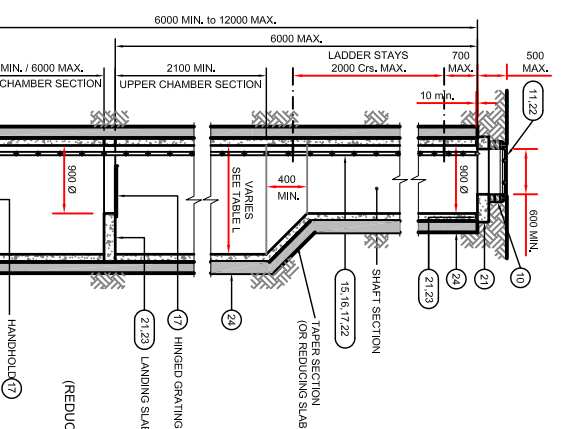


**MANHOLE TYPE H
INTERCEPTOR TRAP DETAILS**
FOR OUTFALL MANHOLES AT SITE BOUNDARY
PRIOR TO CONNECTING TO PUBLIC SYSTEM



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

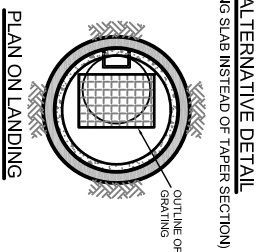
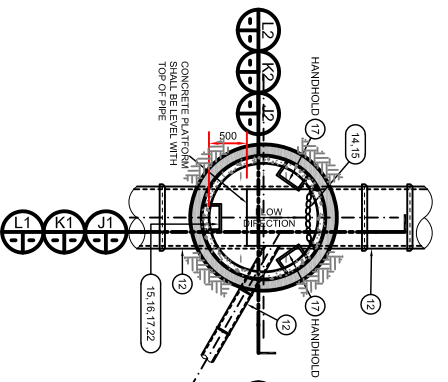
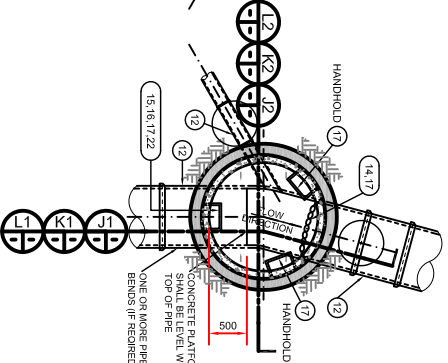


TABLE L	
MANHOLE TYPE DIAMETER	CHAMBER INTERNAL DIAMETER
225-300	1500
1050-1200	2100



**PLAN ON STRAIGHT INVERT
(WITHOUT COVER SLAB)**

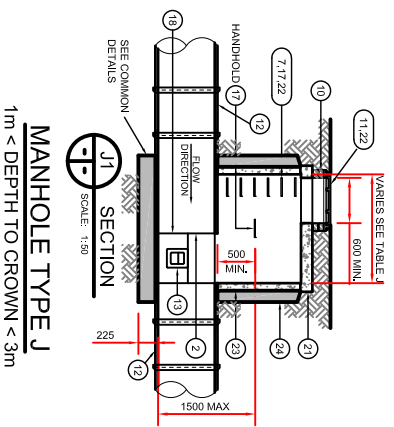


**PLAN ON CURVED INVERT
(WITHOUT COVER SLAB)**

**SECTIONS L2, K2 & J2
THRO' PRECAST BASE**

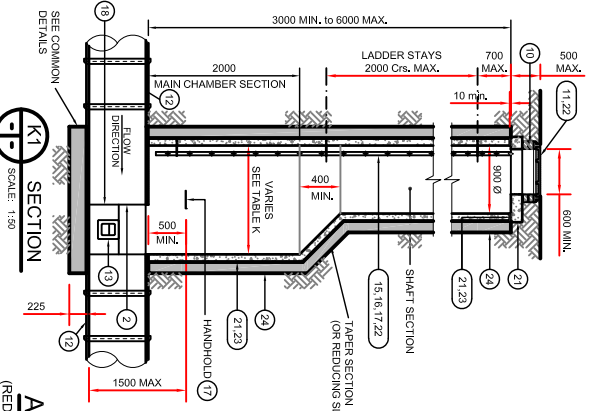
**SECTIONS L2, K2 & J2
THRO' IN SITU BASE**

COMMON DETAILS



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

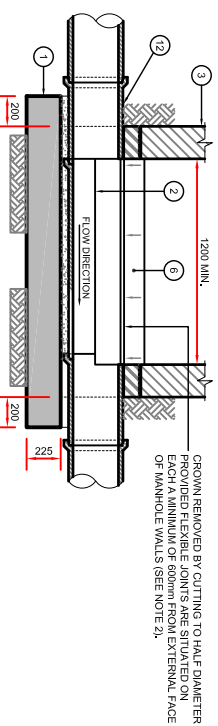
TABLE J	
MANHOLE PIPE DIAMETER	CHAMBER INTERNAL DIAMETER
LESS THAN 375	1200
375 TO 450	1350
500 TO 750	1500



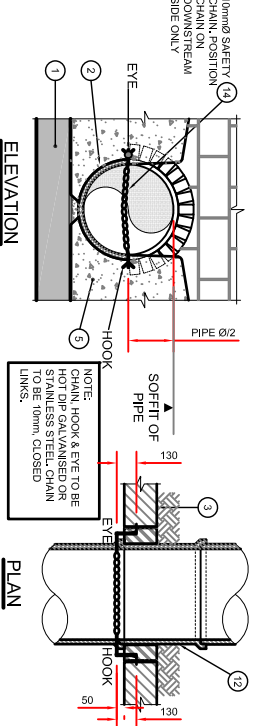
**MANHOLE TYPE K
3m ≤ DEPTH TO INVERT < 6m**

TABLE K	
MANHOLE PIPE Ø	CHAMBER INTERNAL Ø
LESS THAN 375	1200
375 TO 450	1350
500 TO 750	1500
900	1800
1050	2100

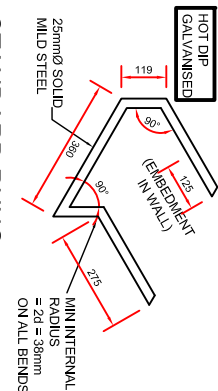
**ALTERNATIVE DETAIL
(REDUCING SLAB INSTEAD OF TAPER SECTION)**



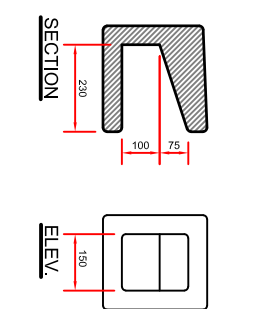
**ALTERNATIVE METHOD OF FORMING CHANNEL THROUGH MANHOLE
SCALE 1:25**



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



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



**DETAILS OF TOE HOLD
SCALE 1:10**

- NOTES:**
- 225mm THICK C30/37 MASS CONCRETE FOUNDATIONS.
 - PREFORMED HALF CIRCLE CHANNEL PIPES, THE PIPE LINE MAY WITHSTAND LOADS THROUGH THE MANHOLE & THE RING ON EACH SIDE NO FURTHER THAN 500mm FROM INNER FACE OF THE MANHOLE WALL.
 - NOTE: WHERE PIPE DIAMETER CHANGES AT A MANHOLE PIPE CROWN TO LINE UP
 - MANHOLE CONSTRUCTION:**
 - FOR SURFACE WATER MANHOLES HIGH-DENSITY BLOCKS 20N STRENGTH TO BS EN 1771 OR C30/37 INSITU CONCRETE TO BS EN 206.
 - BLOCK WORK SHALL BE EMBEDDED & JOINTED USING MORTAR TO BS 456; BEDS & VERTICAL JOINTS TO BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID.
 - ALL FOUJ MANHOLES MUST BE FACED IN SOLID ENGINEERING BRICK (MIN CLASS A OR B) OR INSITU CONCRETE FOR 1m ABOVE BENCHING LEVEL. BRICK TO BE BONDED TO BLOCK WORK USING GARDEN WALL BOND.
 - JOINTS SHALL BE FLUSH AND POINTED AS THE WORK PROCEEDS.
 - MAX DEPTH OF BLOCKWORK MANHOLE IS 1.2m THE USE OF BLOCK IN DEEPER MANHOLES WILL BE CONSIDERED BUT SUCH WILL REQUIRE DETAILED STRUCTURAL DESIGN AND WRITTEN APPROVAL FROM IRISH WATER.
 - RELIEVING ARCH FORMED BY 215 X 103 X 55 SOLID ENGINEERING BRICK CLASS A OR B; RELIEVING ARCHES USED IN BRICK OR BLOCK WORK MANHOLES EXTEND OVER FULL THICKNESS OF WALL A DOUBLE ARCH IS TO BE FORMED FOR PIPE DIAMETER GREATER THAN 600mm.
 - BENCHING & PIPE SURROUND - C30/37 CONCRETE.
 - BENCHING FINISHED IN SAND/CEMENT MORTAR WITH SMOOTH TOWEL FINISH AT 1 IN 30 SLOPE TOWARDS CHANNEL.
 - STANDARD RUNGS AT 200mm Ø VERTICALLY & GALVANISED TO THE ACCEPTABLE.
 - PRECAST FAC ROOF SLAB SHALL BE 200mm THICK CLASS C30/37 WITH 40mm COVER TO STEEL DESIGNED TO BS 8100 TO TAKE FULL TRAFFIC LOADS.
 - 800mm SQUARE ORE IN ROOF.
 - PRECAST FAC ROOF SLAB SHALL BE 200mm THICK CLASS C30/37 WITH 40mm COVER TO STEEL DESIGNED TO BS 8100 TO TAKE FULL TRAFFIC LOADS.
 - 1 TO 2 COURSES OF SOLID ENGINEERING BRICK CLASS B TO BS 91:1983 SET IN C30/37 MORTAR.
 - CLASS D400 OR E600 MANHOLE COVER AND FRAME TO IS EN 124, 150mm DEEP FRAME FOR RINGS & 100mm DEEP FOR FOOTPATHS & GREEN AREAS. NON-SKID DESIGN. CLOSED REINFORCED MANUFACTURED FROM SERRATED GRAPE CAST IRON DUCTILE CAST IRON (EN 124:2000) APPROVED MATERIAL. COVER TO HAVE MINIMUM MASS OF 140kg/m2 FRAME BEARING AREA SHALL BE DESIGNED TO PREVENT COVERS FALLING INTO MANHOLE. FRAMES SHALL BE BEDDED ON APPROVED MORTAR TO MATCH JOINTS AND FINISHES.
 - SHORT LENGTH PIPE & PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 800mm FROM THE INNER FACE OF MANHOLE WALL.
 - THE HOLES OF 25mm MINIMUM DEPTH & GALVANISED SAFETY RAILS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 225mmØ & DEPTH TO INVERT > 2M FOR ACCESS TO INVERT.
 - A STAINLESS STEEL CHAIN IS TO BE PROVIDED ON PIPES THAT EXCEED 450mmØ & COMPLYING WITH BS 4462 PART 2 OR EQUIVALENT.
 - WHEN THE DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3M LADDERS SHALL BE USED. INSTEAD OF RUNGS TO BS 4271 OR EQUIVALENT EXCEPT THAT STRINGERS SHOULD BE NOT LESS THAN 60MM IN SECTION & RUNGS 25mm IN DIAMETER. BOTH RUNGS & STRINGERS SHALL BE GALVANISED TO PREVENT CORROSION. EQUIVALENT DISTANCE FROM THE TOP RING OF THE LADDER TO GROUND LEVEL SHOULD NOT EXCEED 900mm.
 - LADDER STRINGERS SHOULD BE ADEQUATELY SUPPORTED FROM THE MANHOLE WALL AT INTERVALS OF NOT MORE THAN 2m. STRINGERS SHOULD BE BOLTED TO CLEATS TO FACILITATE RENEWAL.
 - ALL LADDER RUNGS, HANDRAILS, SAFETY CHAINS ETC. SHALL BE HOT DIP GALVANISED TO BS 729 OR EQUIVALENT.
 - PIPE SHOULD BE CUT FLUSH WITH THE INNER SURFACE OF THE MANHOLE WALL SO THAT CHANNEL EXTENDS THE FULL LENGTH OF THE MANHOLE.
 - POSITION OF 910 SQUARE ORE IN INTERMEDIATE ROOF SLAB.
 - ALL MANHOLES SHALL BE WATER TIGHT TO THE SATISFACTION OF THE ENGINEER.
 - MANHOLE REINFORCED CONCRETE & MASS CONCRETE SHALL COMPLY WITH CLASS 2 SECTION 6.2.7 BS 8100 PART 1:1987 OR FINISH TO THE TOP OF SLABS SHALL COMPLY WITH TYPE A SECTION 6.2.7 BS 8100 PART 1997.
 - MANHOLES ARE BASED ON A 100MM Ø PIPE SIZE 450 X 225 X 100. PORT PIPE DIAMETER OF > 750mm USE MANHOLE WITH INTERNAL DIAMETER SIZE = PIPE SIZE + 1m - 480mm.
 - CONCRETE TO BS 456 & WALL THICKNESS TO BS 252 BLOCK WORK DESIGN CODE TYPING GRANULAR FILL PRESSURE & HS SURCHARGE.
 - REINFORCEMENT TO SLABS ENGINEERS DETAILS.
 - FOR MANHOLES > 3m DEPTH TO INVERT USE C30/37 INSITU CONCRETE REINFORCING MESH REF. A293 TO BE FIXED AT MID PIPE OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER PIPE CROWN.
 - PRECAST MANHOLES CHAMBER WALLS & COVER SLAB TO BE CONSTRUCTED TO IS EN 1917 & IS 4262004
 - MANHOLE OPENINGS TO BE SITUATED FURTHEST FROM THE NEAREST VIEWING OF ONCOMING TRAFFIC
 - FOR BENCHING & SEALING 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
 - PRECAST MANHOLES TO BE SURROUNDED WITH A MINIMUM OF 150mm THICK GRADE C16/20 CONCRETE.
 - ALL FOUJ MANHOLES TO COMPLY WITH REQUIREMENTS OF IRISH WATER STD:WDW-089 TO 13

- NOTES:**
- FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
 - ALL DRAWINGS TO BE CHECKED BY THE CONTRACTOR ON SITE.
 - ENGINEER/PE/OTHERS REPRESENTATIVE AS APPROPRIATE TO BE INFORMED BY THE CONTRACTOR BEFORE ANY WORK COMMENCES.
 - THE CONTRACTOR SHALL UNDERTAKE A THOROUGH CHECK FOR THE ACTUAL LOCATION OF ALL SERVICES UTILITIES, ABOVE AND BELOW GROUND, BEFORE ANY WORK COMMENCES.
 - ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

Rev	Date	Description	By	Check
A	20/06/2016	Issued for		

Client: ARLUM LTD.

Project: Residential Development Moneyduff, Oranmore Co. Galway

Title: Manhole Details Sheet 2

Scale: As Shown

Prepared by: JK

Checked: BR

Project Director: Michael McDonnell

Drawing Status: Planning

Date: June 2016

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Drawing No.: 10402-2016
Revision: A