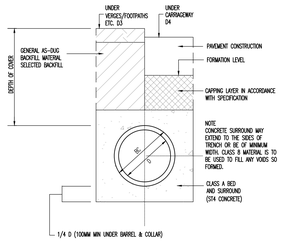


DESIGN D1 (UNDER VERGES/FOOTPATHS – >900 COVER)
DESIGN D2 (UNDER CARRIAGEWAYS – >1200 COVER)



DESIGN D3 (UNDER VERGES/FOOTPATHS – <900 COVER)
DESIGN D4 (UNDER CARRIAGEWAYS – <1200 COVER)

PIPE DIA.	GRANULAR BEDDING Y MINIMUM T1 MIN.	T2 MIN.	CONCRETE BEDDING Y MINIMUM T3 MIN.	MIN. TRENCH WIDTH	MAX. TRENCH WIDTH	L (SEE NOTE 6)
100	100	200	150	450	750	
150	100	200	150	500	800	
225	100	200	150	600	900	18
300	100	200	150	700	1000	
375	100	200	150	805	1105	
450	150	200	150	890	1190	
525	150	200	150	975	1275	
600	150	200	150	1075	1375	36
675	150	200	225	1165	1465	

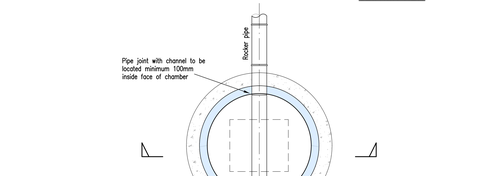
PIPE DIA.	GRANULAR BEDDING Y MINIMUM T1 MIN.	T2 MIN.	CONCRETE BEDDING T3 MIN.	MIN. TRENCH WIDTH	MAX. TRENCH WIDTH	L (SEE NOTE 6)
750	225	300	225	1260	1560	
825	225	300	225	1355	1655	
900	225	300	225	1440	1740	
975	225	300	300	1505	1805	36
1050	225	300	300	1580	1880	
1125	225	350	300	1650	1950	
1200	375	400	300	1750	2050	
1350	375	400	375	1920	2220	
1500	375	450	375	2040	2340	54
1650	375	500	450	2210	2510	
1800	375	500	450	2380	2680	

TABLE TO SHOW DIMENSIONS FOR BEDDINGS AND TRENCH WIDTHS

NOTES:

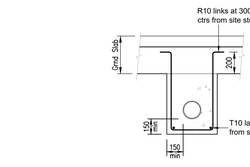
1. ALL DIMENSIONS ARE IN mm.
2. Y1 SHALL BE USED ON ALL OCCASIONS EXCEPT WHERE Y2 IS SPECIFIED OR IS DIRECTED BY THE PROJECT MANAGER.
3. Y2 IS TO BE USED IN PLACE OF Y1 WHERE THE EXCAVATION IS IN ROCK OR IN MIXED SOILS CONTAINING ROCK BEDS, BOULDERS, LARGE FLINTS, STONES OR OTHER IRREGULAR HARD SPOTS.
4. Y2 SHALL BE INCREASED BY 40mm FOR EACH ADDITIONAL 1000mm OF COVER IN EXCESS OF 5000mm.
5. Y3 SHALL BE USED FOR CONCRETE BED AND SURROUND.
6. L DENOTES THICKNESS OF COMPRESSIBLE FILLER BOARD AT JOINTS IN CONCRETE BED AND SURROUND.

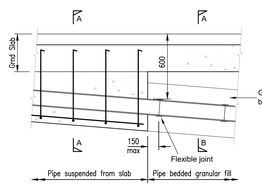
BEDDING DETAILS FOR PIPES OF FLEXIBLY JOINTED RIGID PIPES (1:25)



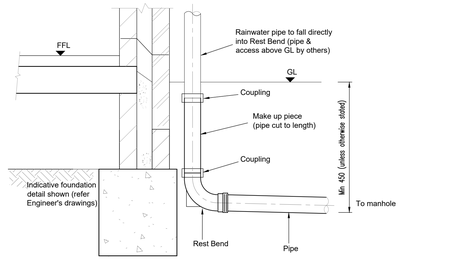
FLEXIBLE JOINT DETAILS FOR PIPES IN CONCRETE SURROUND (1:20)

Pipe joints are to be protected from the ingress of concrete fats by wrapping them in polythene sheet or building paper





PIPE BEDDING DETAILS - DRAINS UNDER BUILDINGS (1:20)



TYPICAL RAIN WATER PIPE DETAIL (1:20)
- Access Should be Provided on Vertical Pipework
- Detail is based on Above Ground Pipework Being Cast Iron

1. All dimensions are in millimeters unless stated otherwise.
2. All below ground concrete and concrete products will satisfy sulphate classification 2 of the 'bre digest 363' and consist of o.p.c. minimum cement content 330kg/m³ or s.r.p.c. minimum cement content of 280kg/m³.
3. All insitu concrete to comply with BS 8500.
4. All precast concrete items to comply with BS 5911:Pt 200 (and be kite marked).
5. Where Class A bedding is used for protection to pipe work, each flexible joint in the concrete surround shall be interrupted over its full cross-section with a shaped compressible filler.
6. Where pipes are surrounded in concrete, pipe joints are to be protected from the ingress of concrete fats by wrapping them in polythene sheet.
7. Manholes to be constructed with precast cylindrical concrete rings.
8. All precast concrete slabs and rings shall be bedded or jointed using a mortar, proprietary bitumen, or resin mastic sealant.
9. Manhole construction to be watertight.
10. High strength (granolithic) concrete topping to be brought up to a dense smooth face, neatly shaped and finished to all branch connections (min thickness 20mm). Benching slope to be 1:10 to 1:30.
11. 'Step irons' to be Plastic encapsulated Double Step Rungs of Type D Class 1 in accordance with BS EN 13101. Rungs to be at 250mm centers. Depth to first Rung below manhole cover not to exceed 675mm.
12. Where pipes enter a manhole at an angle, a slow radius bend is to be used. The bend should be built inside the manhole
13. Manhole invert to be formed using a channel pipe.
14. All pipes entering or leaving a manhole or structure shall have a flexible joint 150mm from the outside face of the manhole (or structure). The next pipe shall be a 'Rocker Pipe' of length;

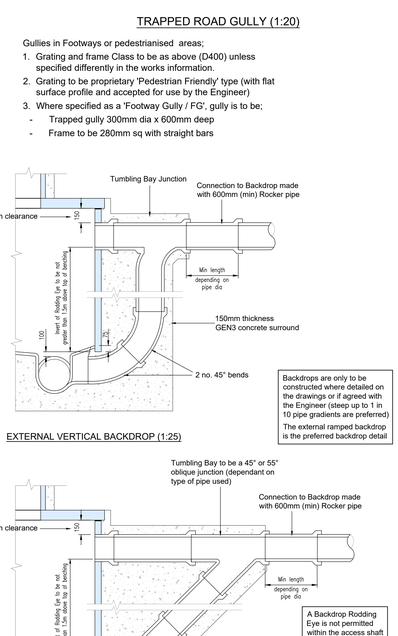
Pipe Ø (mm)	Length of Rocker Pipe (mm)
150 - 600	600
675 - 750	1000
825 and over	1250

The Rocker Pipe shall have a flexible joint at both ends.

15. Manhole covers and frames to comply to BS EN124 for the specified load class (to be class D400 unless shown otherwise);

Loading	BSEN	BS EN 124	BS EN 124
	Grade / load test	Class	Test Load
Group 6		F900	900kN
Group 5		E600	600kN
Group 4	D / 400kN A / 350 kN	D400	400kN
Group 3		C250	250kN
Group 2	B / 150kN	B125	125kN
Group 1	C / 10 kN	A15	15kN

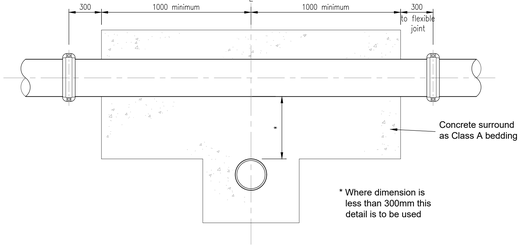
16. Manhole cover types are specified in the Manhole Schedule (eg solid, recessed or vented etc).
17. Unless stated otherwise, all internal manhole covers are to be double sealed, locking and recessed to take floor finishes.
18. Levelling of manhole covers to be achieved using engineering brickwork (4 courses max. 2 courses min), or pcc cover frame seating rings.



NOTES;
1. Grating and frame to be Class D400 ductile iron.
2. Gratings shall have a longitudinal centre bar arrangement.
3. Gratings shall have a minimum waterway area of 735 sq cm
4. Frame shall be 100mm deep
5. Gratings and frame shall be coated in black bitumen

TRAPPED ROAD GULLY (1:20)

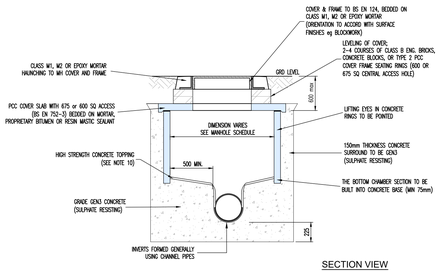
Gullies in Footways or pedestrianised areas;
1. Grating and frame Class to be as above (D400) unless specified differently in the works information.
2. Grating to be proprietary 'Pedestrian Friendly' type (with flat surface profile and accepted for use by the Engineer)
3. Where specified as a 'Footway Gully / FG', gully is to be;
   - Trapped gully 300mm dia x 600mm deep
   - Frame to be 280mm sq with straight bars



PIPES CROSSOVER (1:20)

EXTERNAL VERTICAL BACKDROP (1:25)

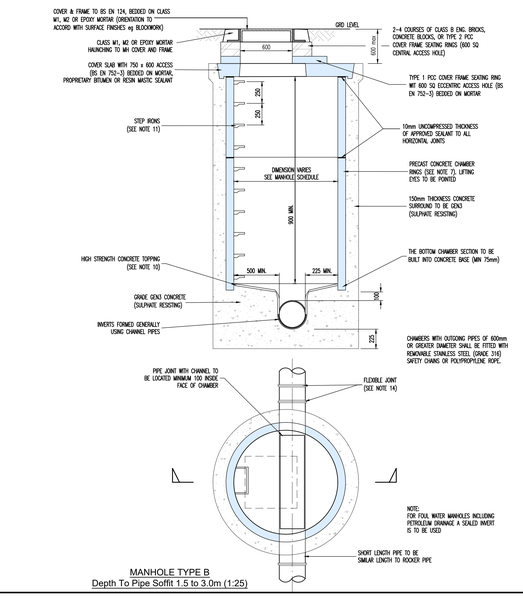
EXTERNAL RAMPED BACKDROP (1:25)



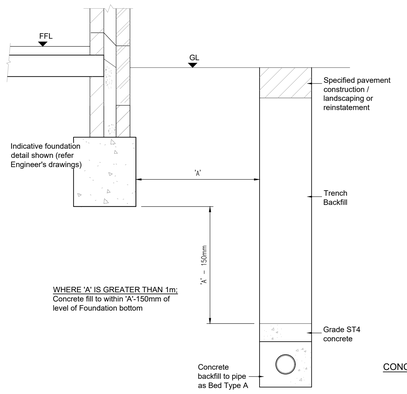
SECTION VIEW

PLAN VIEW

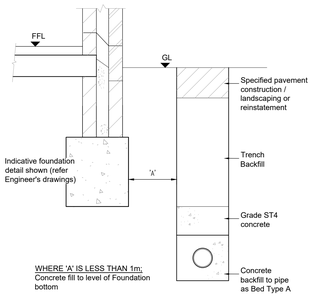
MANHOLE TYPE E
Depth To Pipe Soffit 1.0 to 1.5m (1:25)

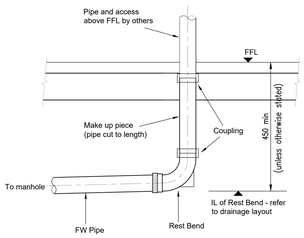


MANHOLE TYPE B
Depth To Pipe Soffit 1.5 to 3.0m (1:25)

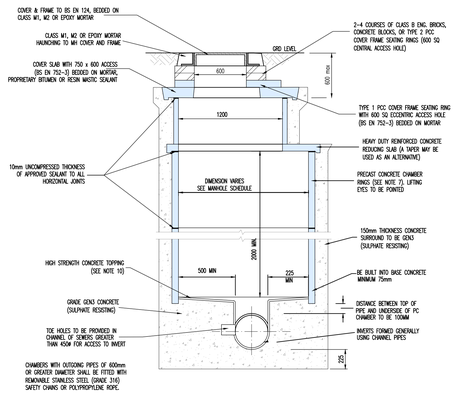


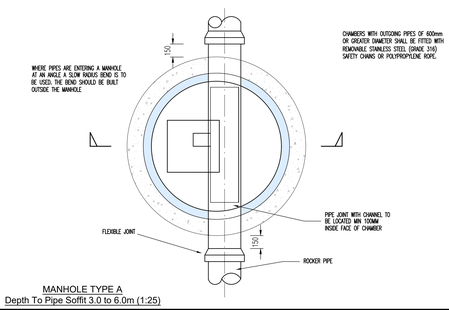
CONCRETING OF DRAINS LAID NEAR TO FOUNDATIONS (1:25)





TYPICAL STUB STACK / SOIL VENT PIPE DETAIL (1:20)
- Access Should be Provided on Vertical Pipework
- Detail is based on Above Ground Pipework Being Cast Iron





MANHOLE TYPE A
Depth To Pipe Soffit 3.0 to 6.0m (1:25)

Rev	Date	Description	By	Chk
C01	13.03.24	CONSTRUCTION ISSUE	KHS	NF

Amendments

Project: ROCHDALE ROAD

Title: DRAINAGE STANDARD DETAILS

Client: MCGOFF CONSTRUCTION LTD

waterman
mail@watermangroup.com www.watermangroup.com

Suitability: CONSTRUCTION

Designed By	NF	Director	AD
Drawn By	NF	Date	January 2023
Project - Originator - Volume - Level - Type - Role - Number			
23C002-WSL-SI-ZZ-DR-D-92005			

Waterman Ref: WIE
Scales @ A0: NTS
Revision: C01

File Path:

A0-WatHSO-S