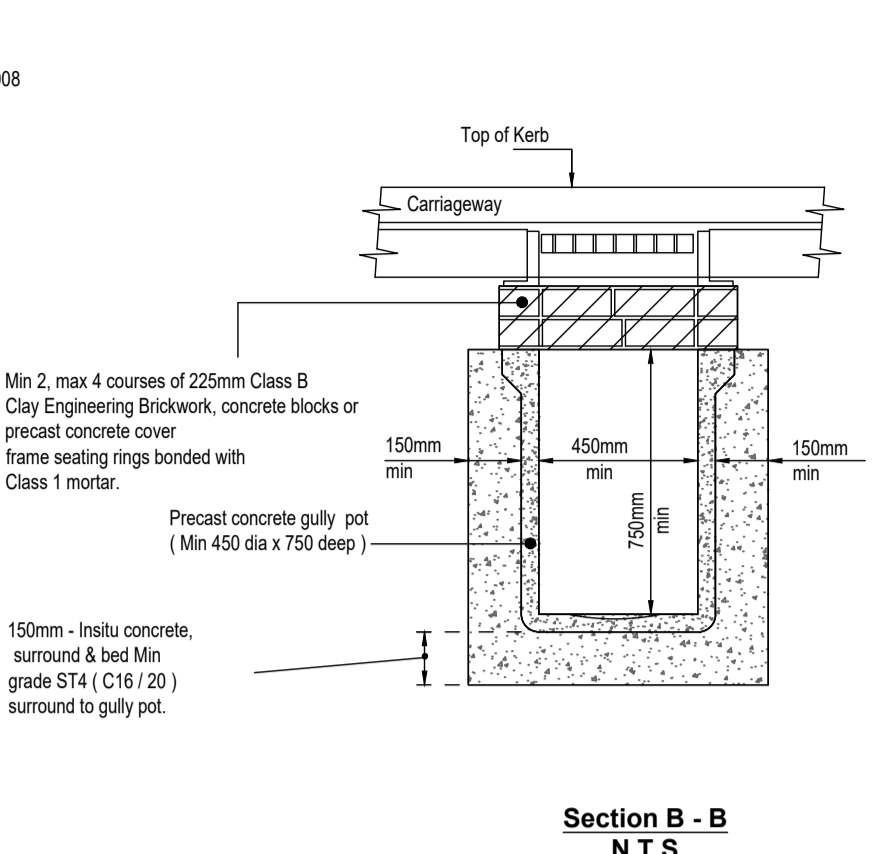
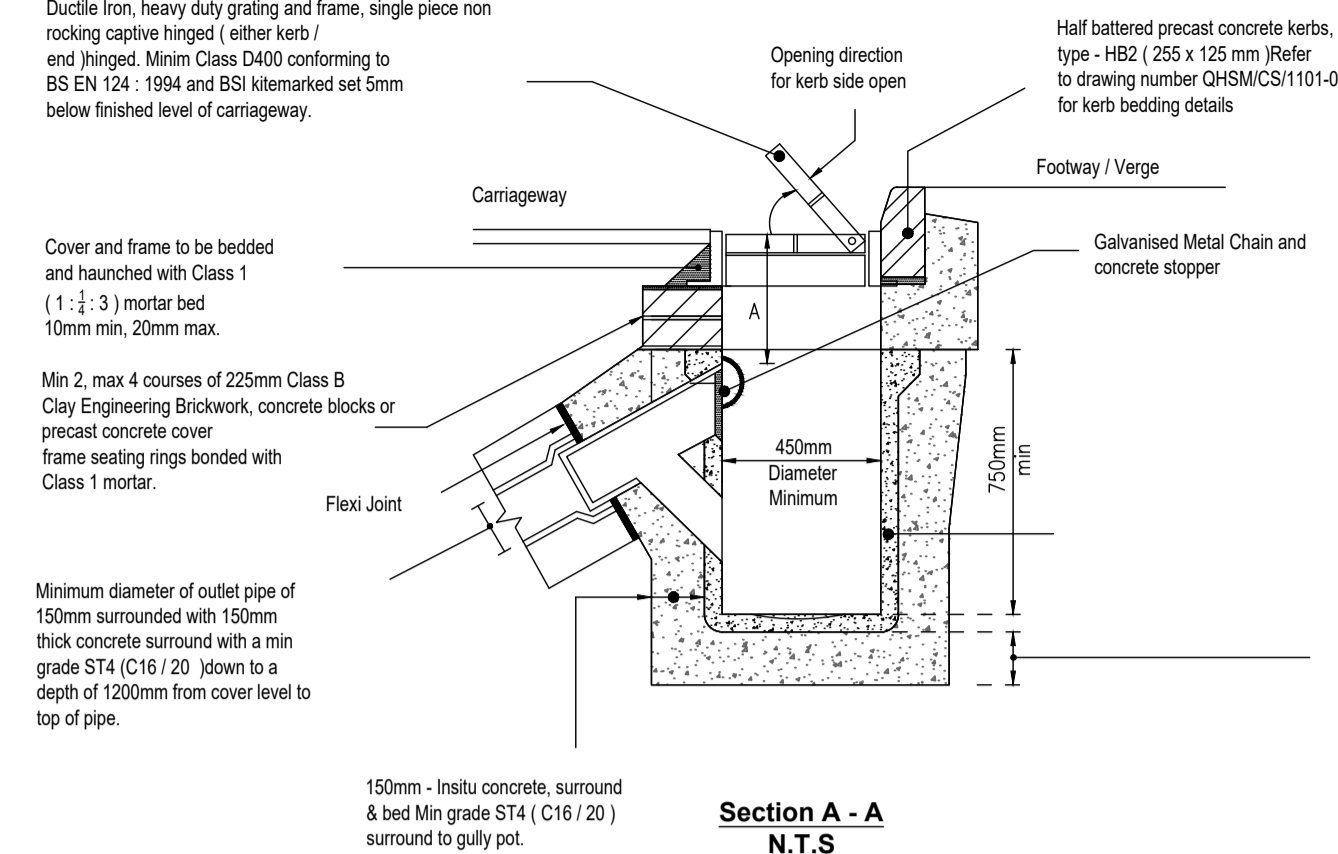
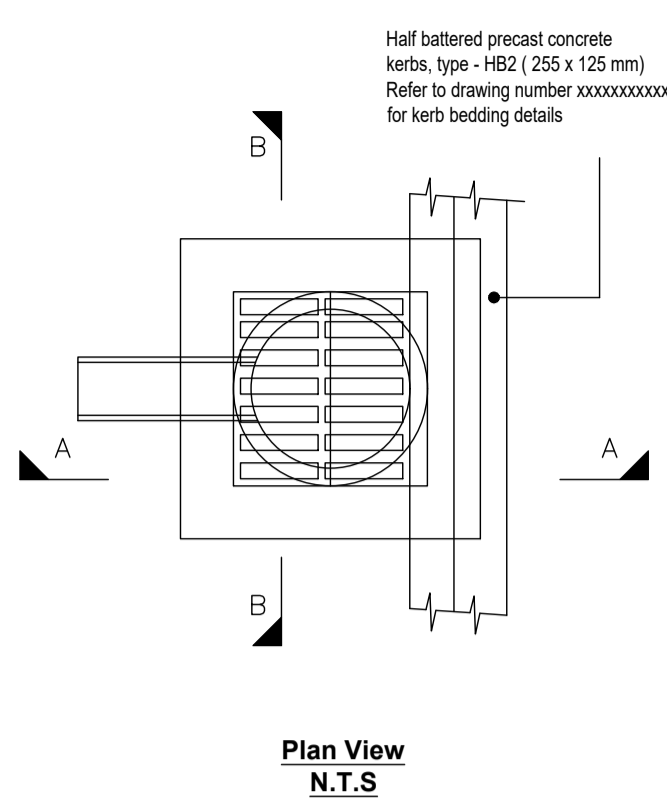
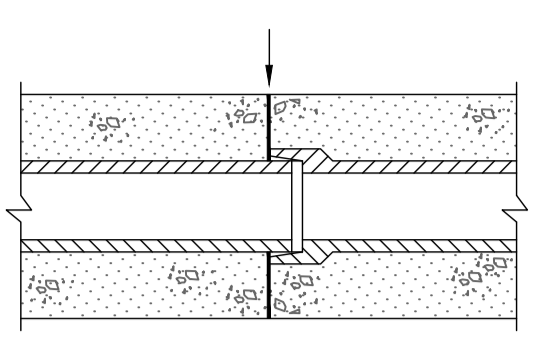


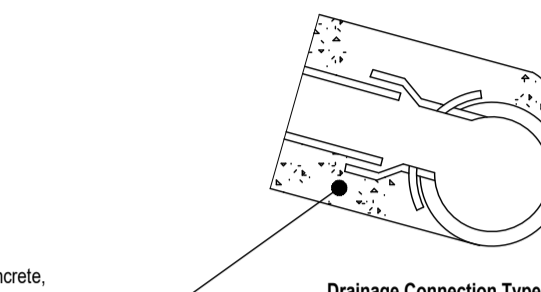
DO NOT SCALE



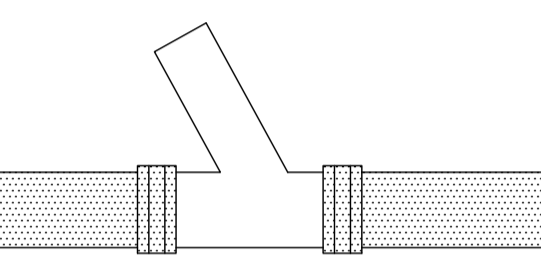
12mm THICK COMPRESSIBLE FILLER BOARD OR PREFORMED JOINT FILLER FOR FULL THICKNESS OF CONCRETE BED AND SURROUND



CONCRETE SURROUND JOINT DETAIL

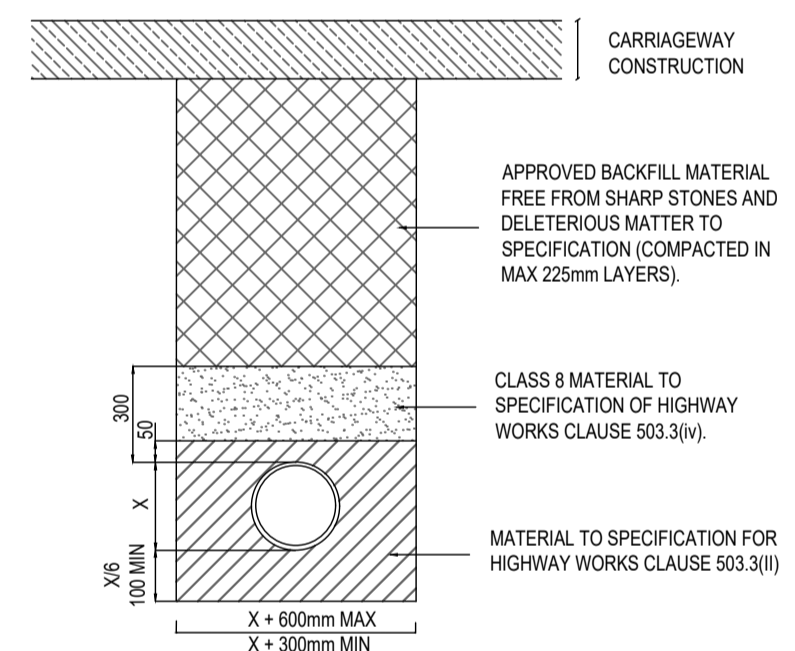


Drainage connection to be either a saddle connection for pipes up to and including 610mm diameter bedded in Class 1 mortar (Type A) or proprietary flexible coupling as indicated (Type B)

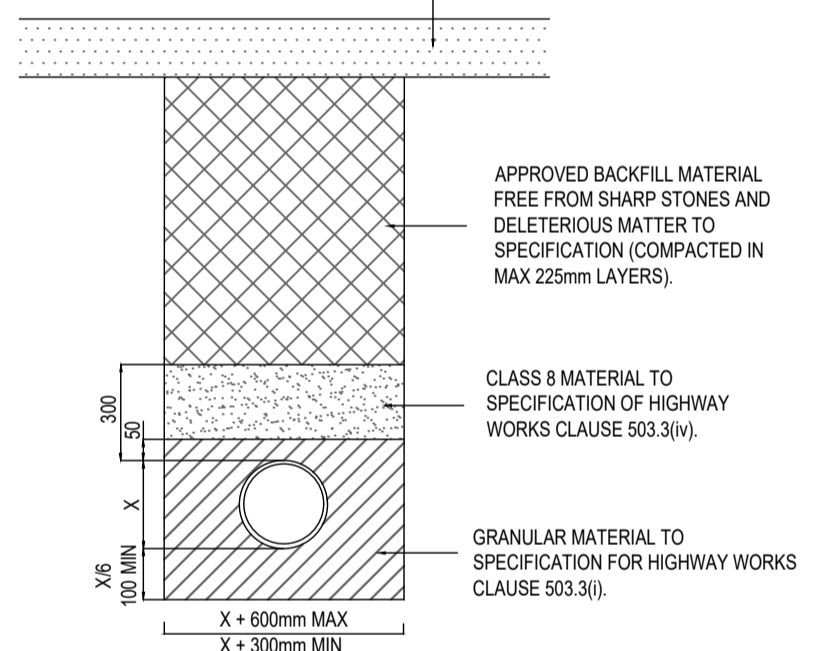


TYPICAL PRECAST CONCRETE TRAPPED GULLY DETAIL - SCALE 1 : 20

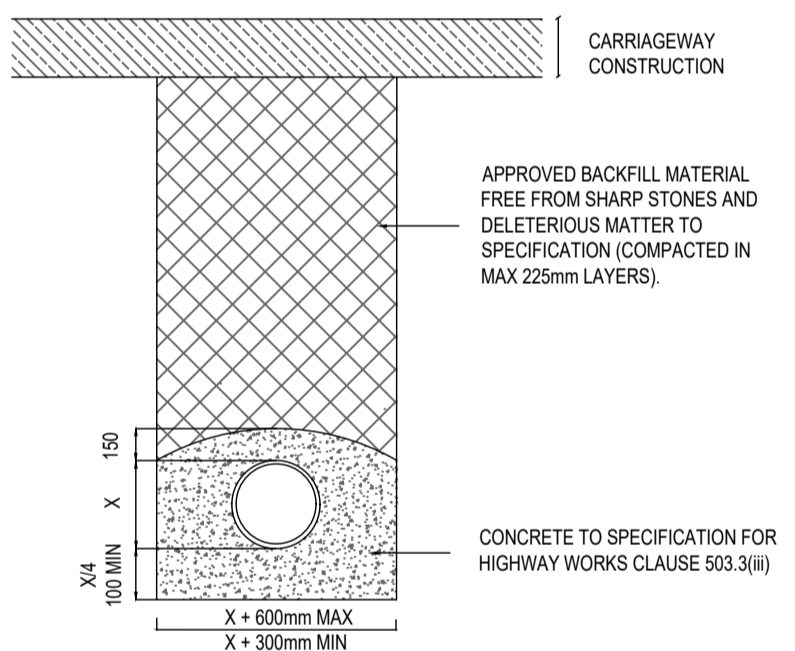
BACKFILL MATERIAL TO BE LAID IN MAXIMUM 250mm LAYERS DEPTH AND COMPACTED



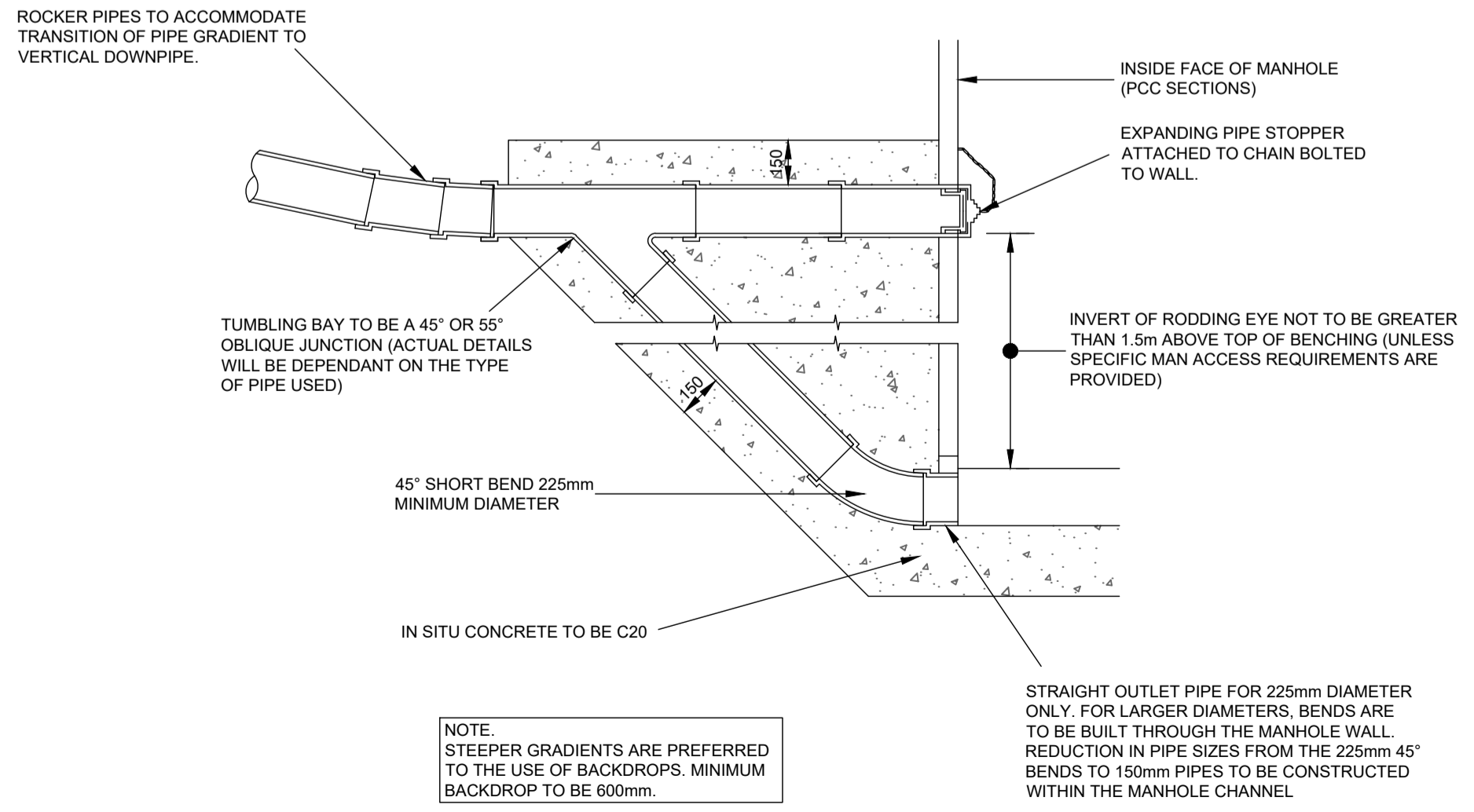
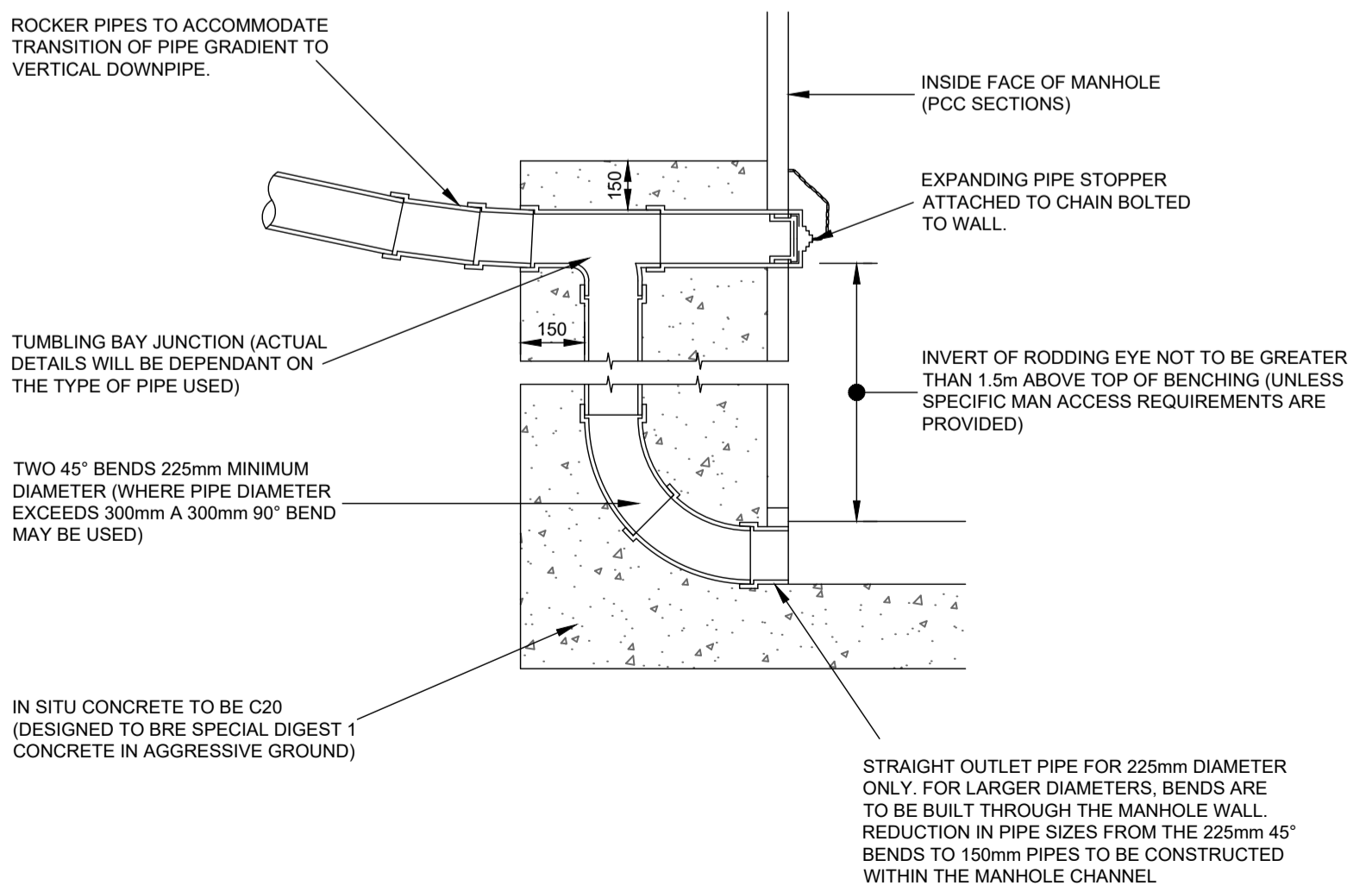
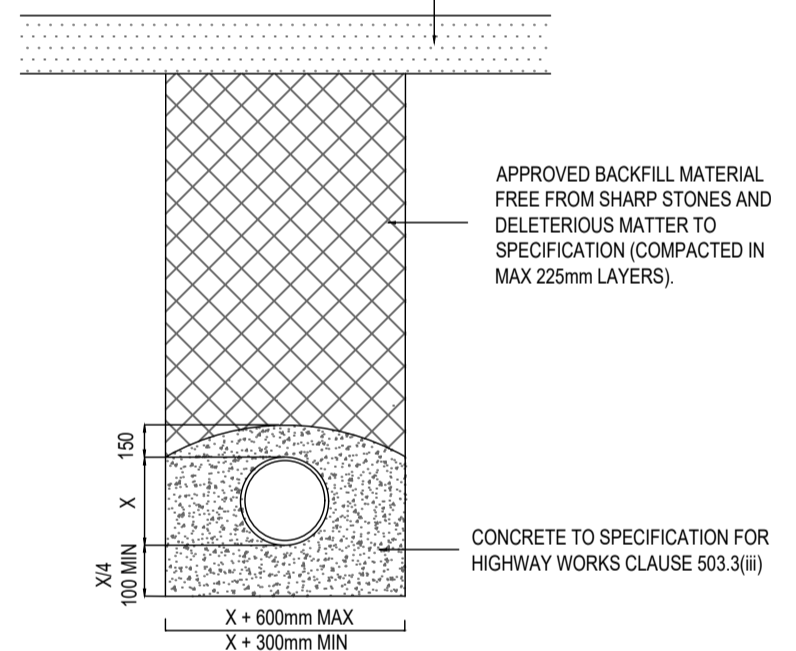
BACKFILL MATERIAL TO BE LAID IN MAXIMUM 250mm LAYERS DEPTH AND COMPACTED



SEWERS WITH LESS THAN 1200mm COVER IN ROADS AND CAR PARKS OR 900mm ELSEWHERE TO BE PROVIDED WITH 150mm CONCRETE SURROUND. REFER TO MAIN DRAINAGE LAYOUT WITH NOTES FOR ASSOCIATED INFORMATION



SEWERS WITH LESS THAN 1200mm COVER IN ROADS AND CAR PARKS OR 900mm ELSEWHERE TO BE PROVIDED WITH 150mm CONCRETE SURROUND. REFER TO MAIN DRAINAGE LAYOUT WITH NOTES FOR ASSOCIATED INFORMATION



NOTE. STEEPER GRADIENTS ARE PREFERRED TO THE USE OF BACKDROPS. MINIMUM BACKDROP TO BE 600mm.

- All dimensions shall be in millimetres unless otherwise stated.
- Do not scale this drawing, work to figured dimensions only.
- This drawing should be read in conjunction with all other relevant Engineering, Architectural, landscaping details, drawings and specifications and all relevant City and County of Swansea Standard Engineering Details.
- All works associated with the installation of pure Highway drainage systems and service ducts (no roof or yard)to be maintained by the Local Highway Authority and not Dwr Cymru Welsh Water shall comply with the current revisions of Series 500 of the Manual of Contract / Specification for Highway works and the City and County of Swansea Councils adoptable Standards.
Manholes / Catchpits (Pure Highway Drainage Systems only)
- All manhole covers and frames to be located within the limits of a carriageway or footway shall have a minimum grade of D400 incorporating a permanent non rock feature and Kite Marked complying with the relevant provisions of BS EN 124 and Series 500 of the Specifications of Highway Works, amended November 2009.
- All brickwork shall be solid Class 'B' clay engineering brick complying with BS EN 771-1:2003 and Series 2400 of the Specifications for Highway Works, amended November 2009.
- All mortar required for bonding brickwork, haunching and bedding the manhole cover and frame shall be Class (i) with a cement / lime / sand ratio of 1 : 1/2 : 3 complying with BS EN 998-1 : 2003, BS EN 998-2 : 2003 and Series 2400 of the Specifications for Highway Works, amended November 2009.
- All precast concrete manholes shall comply with the relevant provisions of BS EN 1917: 2002 and item 507 of series 500 of the specifications for Highway Works, amended November 2009.
- Chamber base shall be constructed with insitu concrete with a minimum grade of ST4 / C16 /20 concrete in accordance with the relevant sections of BS EN 206-1, BS 8500-1 : 2006, BS 8500-2 : 2006 and item 2602 of Series 2600 of the specifications for Highway Works, amended November 2009.
- Chamber Steps shall be Type D, Class 1 complying with the relevant sections of BS EN 13101 : 2002 and item 507.6 of Series 500 of the Specifications for Highway Works, amended November 2009.
- Internal dimensions of chamber normally 1220 x 675mm (as clear opening in frame)but chamber width must be increased for pipes larger than 225mm diameter to maintain 225mm benching each side with the brickwork corbelled down to 675mm.
- Pipes entering manholes shall have a flexible joint within 500mm of the inside face of the manhole joining with a short rocker pipe.
- Maximum depth from cover level to soffit 1.35m.
- Maximum depth from cover level to soffit 3.00m.
- Road Gullies**
- All gully gratings and frames to be located within the limits of a carriageway or footway shall be of Ductile Iron construction and have minimum grade of D400 complying with BS EN 124 : 1994 and section 508 of the Specifications for Highway Works, amended November 2009 and shall carry the BSI Kitemark.
- Gully gratings and frames have a minimum depth of 100mm and shall be single piece non rocking anti theft captive hinged and be free from defects with either kerb-side hinged or end / side hinged units appropriate to the traffic flow are approved.
- Gully Slot dimensions in the gully grating shall be selected having a regard to the hydraulic capacity and the slots shall be evenly distributed over the clear area. The water way area shall not be less than 30% of the clear area as given in the manufacturer's catalogue.
- Gully grating and frames shall have a clear opening of 450 x 450mm unless otherwise agreed in writing by the Highway Authority prior to installation and having minimum waterway area of 1300cm² of which there shall be a minimum waterway area of 45cm² between the kerb face of the frame and a parallel line 50mm distant and there shall be a minimum waterway area of 65cm² between the kerb face of the frame and a parallel line 90mm distant.
- The slot orientation to direction of traffic is between 0 to 45 degrees and 135 to 180 degrees and the maximum length of slot shall be 150mm if the slot is wider than 20mm.
- Without exception all gully pots shall be Precast Concrete units complying with BS 5911 - 6 : 2004 1994 and section 508 of the Specifications for Highway Works, amended November 2009 and shall carry the BSI Kitemark.
- Gully pots shall be trapped shall have a minimum internal diameter of 450mm, depth of 750mm and a gully outlet of 150mm.
- Gullies shall be constructed so that no part of the Trap or spout has cross sectional area less than 2/3rd that of the outlet. The depth of water seal in trapped gullies shall not be less than 50mm.
- Depth "A" to be 750mm minimum below carriageway to allow for services to clear gully connections and reduce the risk of damage to pipes due to settlement. Where depth of run is 1.2m below carriageway level a flexi joint is to be used at every joint.
- All brickwork shall be solid Class 'B' clay engineering brick complying with BS EN 771-1:2003 and Series 2400 of the Specifications for Highway Works, amended November 2009.
- All mortar required for bonding brickwork, haunching and bedding the manhole cover and frame shall be Class (i) with a cement / lime / sand ratio of 1 : 1/2 : 3 complying with BS EN 998-1 : 2003, BS EN 998-2 : 2003 and Series 2400 of the Specifications for Highway Works, amended November 2009.
- All precast concrete gully pots shall be set on and surrounded with a minimum of 150mm bedded on a insitu concrete with a minimum grade of ST4 / C16 /20 concrete in accordance with the relevant sections of BS EN 206-1, BS 8500-1 : 2006, BS 8500-2 : 2006 and item 2602 of Series 2600 of The specifications for Highway Works, amended November 2009.

- Trench and Bedding Details**
- The bedding and surround of all pipes within the area of carriageway, footway or cycleway with a cover of less than 1.2m shall be Type Z (Enclosed in concrete, grade ST4 (C16 / 20) unless otherwise agreed in writing by the Highway Authority's representative.
- The minimum / maximum width of the trench applies on and below a line 300mm above the top of the pipe. Above the 300mm line the trench shall be in accordance with Clause 505 of the Specification for Highway works.
- The concrete bed or surround may extend to the side of the trench or be a minimum width. Class 8 material to be used to fill any voids so formed.
- For type Z trench the concrete cover may be formed to a radius batter or horizontal surface. Minimum cover of concrete 150mm.
- Pipeworks (Pure Highway Drainage Systems only)**
- All pipe materials and associated with pure Highway Drainage systems shall be double ribbed twin wall UPVC pipes and couplings which shall comply with DTLR Specifications for Highway Works and carry a BBA & HAPAS Roads and Bridge Agreement Certificate.
- The minimum diameter of a highway carrier drain shall be 225mm diameter unless otherwise agreed in writing with the Highway Authority's representative.
- All Gully connections shall not be less than 150mm in diameter.
- Miscellaneous**
- All new surface / highway drainage systems and adjoining existing systems shall at the developers / contractors expense be cleaned and kept clear of obstructions during the course of the works. On completion of the whole of the works, all chambers, catchpits, gullies and drains shall be flushed from end to end with water and left free from obstructions.
- All new surface / highway drainage systems installed by the developer / contractor shall be tested using the water test method identified within clause 509 of the specifications for Highway Works PRIOR to final wearing course being laid in order that any defects can be rectified.
- All existing and newly installed highway / surface water drainage systems (Gullies, manhole / catchpits & carrier drains) shall be mechanically cleaned following resurfacing works.

REV	DATE	BY	DESCRIPTION	CHK	APPD

DRAWING STATUS:

HCE		HCE Limited Canolfan Gorsionon Centre Millers Drive Gorsionon SA4 4QN
Civil Engineering	Structural Engineering	Tel: 01792 805010
Structural Surveys	Project Management	Email: info@hcelimited.com
Petrochemical		Web: www.hcelimited.com

CLIENT: **RPM Ltd**

ARCHITECT: **THOMAS LOGIN ARCHITECTURE**

PROJECT: **MARGAM TRUCK STOP
TYN Y CAEU, MARGAM**

TITLE: **PIPE BEDDING & STANDARD DETAILS
DRAINAGE DETAILS SHEET 2**

SCALE @ AT: N.T.S.	CHECKED: IH	APPROVED: IH
CAD FILE: HCE-1374-SK03	DESIGN DRAWN: M	DATE: May 2020
PROJECT No: 1374	DRAWING No: SK03	REV: R02