

Drainage Statement

For Development at Sperberry Hill,

St Ipoltyes



INFRASTRUCTURE DESIGN LTD
EST 2000

Consulting Engineers

Suite 44 Innovation Centre

Airfield Park

Leicester Road

Market Harborough

1271/000/01- Rev A

CONDITION 25: STORM WATER DRAINAGE STRATEGY

Prior to the commencement of development, construction drawings of the surface water drainage network, associated sustainable drainage components and flow control mechanisms and a construction method statement shall be submitted and agreed in writing by the local planning authority. The scheme shall then be constructed as per the agreed drawings, method statement, FRA & Drainage Strategy (Revision B, August 2023), Flood Risk and Drainage Technical Note (November 2023) considering additional requirements below (I, II) and remaining in perpetuity for the lifetime of the development unless agreed in writing by the Local Planning Authority. No alteration to the agreed drainage scheme shall occur without prior written approval from the Local Authority. The Drainage Strategy shall include;

- i. Additional infiltration testing (to BRE 365 standards and at the depth of all the proposed infiltration features) should be carried out to clarify the rates across the site in the strata which will be utilised for discharge.*
- ii. Updated hydraulic calculations (following the updated infiltration testing results) to ensure the scheme can cater for all events up to and including the 1% AEP (plus appropriate climate change event).*

GEOLOGY

The site topography is such that there is a fall from south to north on the site of approximately 2.5-3m.

In line with the requirements of the planning condition further soakage testing was carried out on the site in 8 locations pertinent to the final site layout and drainage solutions. (Report to follow) The soakage rates found were broadly similar to those previously found (1.54×10^{-5} – 4.92×10^{-5}), except for the location to the northern parking court and eastern private drive, both of which failed to infiltrate.

DRAINAGE STRATEGY

(refer to drawing 1271-07-01 Private Drainage Layout)

FOUL DRAINAGE

The site is intended to drain by gravity to the existing foul system within Stevenage Road to the north.

SURFACE WATER DRAINAGE

With the addition of the new soakage rates, the design is broadly in line with the agreed drawings, except that the northern and eastern areas are now directed to the pond in the centre of the site, where good soakage rates have been found. This as required that the surface water from plots 11-14 will be required to be pumped up to the Basin for discharge, however, to ensure capacity for potential inundation and pump failure, storage at the pumping station will be designed to cater for the same storm events as other features. All SW drainage to be modelled to take 1:100 year + 40% climate change storm plus an additional 6% for urban creep, to ensure the drainage is contained within the system with no detriment to the households. Design calculations are appended to this document, which show no flooding under any of the modelled events.

CONCLUSION

In conclusion the presented scheme is in keeping with the approved strategy, taking on board further site investigation works as requested

Rob Hill BSc MCIHT

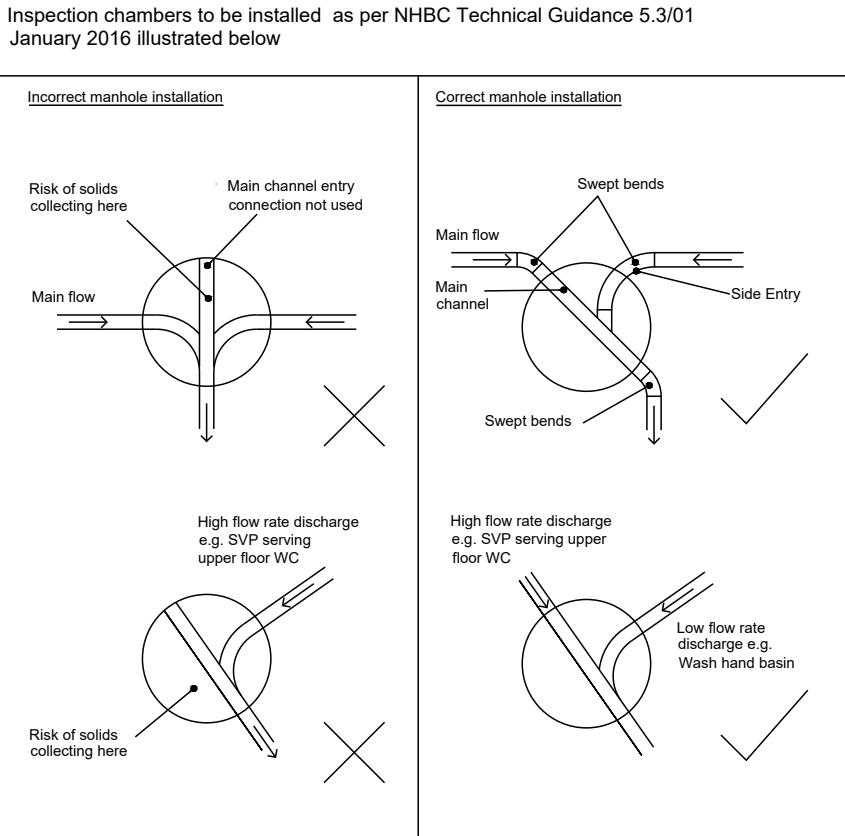
Director

Drainage Layout

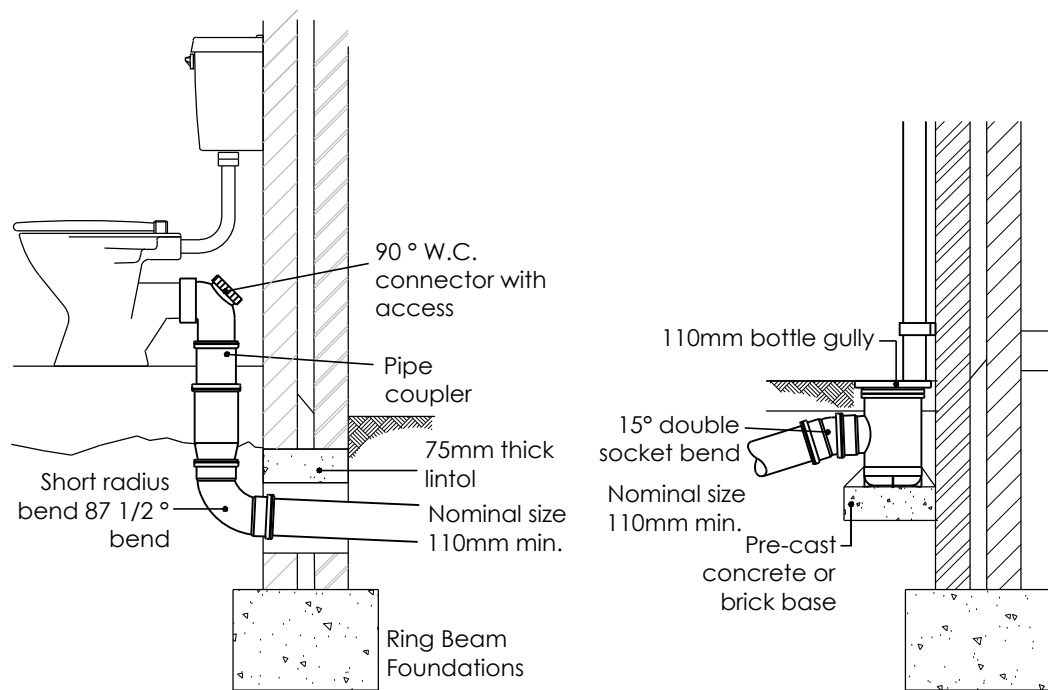


- KEY**
- Internal Drainage connection
 - 320/450mm dia inspection Chamber
 - Private Foul Water Sewer (FW) & Chamber
 - Private Surface Water Sewer (SW) & Chamber
 - Private SW Rodding Eye
 - Private SW Down Pipe & connection
 - Private SW Down Pipe from garage & connection into porous stone via distribution box
 - Linear Drainage Channel
 - Adoptable Foul Sewer & Manhole

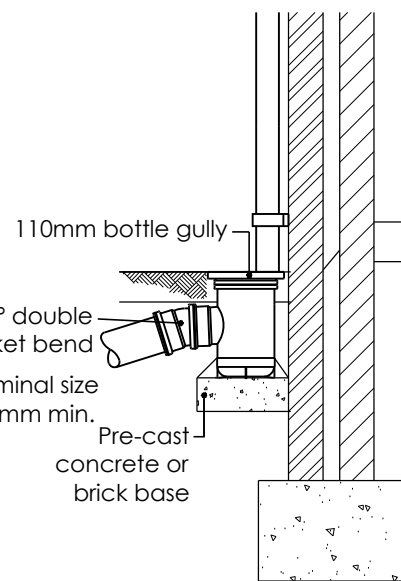
- Private Drainage General Principles**
- The minimum size for a gravity foul sewer should be:
 - 150mm nominal internal diameter for two properties or less
 - 150mm nominal internal diameter for more than two properties
 - The minimum gradient is for foul 1:80 and for surface water 1:100. Steeper gradients are preferred for access to boundary chambers.
 - SWPVC to be placed on main run through chamber with baffle, silt etc to be on down pipe or on the chamber below.
 - Where drainage passes through an area or into a foundation wall, the pipework should be as close as possible to the wall in order that the pipe is well supported.
 - All inspection chambers to be 750mm to centre from the outer face of the external wall to ensure they are covered within paving with recessed porous cover to suit. If required.
 - Inspection chambers should where possible be designed in line.
 - Bends to be used as part of a run or within 150mm of wall. This should be a double socket bend.
 - Bends should be no more than 2m between access chamber and bend as per NHBC Technical Guidance Document 5.301, See Diagram 5.301.
 - Chamber cover and frames must be designed to be covered with stone.
 - Where house type includes porches, chamber to be located 750mm to centre from outer face of front wall to ensure it is well within paving area.
 - Chamber must not sit on roof or ground area, therefore adjustments on site may be required.
 - Drainage out to road to be 750mm to centre from wall to ensure they are covered within paving/road with recessed porous cover to suit, unless specifically marked.
 - If inspection chambers are deeper than 600mm, a 450mm diameter inspection chamber is required.



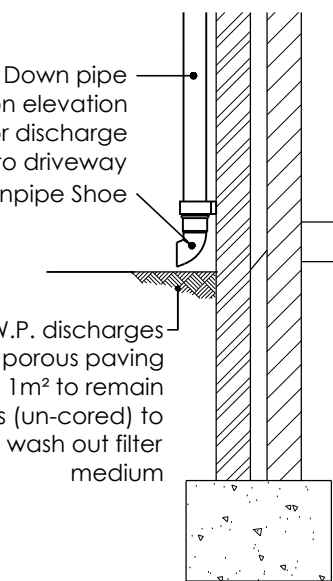
Porous Paving Catchment and Subbase thicknesses in Drives					
Drive Area (m2)	Building Added (m2)	Total (Ha)	Max Water depth (m)	Depth of Stone	
			100year+40%+6%	Min 0.3m as 4%CBR	
Plot 1	65	44	0.011	0.271	0.300
Plot 2	100	44	0.014	0.185	0.300
Plot 3	62	44	0.011	0.284	0.300
Plot 4	45	0	0.005	0.147	0.300
Plot 5	95	44	0.014	0.271	0.300
Plot 6	102	44	0.015	0.323	0.325
Plot 7	96	44	0.014	0.259	0.300
Plot 8	72	44	0.012	0.230	0.300



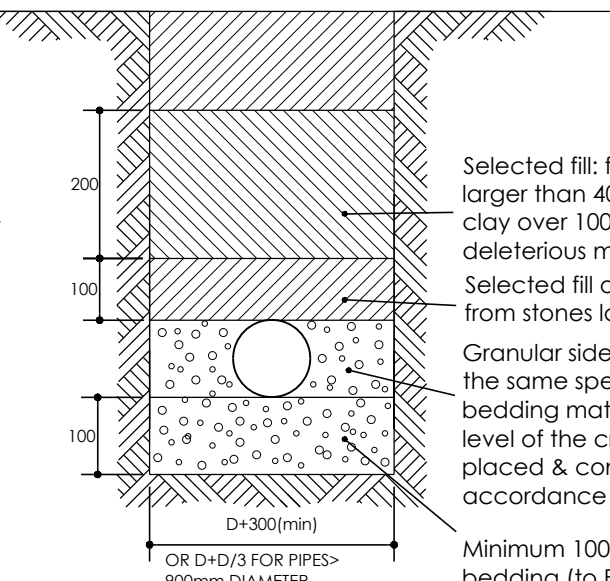
W.C. DIRECT TO DRAIN



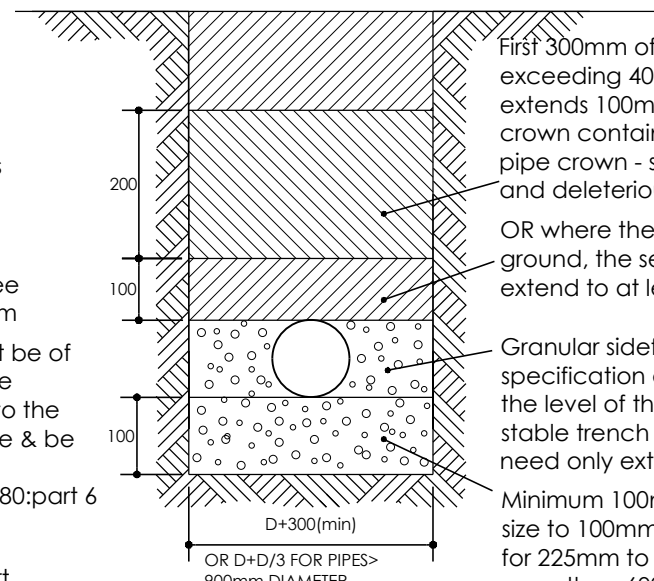
EXTERNAL R.W.P. TO DRAIN



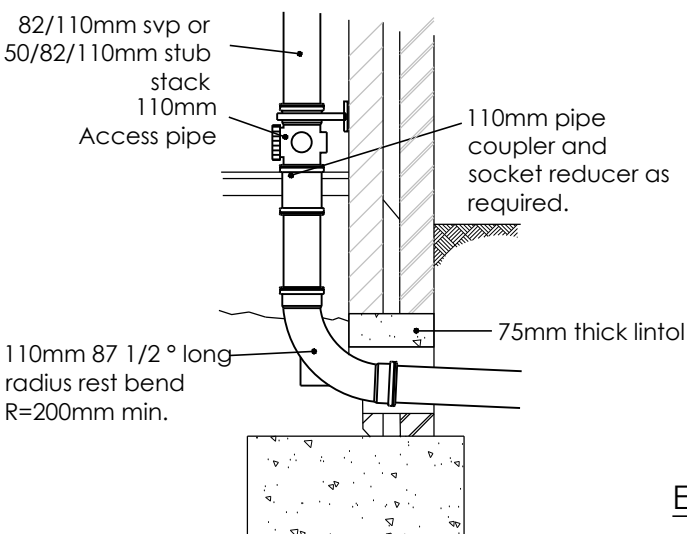
R.W.P. TO DRIVEWAY



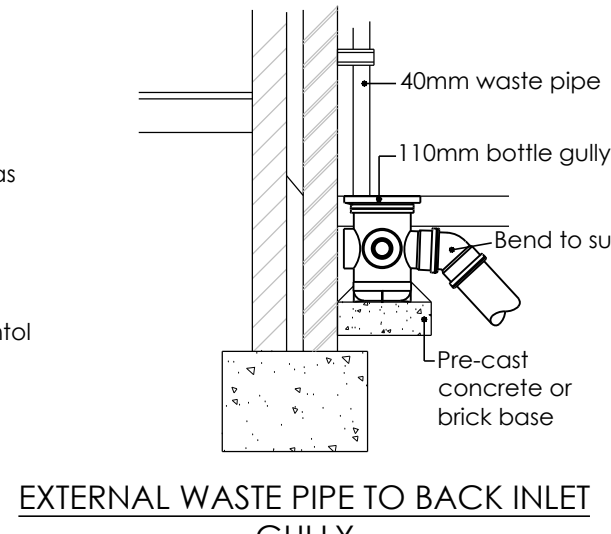
BEDDING DETAIL FOR uPVC PIPES



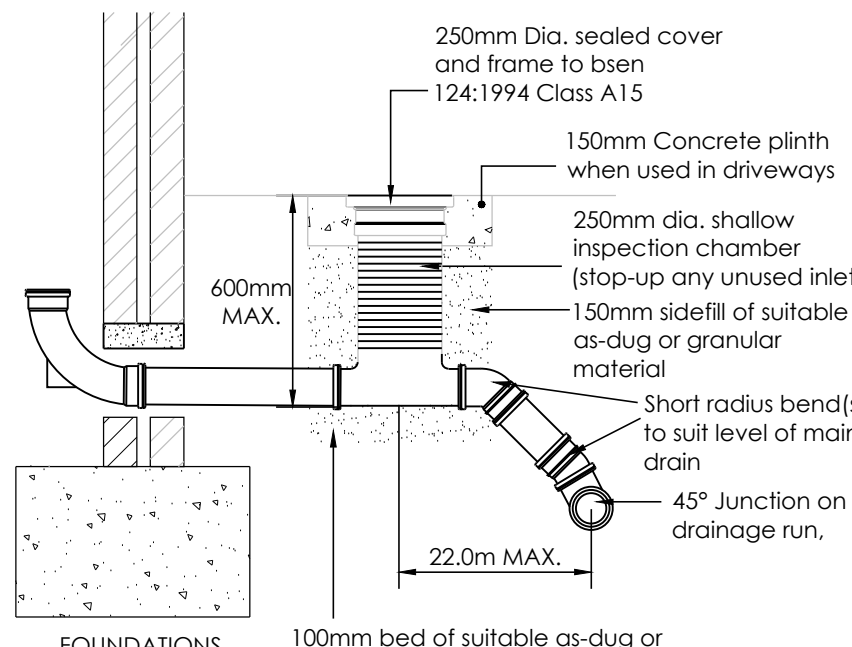
CLASS B : BEDDING FACTOR 1.9
FOR USE WITH CONCRETE & CLAY PIPES



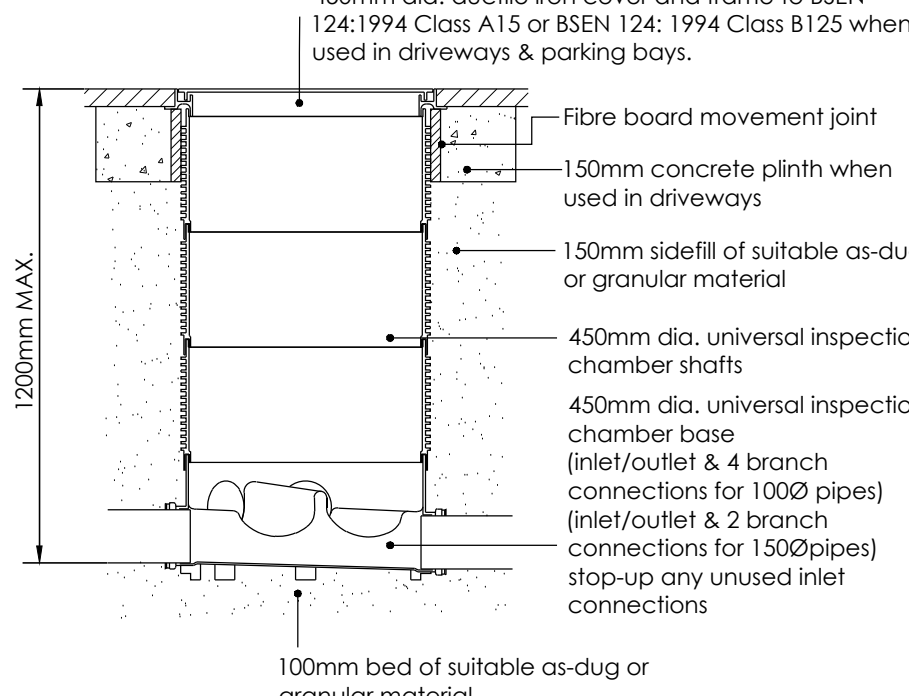
SOIL AND VENT PIPE CONNECTION
AND STUB STACK CONNECTION



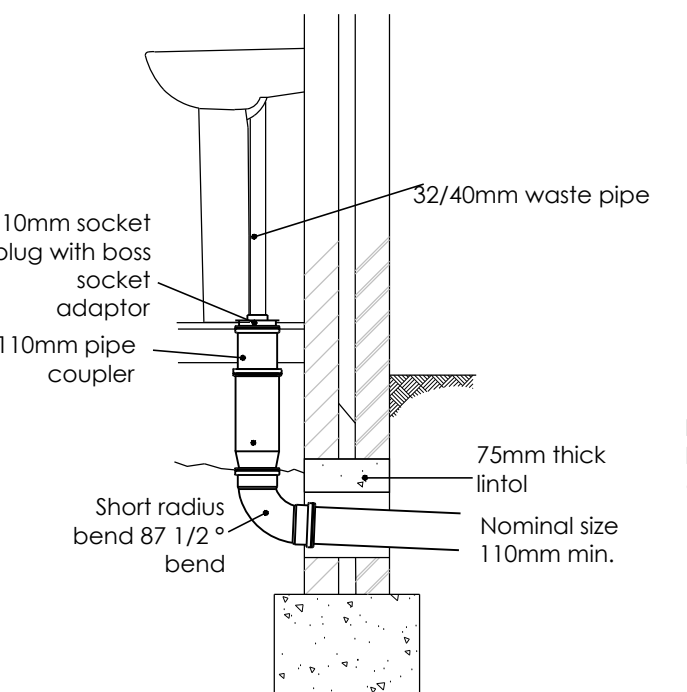
EXTERNAL WASTE PIPE TO BACK INLET
GULLY



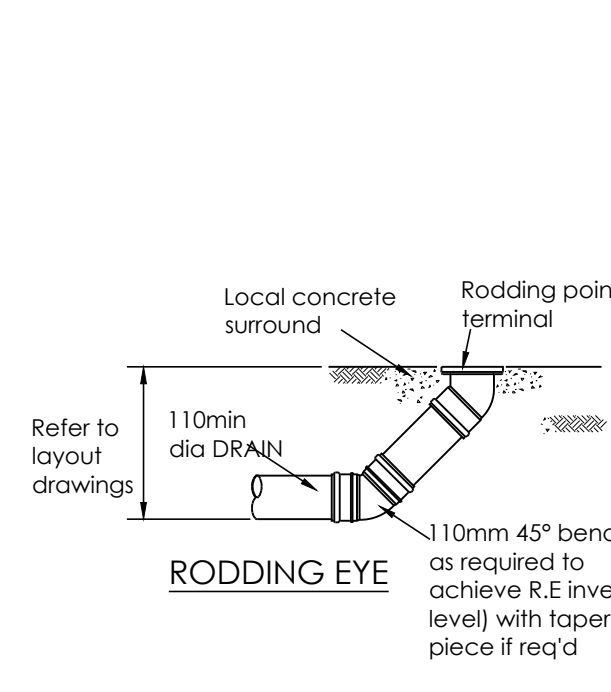
SHALLOW INSPECTION CHAMBER
For use in soft areas & driveways only



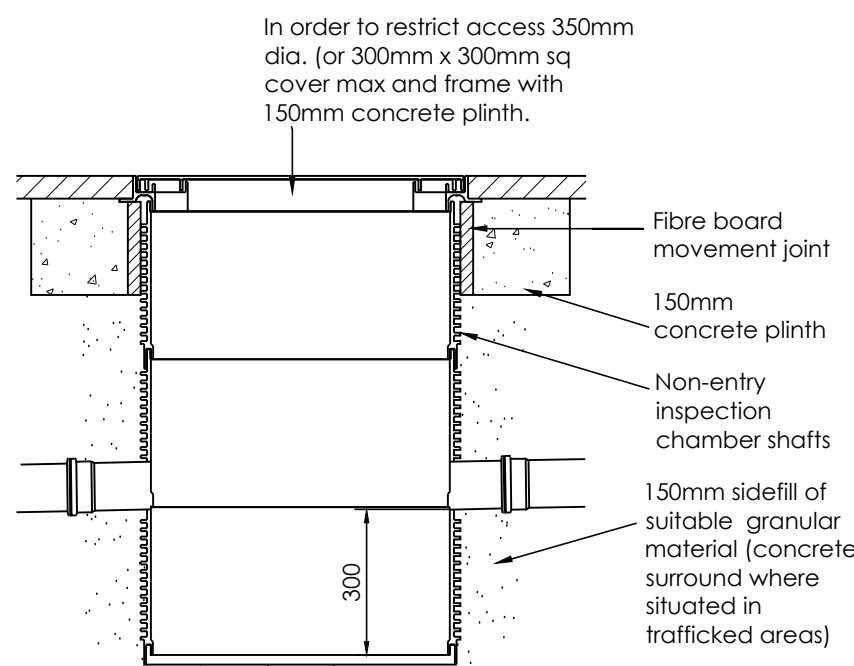
1.2m MAX. UNIVERSAL INSPECTION CHAMBER
for use in soft areas, driveways and parking bays only



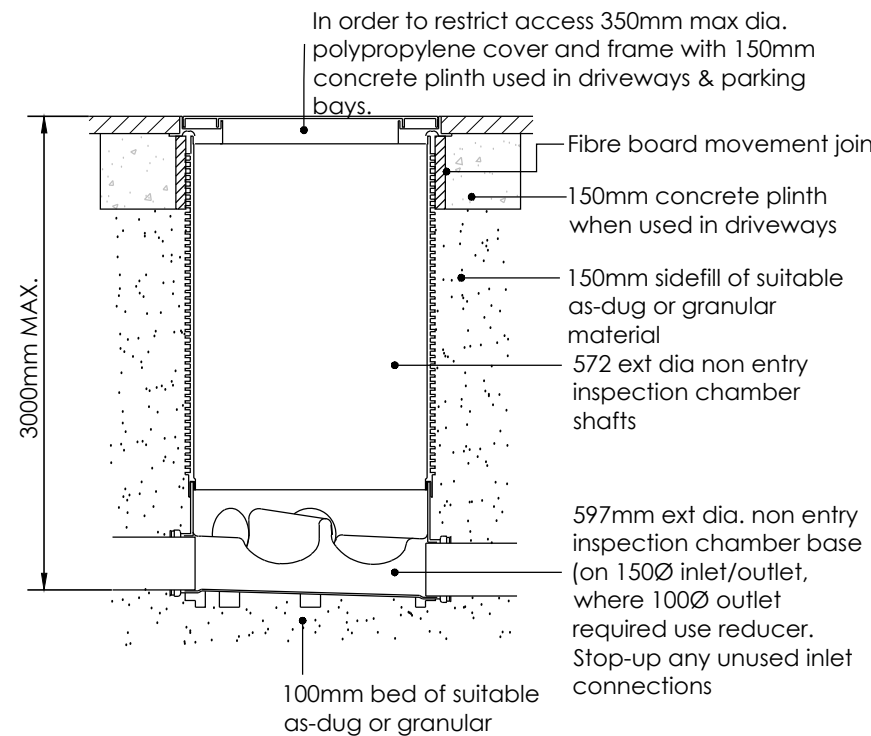
INTERNAL WASTE PIPE CONNECTION



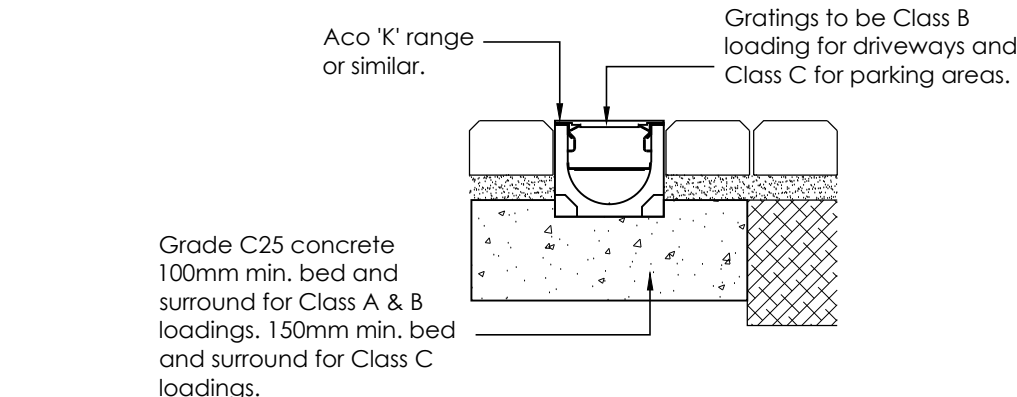
RODDING EYE



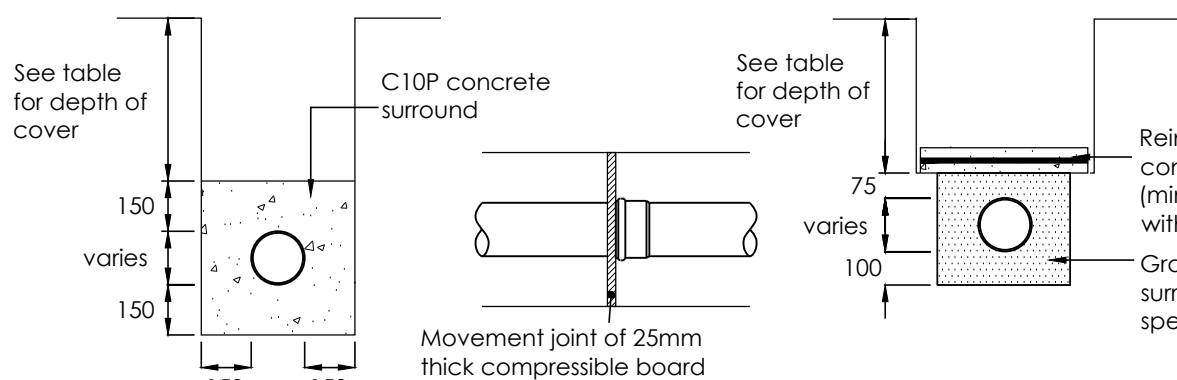
CATCHPIT



1.2m - 3.0m DEEP NON ENTRY INSPECTION CHAMBER
for use in soft areas, driveways and parking bays only

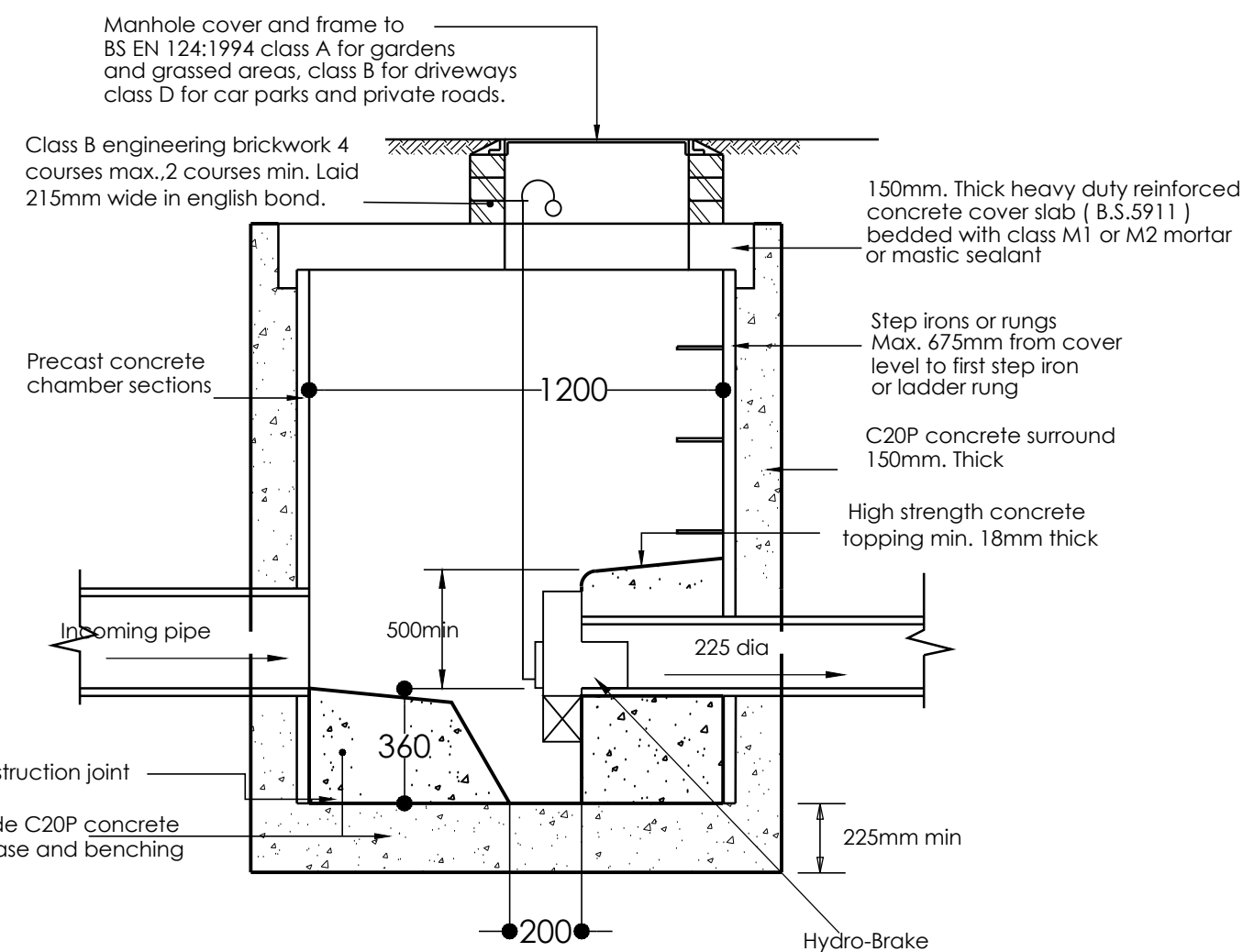


'ACO' DRAINAGE DETAIL

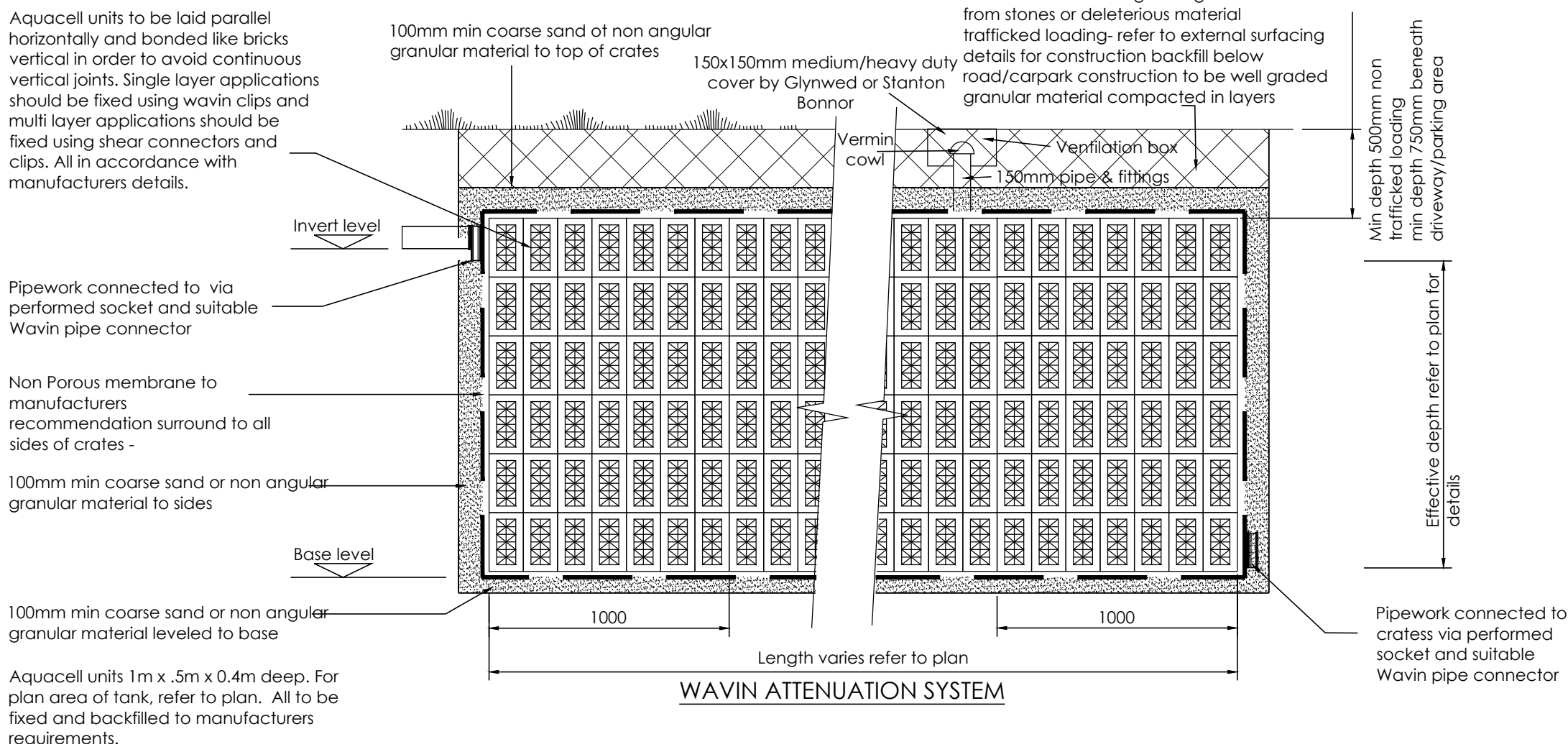


SPECIAL PROTECTION-GROUND LOADS (H1, DIAG's 11 & 12)

Depths of cover requiring special protection	
Less than 600mm	Gardens and grassed areas
Less than 900mm	Roads, drives & parking areas



HYDRO BRAKE CHAMBER



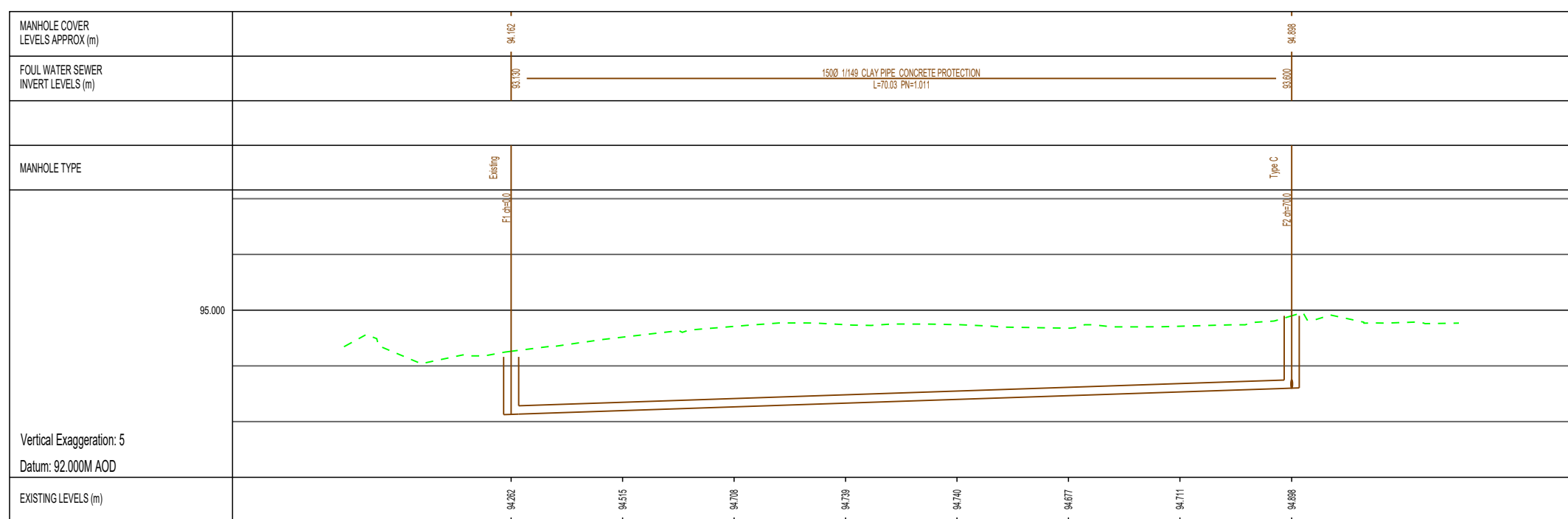
WAVIN ATTENUATION SYSTEM

TABLE 11 MIN. DIMENSIONS FOR ACCESS FITTINGS AND INSPECTION CHAMBERS					
TYPE	DEPTH TO INVERT FROM COVER LEVEL (m)	INTERNAL SIZES		COVER SIZES	
		RECTANGULAR LENGTH AND WIDTH	CIRCULAR DIAMETER	RECTANGULAR LENGTH AND WIDTH	CIRCULAR DIAMETER
Rodding Eye		As drain but min 100			Same size as pipework (1)
Access Fittings small	0.6 or less, except 150 dia 150x100	150x100	150	150x100 (1)	Same size as access fitting
large	225x100	225	225	225x100 (1)	
Inspection Chamber Shallow	0.6 or less	225x100	190 (1)	-	190 (1)
Deep	1.2 or less >1.2 but <3.0	450x450	450	Min 430x430	430
		450x450	450	max 300x300 (1)	Access restricted to max 350 (1)

Notes:
(1) The clear opening may be reduced by 20mm in order to provide proper support for the cover and frame.
(2) Drains up to 150mm.
(3) A larger clear opening may be used in conjunction with a restricted access. The size is restricted for health and safety reasons to deter entry.

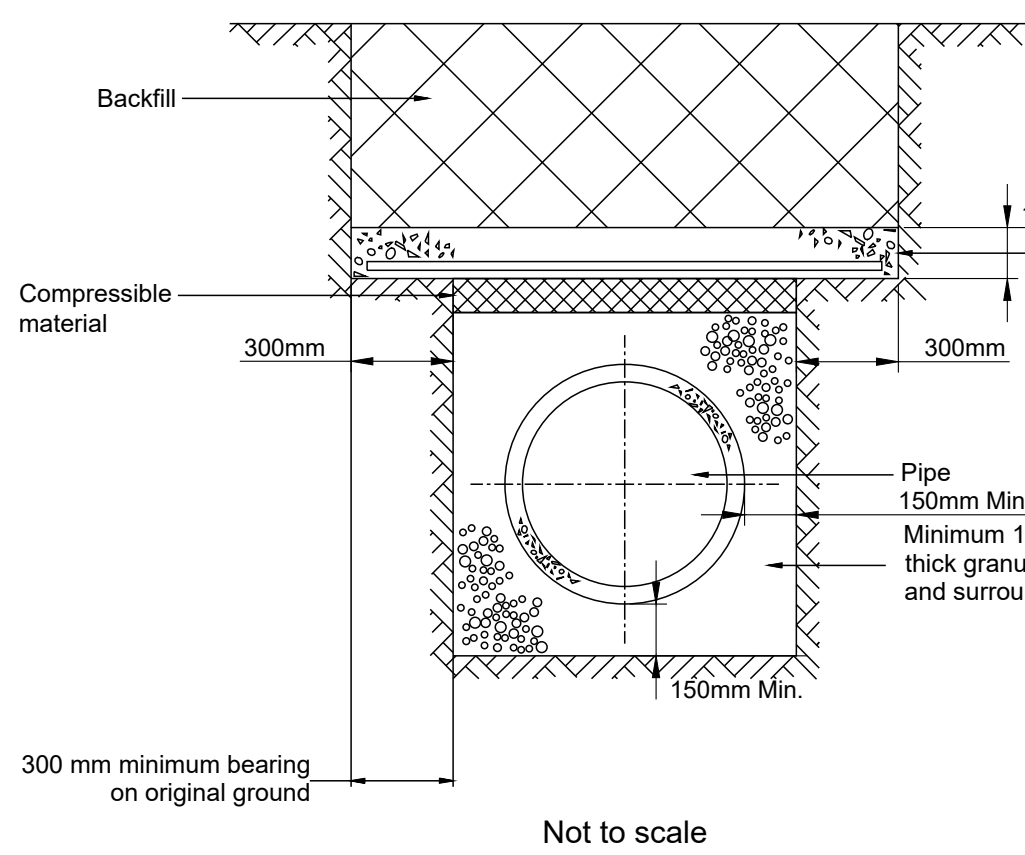
TABLE 12 MINIMUM DIMENSIONS FOR MANHOLES					
TYPE	SIZE OF LARGEST PIPE (DN)	MIN. INTERNAL DIMENSIONS (1)		MIN. CLEAR OPENING SIZE (1)	
		RECTANGULAR LENGTH AND WIDTH	CIRCULAR DIAMETER	RECTANGULAR LENGTH AND WIDTH	CIRCULAR DIAMETER
MANHOLE <1.5m deep to soffit	<= 150 225 300 >300	750 x 675 (7) 1200 x 675 1200 x 750 1800 x (DN+450)	1000 (7) 1200 1200 The larger of 1800 or (DN+450)	750 x 675 (2) 1200 x 675 (2)	no (3)
>1.5m deep to soffit	<= 225 300 375-450 >450	1200 x 1000 1200 x 1075 1350 x 1225 1800 x (DN+775)	1200 1200 1200 The larger of 1800 or (DN+775)	600 x 600 600 x 600	600
MANHOLE SHAFT (4)	Steps (5) Ladder (5) Winch (6)	1050 x 800 1200 x 800 900 x 800	1050 1200 900	600 x 600 600 x 600	600

Notes:
(1) Larger sizes may be required for manholes on bends or where there are junctions.
(2) May be reduced to 600 by 600 where required by highway loading considerations, subject to a safe system of work being specified.
(3) Not applicable due to working space needed.
(4) Minimum height of chamber in shafted manhole 2m from benching to underside of reducing slab.
(5) Min clear space between ladder or steps and the opposite face of the shaft should be approximately 900mm.
(6) Winch only - no steps of ladders, permanent or removable.
(7) The minimum size of any manhole serving a sewer (i.e. any drain serving more than one property) should be 1200mm x 675mm rectangular or 1200mm diameter.



Longitudinal Section
Scale H 1:500 V 1:100

FIGURE B.27
PROTECTION OF PIPES LAID AT SHALLOW DEPTHS



- NOTES:
- CHD covers & frames with kitemark to be used on all adoptable manholes. All covers to be embossed with FWSW as appropriate. 150mm deep, non rocking cover and frames to be used.
 - Cover and Reducing slabs, shaft and chamber rings to be bedded with mortar, proprietary chamber or resin mastic sealant. All lifting holes to be pointed.
 - Frame and slab openings & step runs, a minimum of 450 mm landing area should be provided from the side edge of the slab or ring. This may consist of:
a) A single area adjacent to the foot of the ladder or steps; or
b) where the channel is no more than DN450, one area of at least 225 mm adjacent to the foot of the ladder or steps with the remainder on the other side of the channel.
 - Chamber Diameters (Type C minimum 1350)

Dia. of largest pipe in M.H. (mm)	Dia. of chamber ring (mm)
Less than 375	1200
375-450	1350
450-500	1500
500-600	1800
Greater than 600	Pipe diameter + 300

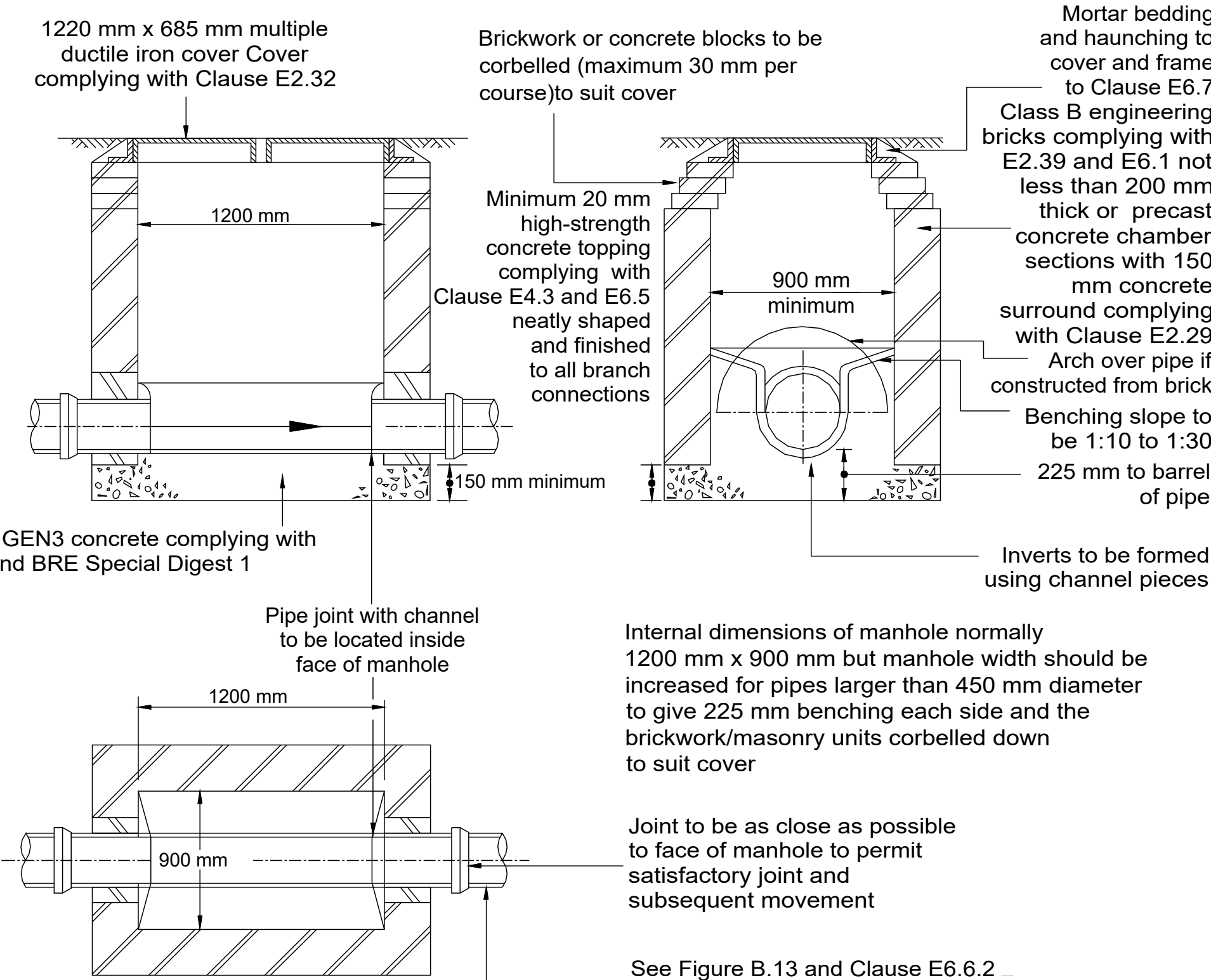
 - Above sewers are minimum and may need increasing for more than one incoming pipe to accommodate adequate benching.
 - Concrete may be in accordance with the chamber and analysis report for buried concrete for the site concerned. High strength topping to BS EN 12620 and PD 6855-1 to be brought up to a dense smooth face neatly shaped and finished to all branch connections. Benching slope to be not flatter than 1 in 30.
 - Rocker/Short pipe lengths:

Pipe dia. (mm)	Rocker pipe length (m)
150-400	0.6
400-750	1.0
over 750	1.25

Short length pipes to be similar length to rocker pipe. Manhole to large diameter sewers. Chambers with outgoing pipes greater than 600mm dia. to be constructed as per detail. Top holes to be provided in benching of sewers greater than 400mm dia. for access to invert.
 - Bricks to be solid type and either Class B engineering bricks complying with the relevant provisions of BS EN 771-1 or special bricks shall comply with the relevant provisions of BS 4729 with sulphate-resisting Portland cement binder. Brickwork to be in English bond.
 - Brick Manhole Walling. Chamber width to be increased for pipes larger than 225mm dia. to give 225mm benching each side with the brickwork corbelled down to suit cover.
 - All pipes built into manhole invert should be installed with sufficient level.
 - PIPE BEDDING AND BACKFILL MATERIALS: Granular bedding and rockfill Type A material shall be imported or selected as dug material complying with the recommendations of WMA Notes 4-6D-25. Selected fill Type B shall consist of uniform, readily compactible material, free from vegetable matter, building rubbish and frozen materials, or materials susceptible to spontaneous combustion, and excluding clay of liquid limit greater than 60 and/or plastic limit greater than 25 and materials of excessively high moisture content. Clay, lumps and stones retained on 75mm and 37.5mm sieves respectively shall be excluded from the fill material. Pipe bedding and fill materials to concrete pipes shall not contain more than 0.3% sulphate, expressed as sulphur trioxide.

FIGURE B.33
TYPICAL MANHOLE DETAIL - TYPE C

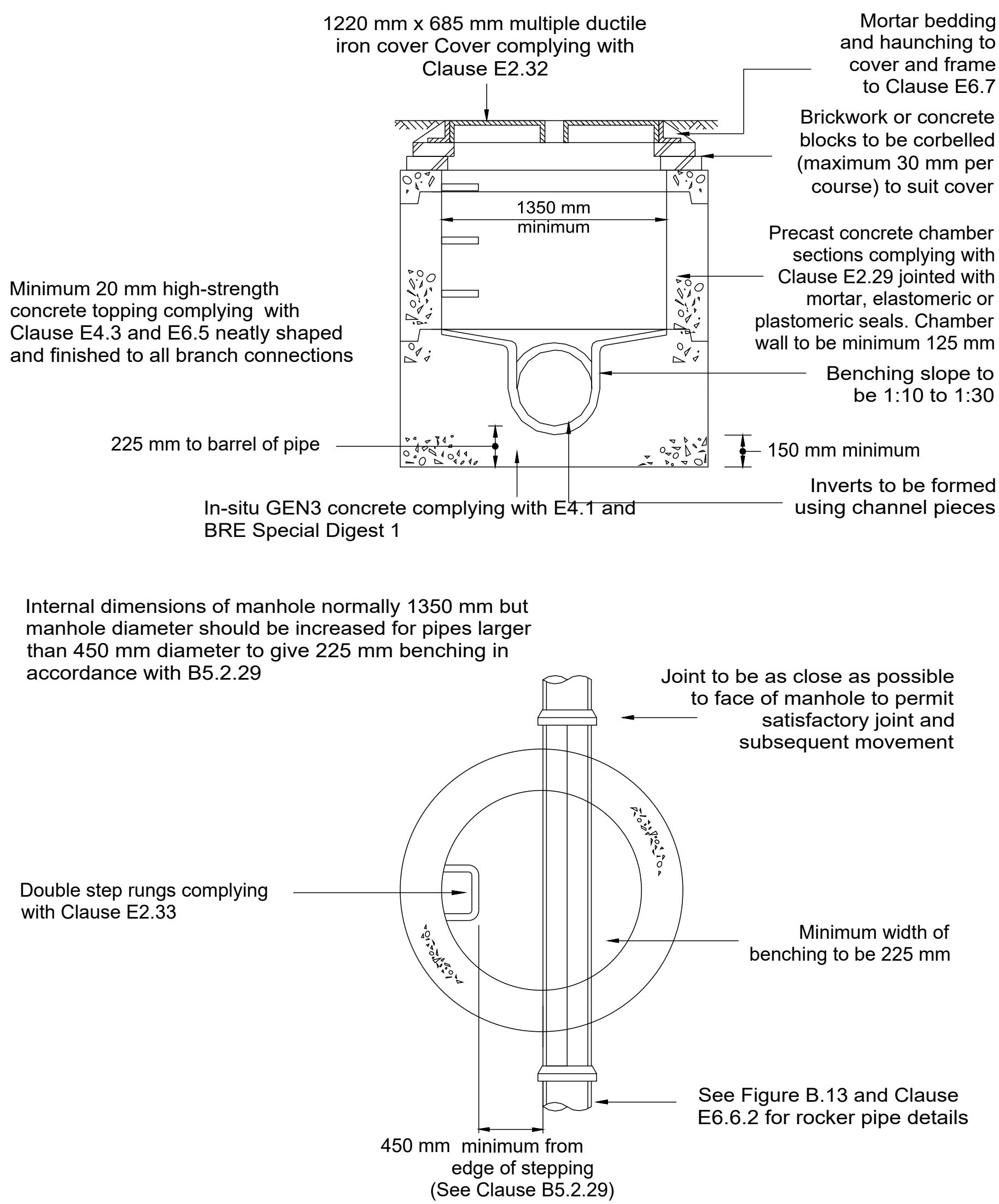
Depth from cover level to soffit of pipe less than 1.5 m
Maximum pipe size 450 mm diameter
Rigid material construction



Note: The use of precast concrete chamber units to E2.29 with 150 mm GEN3 in-situ concrete complying with E4.1 and BRE Special Digest 1 in place of brickwork construction is permitted.

Not to scale

FIGURE B.15
TYPICAL MANHOLE DETAIL - TYPE C
Depth from cover level to soffit of pipe less than 1.5 m
Maximum pipe size 450 mm diameter
Rigid material construction



Note: The use of precast concrete chamber units to E2.29 with 150 mm GEN3 in-situ concrete complying with E4.1 and BRE Special Digest 1 in place of brickwork construction is permitted.

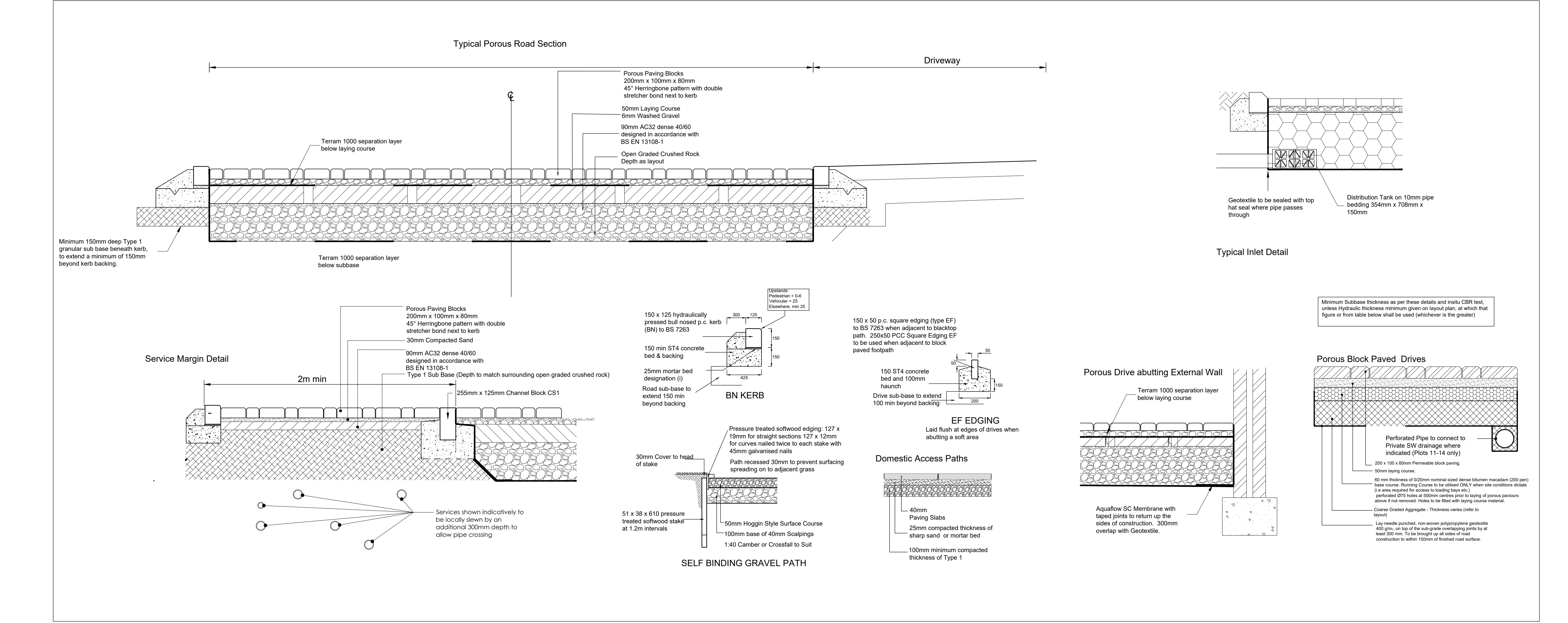
Not to scale

Notes:

STATUS:			TITLE:		
PRELIMINARY			Adoptable Drainage Layout		
SCALE: 1:200 (unless shown)			PROJECT: Sperberry Hill, St Ippolyts		
DATE: Dec 24			DRG. No: 1271-03-01		
DWN: RAH			File Reference: 1271-03-01		
REV	DESCRIPTION	DATE	REV	DESCRIPTION	DATE



INFRASTRUCTURE DESIGN LTD
Suite 44, Harborough Innovation Centre, Ayrfield Business Park,
Leicester Road, Market Harborough, Leicestershire, LE15 7PB
Tel: 01508 415170



Notes: Porous Subbase Minimum thickness of Subbase based on differing CBR values CBR (%) 1 450 2 450 3 375 4 300 ≥5 150 *Note: Total minimum construction thickness of 450mm for frost susceptible material, this may increase minimum subbase thickness.	House paths and patios Paths and patios should be supported on a suitable sub-base such as 100mm thickness of clean, well consolidated crushed rock, hardcore (maximum size 75mm), slag or concrete, and laid on 25mm of sand blinding or 1:4 cement sand mortar. Concrete paths and patios should be not less than 75mm thick and have a tamped or textured finish. The concrete mix should be suitable to give a durable and frost resistant surface, as described in Chapter 3.1 'Concrete and its reinforcement'. Movement joints, not less than 10mm wide, should be provided across the full width of the path at not more than 4m centres. A movement joint is not required at the abutment with a wall unless the opposite edge of the concrete is also restrained.					STATUS:	PRELIMINARY	TITLE:	External Works Layout		 INFRASTRUCTURE DESIGN LTD Unit 14, Northway Industrial Estate, Airedale Business Park, Lepton Road, Market Harborough, Leicestershire, LE10 7GB Tel: 01533 611370	
								PROJECT:	Sperberry Hill, St Ippolys			
						SCALE:	1:200	DRG. No:	1271-06-01			
						DATE:	Dec 24	File Reference:	1271-06-01			
						DWN:	RAH	CHK:				

Levels Layout

Drainage Calculations

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
PS51	0.006	5.00	96.546	450	520032.689	226846.175	0.496
PS52			96.550	450	520044.382	226851.528	0.650
PS14	0.006	5.00	96.550	450	520028.932	226839.858	0.600
PS15	0.006	5.00	96.550	450	520033.174	226830.095	0.800
PS65	0.006	5.00	96.639	180	520041.317	226818.362	0.639
PS67			96.477	180	520036.905	226831.780	0.757
PS16	0.006	5.00	96.665	450	520046.728	226836.278	1.015
PS56		5.00	96.400	450	520055.296	226849.787	0.525
PS55	0.006	5.00	96.673	450	520050.698	226834.928	1.055
PS57	0.006	5.00	96.474	450	520065.880	226845.545	0.674
PS58		5.00	96.611	450	520063.454	226830.449	1.000
PS17	0.007	5.00	96.573	450	520067.110	226829.789	1.148
PS59	0.007	5.00	96.339	450	520085.138	226839.205	0.739
PS18			96.416	450	520085.760	226823.267	1.141
PS19			96.550	1	520081.074	226811.763	1.440
PS7			96.550	1	520086.294	226807.316	1.375
PS1		5.00	96.554	450	520121.665	226757.456	0.829
PS63	0.023	5.00	96.891	180	520116.426	226772.783	0.641
PS2	0.003	5.00	96.921	450	520104.896	226763.409	1.321
PS3			97.214	450	520090.409	226769.660	1.739
PS20	0.007	5.00	96.500	450	520131.412	226772.579	0.700
PS21	0.009	5.00	96.500	450	520121.185	226780.311	0.900
PS61	0.007	5.00	96.441	180	520115.303	226798.263	0.766
PS22			96.500	450	520098.867	226790.255	1.175
PS23			96.624	450	520091.103	226793.228	1.349
PS24			96.550	1	520088.421	226798.616	1.440
PS62	0.007	5.00	96.141	450	520114.826	226813.973	0.741
S102			96.591	450	520096.003	226812.987	1.341

Links (Results)

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
1.000	0.831	6.5	1.1	0.396	0.550	0.006	0.0
1.001	0.880	6.9	1.1	0.550	0.905	0.006	0.0
2.000	0.915	7.2	1.1	0.500	0.650	0.006	0.0
2.001	0.858	15.2	2.2	0.650	0.607	0.012	0.0
3.000	0.984	7.7	1.1	0.539	0.607	0.006	0.0
2.002	0.806	14.2	3.2	0.607	0.865	0.018	0.0
2.003	0.876	15.5	4.3	0.865	0.905	0.024	0.0
4.000	0.889	7.0	0.0	0.425	0.905	0.000	0.0
1.002	0.830	14.7	6.5	0.905	0.923	0.036	0.0
5.000	0.970	7.6	1.1	0.574	0.923	0.006	0.0
6.000	0.988	7.8	0.0	0.900	0.923	0.000	0.0
1.003	1.137	45.2	8.8	0.923	0.916	0.049	0.0
7.000	0.862	6.8	1.3	0.639	0.916	0.007	0.0
1.004	1.172	46.6	10.1	0.916	1.150	0.056	0.0
8.000	1.094	43.5	0.0	0.604	1.096	0.000	0.0
9.000	1.988	35.1	4.2	0.491	1.096	0.023	0.0
8.001	1.162	46.2	4.7	1.096	1.514	0.026	0.0
8.002	1.071	42.6	4.7	1.514	0.950	0.026	0.0



Results for 2 year Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PS51	10	96.077	0.027	1.0	0.0043	0.0000	OK
15 minute summer	PS52	11	95.926	0.026	1.0	0.0041	0.0000	OK
15 minute summer	PS14	11	95.976	0.026	1.0	0.0041	0.0000	OK
15 minute summer	PS15	11	95.790	0.040	2.0	0.0063	0.0000	OK
15 minute summer	PS65	11	96.025	0.025	1.0	0.0006	0.0000	OK
15 minute summer	PS67	11	95.767	0.047	3.0	0.0012	0.0000	OK
15 minute summer	PS16	11	95.709	0.059	4.0	0.0094	0.0000	OK
15 minute summer	PS56	1	95.875	0.000	0.0	0.0000	0.0000	OK
15 minute summer	PS55	11	95.686	0.068	6.0	0.0109	0.0000	OK
15 minute summer	PS57	11	95.825	0.025	1.0	0.0039	0.0000	OK
15 minute summer	PS58	1	95.611	0.000	0.0	0.0000	0.0000	OK
720 minute winter	PS17	630	95.540	0.115	0.8	0.0182	0.0000	OK
15 minute summer	PS59	10	95.628	0.028	1.2	0.0045	0.0000	OK
720 minute winter	PS18	630	95.540	0.265	0.9	0.0421	0.0000	SURCHARGED
720 minute winter	PS19	645	95.539	0.429	2.0	0.0000	0.0000	OK
720 minute winter	PS7	645	95.539	0.364	4.8	0.0000	0.0000	OK
15 minute summer	PS1	1	95.725	0.000	0.0	0.0000	0.0000	OK
15 minute summer	PS63	10	96.284	0.034	3.9	0.0009	0.0000	OK
15 minute summer	PS2	10	95.647	0.047	4.4	0.0075	0.0000	OK
720 minute winter	PS3	645	95.539	0.064	0.5	0.0102	0.0000	OK
15 minute summer	PS20	10	95.829	0.029	1.2	0.0046	0.0000	OK
15 minute summer	PS21	11	95.642	0.042	2.6	0.0066	0.0000	OK
15 minute summer	PS61	10	95.703	0.028	1.2	0.0007	0.0000	OK
720 minute winter	PS22	645	95.540	0.215	1.0	0.0341	0.0000	OK
720 minute winter	PS23	645	95.540	0.265	1.3	0.0421	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	PS51	1.000	PS52	1.0	0.629	0.154	0.0213
15 minute summer	PS52	1.001	PS55	1.0	0.621	0.143	0.0282
15 minute summer	PS14	2.000	PS15	1.0	0.637	0.139	0.0167
15 minute summer	PS15	2.001	PS67	2.0	0.473	0.132	0.0173
15 minute summer	PS65	3.000	PS67	1.0	0.673	0.129	0.0210
15 minute summer	PS67	2.002	PS16	3.0	0.539	0.211	0.0603
15 minute summer	PS16	2.003	PS55	4.0	0.565	0.257	0.0299
15 minute summer	PS56	4.000	PS55	0.0	0.000	0.000	0.0077
15 minute summer	PS55	1.002	PS17	5.9	0.771	0.401	0.1311
15 minute summer	PS57	5.000	PS17	1.0	0.667	0.131	0.0237
15 minute summer	PS58	6.000	PS17	0.0	0.000	0.000	0.0000
720 minute winter	PS17	1.003	PS18	0.8	0.425	0.018	0.5935
15 minute summer	PS59	7.000	PS18	1.1	0.638	0.168	0.0286
720 minute winter	PS18	1.004	PS19	2.0	0.101	0.042	0.4940
720 minute winter	PS19	Flow through pond	PS7	2.7	-0.004	0.000	66.9786
720 minute winter	PS7	Infiltration		0.8			
15 minute summer	PS1	8.000	PS2	0.0	0.000	0.000	0.0540
15 minute summer	PS63	9.000	PS2	3.9	1.289	0.110	0.0444
15 minute summer	PS2	8.001	PS3	4.3	0.712	0.093	0.0965
720 minute winter	PS3	8.002	PS22	0.5	0.235	0.012	0.5393
15 minute summer	PS20	10.000	PS21	1.1	0.620	0.175	0.0237
15 minute summer	PS21	10.001	PS22	2.6	0.668	0.165	0.0965
15 minute summer	PS61	11.000	PS22	1.1	0.634	0.170	0.0328
720 minute winter	PS22	8.003	PS23	0.8	0.365	0.021	0.3278
720 minute winter	PS23	8.004	PS24	2.1	0.270	0.044	0.2394

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	PS24	645	95.539	0.429	1.8	0.0000	0.0000	OK
720 minute winter	PS62	630	95.540	0.140	2.1	0.0223	0.0000	OK
720 minute winter	S102	630	95.540	0.290	2.1	0.0461	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
960 minute winter	PS24	Flow through pond	PS7	-1.6	-0.004	0.000	66.8570
720 minute winter	PS62	12.000	S102	2.1	0.602	0.133	0.3274
720 minute winter	S102	12.001	PS7	2.1	0.568	0.145	0.1979



Results for 30 year Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PS51	10	96.096	0.046	2.7	0.0074	0.0000	OK
15 minute summer	PS52	11	95.943	0.043	2.7	0.0068	0.0000	OK
15 minute summer	PS14	10	95.994	0.044	2.7	0.0070	0.0000	OK
15 minute summer	PS15	10	95.823	0.073	5.4	0.0116	0.0000	OK
15 minute summer	PS65	10	96.042	0.042	2.7	0.0010	0.0000	OK
15 minute summer	PS67	11	95.806	0.086	8.0	0.0021	0.0000	OK
15 minute summer	PS16	11	95.778	0.128	10.5	0.0203	0.0000	OK
15 minute summer	PS56	1	95.875	0.000	0.0	0.0000	0.0000	OK
15 minute summer	PS55	11	95.758	0.140	15.6	0.0223	0.0000	OK
15 minute summer	PS57	10	95.842	0.042	2.7	0.0067	0.0000	OK
480 minute winter	PS58	632	95.674	0.063	0.0	0.0100	0.0000	OK
480 minute winter	PS17	632	95.674	0.249	2.4	0.0396	0.0000	SURCHARGED
480 minute winter	PS59	632	95.674	0.074	0.3	0.0118	0.0000	OK
480 minute winter	PS18	632	95.674	0.399	2.7	0.0635	0.0000	SURCHARGED
480 minute winter	PS19	632	95.674	0.564	2.6	0.0000	0.0000	OK
480 minute winter	PS7	632	95.674	0.499	3.8	0.0000	0.0000	OK
15 minute summer	PS1	1	95.725	0.000	0.0	0.0000	0.0000	OK
15 minute summer	PS63	10	96.308	0.058	10.5	0.0015	0.0000	OK
15 minute summer	PS2	10	95.681	0.081	11.8	0.0128	0.0000	OK
480 minute winter	PS3	640	95.674	0.199	1.2	0.0316	0.0000	OK
15 minute summer	PS20	10	95.851	0.051	3.2	0.0081	0.0000	OK
480 minute winter	PS21	632	95.674	0.074	0.7	0.0118	0.0000	OK
15 minute summer	PS61	10	95.724	0.049	3.2	0.0012	0.0000	OK
480 minute winter	PS22	632	95.674	0.349	2.2	0.0555	0.0000	SURCHARGED
480 minute winter	PS23	632	95.674	0.399	2.1	0.0634	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute summer	PS51	1.000	PS52	2.7	0.796	0.410	0.0432
15 minute summer	PS52	1.001	PS55	2.7	0.664	0.384	0.0946
15 minute summer	PS14	2.000	PS15	2.7	0.829	0.371	0.0342
15 minute summer	PS15	2.001	PS67	5.3	0.569	0.350	0.0386
15 minute summer	PS65	3.000	PS67	2.7	0.879	0.344	0.0428
15 minute summer	PS67	2.002	PS16	7.9	0.629	0.556	0.1425
15 minute summer	PS16	2.003	PS55	10.3	0.670	0.666	0.0694
15 minute summer	PS56	4.000	PS55	0.0	0.000	0.000	0.0579
15 minute summer	PS55	1.002	PS17	15.1	0.951	1.029	0.2708
15 minute summer	PS57	5.000	PS17	2.7	0.870	0.349	0.0482
480 minute winter	PS58	6.000	PS17	0.0	-0.005	0.003	0.0242
480 minute winter	PS17	1.003	PS18	2.4	0.522	0.053	0.7858
480 minute winter	PS59	7.000	PS18	0.3	0.433	0.044	0.1122
480 minute winter	PS18	1.004	PS19	2.6	0.459	0.055	0.4940
480 minute winter	PS19	Flow through pond	PS7	1.5	-0.004	0.000	93.6984
480 minute winter	PS7	Infiltration		0.9			
15 minute summer	PS1	8.000	PS2	0.0	0.000	0.000	0.1136
15 minute summer	PS63	9.000	PS2	10.4	1.688	0.296	0.0917
15 minute summer	PS2	8.001	PS3	11.7	0.927	0.252	0.1986
480 minute winter	PS3	8.002	PS22	1.2	0.342	0.028	0.8566
15 minute summer	PS20	10.000	PS21	3.2	0.809	0.483	0.0500
480 minute winter	PS21	10.001	PS22	0.7	0.455	0.044	0.3207
15 minute summer	PS61	11.000	PS22	3.1	0.830	0.468	0.0693
480 minute winter	PS22	8.003	PS23	2.1	0.500	0.051	0.3307
480 minute winter	PS23	8.004	PS24	2.0	0.450	0.042	0.2394

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	PS24	632	95.674	0.564	2.0	0.0000	0.0000	OK
480 minute winter	PS62	624	95.676	0.276	2.4	0.0439	0.0000	SURCHARGED
480 minute winter	S102	624	95.675	0.425	2.4	0.0675	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
480 minute winter	PS24	Flow through pond	PS7	1.5	-0.004	0.000	93.6984
480 minute winter	PS62	12.000	S102	2.4	0.618	0.152	0.3318
480 minute winter	S102	12.001	PS7	2.3	0.575	0.162	0.1979



Results for 100 year +40% CC +6% A Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PS51	10	96.120	0.070	5.1	0.0111	0.0000	OK
15 minute summer	PS52	12	96.051	0.151	5.1	0.0241	0.0000	SURCHARGED
15 minute summer	PS14	12	96.148	0.198	5.1	0.0314	0.0000	SURCHARGED
15 minute summer	PS15	12	96.091	0.341	9.9	0.0542	0.0000	SURCHARGED
15 minute summer	PS65	12	96.149	0.149	5.1	0.0037	0.0000	SURCHARGED
15 minute summer	PS67	12	96.077	0.357	12.0	0.0089	0.0000	SURCHARGED
15 minute summer	PS16	12	96.015	0.365	16.2	0.0581	0.0000	SURCHARGED
15 minute summer	PS56	12	95.966	0.091	1.5	0.0144	0.0000	OK
15 minute summer	PS55	12	95.961	0.343	24.4	0.0546	0.0000	SURCHARGED
720 minute winter	PS57	690	95.885	0.085	0.4	0.0136	0.0000	OK
720 minute winter	PS58	690	95.885	0.274	0.1	0.0436	0.0000	SURCHARGED
720 minute winter	PS17	690	95.885	0.460	3.2	0.0731	0.0000	SURCHARGED
720 minute winter	PS59	690	95.885	0.285	0.4	0.0453	0.0000	SURCHARGED
720 minute winter	PS18	690	95.885	0.610	3.4	0.0970	0.0000	SURCHARGED
720 minute winter	PS19	690	95.886	0.776	3.3	0.0000	0.0000	OK
720 minute winter	PS7	690	95.885	0.710	6.8	0.0000	0.0000	OK
720 minute winter	PS1	690	95.885	0.160	0.2	0.0255	0.0000	OK
15 minute summer	PS63	10	96.335	0.085	19.7	0.0021	0.0000	OK
720 minute winter	PS2	690	95.885	0.285	1.6	0.0454	0.0000	SURCHARGED
720 minute winter	PS3	690	95.885	0.410	1.6	0.0652	0.0000	SURCHARGED
720 minute winter	PS20	690	95.885	0.085	0.4	0.0136	0.0000	OK
720 minute winter	PS21	690	95.885	0.285	0.9	0.0454	0.0000	SURCHARGED
720 minute winter	PS61	690	95.885	0.210	0.4	0.0053	0.0000	SURCHARGED
720 minute winter	PS22	690	95.885	0.560	2.7	0.0891	0.0000	SURCHARGED
720 minute winter	PS23	690	95.885	0.610	2.6	0.0970	0.0000	SURCHARGED
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	
15 minute summer	PS51	1.000	PS52	5.1	0.916	0.776	0.0851	
15 minute summer	PS52	1.001	PS55	4.3	0.651	0.627	0.1390	
15 minute summer	PS14	2.000	PS15	5.0	0.879	0.696	0.0833	
15 minute summer	PS15	2.001	PS67	8.3	0.606	0.546	0.0721	
15 minute summer	PS65	3.000	PS67	4.7	0.929	0.613	0.1105	
15 minute summer	PS67	2.002	PS16	11.7	0.666	0.823	0.1902	
15 minute summer	PS16	2.003	PS55	15.7	0.891	1.013	0.0738	
15 minute summer	PS56	4.000	PS55	-1.5	-0.224	-0.216	0.1190	
15 minute summer	PS55	1.002	PS17	22.9	1.300	1.559	0.2952	
720 minute winter	PS57	5.000	PS17	0.4	0.470	0.053	0.1181	
720 minute winter	PS58	6.000	PS17	-0.1	-0.015	-0.009	0.0291	
720 minute winter	PS17	1.003	PS18	3.0	0.425	0.066	0.7858	
720 minute winter	PS59	7.000	PS18	0.4	0.431	0.059	0.1248	
720 minute winter	PS18	1.004	PS19	3.3	0.459	0.070	0.4940	
720 minute winter	PS19	Flow through pond	PS7	4.5	0.001	0.000	141.5319	
720 minute winter	PS7	Infiltration		1.1				
720 minute winter	PS1	8.000	PS2	-0.2	-0.006	-0.005	0.6234	
15 minute summer	PS63	9.000	PS2	19.6	1.965	0.557	0.1479	
720 minute winter	PS2	8.001	PS3	1.6	0.509	0.035	0.6275	
720 minute winter	PS3	8.002	PS22	1.4	0.290	0.034	0.8855	
720 minute winter	PS20	10.000	PS21	0.4	0.459	0.061	0.0958	
720 minute winter	PS21	10.001	PS22	0.9	0.433	0.056	0.4301	
720 minute winter	PS61	11.000	PS22	0.4	0.431	0.060	0.1431	
720 minute winter	PS22	8.003	PS23	2.6	0.384	0.065	0.3307	
720 minute winter	PS23	8.004	PS24	2.9	0.402	0.062	0.2394	

Results for 100 year +40% CC +6% A Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	PS24	690	95.885	0.775	2.9	0.0000	0.0000	OK
600 minute summer	PS62	615	95.886	0.486	2.7	0.0773	0.0000	FLOOD RISK
720 minute winter	S102	690	95.885	0.635	2.4	0.1010	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
720 minute winter	PS24	Flow through pond	PS7	4.5	0.001	0.000	141.5319
600 minute summer	PS62	12.000	S102	2.6	0.602	0.167	0.3318
720 minute winter	S102	12.001	PS7	2.3	0.576	0.162	0.1979

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Width (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.011	1.00	1.000	1	1000.000	1000.000	1.000

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Additional Storage (m ³ /ha)	0.0
Summer CV	1.000	Skip Steady State	✓	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	3600	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	6	0

Node 1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.14904	Invert Level (m)	0.000	Slope (1:X)	800.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	85	Depth (m)	
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	10.000		

Results for 2 year Critical Storm Duration. Lowest mass balance: 95.28%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	10	0.039	0.039	3.2	0.4739	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
15 minute summer	1	Infiltration	0.8					

Results for 30 year Critical Storm Duration. Lowest mass balance: 95.28%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	1	21	0.120	0.120	5.5	1.6468	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
30 minute summer	1	Infiltration	1.0

Results for 100 year +40% CC +6% A Critical Storm Duration. Lowest mass balance: 95.28%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	1	45	0.271	0.271	6.9	3.8347	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
60 minute summer	1	Infiltration	1.0					

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
2	0.014	1.00	1.000	1	1020.000	1000.000	1.000

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Additional Storage (m ³ /ha)	0.0
Summer CV	1.000	Skip Steady State	✓	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	3600	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	6	0

Node 2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.14904	Invert Level (m)	0.000	Slope (1:X)	500.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	85	Depth (m)	
Safety Factor	2.0	Width (m)	6.000	Inf Depth (m)	
Porosity	0.30	Length (m)	14.000		

Results for 2 year Critical Storm Duration. Lowest mass balance: 95.32%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	2	10	0.034	0.034	4.1	0.5165	0.0000	OK
Link Event (Upstream Depth)		US Node	Link	Outflow (l/s)				
15 minute summer		2	Infiltration	1.2				

Results for 30 year Critical Storm Duration. Lowest mass balance: 95.32%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	2	20	0.086	0.086	7.0	1.8198	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
30 minute summer	2	Infiltration	1.7					

Results for 100 year +40% CC +6% A Critical Storm Duration. Lowest mass balance: 95.32%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	2	24	0.185	0.185	13.2	4.3176	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
30 minute summer	2	Infiltration	1.7					

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
3	0.011	1.00	1.000	1	1040.000	1000.000	1.000

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Additional Storage (m ³ /ha)	0.0
Summer CV	1.000	Skip Steady State	✓	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	3600	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	6	0

Node 3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.10872	Invert Level (m)	0.000	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	116	Depth (m)	
Safety Factor	2.0	Width (m)	6.000	Inf Depth (m)	
Porosity	0.30	Length (m)	10.500		

Results for 2 year Critical Storm Duration. Lowest mass balance: 95.27%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	3	11	0.073	0.073	3.2	0.4872	0.0000	OK
Link Event (Upstream Depth)		US Node		Link	Outflow (l/s)			
15 minute summer		3		Infiltration	0.7			

Results for 30 year Critical Storm Duration. Lowest mass balance: 95.27%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	3	22	0.142	0.142	5.5	1.7030	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
30 minute summer	3	Infiltration	1.0					

Results for 100 year +40% CC +6% A Critical Storm Duration. Lowest mass balance: 95.27%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	3	45	0.264	0.264	6.9	4.0094	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
60 minute summer	3	Infiltration	1.0					

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	6	0

Node PS43 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.10872	Invert Level (m)	96.500	Slope (1:X)	9999.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	75	Depth (m)	0.450
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	53.500		

**Results for 2 year Critical Storm Duration. Lowest mass balance: 42.79%**

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute summer	PS64	224	96.518	0.068	0.3	0.0017	0.0000	OK
360 minute summer	PS29	224	96.518	0.268	0.4	0.0426	0.0000	SURCHARGED
360 minute summer	PS30	224	96.518	0.418	0.5	0.0665	0.0000	SURCHARGED
360 minute summer	PS68	224	96.518	0.018	0.2	0.0005	0.0000	OK
360 minute summer	PS31	224	96.518	0.493	0.6	0.0784	0.0000	SURCHARGED
360 minute summer	PS32	224	96.518	0.668	0.6	0.1891	0.0000	SURCHARGED
360 minute summer	PS33	224	96.518	0.093	0.2	0.0023	0.0000	OK
360 minute summer	PS34	224	96.518	0.243	0.4	0.0386	0.0000	SURCHARGED
360 minute summer	PS35	224	96.518	0.343	0.4	0.0545	0.0000	SURCHARGED
360 minute summer	PS36	224	96.518	0.443	0.5	0.0704	0.0000	SURCHARGED
360 minute summer	PS37	224	96.518	0.718	1.6	0.2032	0.0000	SURCHARGED
15 minute summer	PS38	10	96.572	0.022	0.7	0.0005	0.0000	OK
360 minute summer	PS39	224	96.518	0.093	0.2	0.0148	0.0000	OK
360 minute summer	PS40	224	96.518	0.193	0.6	0.0307	0.0000	SURCHARGED
360 minute summer	PS41	224	96.518	0.293	0.6	0.0466	0.0000	SURCHARGED
360 minute summer	PS42	224	96.518	0.843	2.0	0.2385	0.0000	SURCHARGED
360 minute summer	PS43	224	96.518	0.868	2.0	1.1882	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
360 minute summer	PS64	1.000	PS29	0.2	0.314	0.029	0.0787
360 minute summer	PS29	1.001	PS30	0.3	0.372	0.015	0.2041
360 minute summer	PS30	1.002	PS31	-0.3	0.314	-0.015	0.0885
360 minute summer	PS68	2.000	PS31	0.2	0.468	0.016	0.0458
360 minute summer	PS31	1.003	PS32	-0.4	0.325	-0.022	0.1548
360 minute summer	PS32	1.004	PS37	-0.6	-0.016	-0.014	0.2648
360 minute summer	PS33	3.000	PS34	0.2	0.410	0.026	0.0483
360 minute summer	PS34	3.001	PS35	-0.2	0.221	-0.009	0.1519
360 minute summer	PS35	3.002	PS36	-0.2	0.386	-0.012	0.1505
360 minute summer	PS36	3.003	PS37	0.3	0.216	0.008	0.0684
360 minute summer	PS37	1.005	PS42	1.6	0.230	0.039	0.8006
15 minute summer	PS38	4.000	PS39	0.7	0.542	0.096	0.0071
360 minute summer	PS39	4.001	PS40	0.2	0.272	0.010	0.1067
360 minute summer	PS40	4.002	PS41	0.4	0.415	0.019	0.1481
360 minute summer	PS41	4.003	PS42	0.4	0.028	0.007	0.0940
360 minute summer	PS42	1.006	PS43	2.0	0.102	0.039	0.1089
360 minute summer	PS43	Infiltration		1.4			

Results for 30 year Critical Storm Duration. Lowest mass balance: 42.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	PS64	112	96.598	0.148	0.6	0.0037	0.0000	SURCHARGED
180 minute summer	PS29	112	96.598	0.348	1.1	0.0554	0.0000	SURCHARGED
180 minute summer	PS30	112	96.598	0.498	1.1	0.0792	0.0000	SURCHARGED
180 minute summer	PS68	112	96.598	0.098	0.6	0.0025	0.0000	OK
180 minute summer	PS31	112	96.598	0.573	1.5	0.0911	0.0000	SURCHARGED
180 minute summer	PS32	112	96.598	0.748	1.4	0.2116	0.0000	SURCHARGED
180 minute summer	PS33	112	96.598	0.173	0.6	0.0043	0.0000	SURCHARGED
180 minute summer	PS34	112	96.598	0.323	0.5	0.0513	0.0000	SURCHARGED
180 minute summer	PS35	112	96.598	0.423	1.1	0.0672	0.0000	SURCHARGED
180 minute summer	PS36	112	96.598	0.523	1.6	0.0831	0.0000	SURCHARGED
180 minute summer	PS37	112	96.598	0.798	7.6	0.2257	0.0000	SURCHARGED
180 minute summer	PS38	112	96.597	0.047	0.6	0.0012	0.0000	OK
180 minute summer	PS39	112	96.597	0.172	0.6	0.0273	0.0000	SURCHARGED
180 minute summer	PS40	112	96.597	0.272	1.1	0.0432	0.0000	SURCHARGED
180 minute summer	PS41	116	96.597	0.372	1.6	0.0591	0.0000	SURCHARGED
180 minute summer	PS42	116	96.596	0.921	9.1	0.2608	0.0000	SURCHARGED
180 minute summer	PS43	116	96.596	0.946	9.0	7.1195	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
180 minute summer	PS64	1.000	PS29	0.5	0.314	0.078	0.0912
180 minute summer	PS29	1.001	PS30	1.1	0.415	0.053	0.2041
180 minute summer	PS30	1.002	PS31	1.0	0.314	0.046	0.0885
180 minute summer	PS68	2.000	PS31	0.5	0.468	0.041	0.0814
180 minute summer	PS31	1.003	PS32	1.4	0.395	0.076	0.1548
180 minute summer	PS32	1.004	PS37	1.4	0.185	0.030	0.2648
180 minute summer	PS33	3.000	PS34	0.5	0.403	0.070	0.0490
180 minute summer	PS34	3.001	PS35	0.5	0.221	0.024	0.1519
180 minute summer	PS35	3.002	PS36	1.0	0.386	0.052	0.1505
180 minute summer	PS36	3.003	PS37	1.5	0.662	0.038	0.0684
180 minute summer	PS37	1.005	PS42	7.5	0.353	0.184	0.8006
180 minute summer	PS38	4.000	PS39	0.6	0.427	0.087	0.0333
180 minute summer	PS39	4.001	PS40	0.5	0.262	0.025	0.1293
180 minute summer	PS40	4.002	PS41	1.0	0.415	0.054	0.1481
180 minute summer	PS41	4.003	PS42	1.6	0.792	0.030	0.0940
180 minute summer	PS42	1.006	PS43	9.0	0.290	0.182	0.1089
180 minute summer	PS43	Infiltration		4.0			

Results for 100 year +40% CC +6% A Critical Storm Duration. Lowest mass balance: 42.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	PS64	20	96.816	0.366	3.0	0.0092	0.0000	SURCHARGED
30 minute summer	PS29	20	96.796	0.546	5.1	0.0868	0.0000	SURCHARGED
30 minute summer	PS30	20	96.786	0.686	4.6	0.1091	0.0000	SURCHARGED
30 minute summer	PS68	20	96.799	0.299	3.0	0.0075	0.0000	SURCHARGED
120 minute summer	PS31	88	96.781	0.756	3.6	0.1203	0.0000	SURCHARGED
120 minute summer	PS32	88	96.781	0.931	3.3	0.2635	0.0000	SURCHARGED
30 minute summer	PS33	20	96.793	0.368	3.3	0.0092	0.0000	SURCHARGED
120 minute summer	PS34	88	96.781	0.506	1.3	0.0805	0.0000	SURCHARGED
120 minute summer	PS35	88	96.781	0.606	2.5	0.0964	0.0000	SURCHARGED
120 minute summer	PS36	88	96.781	0.706	3.8	0.1123	0.0000	SURCHARGED
120 minute summer	PS37	88	96.781	0.981	18.4	0.2777	0.0000	SURCHARGED
120 minute summer	PS38	88	96.780	0.230	1.5	0.0058	0.0000	SURCHARGED
120 minute summer	PS39	88	96.780	0.355	1.3	0.0565	0.0000	SURCHARGED
120 minute summer	PS40	88	96.780	0.455	2.5	0.0724	0.0000	SURCHARGED
120 minute summer	PS41	88	96.780	0.555	3.8	0.0883	0.0000	SURCHARGED
120 minute summer	PS42	90	96.780	1.105	21.7	0.3127	0.0000	SURCHARGED
120 minute summer	PS43	90	96.780	1.130	21.5	21.2834	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
30 minute summer	PS64	1.000	PS29	2.3	0.625	0.337	0.0912
30 minute summer	PS29	1.001	PS30	4.6	0.624	0.230	0.2041
30 minute summer	PS30	1.002	PS31	4.6	0.506	0.214	0.0885
30 minute summer	PS68	2.000	PS31	2.3	0.788	0.191	0.0816
120 minute summer	PS31	1.003	PS32	3.3	0.473	0.176	0.1548
120 minute summer	PS32	1.004	PS37	3.2	0.145	0.070	0.2648
30 minute summer	PS33	3.000	PS34	2.4	0.675	0.311	0.0490
120 minute summer	PS34	3.001	PS35	1.1	0.273	0.055	0.1519
120 minute summer	PS35	3.002	PS36	2.3	0.475	0.120	0.1505
120 minute summer	PS36	3.003	PS37	3.6	0.662	0.088	0.0684
120 minute summer	PS37	1.005	PS42	18.2	0.457	0.444	0.8006
120 minute summer	PS38	4.000	PS39	1.3	0.461	0.185	0.0456
120 minute summer	PS39	4.001	PS40	1.0	0.297	0.050	0.1293
120 minute summer	PS40	4.002	PS41	2.3	0.510	0.119	0.1481
120 minute summer	PS41	4.003	PS42	3.6	0.776	0.067	0.0940
120 minute summer	PS42	1.006	PS43	21.5	0.541	0.433	0.1089
120 minute summer	PS43	Infiltration		4.0			

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
4	0.005	1.00	1.000	1	1000.000	1020.000	1.000

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	✓	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	3600	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	6	0

Node 4 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.08676	Invert Level (m)	0.000	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	145	Depth (m)	
Safety Factor	2.0	Width (m)	6.800	Inf Depth (m)	
Porosity	0.30	Length (m)	7.000		

Results for 2 year Critical Storm Duration. Lowest mass balance: 95.31%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	4	11	0.044	0.044	1.4	0.2004	0.0000	OK
Link Event (Upstream Depth)		US Node		Link	Outflow (l/s)			
15 minute summer		4		Infiltration	0.4			

Results for 30 year Critical Storm Duration. Lowest mass balance: 95.31%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	4	21	0.084	0.084	2.5	0.7003	0.0000	OK
Link Event (Upstream Depth)		US Node		Link	Outflow (l/s)			
30 minute summer		4		Infiltration	0.6			

Results for 100 year +40% CC +6% A Critical Storm Duration. Lowest mass balance: 95.31%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	4	24	0.147	0.147	4.7	1.6100	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
30 minute summer	4	Infiltration	0.6					

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
5	0.014	1.00	1.000	1	1020.000	1020.000	1.000

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Additional Storage (m ³ /ha)	0.0
Summer CV	1.000	Skip Steady State	✓	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	3600	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	6	0

Node 5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.08676	Invert Level (m)	0.000	Slope (1:X)	62.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	141	Depth (m)	
Safety Factor	2.0	Width (m)	6.500	Inf Depth (m)	
Porosity	0.30	Length (m)	15.000		

Results for 2 year Critical Storm Duration. Lowest mass balance: 95.38%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	5	72	0.115	0.115	1.2	0.8040	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
120 minute summer	5	Infiltration	0.6

Results for 30 year Critical Storm Duration. Lowest mass balance: 95.38%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	5	41	0.205	0.205	4.6	2.5393	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
60 minute summer	5	Infiltration	1.0					

Results for 100 year +40% CC +6% A Critical Storm Duration. Lowest mass balance: 95.38%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	5	82	0.310	0.310	5.4	5.5386	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
120 minute summer	5	Infiltration	1.2					

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
6	0.015	1.00	1.000	1	1030.000	1020.000	1.000

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Additional Storage (m ³ /ha)	0.0
Summer CV	1.000	Skip Steady State	✓	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	3600	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	6	0

Node 6 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.10980	Invert Level (m)	0.000	Slope (1:X)	66.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	112	Depth (m)	
Safety Factor	2.0	Width (m)	5.800	Inf Depth (m)	
Porosity	0.30	Length (m)	16.000		

Results for 2 year Critical Storm Duration. Lowest mass balance: 95.30%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	6	20	0.116	0.116	2.8	0.7849	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
30 minute summer	6	Infiltration	0.7					

Results for 30 year Critical Storm Duration. Lowest mass balance: 95.30%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	6	40	0.209	0.209	4.9	2.5224	0.0000	OK
Link Event (Upstream Depth)		US Node		Link	Outflow (l/s)			
60 minute summer		6		Infiltration	1.2			

Results for 100 year +40% CC +6% A Critical Storm Duration. Lowest mass balance: 95.30%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	6	44	0.323	0.323	9.4	5.6279	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
60 minute summer	6	Infiltration	1.4					

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
7	0.014	1.00	1.000	1	1040.000	1020.000	1.000

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Additional Storage (m ³ /ha)	0.0
Summer CV	1.000	Skip Steady State	✓	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	3600	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	6	0

Node 7 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.10980	Invert Level (m)	0.000	Slope (1:X)	255.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	115	Depth (m)	
Safety Factor	2.0	Width (m)	6.000	Inf Depth (m)	
Porosity	0.30	Length (m)	12.000		

Results for 2 year Critical Storm Duration. Lowest mass balance: 95.30%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	7	10	0.049	0.049	4.1	0.5460	0.0000	OK
Link Event (Upstream Depth)		US Node		Link	Outflow (l/s)			
15 minute summer		7		Infiltration	1.1			

Results for 30 year Critical Storm Duration. Lowest mass balance: 95.30%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	7	23	0.123	0.123	7.0	2.1426	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
30 minute summer	7	Infiltration	1.1					

Results for 100 year +40% CC +6% A Critical Storm Duration. Lowest mass balance: 95.30%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	7	47	0.259	0.259	8.8	5.0778	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
60 minute summer	7	Infiltration	1.1					

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
8	0.012	1.00	1.000	1	1050.000	1010.000	1.000

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Additional Storage (m ³ /ha)	0.0
Summer CV	1.000	Skip Steady State	✓	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	3600	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	6	0

Node 8 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.10980	Invert Level (m)	0.000	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	115	Depth (m)	
Safety Factor	2.0	Width (m)	6.000	Inf Depth (m)	
Porosity	0.30	Length (m)	11.000		

Results for 2 year Critical Storm Duration. Lowest mass balance: 95.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	8	20	0.035	0.035	2.2	0.5772	0.0000	OK
Link Event (Upstream Depth)		US Node		Link	Outflow (l/s)			
30 minute summer		8		Infiltration	0.7			

Results for 30 year Critical Storm Duration. Lowest mass balance: 95.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	8	22	0.103	0.103	6.0	1.9350	0.0000	OK
Link Event (Upstream Depth)		US Node	Link	Outflow (l/s)				
30 minute summer		8	Infiltration	1.0				

Results for 100 year +40% CC +6% A Critical Storm Duration. Lowest mass balance: 95.36%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	8	46	0.230	0.230	7.5	4.4369	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
60 minute summer	8	Infiltration	1.0					

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
101	0.054	5.00	1.000	1	520100.000	226800.000	1.000

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Additional Storage (m ³ /ha)	0.0
Summer CV	1.000	Skip Steady State	✓	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	3600	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	6	0

Node 101 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.09828	Invert Level (m)	0.000	Slope (1:X)	9999.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	128	Depth (m)	
Safety Factor	2.0	Width (m)	3.500	Inf Depth (m)	
Porosity	0.30	Length (m)	75.000		

Results for 2 year Critical Storm Duration. Lowest mass balance: 98.76%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	101	22	0.040	0.040	8.0	2.7979	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
30 minute summer	101	Infiltration	2.8					

Results for 30 year Critical Storm Duration. Lowest mass balance: 98.76%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	101	44	0.123	0.123	16.0	9.3660	0.0000	OK
Link Event (Upstream Depth)		US Node		Link	Outflow (l/s)			
60 minute summer		101		Infiltration	3.6			

Results for 100 year +40% CC +6% A Critical Storm Duration. Lowest mass balance: 98.76%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	101	58	0.282	0.282	21.9	21.8912	0.0000	OK
Link Event (Upstream Depth)		US Node	Link	Outflow (l/s)				
60 minute winter		101	Infiltration	3.6				

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
102	0.026	5.00	1.000	1	520080.000	226780.000	1.000

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Additional Storage (m ³ /ha)	0.0
Summer CV	1.000	Skip Steady State	✓	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	3600	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	40	0	0

Node 102 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.05544	Invert Level (m)	0.000	Slope (1:X)	60.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	228	Depth (m)	
Safety Factor	2.0	Width (m)	4.000	Inf Depth (m)	
Porosity	0.30	Length (m)	40.000		

Results for 2 year Critical Storm Duration. Lowest mass balance: 98.01%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	102	120	0.270	0.270	1.7	2.6486	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
180 minute summer	102	Infiltration	0.5					

Results for 30 year Critical Storm Duration. Lowest mass balance: 98.01%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute summer	102	128	0.439	0.439	3.9	6.9644	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)					
180 minute summer	102	Infiltration	0.8					

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.01%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	102	102	0.601	0.601	6.2	13.0274	0.0000	OK
Link Event (Upstream Depth)		US Node	Link	Outflow (l/s)				
120 minute winter		102	Infiltration	1.1				

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.60%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PS49	10	94.783	0.033	1.7	0.0053	0.0000	OK
15 minute summer	PS48	11	94.583	0.033	2.6	0.0052	0.0000	OK
15 minute summer	PS44	10	94.733	0.033	2.8	0.0052	0.0000	OK
15 minute summer	PS45	10	94.000	0.050	6.6	0.0080	0.0000	OK
15 minute summer	PS46	10	93.748	0.073	10.2	0.0831	0.0000	OK
240 minute summer	PS47	148	93.701	0.151	3.4	8.2244	0.0000	SURCHARGED
15 minute summer	PS50	1	93.500	0.000	0.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	PS49	1.000	PS48	1.7	0.757	0.230	0.0302	
15 minute summer	PS48	1.001	PS45	2.6	1.189	0.220	0.0319	
15 minute summer	PS44	2.000	PS45	2.7	1.236	0.225	0.0387	
15 minute summer	PS45	1.002	PS46	6.6	1.331	0.213	0.0329	
15 minute summer	PS46	1.003	PS47	10.2	1.505	0.183	0.0898	
240 minute summer	PS47	Hydro-Brake®	PS50	1.5				9.4

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.60%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PS49	10	94.810	0.060	4.7	0.0096	0.0000	OK
15 minute summer	PS48	10	94.608	0.058	7.2	0.0093	0.0000	OK
15 minute summer	PS44	10	94.759	0.059	7.5	0.0093	0.0000	OK
15 minute summer	PS45	10	94.043	0.093	18.0	0.0148	0.0000	OK
180 minute summer	PS46	124	93.864	0.189	9.1	0.2134	0.0000	OK
180 minute summer	PS47	128	93.864	0.314	8.7	17.0417	0.0000	SURCHARGED
15 minute summer	PS50	1	93.500	0.000	1.9	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	PS49	1.000	PS48	4.7	0.964	0.629	0.0647	
15 minute summer	PS48	1.001	PS45	7.1	1.530	0.598	0.0673	
15 minute summer	PS44	2.000	PS45	7.4	1.590	0.607	0.0812	
15 minute summer	PS45	1.002	PS46	17.9	1.679	0.577	0.0706	
180 minute summer	PS46	1.003	PS47	8.7	0.830	0.155	0.4063	
180 minute summer	PS47	Hydro-Brake®	PS50	2.0				22.9



Results for 100 year +40% CC +6% A Critical Storm Duration. Lowest mass balance: 99.60%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	PS49	12	95.006	0.256	8.8	0.0407	0.0000	SURCHARGED
15 minute summer	PS48	12	94.766	0.216	12.0	0.0344	0.0000	SURCHARGED
15 minute summer	PS44	11	95.013	0.313	14.0	0.0497	0.0000	SURCHARGED
180 minute summer	PS45	160	94.197	0.247	10.9	0.0393	0.0000	SURCHARGED
180 minute summer	PS46	160	94.197	0.522	16.7	0.5904	0.0000	SURCHARGED
180 minute summer	PS47	160	94.197	0.647	16.3	35.1442	0.0000	SURCHARGED
15 minute summer	PS50	1	93.500	0.000	2.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	PS49	1.000	PS48	7.5	1.022	1.013	0.1049	
15 minute summer	PS48	1.001	PS45	11.7	1.587	0.986	0.1141	
15 minute summer	PS44	2.000	PS45	12.4	1.669	1.017	0.1364	
180 minute summer	PS45	1.002	PS46	10.9	1.367	0.352	0.1168	
180 minute summer	PS46	1.003	PS47	16.3	0.929	0.292	0.4290	
180 minute summer	PS47	Hydro-Brake®	PS50	2.0				45.4