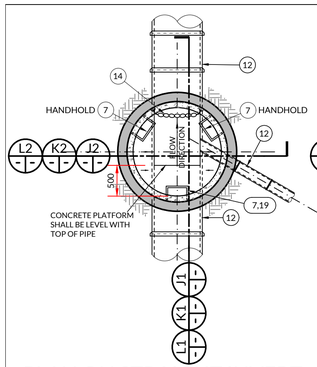
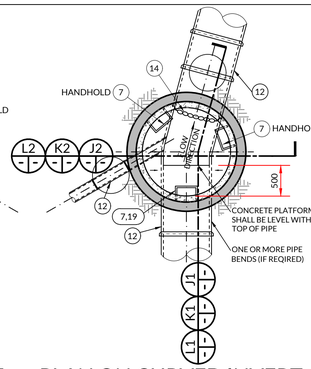
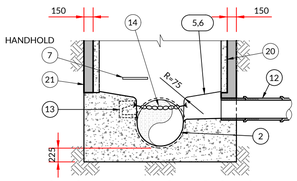


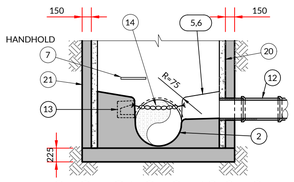
PLAN ON STRAIGHT INVERT
(WITHOUT COVER SLAB)



PLAN ON CURVED INVERT
(WITHOUT COVER SLAB)



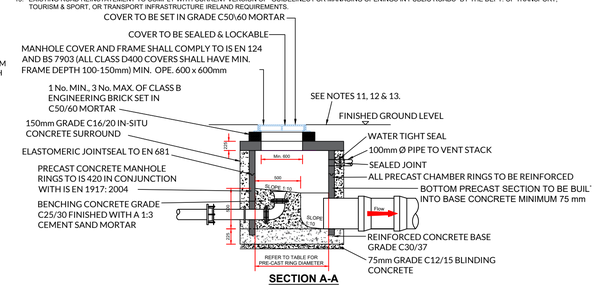
SECTIONS L2, K2 & J2 THRO' PRECAST BASE 1:50



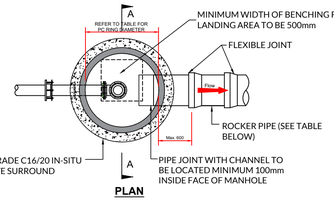
SECTIONS L2, K2 & J2 THRO' INSITU BASE 1:50

COMMON DETAILS

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. PRE-CAST MANHOLES UNITS: COMPLYING WITH REQUIREMENTS OF IS EN 1917 AND BS 5911-PART 3.
3. THICKER MANHOLE BASES REQUIRED FOR SEWERS IN EXCESS OF 3m DEEP WHERE THE SIZE IS GREATER THAN THE STANDARD MINIMUM SIZE.
4. PRE-CAST CONCRETE BASES MAY BE USED INCORPORATING CHANNELS, BENCHING ETC. SUBJECT TO UISCE EIREANN REVIEW AND COMPLYING WITH BS 5911-PART 4 2002.
5. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO UISCE EIREANN FOR REVIEW.
6. MANHOLE ROOFS SHOULD CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, C30/37, WITH A MINIMUM THICKNESS OF 225mm DESIGNED TO CARRY ALL LIVE AND DEAD LOADS, ALTERNATIVELY, APPROVED PRE-CAST CONCRETE ROOF SLABS MAY BE USED SUBJECT TO UISCE EIREANN REVIEW AND COMPLIANCE WITH BS 5911 PART 4 2002.
7. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY UISCE EIREANN.
8. 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GREEN AREAS.
9. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY UISCE EIREANN.
10. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
11. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.
12. NEW ROAD CONSTRUCTION & SURFACE FINISH TO BE TO ROAD AUTHORITY REQUIREMENTS.
13. EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF "GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS" BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE IRELAND REQUIREMENTS.



SECTION A-A



PLAN

MINIMUM MANHOLE DIAMETERS	
DIAMETER OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIAMETER OF MANHOLE (mm)
< 375	1200
375 TO 450	1350
500 TO 700	1500

ROCKER PIPE LENGTH	
PIPE DIAMETER (mm)	ROCKER PIPE LENGTH (mm)
150 TO 600	600
> 600 TO 750	1000
> 750	1250

RISING MAIN DISCHARGE MANHOLE
SCALE 1:50

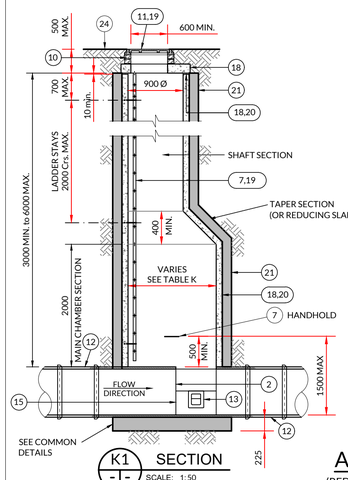
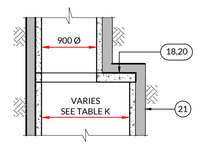
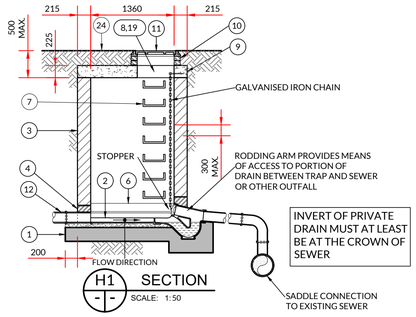


TABLE K	
MANHOLE PIPE Ø A	CHAMBER INTERNAL Ø B
LESS THAN 375	1200
375 TO 450	1350
500 TO 750	1500
900	1500
1050	2100
1200	2100

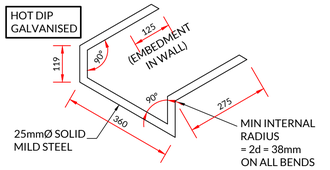


ALTERNATIVE DETAIL
(REDUCING SLAB INSTEAD OF TAPER SECTION)

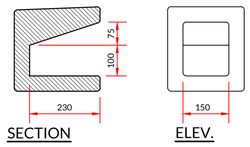
MANHOLE TYPE K
3m ≤ DEPTH TO INVERT < 6m



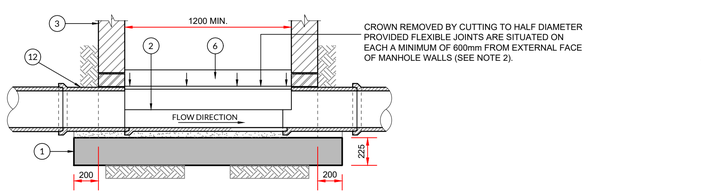
MANHOLE TYPE H
INTERCEPTOR TRAP DETAILS
FOR OUTFALL MANHOLES AT SITE BOUNDARY PRIOR TO CONNECTING TO PUBLIC SYSTEM



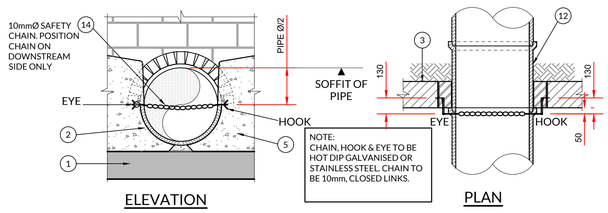
STANDARD RUNG
(IRON STEPS NOT PERMITTED) SCALE 1:10



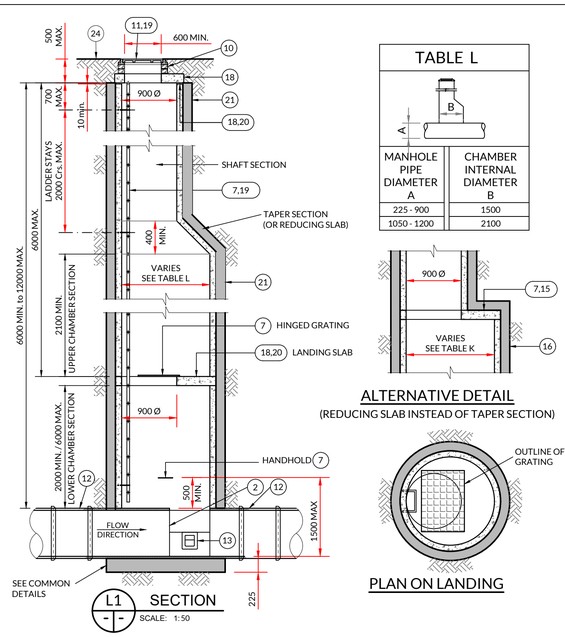
DETAILS OF TOE HOLD
SCALE 1:10



ALTERNATIVE METHOD OF FORMING CHANNEL THROUGH MANHOLE
SCALE 1:25



SAFETY CHAIN, HOOK & EYE DETAIL N.T.S.

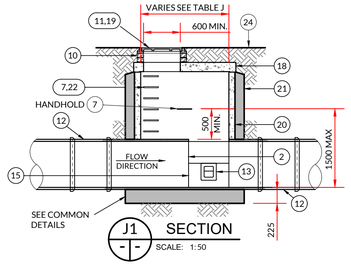


MANHOLE TYPE L
6m < DEPTH TO INVERT < 12m

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

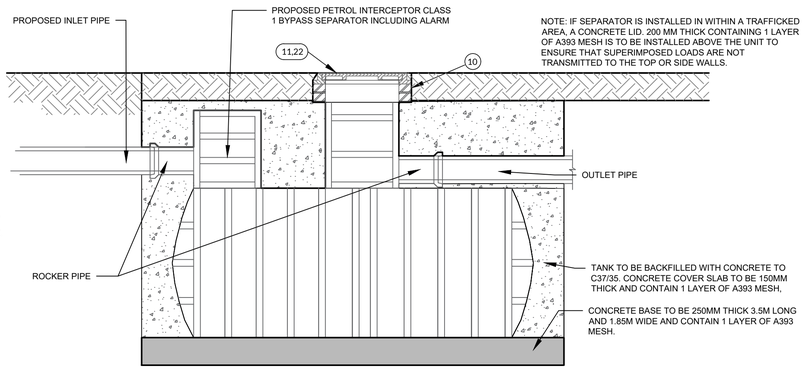
ALTERNATIVE DETAIL
(REDUCING SLAB INSTEAD OF TAPER SECTION)

PLAN ON LANDING



MANHOLE TYPE J
1m < DEPTH TO CROWN < 3m

TABLE J	
MAXIMUM PIPE DIAMETER A	CHAMBER INTERNAL DIAMETER B
LESS THAN 375	1200
375 TO 450	1350
500 TO 750	1500



TYPICAL PETROL INTERCEPTOR DETAIL
SCALE 1:25

LEGEND:

1. 225mm REINFORCED CONCRETE BASE, GRADE 30/37.
2. PERFORMED HALF CIRCLE CHANNEL PIPES, THE PIPELINE MAY, WHERE PRACTICABLE, BE LAID THROUGH THE MANHOLE & THE CROWN CUT OUT TO HALF DIAMETER, PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM INNER FACE OF THE MANHOLE WALL.

NOTE: WHERE PIPE DIAMETER CHANGES A MANHOLE, PIPE TO LINE UP

MANHOLE CONSTRUCTION:

a) BLOCK WORK MANHOLE:
- SOLID BLOCK WORK TO BE OF HIGH STRENGTH (20N/mm²) TO IS EN 771.
- MAXIMUM DEPTH IS 1.20m (THE USE OF BLOCK WORK IN DEEPER MANHOLES WILL BE CONSIDERED BUT SUCH USE WILL REQUIRE DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO UISCE EIREANN REVIEW)
- WALLS TO BE FLUSH AND NOT PLASTERED INTERNALLY, INTERNAL LINING OF ENGINEERING BRICK TO IS EN 771-1 TO A HEIGHT OF 1.0m ABOVE BENCHING. ENGINEERING BRICK TO BE BONDED TO BLOCK WORK USING ENGLISH GARDEN WALL BOND.
- BLOCK WORK SHALL BE EMBEDDED & JOINTED USING MORTAR TO IS EN 998. BEDS & VERTICAL JOINTS TO BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID.

b) PRE-CAST CONCRETE MANHOLE:
- THE UNITS ARE TO COMPLY WITH REQUIREMENTS OF IS EN 1917:2002 AND BS 5911-PART 3.
- THICKER MANHOLE BASES REQUIRED FOR SEWERS IN EXCESS OF 3.0m DEEP WHERE THE SIZE IS GREATER THAN THE STANDARD MINIMUM SIZE.
- APPROVED PRE-CAST CONCRETE BASES MAY BE USED INCORPORATING CHANNELS, BENCHING ETC. SUBJECT TO UISCE EIREANN REVIEW AND COMPLYING WITH BS 5911-4:2002 IN CONJUNCTION WITH IS EN 1917:2002.

c) IN-SITU CONCRETE MANHOLE:
- TO HAVE A MINIMUM WALL AND FLOOR THICKNESS OF 225mm FOR MANHOLE DEPTHS UP TO 3.0m AND 300mm OR MORE WHEN THE MANHOLE DEPTHS EXCEEDS 3.0m.

4. RELIEVING ARCH FORMED BY 215x103x65 SOLID ENGINEERING BRICK CLASS A OR B . (RELIEVING ARCHES ARE USED IN BRICK OR BLOCK WORK MANHOLES EXTENDED OVER FULL THICKNESS OF WALLS). A DOUBLE ARCH TO BE FORMED FOR PIPE DIAMETER GREATER THAN 600mm.
5. BENCHING AND PIPE SURROUND - C30/37 CONCRETE.
6. 1:3 CEMENT: SAND MORTAR WITH STEEL TROWEL FINISH AT SLOPE OF 1:30 TOWARDS THE CHANNEL
7. MANHOLE STEPS TO COMPLY WITH IS EN 13101, TYPE D, CLASS 1. GALVANIZED MILD STEEL STEP RUNGS, 20mm DIAMETER, SHALL BE PROVIDED WITH PLASTIC ENCAPSULATED FINISH. STEP RUNGS ARE TO BE PROVIDED IN MANHOLES WHERE THE DEPTH FROM GROUND TO THE SOFFIT OF THE PIPE IS UP TO 3.0m. FIXED LADDERS ARE REQUIRED IN MANHOLES WHERE THE DEPTH FROM GROUND TO THE SOFFIT OF THE PIPE EXCEEDS A DEPTH OF 3.0m AND UP TO 6.0m, AND SHALL COMPLY WITH IS EN 14396. ALL LADDER RUNGS, HANDRAILS, SAFETY CHAINS ETC. TO COMPLY WITH BS EN ISO 1461:2009 OR EQUIVALENT.
8. 600mm SQUARE OPE IN ROOF.
9. MANHOLE ROOFS SHALL CONSIST OF REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE 30/37, WITH A MINIMUM THICKNESS OF 225mm DESIGNED TO CARRY ALL LIVE AND DEAD LOADS. ALTERNATIVELY, APPROVED PRE-CAST CONCRETE ROOF SLABS MAY BE USED SUBJECT TO UISCE EIREANN REVIEW AND COMPLIANCE WITH BS 5911 PART 4:2002, IN CONJUNCTION WITH IS EN 1979:2002 AND IS 420:2004.
10. 1 TO 3 MAX. COURSES OF CLASS B ENGINEERING BRICKS TO IS EN 771:2011 SET IN C 50/60 MORTAR.
11. MANHOLE COVER AND FRAME SHALL COMPLY TO IS EN 124 AND BS 7903 (ALL CLASS D400 COVERS SHALL HAVE MIN. FRAME DEPTH 100-150mm). MIN. OPE 600x600mm. COVER TO BE SET IN C 50/60 MORTAR.
12. SHORT LENGTH PIPE & PIPE JOINT EXTERNAL TO MAHOLES SHALL NOT EXCEED 600mm FROM THE INNER FACE OF THE MANHOLE WALL.
13. TOE HOLES OF 230mm MINIMUM DEPTH & GALVANIZED SAFETY REILINGS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 525mm Ø & DEPTH TO INVERT> 3.0m FOR ACCESS TO INVERT.
14. STAINLESS STEEL CHAIN IS TO BE PROVIDED ON PIPES THAT EXCEEDED 450mm Ø, COMPLYING WITH BS4942 PART 2 OR EQUIVALENT.
15. PIPE SHOULD BE CUT FLUSH WITH THE INSIDE SURFACE OF THE MANHOLE WALLS SO THAT CHANNEL EXTENDS THE FULL LENGTH OF THE MANHOLE.
16. POSITION OF 910 SQUARE OPE IN INTERMEDIATE ROOF SLABS:
    a. ALL MANHOLES SHALL BE WATERTIGHT TO THE SATISFACTION OF THE ENGINEER.
    b. FORMWORK TO REINFORCED CONCRETE & MASS CONCRETE SHALL COMPLY WITH IS EN 1992-1-1.
    c. FINISH TO THE TOP OF SLAB SHALL COMPLY WITH TYPE A SECTION 6.2.7, BS 8110 PART 1:1997.
    d. PLAN DIMENSIONS OF MANHOLES ARE BASED ON BLOCK WORK HAVING A CO-ORDINATING SIZE OF 450x225x100. FORT PIPE DIAMETER OF > 750mm USE MANHOLE WITH INTERNAL DIAMETER SIZE = PIPE SIZE +1.0m +300mm.
    e. MANHOLES ARE DESIGNED TO BS EN 752:2017 & WALL THICKNESS TO IS EN 1996-1-1, BLOCK WORK DESIGN CODE TAKING GRANULAR FILL PRESSURE & H.B. SURCHARGE.
    f. REINFORCEMENTS TO SLABS TO ENGINEERS DETAILS.
17. FOR MANHOLES > 3m DEPTH TO INVERT USE C30/37 IN-SITU CONCRETE, REINFORCING MESH REF. A393 TO BE FIXED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER PIPE CROWN.
18. PRECAST MANHOLES, CHAMBER WALLS & COVER SLAB TO BE CONSTRUCTED TO IS EN 1917 & IS 420:2004.
19. MANHOLE OPENINGS TO BE SITUATED FURTHEST FROM THE NEAREST CARRIAGEWAY. MANHOLE STEPS-ACCESS TO BE POSITIONED TO ALLOW VIEWING OF ONCOMING TRAFFIC.
20. FOR BEDDING AND CEILING OF CHAMBER RINGS, THE TOP RING (TO PRECAST OVER SLAB) & BOTTOM RING TO BE BEDDED WITH CEMENT MORTAR. FOR INTERMEDIATE RINGS. JOINTS TO BE SEALED WITH APPROVED PREFORMED JOINTING STRAP.
21. PRECAST MANHOLES TO BE SURROUNDED WITH A MINIMUM OF 150mm THICK GRADE C16/20 CONCRETE.
22. 225mm GRADE C 25/30 CONCRETE SURROUND.
23. 75mm GRADE C 12/15 BLINDING CONCRETE.
24. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER AND FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS, NEW ROAD CONSTRUCTION AND SURFACE FINISH TO BE ROAD AUTHORITY'S REQUIREMENTS. EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF "GUIDELINE FOR MANAGING OPENINGS IN PUBLLIC ROADS" BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE IRELAND REQUIREMENTS.
25. PRECAST CONCRETE MANHOLE RINGS TO IS 420 IN CONJUNCTION WITH EN 1917:2004.

NOTES:

ALL FOUL MANHOLES TO COMPLY WITH REQUIREMENTS OF UISCE EIREANN STD-WW-09 TO 13.

NOTES:

1. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
2. ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE
3. ENGINEER/EMPLOYERS REPRESENTATIVE, AS APPROPRIATE, TO BE INFORMED BY THE CONTRACTOR OF ANY DISCREPANCIES BEFORE ANY WORK COMMENCES
4. THE CONTRACTOR SHALL UNDERTAKE A THOROUGH CHECK FOR THE ACTUAL LOCATION OF ALL SERVICES/UTILITIES, ABOVE AND BELOW GROUND, BEFORE ANY WORK COMMENCES
5. ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD
6. MANHOLE DETAILS FOR FOUL SEWER TO BE IN ACCORDANCE WITH UISCE EIREANN STANDARD DETAILS AND CODE OF PRACTICE - UISCE EIREANN DETAILS & REQUIREMENTS WILL TAKE PRECEDENCE

Rev	Date	Description	By	Chkd.
P02	01.08.2025	Minor Revisions	EC	RB
P01	04.07.2025	Issued For Planning	EC	RB

Client:
Land Development Agency

Project:
Galway Port LRD
Mixed Use Development

Title:
Standard Manhole Details
Sheet 2 of 2

Scale @ A1: As Shown

Prepared by: EC
Checked by: RB
Date: July 2025

Drawing Status: Planning

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www.tobin.ie

Drawing No.: 11910-2011
Revision: P02