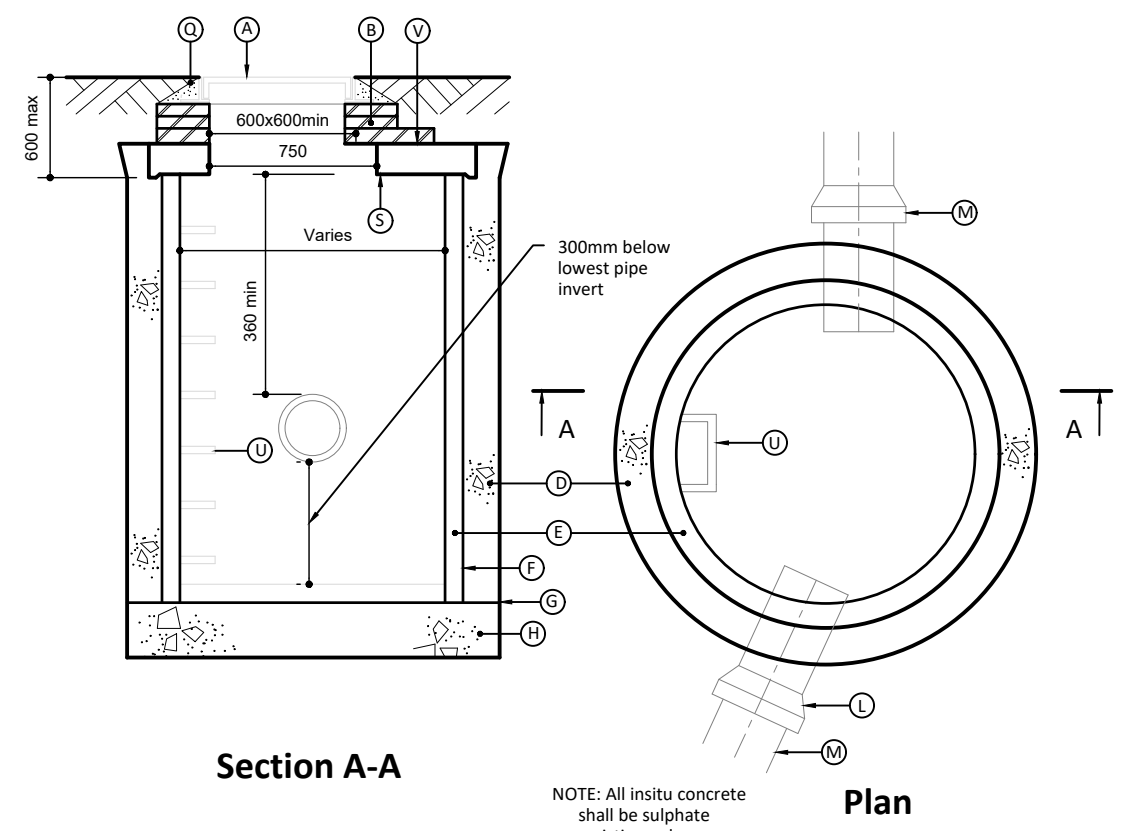
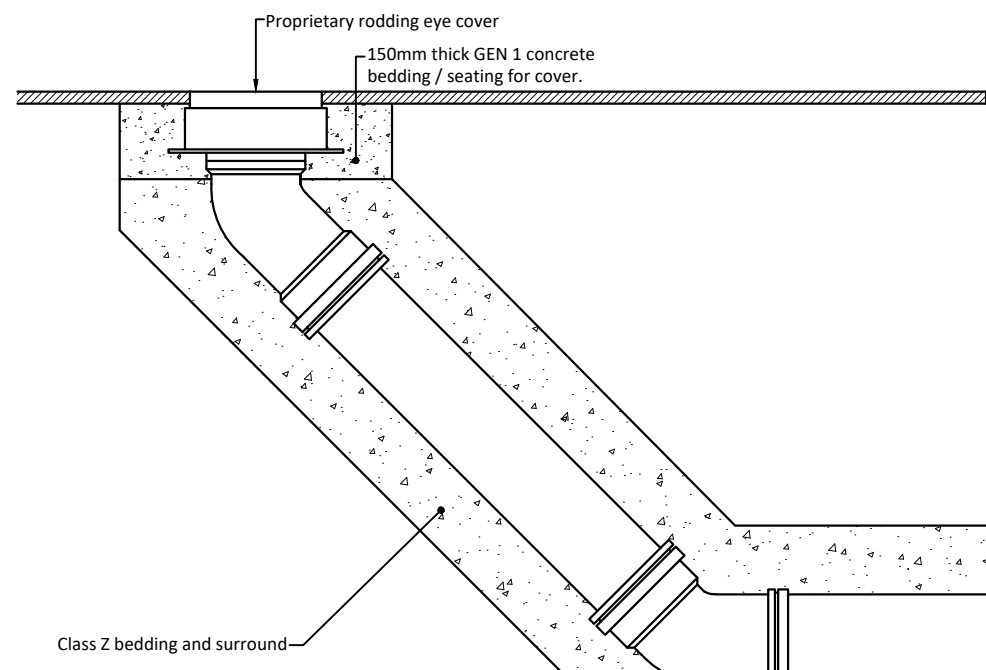




Shaft diameters	
Dia of largest pipe in MH (mm)	Int. Dia of MH (mm)
Less than 375	1200
375 to 450	1500

Type B Precast Concrete Catchpit Depth To Soffit Up To 3.0m



- Notes:**
1. For use in privately owned drainage systems at the head of a run where rodable access is required.
 2. Detail based on Wavin database.

Rodding Eye

Notes and specification for permeable block paving

1. Permeable parking paving construction shall generally be carried out in accordance with the current **Highways Agency Specification for Highways Works (MCHW)** and **BS7533**. Guide to the design, construction and manufacture of concrete block permeable pavements produced by **Interpave**.
2. The coarse graded aggregate subbase has not been designed to carry construction traffic. It is vital that subbase is kept free from traffic and construction debris. If the subbase is required to be used for construction traffic, the Engineer shall be consulted prior to trafficking.
3. Due to the nature of the coarse graded aggregate, the Contractor shall construct a trial area (min. 10mX10m) and test the subbase to ensure that it is suitable for use. The Contractor shall consult with all sub-contractors to ensure they are satisfied their plant can be used on the subbase materials prior to construction.
4. Coarse graded aggregate shall comply with **BS EN 12624** and shall be designated **Type 4/20** and shall be graded as follows - and shall meet the following physical properties:-

Properties	Category to BS EN 13242 or BS 12620
Grading	4/20 (preferred) or 4/40, Gc 85-15, Gc1c 20/17.5
Fines Content	f ₁₅₀
Shape	L _{AB}
Resistance to Fragmentation	W _{AC} ²
Durability: Water absorption to BS EN 1097-6:2000, Clause 7 for W _A > 2%	
Magnesium Sulphate Soundness	MS _{AS}
Resistance to Wear	M _W ¹⁰
Acid Soluble Sulphate Content:	
- Aggregates other than air-cooled blast-furnace slag	AS ₁
- Air-cooled blast-furnace slag	AS ₁₀
Total Sulphate:	
- Aggregates other than air-cooled blast-furnace slag	≤ 1% by mass
- Air-cooled blast-furnace slag	≤ 2% by mass
Volume Stability of Blast-Furnace and Steel Slags	Free from discolour and silicate and iron disintegration in accordance with BS EN 12422 : 2002, 6.4.2, 2
Air-cooled blast-furnace slag	
Steel slag	
Leaching of Contaminates	Blast furnace slag and other recycled materials should meet the requirements of the Environment Agency 'Waste Acceptance Criteria' for inert waste when tested in accordance with BS EN 12457-3.
100% Fines	100%
Other Properties	Particels shall be rough and angular to provide good interlocking between particles. Sands and gravels with rounded particles shall not be used.

5. Bituminous materials shall be to BS EN 13108.
6. The laying course material shall comply with the requirements of a material of type 2/6.3 Gc 80/20 to BS EN 13242, graded as follows:-
- | BS Sieve Size (mm) | Percentage passing by mass (%) |
|--------------------|--------------------------------------|
| 14 | 100 |
| 10 | 98 - 100 |
| 6.3 | 80 - 99 |
| 2.0 | 0 - 20 |
| 1.0 | 0 - 5 |
| 0.063 | 0 - 2 (BS EN 12620 fines category 1) |

Tensile Splitting Strengths & Failure Level	Abrasion	Skid/Slip (pendulum value)	Freeze/Thaw (kg/m ³)
No block shall have a tensile strength less than 3.6MPa for a failure loss less than 250N/mm.	≤ 20	45 min	≤ 1.0

8. The geosynthetic filter shall be a polyethylene mono-filament with the following properties:-
- | | | |
|---------------------|----------------|--|
| Mass / unit area | (EN 965) | greater than 100g/m ² |
| Tensile strength | (EN ISO 10319) | Longitudinal- greater than 25kN/m
Transverse- greater than 25kN/m |
| Elongation at break | (EN ISO 10319) | Longitudinal- less than 25%
Transverse- less than 25% |
| Opening size | (EN ISO 12956) | Approx. 0.45mm |
| Water permeability | (EN ISO 11058) | greater than 200 x 10 ⁻³ m/s |

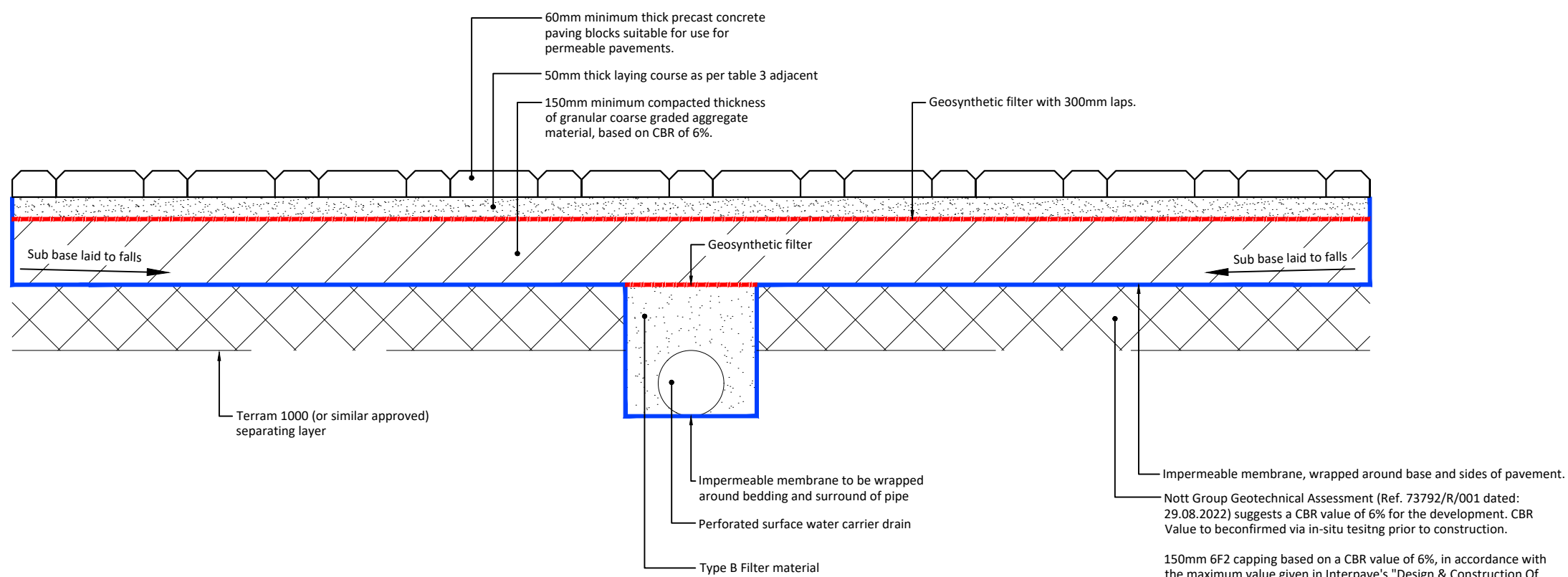
9. The tensile properties of the material shall be measured in accordance with EN ISO 10319. All vehicles shall be prevented from trafficking directly over the material. The material shall be protected from ultra-violet light

10. Where pavements are constructed on subgrades that have volume change potential and where roots vegetation penetrate below the pavement formation, there is a risk that movement may occur resulting in deformation being evident in the surface, particularly during prolonged periods of dry weather. To reduce this risk, the thickness of the subbase shall be increased.

CBR value (%)	Minimum thickness (mm) of sub-base (consolidate in accordance with MCHW 1 clause 801, table 8/4)
Less than 2%*	Subgrade requires improvement
2-3%	325
3-5%	250
5-7%	150
7-20%	100

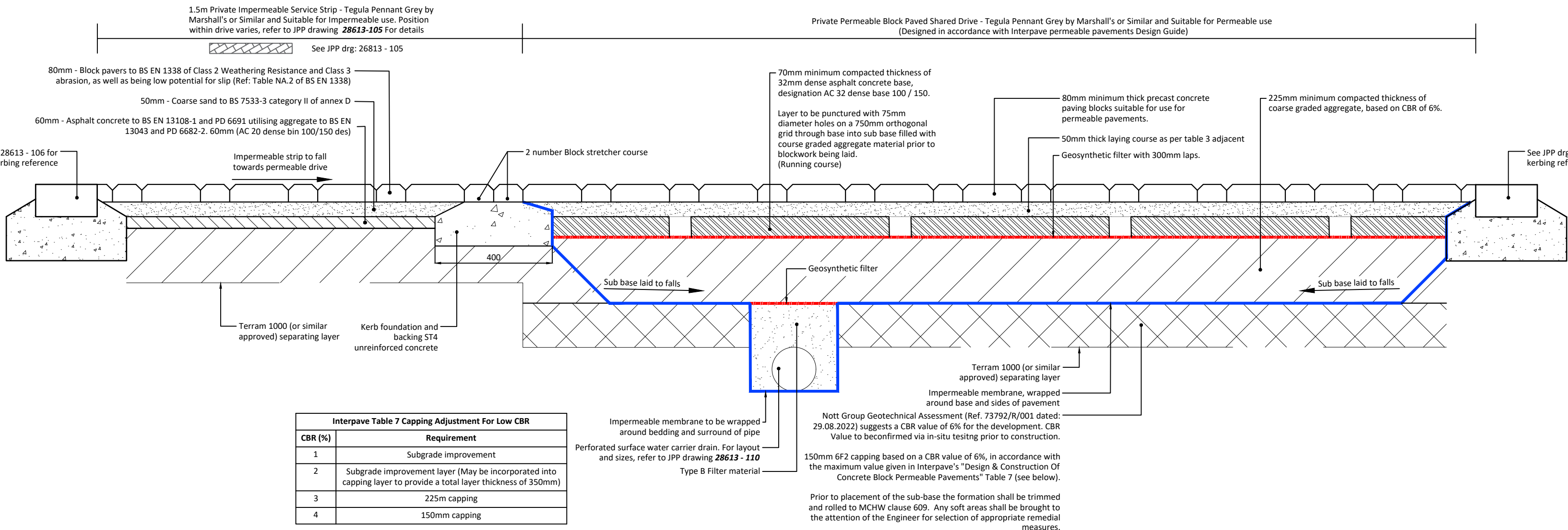
* Where CBR values are less than 2% possible requirement for additional capping material and/or geogrid reinforcement subject to specialist design.

NHBC 10.2 Table 3: Minimum sub-base thickness for paved areas



**Private Permeable Block Paved Parking Bay -
Tegula Pennant Grey by Marshall's or Similar
and Suitable for Permeable use**

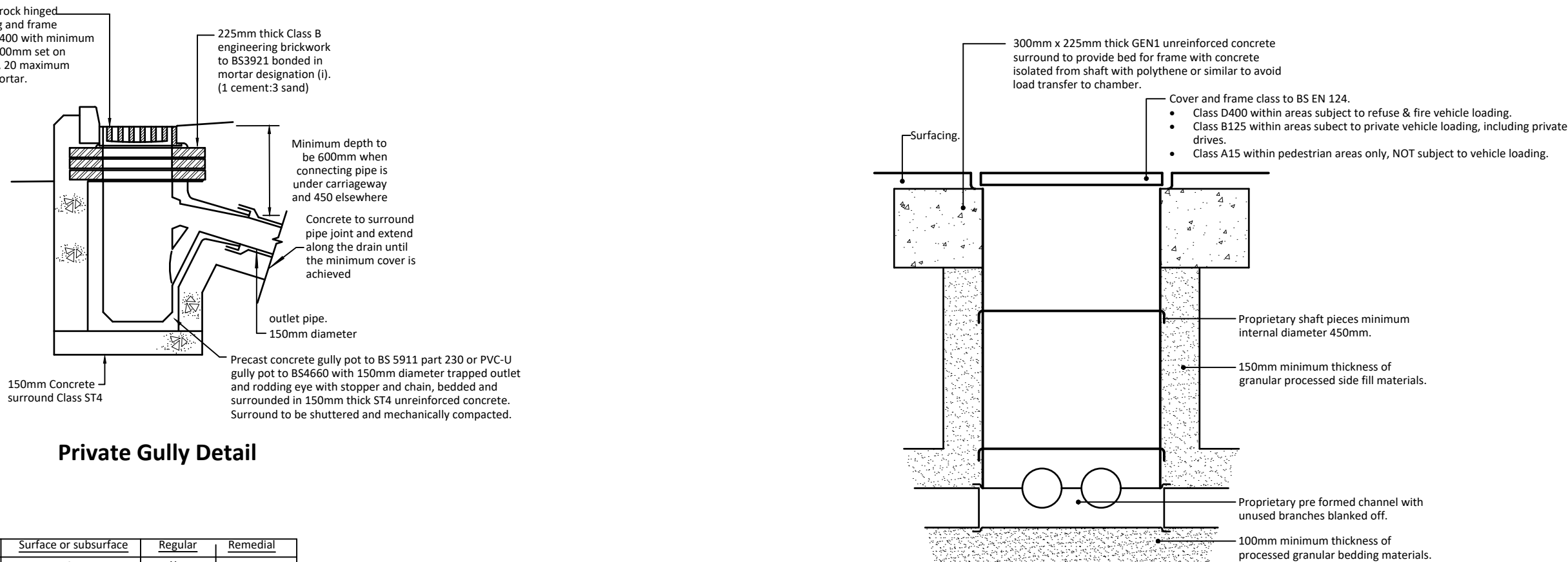
(Traffic Category 2 as per Interpave Design Guide Table 4)

 See JPP drg: 28613 - 105

Permeable Block Paved Shared Drive

(Traffic Category 3 as per Interpave Design Guide Table)

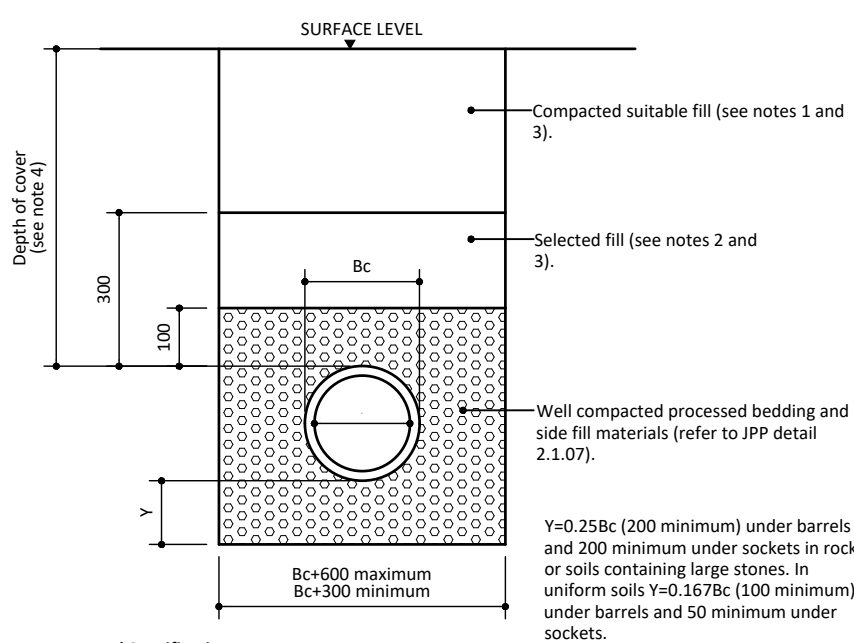
See JPP drg: 28613 - 105



Private Gully Detail

Maintenance required	Description	Surface or subsurface	Regular	Remedial
Inspection	Inspect catchments at outlets once a year (if appropriate)	Surface	Yes	
Surface cleaning	To minimize clinging, clean dirt and other matter from the surface at least twice a year by sweeping, early spring (after winter) and autumn (after leaf fall)	Surface	Yes	
Managing vegetation	Weed control between blocks (use non-toxic biodegradable weedkillers).	Surface	Yes	
Re-establish infiltration capacity	For block surfaces, lift surface and replace gravel bedding and geotextile as necessary. For continuous concrete permeable surfaces, replace gravel infill. For continuous porous surfaces, replace surface. (All likely to be after a period of about 15-20 years)	Sub-surface		Yes Yes Yes
Screen runoff from adjacent areas	Pass through screens on downpipes, filters or use gully silt traps	Surface	Yes	
Good housekeeping	Minimise use of salt or grit for de-icing keep landscaped areas well maintained and prevent soil being washed on to pavement.	Surface	Yes	

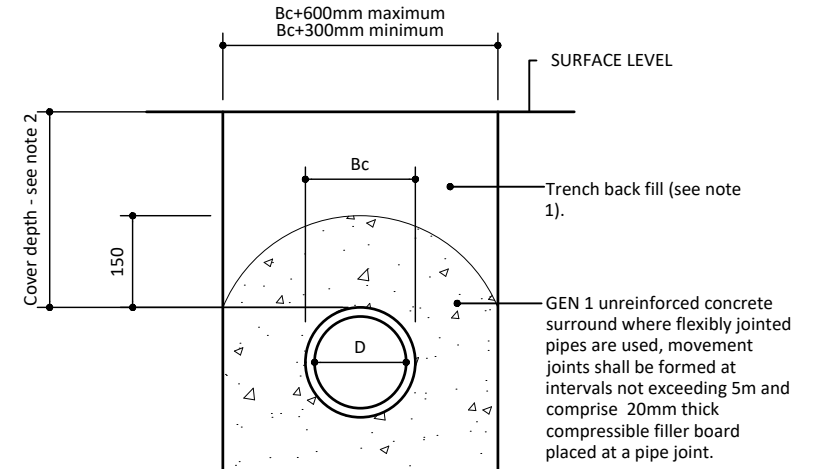
Permeable Block Paving Maintenance Schedule



Notes and Specification

1. Suitable fills shall be capable of accepting compaction plant suitable to the Engineer's approval and shall exclude boulders, rubble of concrete, bricks, timber and vegetable matter.
2. Selected fill shall be readily compatible material free from roots, organic material, building material, and shall be in an unfrozen condition. Selected fill shall exclude all lumps exceeding 25mm size. Selected fill shall be carefully compacted above and below the pipe, taking care not to damage the pipe.
3. Where the pipe is installed in areas which are paved or future settlement of back fills is not acceptable then back filling of the trench shall be carried out using type 1 sub-base to Highways Agency specification for Highway Works compacted to the same specifications.
4. Minimum cover:
Cover shall be greater than:
2000mm in areas subject to heavy construction plant.
1000mm in areas subject to normal construction traffic.
1200mm to finished level of new main road pavements.
600mm in landscape areas, footways, gardens or fields.
Otherwise use class Z bedding and surround.
5. Flexible pipes shall be substituted UPVC to BS 13598
6. Construction, subcontracting, testing, operation and maintenance shall be carried out in accordance with BS EN 752. Sewers to be adopted by water companies shall be installed in accordance with the current edition of 'Sewers for Adoption' produced by the Water Services Association. Sewers to be adopted by highway authorities shall be installed in accordance with the authority's specification.
7. Workmanship shall be in accordance with BS 8000.

Flexible carrier drain, Class S bedding, surround and sidefill



Notes and Specification

1. Trench excavation shall be back filled as follows:
 - a) Outside road pavements or areas where surface settlement cannot be accepted, back filling shall be carried out using well sorted, sub-grade fill, sub-grade fill shall be capable of accepting compaction plant subject to the Engineer's approval and shall exclude boulders, lumps of concrete, bricks, broken concrete, etc.
 - b) In areas below road pavements (or where surface settlement cannot be accepted)
 - (i) Where soft soil of pipe is less than 0.5m below formation, back fill with G6/0 unfired concrete.
 - (ii) Where soft soil of pipe is between 0.5m and 1.0m below formation, back fill with Type 1 sub-base.
2. Cover to pipes shall be:
 - 2000mm or less in areas subject to heavy construction traffic,
 - 1000mm or less in areas subject to normal construction traffic,
 - 1200mm or less to finished level of new main road pavements,
 - 1000mm or less in landscaped areas and within residential roads.Otherwise use other specified surround and back fill details.
3. Pipes, unless otherwise stated, shall be:
 - (i) Clay pipes with Mn F40 to BS EN 256 and BS EN 295
 - (ii) Concrete pipes to BS 5911 and BS EN 1519 or
 - (iii) Clay pipes shall be unglazed UPVC to BS EN 13398.Concrete pipes shall not be used for four sewer unless otherwise stated.
4. Construction, subsequent testing, operation and maintenance shall be carried out in accordance with EN 12959 and the following:
 - a) All manholes, access points or inspection chambers shall be installed in accordance with the current edition of 'Specifiers for Adoption' produced by the Water Services Commission, Section 5.10.1 of the 'Specification for Sewers' shall be installed in accordance with the authority's specification.
5. Back filling shall only be undertaken when the concrete bedding and surround has obtained sufficient strength to accommodate back filling operations.
6. This detail shall not be used where the drainage is to be adopted by Water companies.
7. Workmanship shall be in accordance with BS 8000.

**Carrier drain - Class Z bedding,
surround and backfill**

General Notes

1. All dimensions are in metres unless otherwise stated.
2. All levels are in metres.
3. This drawing is to be read in conjunction with all relevant Engineers and Architect's drawings, Specifications, Reports and Engineering Details.
4. Do not scale from this drawing.

Rev	B	Updated to show Construction status	By OW	Checked JTW	21.01.2025
Rev	A	Updated to show Tender status.	By MR	Checked PW	11.11.2024



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Client Wheatley PLC

Project Proposed Residential Development
Police Row
Therfield

Title Private Drainage Construction
Details

Scale at A1	NTS	Drawn by	MR	Checked by	PW	Date	September 2024
Status	CONSTRUCTION	Project ref	28613	Drawing no.	110	Revision	B