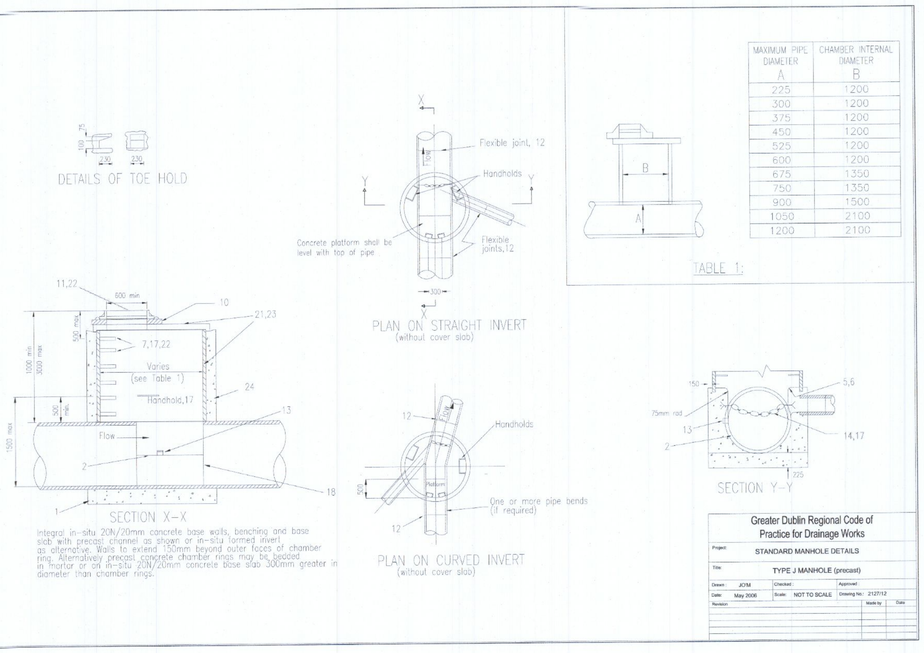
A0



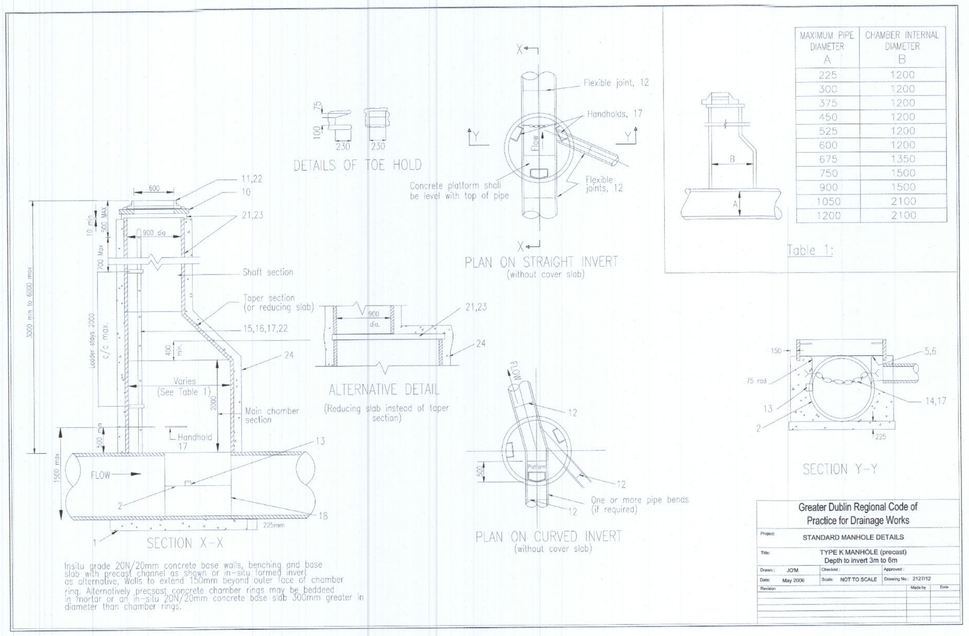
MAXIMUM PIPE DIAMETER A	CHAMBER INTERNAL DIAMETER B
225	1200
300	1200
375	1200
450	1200
525	1200
600	1200
675	1350
750	1350
900	1500
1050	2100
1200	2100

TABLE 1:

Integral in–situ 20N/20mm concrete base walls, benching and base slab with precast channel as shown or in–situ formed invert as alternative. Walls to extend 150mm beyond outer faces of chamber ring. Alternatively precast concrete chamber rings may be bedded in mortar or on in–situ 20N/20mm concrete base slab 300mm greater in diameter than chamber rings.

Greater Dublin Regional Code of Practice for Drainage Works

Project:	STANDARD MANHOLE DETAILS
Title:	TYPE J MANHOLE (precast)
Drawn: JOM	Checked:
Date: May 2006	Scale: NOT TO SCALE
Drawing No.: 2127/12	
Revision	Made by / Date



MAXIMUM PIPE DIAMETER A	CHAMBER INTERNAL DIAMETER B
225	1200
300	1200
375	1200
450	1200
525	1200
600	1200
675	1350
750	1500
900	1500
1050	2100
1200	2100

Table 1:

Insitu grade 20N/20mm concrete base walls, benching and base slab with precast channel as shown or in–situ formed invert as alternative. Walls to extend 150mm beyond outer face of chamber ring. Alternatively precast concrete chamber rings may be bedded in mortar or on in–situ 20N/20mm concrete base slab 300mm greater in diameter than chamber rings.

Greater Dublin Regional Code of Practice for Drainage Works

Project:	STANDARD MANHOLE DETAILS
Title:	TYPE K MANHOLE (precast) Depth to invert 3m to 6m
Drawn: JOM	Checked: Approved:
Date: May 2006	Scale: NOT TO SCALE
Drawing No.: 2127/12	
Revision	Made by / Date

Drawing Notes:

1) 225mm thick Cl. 20N/20mm Mass Concrete Foundations.

2) Preformed half circle channel pipes. 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 inner face of manhole wall.

3) Manhole construction.
   - For Surface Water Manholes high-density blocks to Cl.S10 of IS 20 Part 1:1987 or Cl. 30N/20mm insitu concrete.
   - Block work shall be bedded and jointed using mortar to IS406. 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 insitu concrete for 1 metre above Benching Level.
   - Brick to be bonded to block work using English Garden Wall Bond.

4) Relieving arch formed by 215x103x65 solid engineering brick Class A or B 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.

5) Benching and pipe channel pipe surround - Cl. 20/20 concrete.

6) Benching finished in 2:1 sand-cement mortar with a smooth trowel finish, at 1 in 30 slope towards channel.

7) Standard rungs at 300c/c vertically and galvanized to the latest version ofB.S. 729 or equivalent. Note: Steps irons are **not** acceptable.

8) 600mm square ope in roof slab.

9) Precast R.C. Roof Slab shall be 200mm thick in Class 30N/20mm, with 40mm cover to steel.

10) 1 to 2 courses of solid engineering bricks Cl.B to I.S.91:1983 set in 1:3 (cement and mortar).

11) Class D400 or E600 manhole cover and frame to IS/EN 124. 150mm deep frame for roads and 100mm deep for footpaths and green areas. Non-rock design, closed keyways, manufactured from spheroidal graphite cast iron (ductile cast iron), 600 x 600 (600diam.) clear opening, cover and frame coated in bitumen or other approved material. cover to have a minimum mass of 140kg/m2, frame bearing area shall be 80,000mm2 min. frames shall be designed to prevent covers falling into manhole. Frames shall be bedded on approved mortar to manufactures instructions.

12) Short length pipe and pipe joint external to manhole shall not exceed 600mm from the inner face of manhole wall.

13) Toe holes of 230mm minimum depth and galvanized steel safety railings to be provided in benching of sewers greater than 525mm diameter and depth to invert >3m for access to invert.

14) 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.

15) When depth of manholes to invert is greater than 3.0m ladders shall be used instead of rungs to B.S.4211 or equivalent except that stringers should be not less than 65 x 12mm in section and rungs 25mm in diameter.
    Fixed ladders should meet the dimensional requirements of B.S.4211 or equivalent.

16) 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.

17) All ladders, rungs, handrails, safety chains etc shall be hot dip galvanized to B.S.729 or equivalent.

18) 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)

19) 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, B.S.8110: Part 1: 1997.
   - Finish to the top of slabs shall comply with Type A, Section 6.2.7,B.S.8110: Part 1:1997.
   - Plan dimensions of manholes are based on block work having a coordinating size of 450 x 225 x 100.
   - Manholes are designed to B.S.8005 and wall thickness to I.S.325 block work design code taking granular fill pressure and H.B. surcharge.
   - Reinforcement to slabs to Engineers details.

20) For manholes >3m depth to invert use 30N/20mm insitu concrete. Reinforcing mesh ref. A393 @ 6.16kg/m to be fixed at mid point of wall. Additional reinforcement to be supplied over pipe crown.

21) For Pre cast Manholes, Chamber walls and cover slab to be constructed to IS EN 1917 and IS 420 2004

22) Manhole Openings to be situated furthest from the nearest Carriageway. Manhole steps / access to be positioned to allow viewing of oncoming traffic

23) For bedding and sealing of Chamber rings, the top ring (to Pre cast cover slab) and bottom ring to be bedded with cement mortar. For intermediate rings, joints to be sealed with approved pre-formed jointing strip.

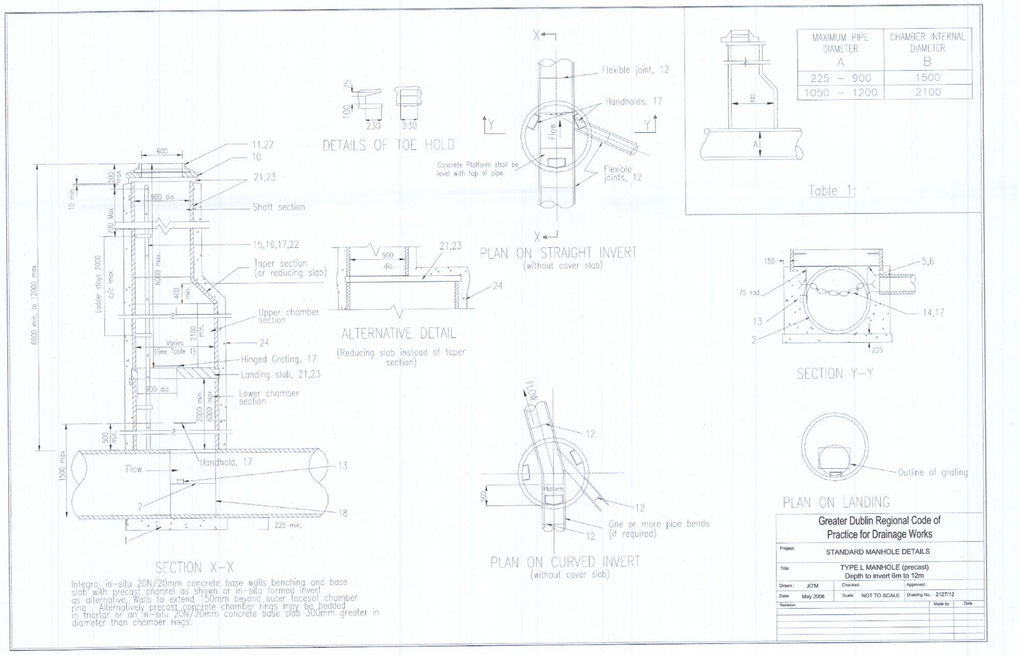
24) Pre cast Manholes to be surrounded with a minimum of 150mm thick Grade C20/40 concrete

General Notes

i) All brick to be Solid Engineering Brick Class A or B.

ii) For pipe diameter >750mm use manhole with internal diameter size = pipe size + 1metre + 300mm.

iii) Distance from the top rung of the ladder to ground level must be a maximum of 500mm.



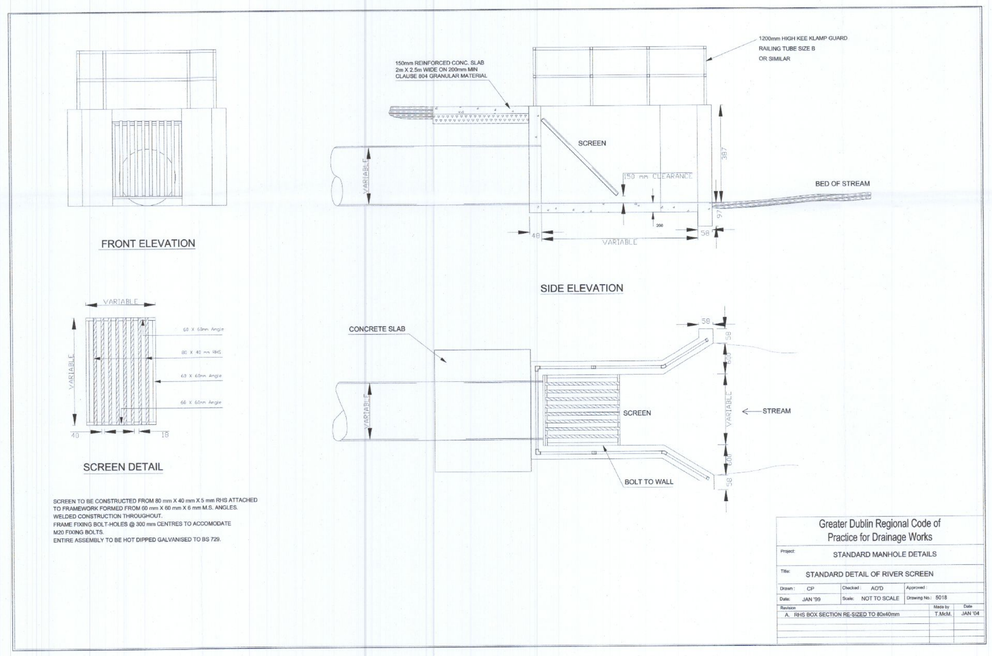
MAXIMUM PIPE DIAMETER A	CHAMBER INTERNAL DIAMETER B
225 – 900	1500
1050 – 1200	2100

Table 1:

Integral in–situ 20N/20mm concrete base walls benching and base slab with precast channel as shown or in–situ formed invert as alternative. Walls to extend 150mm beyond outer faces of chamber ring. Alternatively precast concrete chamber rings may be bedded in mortar or on in–situ 20N/20mm concrete base slab 300mm greater in diameter than chamber rings.

Greater Dublin Regional Code of Practice for Drainage Works

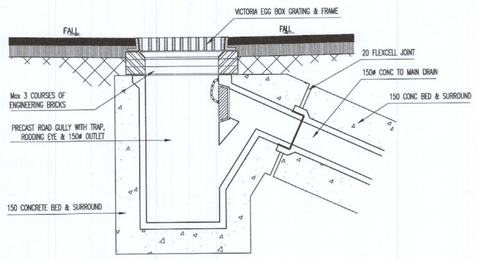
Project:	STANDARD MANHOLE DETAILS
Title:	TYPE L MANHOLE (precast) Depth to invert 6m to 12m
Drawn: JOM	Checked:
Date: May 2006	Scale: NOT TO SCALE
Drawing No.: 2127/12	
Revision	Made by / Date



SCREEN TO BE CONSTRUCTED FROM 80 mm X 40 mm X 5 mm RHS ATTACHED TO FRAMEWORK FORMED FROM 65 mm X 65 mm X 6 mm M.S. ANGLES.
WELDED CONSTRUCTION THROUGHOUT.
FRAME FIXING BOLT-HOLES @ 300 mm CENTRES TO ACCOMODATE M20 FIXING BOLTS.
ENTIRE ASSEMBLY TO BE HOT DIPPED GALVANISED TO BS 729.

Greater Dublin Regional Code of Practice for Drainage Works

Project:	STANDARD MANHOLE DETAILS
Title:	STANDARD DETAIL OF RIVER SCREEN
Drawn: CP	Checked: AOD Approved:
Date: JAN '05	Scale: NOT TO SCALE Drawing No.: 5018
Revision	Made by / Date
A RHS BOX SECTION RE-SIZED TO 80x40mm	T McM. JAN '06



TYPICAL ROAD GULLY
NTS

Mark	Date	By	Chk.	App.	Revision
PL1	26-09-22	BK	DOS	___	ISSUED FOR PLANNING

Job Title	PROPOSED APARTMENTS AT NEILSTOWN ROAD DUBLIN 22
Drawing Title	SW MANHOLES, GULLIES, HYDROBRAKE MH, HEADWALL, AND BACKDROP DETAILS 3 OF 3
Architect/Client	JONA ARCHITECTS
Drawing Status	PLANNING
Drawn	BK
Checked	DOS
Approved	
Scales	NTS
Date	26/09/22

KAVANAGH BURKE
CONSULTING ENGINEERS
Tel. 01 – 450 0694 Unit C3, Calmount Pk.
Fax. 01 – 426 4340 Ballymount,
Email: pkavanagh@kavanaghburke.ie Dublin 12.

Job No.	Drawing No.	Rev.
D1691-1	D11-2	PL1