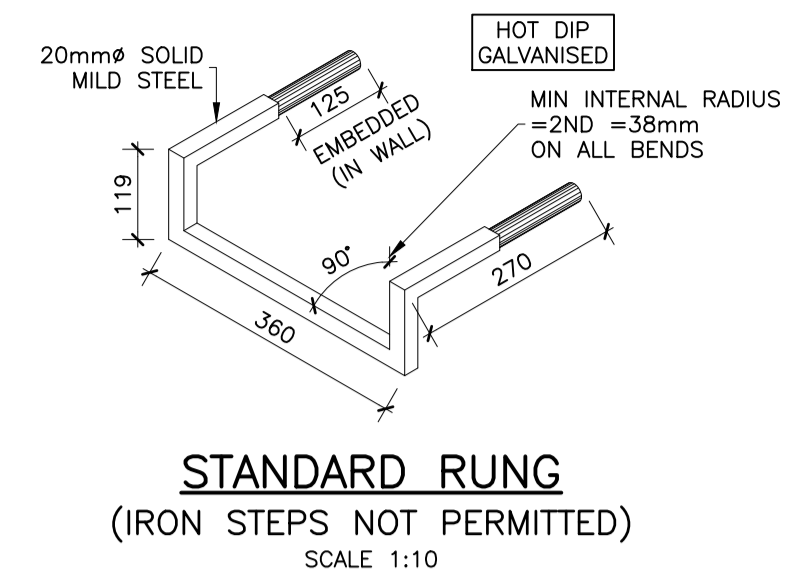
MAXIMUM PIPE DIAMETER A	CHAMBER INTERNAL DIAMETER B
225	1200
300	1200
375	1200
525	1200
600	1200
675	1350
750	1500
900	1500
1050	2100
1200	2100

SECTION J1-J1
SCALE 1:50
MANHOLE TYPE J (PRECAST CONCRETE)
1m < DEPTH TO CROWN < 3m

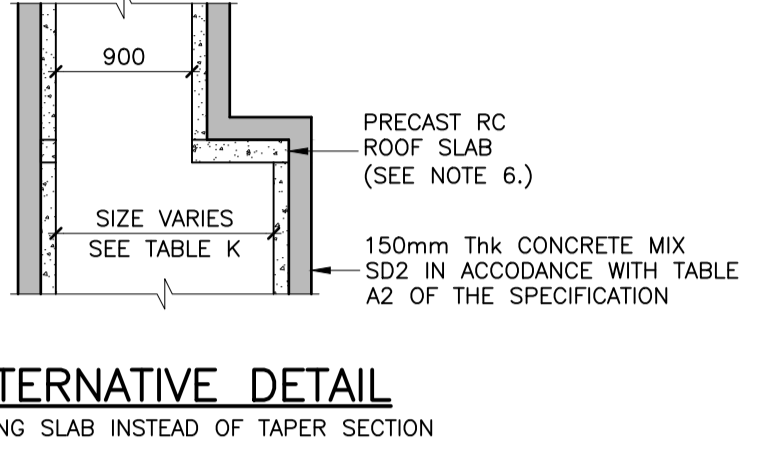


MANHOLE PIPE Ø A	CHAMBER INTERNAL Ø B
225	1200
300	1200
375	1200
525	1200
600	1200
675	1350
750	1500
900	1500
1050	2100
1200	2100

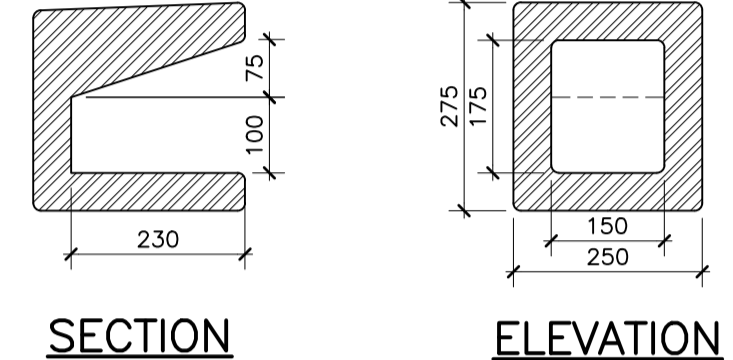
SECTION K1-K1
SCALE 1:50
MANHOLE TYPE K (PRECAST CONCRETE)
3m < DEPTH TO INVERT < 6m



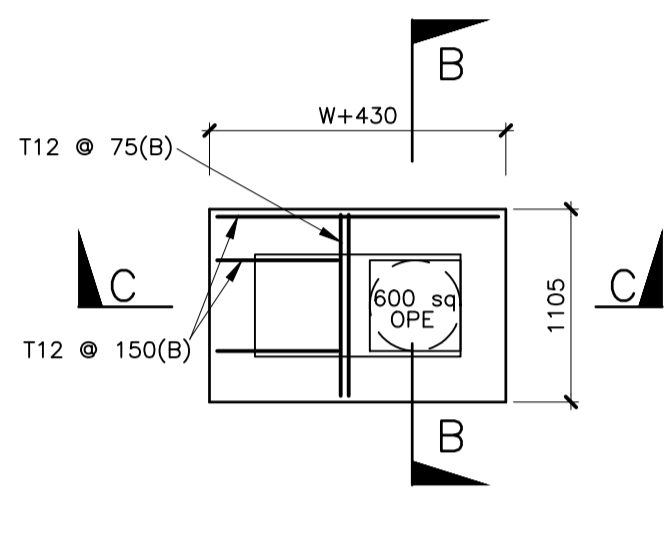
STANDARD RUNG
(IRON STEPS NOT PERMITTED)
SCALE 1:10



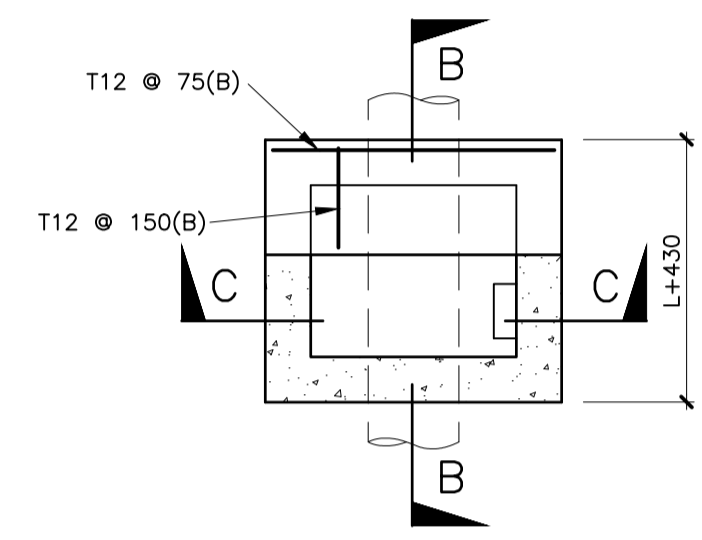
ALTERNATIVE DETAIL
REDUCING SLAB INSTEAD OF TAPER SECTION



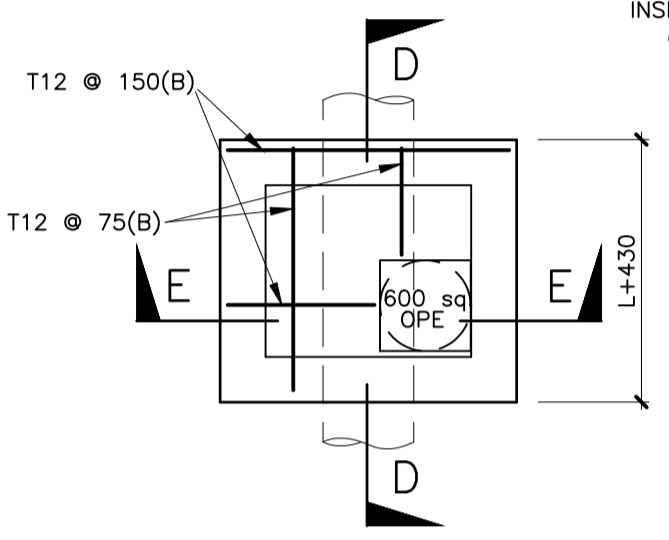
DETAILS OF TOE HOLD
SCALE 1:10



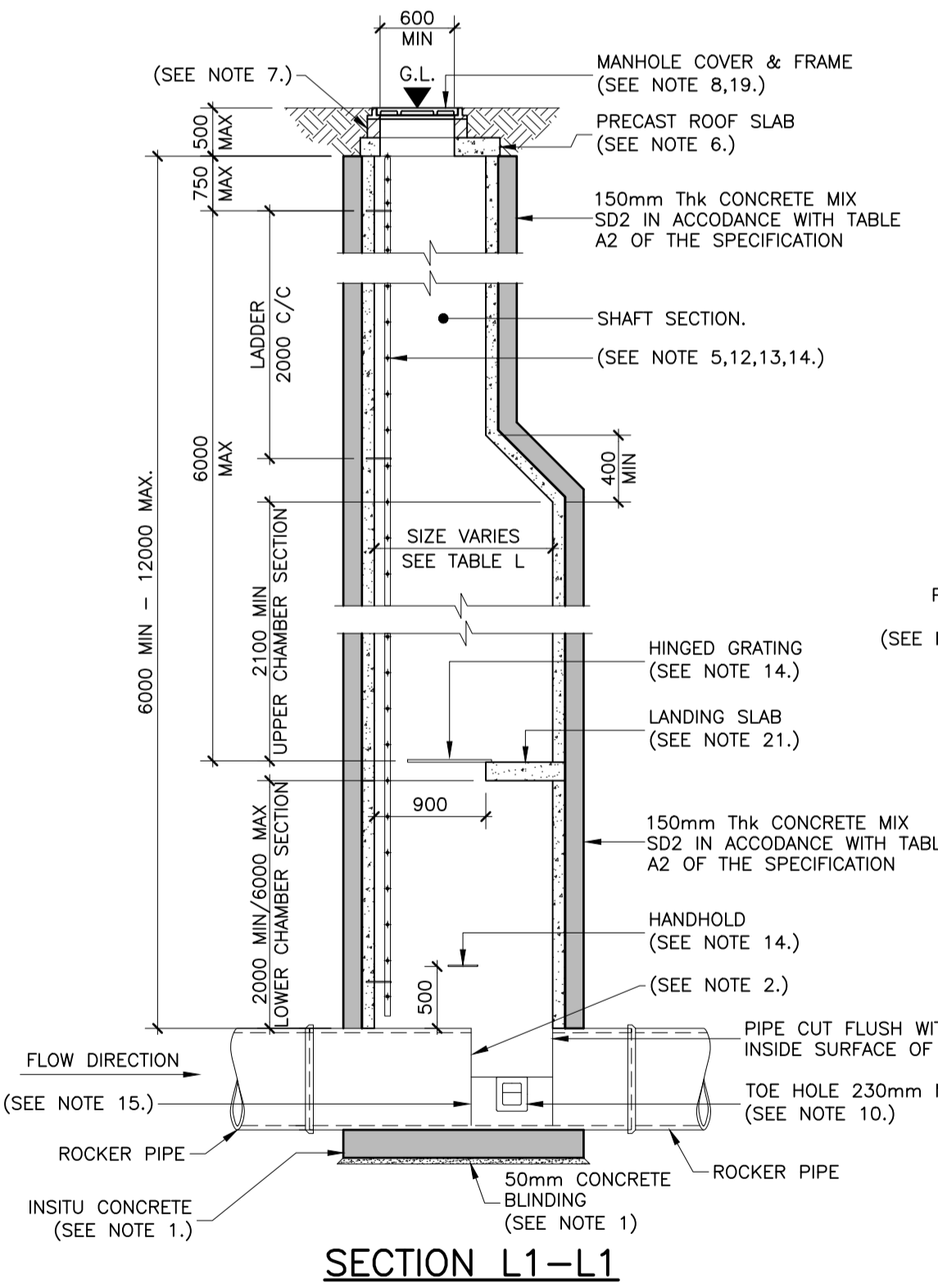
SHAFT ROOF SLAB
(SCALE 1:50)



CHAMBER ROOF SLAB
(WHERE SHAFT IS REQUIRED)
(SCALE 1:50)

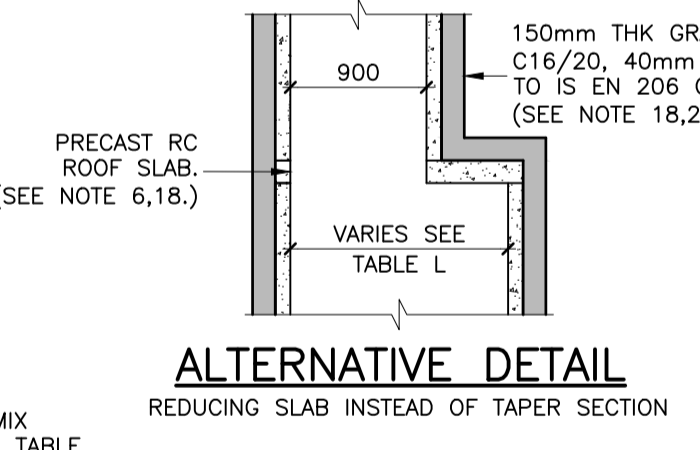


MANHOLE ROOF SLAB
(WHERE SHAFT IS NOT REQUIRED)
(SCALE 1:50)

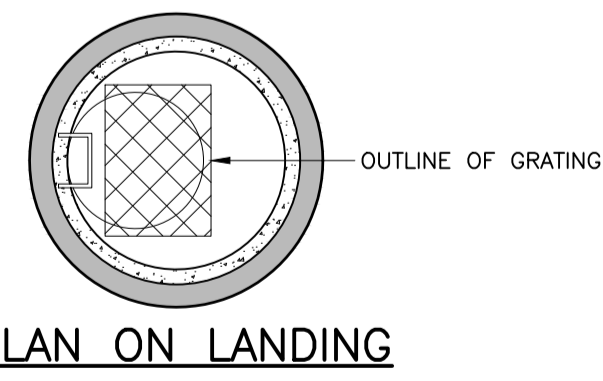


SECTION L1-L1
SCALE 1:50
MANHOLE TYPE L (PRECAST CONCRETE)
6m < DEPTH TO INVERT < 12m

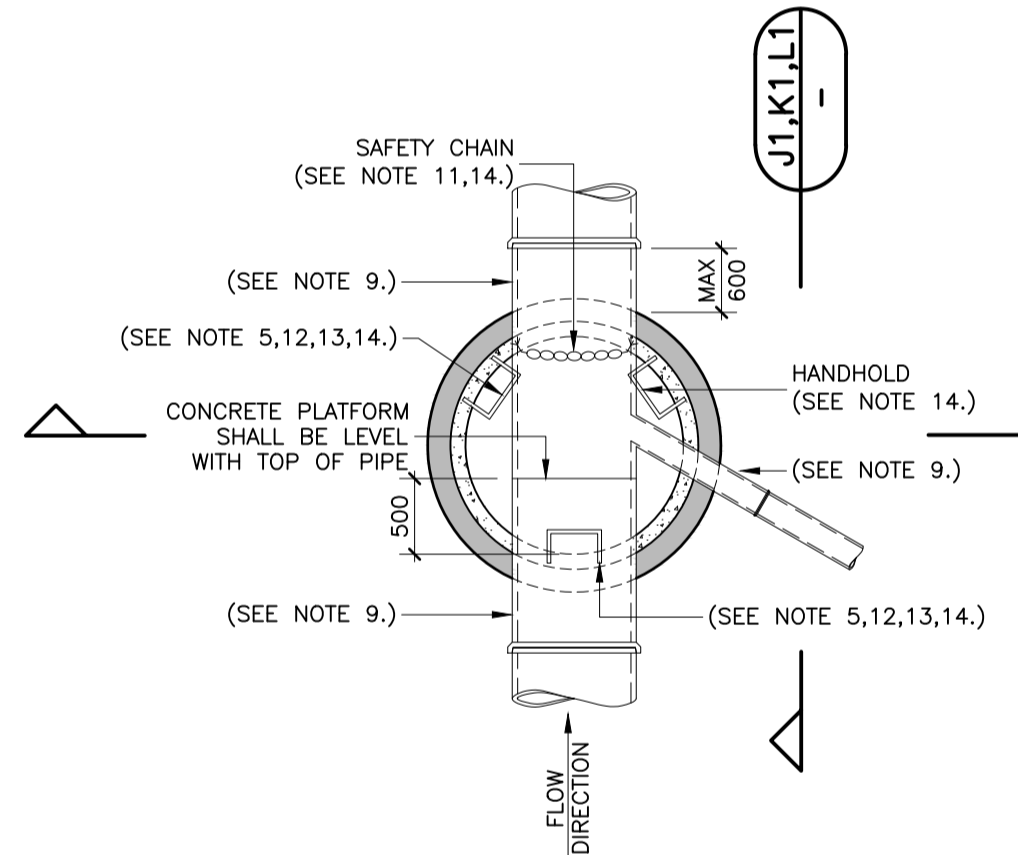
MANHOLE PIPE DIAMETER A	CHAMBER INTERNAL DIAMETER B
225-900	1500
1050-1200	2100



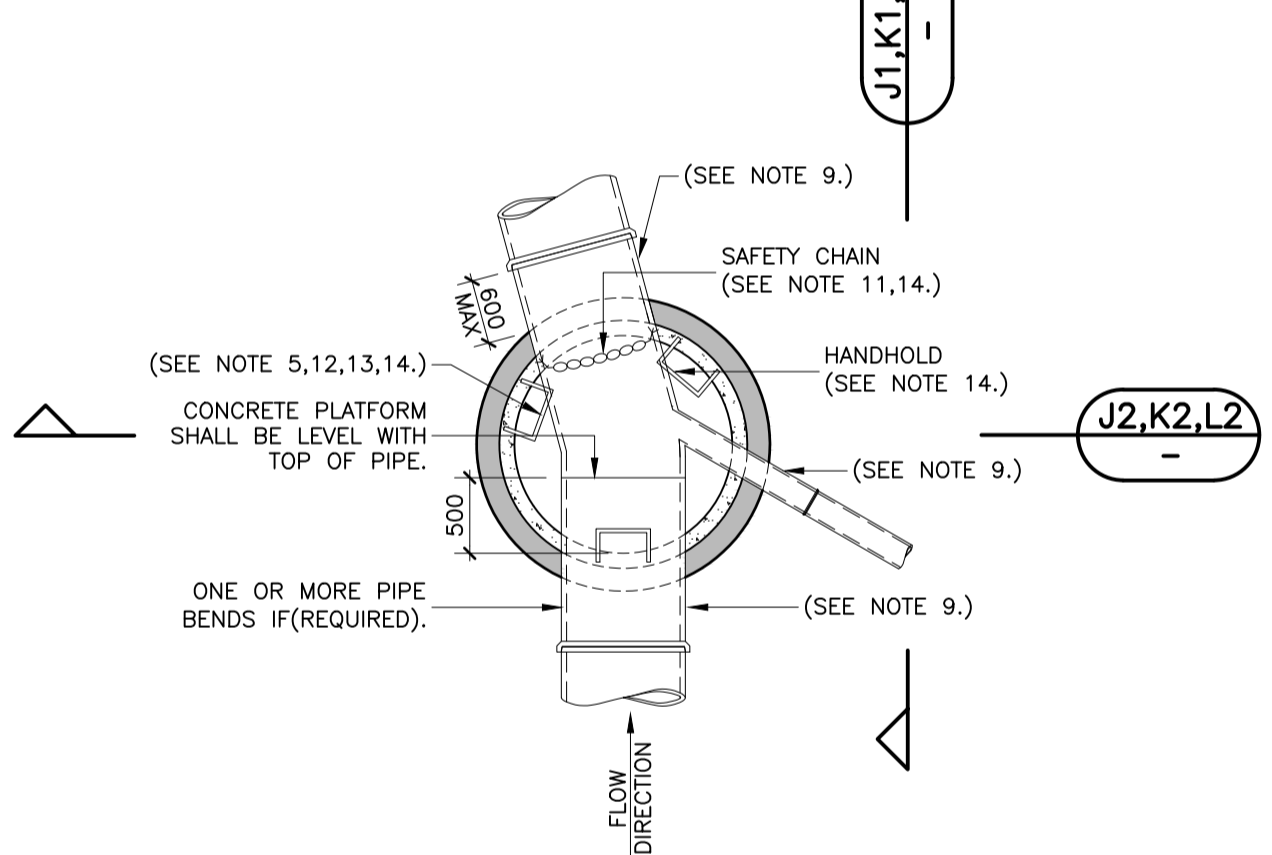
ALTERNATIVE DETAIL
REDUCING SLAB INSTEAD OF TAPER SECTION



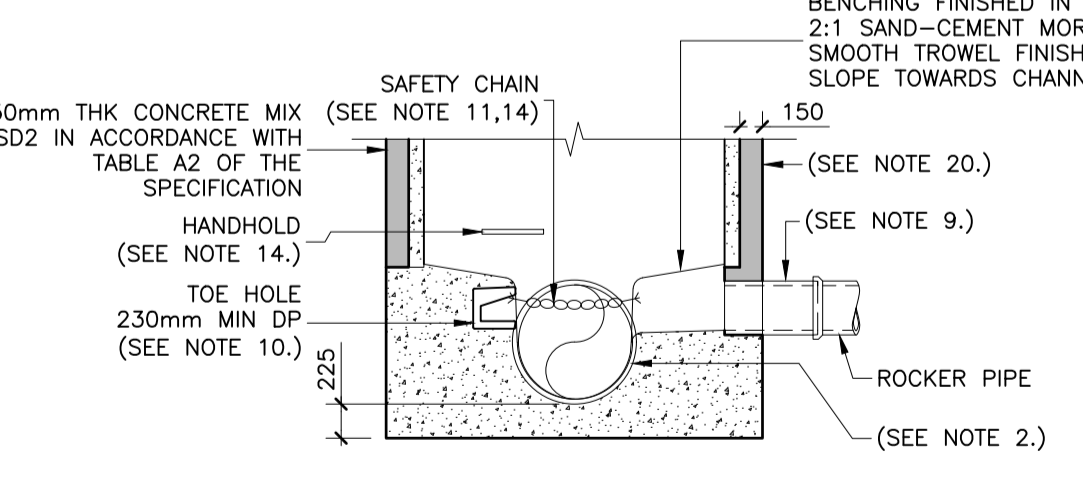
PLAN ON LANDING



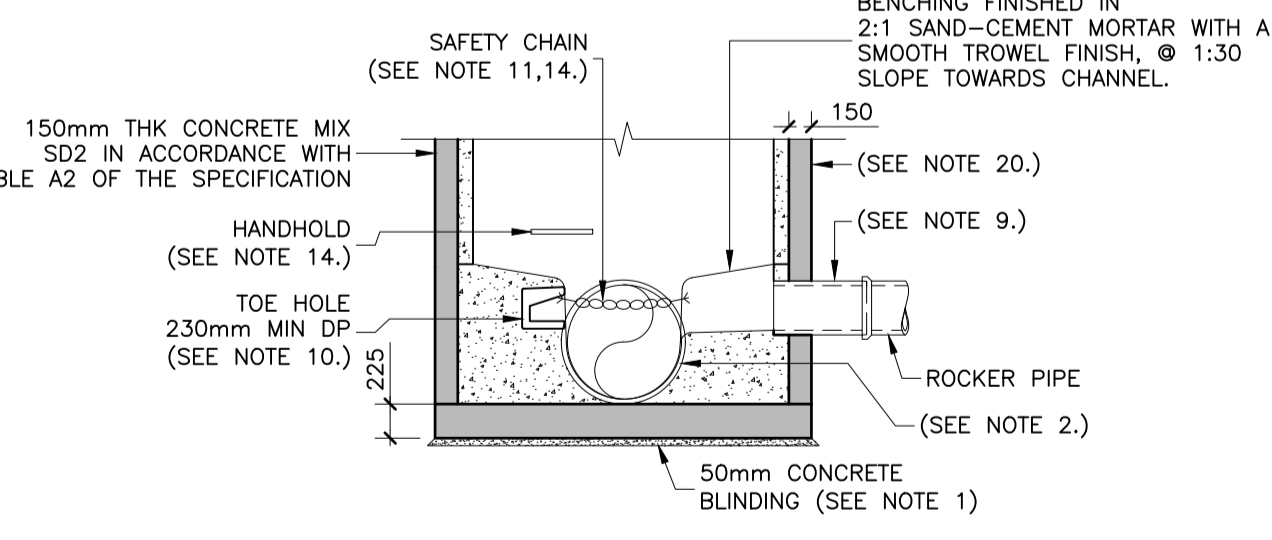
PLAN ON STRAIGHT INVERT
(WITHOUT COVER SLAB)
SCALE 1:50



PLAN ON CURVED INVERT
(WITHOUT COVER SLAB)
SCALE 1:50



SECTION J2, K2 & L2 THROUGH PRECAST BASE
SCALE 1:50



SECTION J2, K2 & L2 THROUGH IN-SITU BASE
SCALE 1:50

INTEGRAL PRECAST CONCRETE MIX SD1 IN ACCORDANCE WITH TABLE A2 OF THE SPECIFICATION, CONCRETE BASE, WALLS & BENCHING AND PREFORMED CHANNEL AS SHOWN; WALLS TO EXTEND 150mm BEYOND OUTER FACE OF CHAMBER RINGS. ALTERNATIVELY PRECAST CONCRETE CHAMBER RINGS MAY BE BEDDED IN MORTAR ON AN IN-SITU CONCRETE MIX SD1 IN ACCORDANCE WITH TABLE A2 OF THE SPECIFICATION, CONCRETE BASE SLAB 300mm GREATER IN DIAMETER THAN THE CHAMBER RINGS WITH AN IN-SITU FORMED INVERT.

TYPICAL DETAILS

- NOTES:**
- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEER'S AND ARCHITECT'S DRAWINGS AND SPECIFICATIONS.
 - ALL LEVELS ARE IN METRES TO ORDNANCE DATUM, MALIN HEAD.
 - ALL BRICKS TO BE SOLID ENGINEERING BRICK CLASS A OR B.
 - FOR PIPE DIAMETER > 750mm, USE MANHOLE WITH INTERNAL DIAMETER SIZE: PIPE SIZE + 1000mm + 300mm.
 - DISTANCE FROM TOP RING OF THE LADDER TO GROUND LEVEL MUST BE A MAXIMUM OF 500mm.
- DRAWING NOTES:**
- IN-SITU BASE TO BE 225 THICK, CONCRETE MIX SD1 IN ACCORDANCE WITH TABLE A2 OF THE SPECIFICATION. CONCRETE BLINDING TO BE CONCRETE MIX SD2 IN ACCORDANCE WITH TABLE A2 OF THE SPECIFICATION.
 - PREFORMED HALF CIRCLE CHANNEL PIPES TO BE LAIN THROUGH THE MANHOLE AND THE PIPELINE MAY, WHERE PRACTICABLE BE LAID THROUGH THE MANHOLE AND THE CROWN CUT OUT TO HALF DIAMETER, PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM THE FACE OF MANHOLE WALL.
 - MANHOLE CONSTRUCTION:
 - FOR SURFACE WATER MANHOLE HIGH DENSITY S10 BLOCKS IN ACCORDANCE WITH SECTION F10 OF THE SPECIFICATION, OR CONCRETE MIX SD3 IN ACCORDANCE WITH TABLE A2 OF THE SPECIFICATION.
 - BEDS AND VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID.
 - JOINTS SHALL BE FLUSH POINTED AS THE WORK PROCEEDS.
 - ALL FOUL MANHOLES MUST BE FACED IN SOLID ENGINEERING BRICK (MIN CLASS A OR B), OR IN-SITU CONCRETE FOR 1 METRE ABOVE BENCHING LEVEL. BRICK TO BE BONDED TO BLOCK WORK USING ENGLISH GARDEN WALL BOND.
 - RELIEVING ARCH FORMED BY 215x103x65 SOLID ENGINEERING BRICK CLASS A TO BS 3921 AS PER DRAWING. RELIEVING ARCHES USED IN BRICK OR BLOCK WORK MANHOLES EXTEND OVER FULL THICKNESS OF WALL. A DOUBLE ARCH IS TO BE FORMED FOR PIPE DIAMETERS GREATER THAN 600mm. BENCHING FINISHED IN 2:1 SAND-CEMENT MORTAR WITH A SMOOTH TROWEL FINISH, AT 1 IN 30 SLOPE TOWARDS CHANNEL.
 - STANDARD RUNGS AT 300 C/C VERTICALLY AND GALVANISED STEEL SAFETY RAILINGS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 525mm DIAMETER AND DEPTH TO INVERT > 3M TO INVERT.
 - A SAFETY CHAIN IS TO BE PROVIDED ON PIPES THAT EXCEED 450mm IN DIAMETER. MILD SAFETY CHAIN SHALL BE 10mm NOMINAL SIZE GRADE M(H) NON-CALIBRATED CHAIN, TYPE 1, COMPLYING WITH B.S.4942 PART 2 OR EQUIVALENT.
 - WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3.0M LADDERS SHALL BE USED INSTEAD OF RUNGS TO BS.4211 OR EQUIVALENT EXCEPT THAT STRINGERS SHOULD BE NOT LESS THAN 65x12mm IN SECTION AND RUNGS 25mm IN DIAMETER. FIXED LADDERS SHOULD MEET THE DIMENSIONAL REQUIREMENTS OF B.S.4211 OR EQUIVALENT.
 - LADDER STRINGERS SHOULD BE ADEQUATELY SUPPORTED FROM THE MANHOLE WALL AT INTERVALS OF NOT MORE THAN 2.0M STRINGERS SHOULD BE BOLTED TO CLEATS TO FACILITATE RENEWAL.
 - ALL LADDERS, RUNGS, HANDRAILS, SAFETY CHAINS ETC SHALL BE HOT DIP GALVANISED TO B.S.729 OR EQUIVALENT.
 - PIPE SHOULD BE CUT FLUSH WITH THE INSIDE SURFACE OF THE MANHOLE WALL SO THAT THE CHANNEL EXTENDS THE FULL LENGTH OF THE MANHOLE (EXCEPT FOR PRECAST MANHOLES).
 - POSITION OF 910 SQUARE OPE IN INTERMEDIATE ROOF SLAB:
 - ALL MANHOLES SHALL BE WATERTIGHT TO THE SATISFACTION OF THE ENGINEER.
 - FORMWORK TO REINFORCED CONCRETE AND MASS CONCRETE SHALL COMPLY WITH CLASS 2, SECTION 6.2.7, BS8110: PART 1:1997.
 - FINISH TO THE TOP OF SLABS SHALL COMPLY WITH TYPE A, SECTION 6.2.7, BS8110: PART 1:1997.
 - PLAN DIMENSIONS OF MANHOLES ARE BASED ON BLOCK WORK HAVING A CO-ORDINATE SIZE OF 450x225x100.
 - MANHOLES ARE DESIGNED TO B.S.8005 AND WALL THICKNESS TO L.S.325 BLOCK WORK DESIGN CODE TAKING GRANULAR FILL PRESSURE AND H.B. SURCHARGE.
 - REINFORCEMENT TO SLABS TO ENGINEERS DETAILS.
 - FOR MANHOLES > 3M DEPTH TO INVERT USE CONCRETE MIX SD3 IN ACCORDANCE WITH TABLE A2 OF THE SPECIFICATION. REINFORCING MESH REF-A393 @ 6.16KG/M TO BE FIXED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER TO PIPE CROWN.
 - FOR PRECAST MANHOLES, CHAMBER WALLS AND COVER SLAB TO BE CONSTRUCTED TO IS EN 1917 AND IS 420 2004.
 - MANHOLE OPENINGS TO BE SITUATED FURTHEST FROM THE NEAREST CARRIAGEWAY. MANHOLE STEPS/ACCESS TO BE POSITIONED TO ALLOW VIEWING OF ONCOMING TRAFFIC.
 - FOR BEDDING AND SEALING OF CHAMBER RINGS, THE TOP RING (TO PRECAST COVER SLAB) AND BOTTOM RING TO BE BEDDED WITH CEMENT MORTAR. FOR INTERMEDIATE RINGS, JOINTS TO BE SEALED WITH APPROVED PRE-FORMED JOINTING STRIP.
 - PRE-CAST MANHOLES TO BE SURROUNDED WITH A MINIMUM OF 150mm THICK CONCRETE MIX SD2 IN ACCORDANCE WITH TABLE A2 OF THE SPECIFICATION.

Rev	Description	Date	By	Chk'd	App'd
P01	ISSUED FOR PLANNING	05.06.20	SS	SS	AWT

PLANNING

FIROD
ROUGHAN & O'DONOVAN
Consulting Engineers
Civil - Structural - Environmental

Client: **LAOIS COUNTY COUNCIL**

Project Title: **MOOREVILLE**

Drawing Title: **SURFACE WATER DETAILS SHEET 4**

Drawing Number: **MV-ROD-00-XX-DR-C-0063** Rev: **P01**

Scale: **VARIES** Date: **JUN '20** Job No: **19.109** Ctd File: **S4 - STAGE APPROVAL**