7.4 Made Ground

Made ground was present in boreholes WS01, WS03-WS05, inspection pits TP01-TP04 and CBR test location CBR01 across the site and comprised gravelly and silty sand containing gravel and cobble sized fragments of concrete, brick, suspected asbestos containing material and macadam. Exploratory holes TP02 and TP04 were terminated within these soils.

7.5 River Terrace Deposits

Underlying the made ground or topsoil in WS04, WS05, BRE01, CBR01 and CBR02 in the east of the site, gravelly sand varying to orangish brown slightly gravelly sandy silty clay were encountered. These deposits are considered to represent the River Terrace Deposits. Exploratory holes CBR01, CBR02 and WS04 were terminated within these soils.

7.6 Holywell Nodular Chalk Formation

Underlying the made ground or River Terrace Deposits in WS01-WS03, WS05, BRE01, TP01 and TP03 across the site, structureless chalk was encountered. These deposits are considered to represent the Holywell Nodular Chalk Formation. The exploratory holes which encountered the chalk were terminated within these soils.

7.7 Groundwater Conditions

Groundwater seepages were not encountered during the investigation.

During post-fieldwork monitoring, the wells were generally dry with the exception of standing water recorded on one occasion in WS01 at a depth of 4.83m bgl.

The groundwater is within the Holywell Nodular Chalk Formation and is considered to be perched water rather than being representative of the groundwater table.

7.8 Visual or Olfactory Contamination Observations

Made ground, including fragments of concrete, brick, suspected asbestos containing material and macadam was present in exploratory holes WS01, WS03-WS05, TP01-TP04 and CBR01 across the site. These soils may be an indicator of the potential presence of contaminants.

7.9 Underground Obstructions

Buried construction was encountered in WS05 in the northeast of the site and comprised concrete at a depth of 1.00m bgl to a depth of 1.10m bgl.

Buildings and structures were present across the northern areas of the site, and as such buried construction is likely to be present in these locations.

9.8 Below Ground Concrete Design

Based on the results of the pH and water-soluble sulphate determinations on soil samples and in accordance with the categorisation system of BRE Special Digest 1, the soils below the site fall within Design Sulphate Class DS-1 with a corresponding ACEC Class of AC-1.

9.9 Soakaway Drainage

Soakaway testing has been undertaken at the site, within the chalk soils at a depth of 2.00m bgl. From on the results of the soakaway tests soil infiltration rates have been calculated using the BRE SOAK program.

The results of the testing are summarised in table 9.1 below.

Table 9.1 Summary of Soakaway Testing

Reference	Ground Conditions	Test Number	Soil Infiltration rates (m/s)
BRE01	Topsoil and granular River Terrace Deposits to 0.60m bgl over chalk deposits to 2.00m bgl.	1	1.74×10^{-04}
		2	1.53×10^{-04}
		3	1.32×10^{-04}

Based on the results of the testing, soakaway drainage is considered feasible in the southeast of the site, where the chalk soils have been encountered. As a guide a design soil infiltration rate of 1.32×10^{-04}m/s should be adopted for this area of the site.

The Local Authority is unlikely to accept soakaways discharging into made ground and discharge should be below the made ground into the natural granular or chalk soils.

Concentrated ingress of water into the chalk can initiate new dissolution features and destabilise the loose backfill of existing ones.

Available records do not suggest the presence of dissolution features below site or in the immediate surroundings. In accordance with CIRIA C574, based on a low density chalk, soakaways should be sited 10m from any foundations.

The type of soakaway adopted and their locations should be discussed with a Building Control approved inspector to obtain their requirements in terms of Building Regulations.

9.10 Reuse of Materials

Detailed assessment of site won materials for potential reuse as an engineered fill is beyond the scope of this report. To fully assess the suitability of soils present on site and to classify them as an earthworks fill, for example in accordance with table 6.2 of the Specification for Highway Works Series 600, more specific geotechnical testing will be required.

APPENDIX D – ANGLIAN WATER ASSET PLAN

(c) Crown copyright and database rights 2021 Ordnance Survey 100022432 | Date: 24/03/21 | Scale: 1:1250 | Map Centre: 547608,246097 | Data updated: 28/02/21 | Our Ref: 527892 - 1 | Wastewater Plan A1

Foul Sewer	Outfall*	Sewage Treatment Works	
Surface Sewer			
Combined Sewer		Public Pumping Station	
Final Effluent	Inlet*		
Rising Main*		Decommissioned Pumping Station	
Private Sewer*	Manhole*		
Decommissioned Sewer*		*(Colour denotes effluent type)	

s.morris@peterdann.com
10-9757

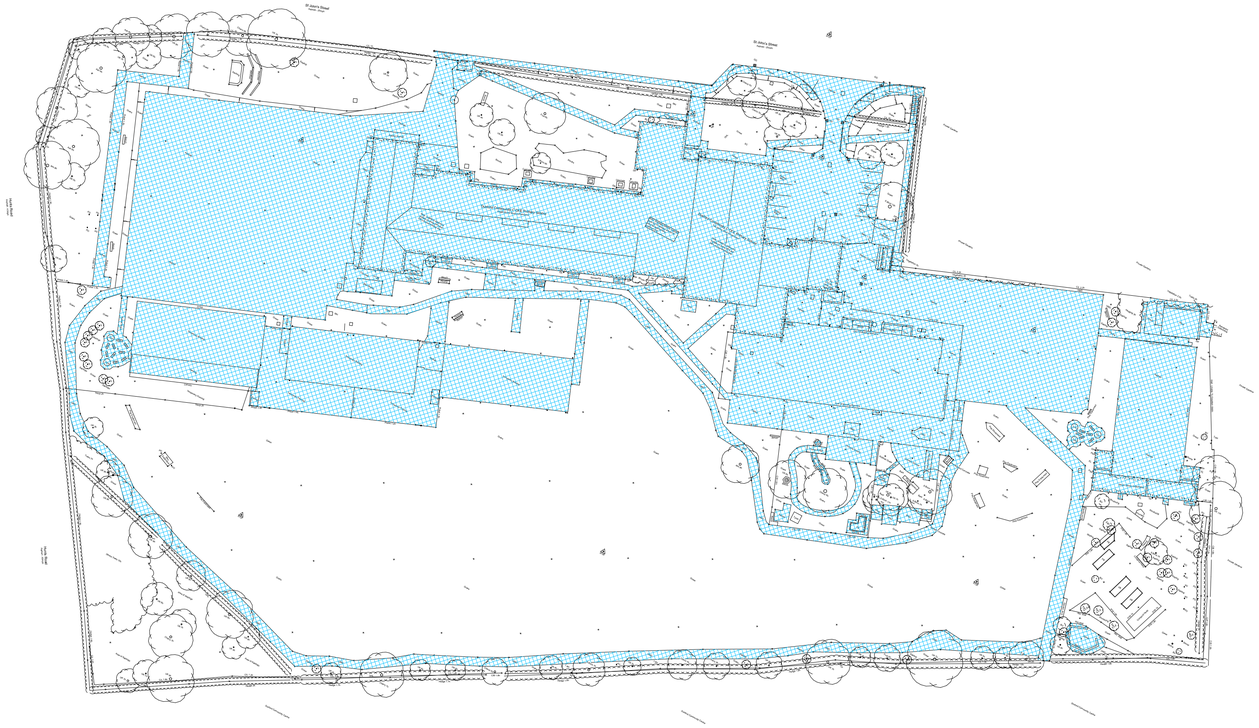
love every drop anglianwater

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert
0001	548008	246008	F	-	-	1.829
0101	548008	246161	F	-	-	2.21
0201	548001	246296	F	-	-	2.185
0202	548008	246267	F	-	-	2.134
0203	548011	246245	F	-	-	2.109
0204	548012	246224	F	-	-	2.006
0205	548076	246240	F	-	-	1.576
0300	548016	246337	F	-	-	-
0301	548008	246370	F	-	-	-
0801	548093	245886	F	28.73	26.99	1.74
0802	548087	245819	F	30.369	28.969	1.4
0803	548078	245822	F	30.459	29.054	1.405
0804	548064	245832	F	30.648	29.348	1.3
0901	548031	245961	F	-	-	-
0902	548065	245928	F	-	-	-
0903	548014	245936	F	-	-	-
1800	548102	245884	F	28.4	27.053	1.347
1805	548103	245820	F	30.247	28.835	1.412
4800	547498	245807	F	-	-	-
5701	547508	245790	F	-	-	-
5702	547507	245793	F	-	-	-
5800	547536	245817	F	-	-	-
5801	547539	245819	F	-	-	-
5802	547546	245824	F	-	-	-
5803	547549	245826	F	-	-	-
5804	547557	245831	F	-	-	-
5805	547559	245833	F	-	-	-
5806	547518	245806	F	-	-	-
5807	547502	245801	F	-	-	-
5808	547514	245808	F	-	-	-
5809	547509	245815	F	-	-	-
5810	547565	245837	F	-	-	-
5811	547559	245847	F	-	-	-
5812	547571	245854	F	-	-	-
6101	547686	246161	F	-	-	1.5
6103	547636	246140	F	-	-	1.396
6104	547605	246128	F	-	-	1.625
6105	547644	246148	F	-	-	-
6106	547633	246175	F	-	-	-
6702	547684	245781	F	-	-	2.033
6801	547667	245802	F	-	-	-
6802	547623	245869	F	35.1	33.7	1.4
6803	547609	245879	F	35.45	34.35	1.1
7101	547751	246193	F	-	-	1.777
7201	547781	246210	F	-	-	-
7300	547775	246368	F	-	-	-
7301	547756	246377	F	-	-	-
7302	547756	246371	F	-	-	-
7303	547779	246399	F	-	-	-
7304	547783	246390	F	-	-	-
7305	547785	246384	F	-	-	-
7306	547788	246378	F	-	-	-
7307	547790	246374	F	-	-	-
7308	547777	246363	F	-	-	-
7309	547779	246356	F	-	-	-
7310	547781	246351	F	-	-	-
7311	547776	246343	F	-	-	-
7312	547770	246340	F	-	-	-
7313	547764	246337	F	-	-	-
7314	547760	246360	F	-	-	-
7315	547759	246358	F	-	-	-
7316	547755	246355	F	-	-	-
7317	547753	246383	F	-	-	-
7400	547762	246409	F	-	-	-
7401	547751	246404	F	-	-	-
7402	547745	246402	F	-	-	-
7403	547767	246410	F	-	-	-
7404	547775	246410	F	-	-	-
7405	547777	246405	F	-	-	-
7701	547787	245789	F	-	-	1.728
7801	547702	245840	F	-	-	1.701
7802	547792	245881	F	-	29.236	-
7803	547786	245897	F	30.897	29.677	1.22
7901	547782	245908	F	31.003	29.823	1.18
7902	547778	245916	F	31.1	29.9	1.2
7903	547767	245931	F	31.333	30.063	1.27
7904	547761	245933	F	31.55	30.22	1.33
7905	547764	245942	F	31.502	30.402	1.1
7906	547759	245928	F	31.502	30.402	1.1
8001	547873	246017	F	-	-	1.615
8101	547843	246186	F	-	-	1.777
8102	547826	246162	F	-	-	1.6
8103	547874	246105	F	-	-	1.615
8104	547857	246147	F	-	-	1.652
8201	547872	246252	F	-	-	1.905
8202	547829	246229	F	-	-	1.804
8301	547897	246339	F	-	-	-
8302	547841	246384	F	-	-	-
8401	547893	246405	F	-	-	-
8700	547840	245799	F	-	-	-
8801	547858	245840	F	-	-	-
8802	547886	245815	F	-	-	-
8803	547843	245832	F	30.46	28.681	1.779
8804	547822	245861	F	30.46	28.681	1.779
8805	547893	245887	F	-	-	-
8806	547891	245886	F	-	-	-
8901	547886	245990	F	-	-	-
9001	547987	246075	F	-	-	2.21
9002	547988	246056	F	-	-	2.109
9003	547927	246058	F	-	-	5
9004	547923	246046	F	-	-	-
9005	547904	246032	F	-	-	1.32
9101	547995	246134	F	-	-	2.158
9102	547987	246114	F	-	-	2.286
9103	547935	246120	F	-	-	1.5
9201	547949	246276	F	-	-	1.905
9202	547925	246270	F	-	-	-
9203	547908	246274	F	-	-	-
9301	547977	246400	F	-	-	2.109
9302	547993	246320	F	-	-	2.262
9303	547901	246390	F	-	-	-
9304	547995	246369	F	-	-	-
9701	547903	245791	F	-	-	-
9702	547915	245776	F	-	-	-
9801	547909	245873	F	-	-	1.652
9802	547953	245802	F	-	-	-
9803	547910	245890	F	-	-	-
9804	547905	245894	F	-	-	-
9901	547967	245911	F	-	-	1.524

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

Manhole Reference	Easting	Northing	Liquid Type	Cover Level	Invert Level	Depth to Invert

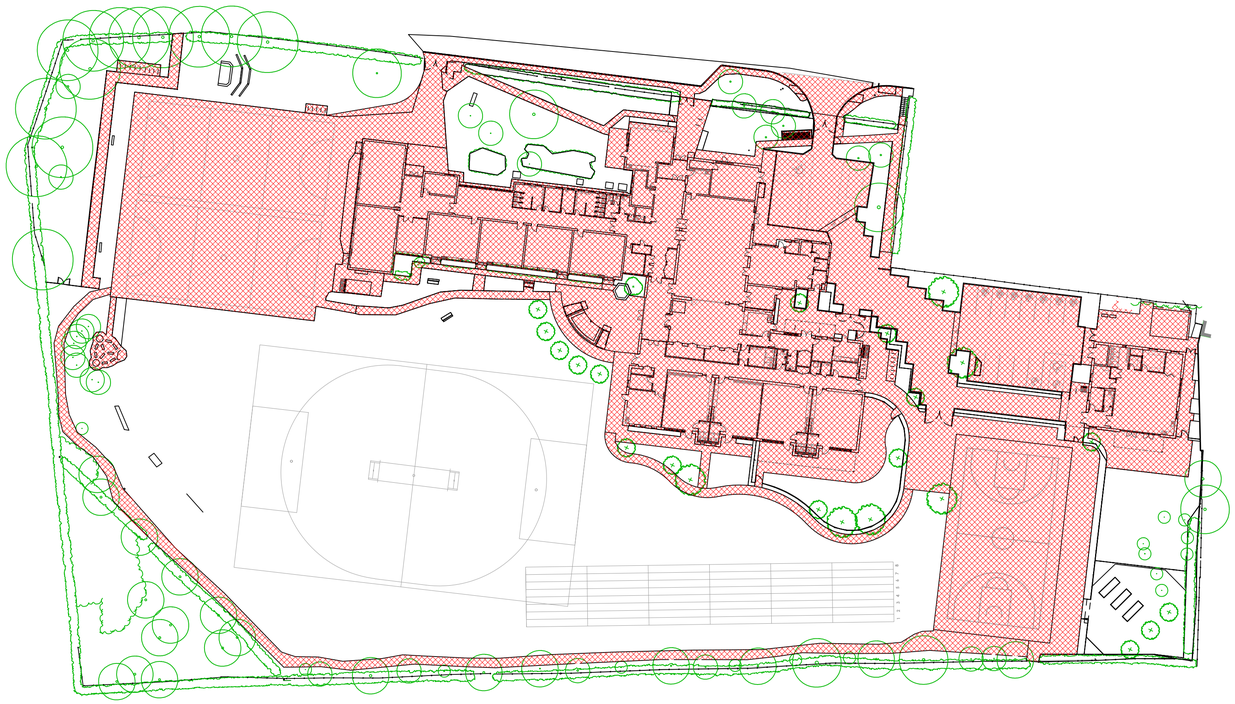
APPENDIX E – IMPERMEABLE AREA PLANS



Existing Impermeable Area: 0.702ha

Existing Impermeable Area Plan

1:500



Proposed Impermeable Area: 0.733ha

Proposed Impermeable Area Plan

1:500

NOTES:

1. This drawing is to be read in conjunction with all Peter Dann Consulting Engineers, Architects, MEP Engineers and Specialists drawings along with all relevant specifications.
2. All gridlines, building lines, etc. are to be set out in accordance with the relevant Architects drawings. Any discrepancies between the information given by the Engineer and that provided by others must be referred to the Architect before work proceeds.
3. Dimensions are NOT to be scaled from this drawing. If in doubt ask. Dimensions marked * are subject to confirmation by site measurement before construction commences.
4. All proprietary fixings shall be installed in accordance with the manufacturer's recommendations.
5. The Contractor shall comply with the health and safety requirements as set out by the CDM Regulations, THE HEALTH AND SAFETY EXECUTIVE.
6. All works are to be undertaken in accordance with the Building Regulations and latest relevant British Standards.
7. All construction products are to be CE marked in accordance with the Construction Products Regulation (EU) No. 305/2011.

REV	DATE	DWN	CHK	DESCRIPTION
P01	18.08.21	SM	JB	Initia Preliminary Issue.

AMENDMENTS

peter dann consulting engineers
peter dann limited | newton house
cambridge road | barton | cambridge | CB23 7WJ
t: 01223 264688 www.peterdann.com info@peterdann.com

JOB TITLE
Duxford Primary School

DRAWING TITLE
Impermeable Area Layouts

DATE	DRAWN	CHECKED	SCALE	
Aug '21	SM	JB	1:500	@A1

DRAWING STATUS	PDL JOB REF.	CLIENT
PRELIMINARY	10-9757	KIER

KIER REF-ORIGINATOR-VOLUME-LEVEL-TYPE-ROLE-NUM	REV.	STATUS CODE
DPS-PDL-XX-ZZ-DE-C-2110	P01	S1

APPENDIX F – DRAINAGE STRATEGY DRAWINGS & HYDRAULIC CALCULATIONS

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	1
FEH Rainfall Version	1999
Site Location	GB 547300 246450 TL 47300 46450
C (1km)	-0.027
D1 (1km)	0.290
D2 (1km)	0.300
D3 (1km)	0.284
E (1km)	0.314
F (1km)	2.477
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.000
Maximum Backdrop Height (m)	0.001
Min Design Depth for Optimisation (m)	0.600
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	1000

Designed with Level Soffits

Network Design Table for Storm

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	9.955	0.060	165.9	0.016	4.00	0.0	0.600	o	225	Pipe/Conduit	
S1.001	4.218	0.025	168.7	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.002	20.179	0.120	168.2	0.016	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.003	16.653	0.100	166.5	0.016	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.004	14.731	0.090	163.7	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S2.000	21.163	0.125	169.3	0.031	4.00	0.0	0.600	o	225	Pipe/Conduit	
S3.000	11.053	0.155	71.3	0.016	4.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	4.16	32.975	0.016	0.0	0.0	0.0	1.01	40.2	2.2
S1.001	50.00	4.23	32.915	0.016	0.0	0.0	0.0	1.00	39.9	2.2
S1.002	50.00	4.57	32.890	0.032	0.0	0.0	0.0	1.01	40.0	4.3
S1.003	50.00	4.84	32.770	0.048	0.0	0.0	0.0	1.01	40.2	6.5
S1.004	50.00	5.08	32.670	0.048	0.0	0.0	0.0	1.02	40.5	6.5
S2.000	50.00	4.35	32.955	0.031	0.0	0.0	0.0	1.00	39.8	4.2
S3.000	50.00	4.12	32.985	0.016	0.0	0.0	0.0	1.55	61.7	2.2

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S2.001	16.114	0.250	64.5	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.005	3.212	0.000	0.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S2.001	50.00	4.52	32.830	0.047	0.0	0.0	0.0	1.63	64.9	6.4
S1.005	50.00	5.66	31.755	0.095	0.0	0.0	0.0	0.09	1.6«	12.9

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
SMH01	33.800	0.825	Open Manhole	1200	S1.000	32.975	225				
SMH02	33.760	0.845	Open Manhole	1200	S1.001	32.915	225	S1.000	32.915	225	
SMH03	33.753	0.863	Open Manhole	1200	S1.002	32.890	225	S1.001	32.890	225	
SMH04	33.731	0.961	Open Manhole	1200	S1.003	32.770	225	S1.002	32.770	225	
SMH05	33.760	1.090	Open Manhole	1200	S1.004	32.670	225	S1.003	32.670	225	
SMH06	33.781	0.826	Open Manhole	1200	S2.000	32.955	225				
SMH08	33.810	0.825	Open Manhole	1200	S3.000	32.985	225				
SMH07	33.775	0.945	Open Manhole	1200	S2.001	32.830	225	S2.000	32.830	225	
								S3.000	32.830	225	
SSoakaway	33.875	2.120	Open Manhole	1200	S1.005	31.755	150	S1.004	32.580	225	900
								S2.001	32.580	225	900
S	33.660	1.905	Open Manhole	0		OUTFALL		S1.005	31.755	150	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SMH01	547630.200	246092.740	547630.200	246092.740	Required	
SMH02	547639.489	246096.318	547639.489	246096.318	Required	
SMH03	547643.303	246094.518	547643.303	246094.518	Required	
SMH04	547650.536	246075.680	547650.536	246075.680	Required	
SMH05	547634.988	246069.714	547634.988	246069.714	Required	
SMH06	547603.214	246082.733	547603.214	246082.733	Required	
SMH08	547621.115	246066.935	547621.115	246066.935	Required	
SMH07	547610.796	246062.975	547610.796	246062.975	Required	
SSoakaway	547626.110	246057.959	547626.110	246057.959	Required	
S	547627.318	246054.982			No Entry	

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	o	225	SMH01	33.800	32.975	0.600	Open Manhole	1200
S1.001	o	225	SMH02	33.760	32.915	0.620	Open Manhole	1200
S1.002	o	225	SMH03	33.753	32.890	0.638	Open Manhole	1200
S1.003	o	225	SMH04	33.731	32.770	0.736	Open Manhole	1200
S1.004	o	225	SMH05	33.760	32.670	0.865	Open Manhole	1200
S2.000	o	225	SMH06	33.781	32.955	0.601	Open Manhole	1200
S3.000	o	225	SMH08	33.810	32.985	0.600	Open Manhole	1200
S2.001	o	225	SMH07	33.775	32.830	0.720	Open Manhole	1200
S1.005	o	150	SSoakaway	33.875	31.755	1.970	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	9.955	165.9	SMH02	33.760	32.915	0.620	Open Manhole	1200
S1.001	4.218	168.7	SMH03	33.753	32.890	0.638	Open Manhole	1200
S1.002	20.179	168.2	SMH04	33.731	32.770	0.736	Open Manhole	1200
S1.003	16.653	166.5	SMH05	33.760	32.670	0.865	Open Manhole	1200
S1.004	14.731	163.7	SSoakaway	33.875	32.580	1.070	Open Manhole	1200
S2.000	21.163	169.3	SMH07	33.775	32.830	0.720	Open Manhole	1200
S3.000	11.053	71.3	SMH07	33.775	32.830	0.720	Open Manhole	1200
S2.001	16.114	64.5	SSoakaway	33.875	32.580	1.070	Open Manhole	1200
S1.005	3.212	0.0	S	33.660	31.755	1.755	Open Manhole	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.005	S	33.660	31.755	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH

Synthetic Rainfall Details

Return Period (years)	1
FEH Rainfall Version	1999
Site Location	GB 547300 246450 TL 47300 46450
C (1km)	-0.027
D1 (1km)	0.290
D2 (1km)	0.300
D3 (1km)	0.284
E (1km)	0.314
F (1km)	2.477
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Storm Duration (mins)	30

Online Controls for Storm

Depth/Flow Relationship Manhole: SSoakaway, DS/PN: S1.005, Volume (m³): 3.5

Invert Level (m) 31.755

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.0000	0.900	0.0000	1.700	0.0000	2.500	0.0000
0.200	0.0000	1.000	0.0000	1.800	0.0000	2.600	0.0000
0.300	0.0000	1.100	0.0000	1.900	0.0000	2.700	0.0000
0.400	0.0000	1.200	0.0000	2.000	0.0000	2.800	0.0000
0.500	0.0000	1.300	0.0000	2.100	0.0000	2.900	0.0000
0.600	0.0000	1.400	0.0000	2.200	0.0000	3.000	0.0000
0.700	0.0000	1.500	0.0000	2.300	0.0000		
0.800	0.0000	1.600	0.0000	2.400	0.0000		

Storage Structures for Storm

Cellular Storage Manhole: SSoakaway, DS/PN: S1.005

Invert Level (m) 31.755 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.47520 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.47520

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	30.0	30.0	1.201	0.0	104.4
1.200	30.0	104.4			

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	1999
Site Location	GB 547300 246450 TL 47300 46450
C (1km)	-0.027
D1 (1km)	0.290
D2 (1km)	0.300
D3 (1km)	0.284
E (1km)	0.314
F (1km)	2.477
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	450.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	SMH01	15 Summer	1	+0%					33.015	-0.185
S1.001	SMH02	15 Summer	1	+0%	100/15 Summer				32.960	-0.180
S1.002	SMH03	15 Winter	1	+0%	100/15 Summer				32.942	-0.173
S1.003	SMH04	15 Winter	1	+0%	100/15 Summer				32.833	-0.162
S1.004	SMH05	15 Winter	1	+0%	100/15 Summer				32.733	-0.162
S2.000	SMH06	15 Winter	1	+0%					33.009	-0.171
S3.000	SMH08	15 Summer	1	+0%					33.016	-0.194
S2.001	SMH07	15 Winter	1	+0%	100/30 Winter				32.883	-0.172
S1.005	SSoakaway	30 Winter	1	+0%	1/15 Winter				31.913	0.008

PN	US/MH Name	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	SMH01	0.000	0.07			2.5	OK	
S1.001	SMH02	0.000	0.09			2.4	OK	
S1.002	SMH03	0.000	0.12			4.4	OK	
S1.003	SMH04	0.000	0.17			6.2	OK	
S1.004	SMH05	0.000	0.17			6.2	OK	
S2.000	SMH06	0.000	0.13			4.7	OK	
S3.000	SMH08	0.000	0.05			2.5	OK	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S2.001	SMH07	0.000	0.12			7.1	OK	
S1.005	SSoakaway	0.000	0.00		22	0.0	SURCHARGED	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	1999
Site Location	GB 547300 246450 TL 47300 46450
C (1km)	-0.027
D1 (1km)	0.290
D2 (1km)	0.300
D3 (1km)	0.284
E (1km)	0.314
F (1km)	2.477
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	450.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	SMH01	15 Winter	30	+0%					33.049	-0.151
S1.001	SMH02	15 Winter	30	+0%	100/15 Summer				33.005	-0.135
S1.002	SMH03	15 Winter	30	+0%	100/15 Summer				32.995	-0.120
S1.003	SMH04	15 Winter	30	+0%	100/15 Summer				32.905	-0.090
S1.004	SMH05	15 Winter	30	+0%	100/15 Summer				32.804	-0.091
S2.000	SMH06	15 Winter	30	+0%					33.058	-0.122
S3.000	SMH08	15 Winter	30	+0%					33.044	-0.166
S2.001	SMH07	15 Summer	30	+0%	100/30 Winter				32.930	-0.125
S1.005	SSoakaway	30 Winter	30	+0%	1/15 Winter				32.373	0.468

PN	US/MH Name	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	SMH01	0.000	0.24			8.1	OK	
S1.001	SMH02	0.000	0.29			8.0	OK	
S1.002	SMH03	0.000	0.44			15.9	OK	
S1.003	SMH04	0.000	0.65			23.3	OK	
S1.004	SMH05	0.000	0.66			23.5	OK	
S2.000	SMH06	0.000	0.43			15.6	OK	
S3.000	SMH08	0.000	0.15			8.1	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S2.001	SMH07	0.000	0.41			23.6	OK	
S1.005	SSoakaway	0.000	0.00		44	0.0	SURCHARGED	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	1999
Site Location	GB 547300 246450 TL 47300 46450
C (1km)	-0.027
D1 (1km)	0.290
D2 (1km)	0.300
D3 (1km)	0.284
E (1km)	0.314
F (1km)	2.477
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	450.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	SMH01	15 Winter	100	+40%					33.196	-0.004
S1.001	SMH02	15 Winter	100	+40%	100/15 Summer				33.177	0.037
S1.002	SMH03	15 Winter	100	+40%	100/15 Summer				33.167	0.052
S1.003	SMH04	30 Winter	100	+40%	100/15 Summer				33.111	0.116
S1.004	SMH05	30 Winter	100	+40%	100/15 Summer				33.105	0.210
S2.000	SMH06	15 Winter	100	+40%					33.125	-0.055
S3.000	SMH08	30 Winter	100	+40%					33.107	-0.103
S2.001	SMH07	30 Winter	100	+40%	100/30 Winter				33.105	0.050
S1.005	SSoakaway	30 Winter	100	+40%	1/15 Winter				33.098	1.193

PN	US/MH Name	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	SMH01	0.000	0.47			15.7	OK	
S1.001	SMH02	0.000	0.54			15.0	SURCHARGED	
S1.002	SMH03	0.000	0.82			29.6	SURCHARGED	
S1.003	SMH04	0.000	0.92			32.9	SURCHARGED	
S1.004	SMH05	0.000	0.92			32.7	SURCHARGED	
S2.000	SMH06	0.000	0.92			33.4	OK	
S3.000	SMH08	0.000	0.21			11.1	OK	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S2.001	SMH07	0.000	0.57			32.5	SURCHARGED	
S1.005	SSoakaway	0.000	0.00		70	0.0	SURCHARGED	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S2.001	SMH07	0.000	0.12			7.1	OK	
S1.005	SSoakaway	0.000	0.00		22	0.0	SURCHARGED	

PIPE DOWNSTREAM OF SOAKAWAY AS MICRODRAINAGE DOES NOT ALLOW TANK TO BE MODELLED ON OUTFALL. SURCHARGE DEPTH IS ONLY 158mm ABOVE TANK IL AND THEREFORE DOESN'T AFFECT PIPES UPSTREAM OF SOAKAWAY.

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	1
FEH Rainfall Version	1999
Site Location	GB 547300 246450 TL 47300 46450
C (1km)	-0.027
D1 (1km)	0.290
D2 (1km)	0.300
D3 (1km)	0.284
E (1km)	0.314
F (1km)	2.477
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.000
Maximum Backdrop Height (m)	0.001
Min Design Depth for Optimisation (m)	0.600
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	1000

Designed with Level Soffits

Network Design Table for Storm

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S4.000	15.264	0.155	98.5	0.009	4.00	0.0	0.600	o	150	Pipe/Conduit	
S4.001	16.987	0.170	99.9	0.009	0.00	0.0	0.600	o	150	Pipe/Conduit	
S4.002	4.926	0.050	98.5	0.005	0.00	0.0	0.600	o	150	Pipe/Conduit	
S5.000	8.861	0.475	18.7	0.005	4.00	0.0	0.600	o	150	Pipe/Conduit	
S4.003	8.691	0.090	96.6	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S4.004	3.000	0.000	0.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S4.000	50.00	4.25	32.645	0.009	0.0	0.0	0.0	1.01	17.9	1.2
S4.001	50.00	4.53	32.490	0.018	0.0	0.0	0.0	1.01	17.8	2.4
S4.002	50.00	4.61	32.320	0.023	0.0	0.0	0.0	1.01	17.9	3.1
S5.000	50.00	4.06	32.745	0.005	0.0	0.0	0.0	2.34	41.4	0.7
S4.003	50.00	4.76	32.270	0.028	0.0	0.0	0.0	1.02	18.1	3.8
S4.004	50.00	5.30	31.355	0.028	0.0	0.0	0.0	0.09	1.6«	3.8

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdr (mm)
SMH10	33.396	0.751	Open Manhole	1200	S4.000	32.645	150				
SMH09	33.510	1.020	Open Manhole	1200	S4.001	32.490	150	S4.000	32.490	150	
SMH13	33.494	1.174	Open Manhole	1200	S4.002	32.320	150	S4.001	32.320	150	
SMH11	33.496	0.751	Open Manhole	1200	S5.000	32.745	150				
SMH12	33.480	1.210	Open Manhole	1200	S4.003	32.270	150	S4.002	32.270	150	
								S5.000	32.270	150	
SPS Soakaway	33.530	2.175	Open Manhole	1200	S4.004	31.355	150	S4.003	32.180	150	8
S	33.660	2.305	Open Manhole	0		OUTFALL		S4.004	31.355	150	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
SMH10	547673.838	246113.976	547673.838	246113.976	Required	
SMH09	547688.097	246119.423	547688.097	246119.423	Required	
SMH13	547694.158	246103.555	547694.158	246103.555	Required	
SMH11	547680.976	246099.590	547680.976	246099.590	Required	
SMH12	547689.557	246101.797	547689.557	246101.797	Required	
SPS Soakaway	547692.663	246093.679	547692.663	246093.679	Required	
S	547693.734	246090.877			No Entry	

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S4.000	o	150	SMH10	33.396	32.645	0.601	Open Manhole	1200
S4.001	o	150	SMH09	33.510	32.490	0.870	Open Manhole	1200
S4.002	o	150	SMH13	33.494	32.320	1.024	Open Manhole	1200
S5.000	o	150	SMH11	33.496	32.745	0.601	Open Manhole	1200
S4.003	o	150	SMH12	33.480	32.270	1.060	Open Manhole	1200
S4.004	o	150	SPS Soakaway	33.530	31.355	2.025	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S4.000	15.264	98.5	SMH09	33.510	32.490	0.870	Open Manhole	1200
S4.001	16.987	99.9	SMH13	33.494	32.320	1.024	Open Manhole	1200
S4.002	4.926	98.5	SMH12	33.480	32.270	1.060	Open Manhole	1200
S5.000	8.861	18.7	SMH12	33.480	32.270	1.060	Open Manhole	1200
S4.003	8.691	96.6	SPS Soakaway	33.530	32.180	1.200	Open Manhole	1200
S4.004	3.000	0.0	S	33.660	31.355	2.155	Open Manhole	0

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S4.004	S	33.660	31.355	0.000	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	1
FEH Rainfall Version	1999
Site Location	GB 547300 246450 TL 47300 46450
C (1km)	-0.027
D1 (1km)	0.290
D2 (1km)	0.300
D3 (1km)	0.284
E (1km)	0.314
F (1km)	2.477
Summer Storms	Yes

Synthetic Rainfall Details

Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Storm Duration (mins)	30

Online Controls for Storm

Depth/Flow Relationship Manhole: SPS Soakaway, DS/PN: S4.004, Volume (m³): 2.6

Invert Level (m) 31.355

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	0.0000	0.900	0.0000	1.700	0.0000	2.500	0.0000
0.200	0.0000	1.000	0.0000	1.800	0.0000	2.600	0.0000
0.300	0.0000	1.100	0.0000	1.900	0.0000	2.700	0.0000
0.400	0.0000	1.200	0.0000	2.000	0.0000	2.800	0.0000
0.500	0.0000	1.300	0.0000	2.100	0.0000	2.900	0.0000
0.600	0.0000	1.400	0.0000	2.200	0.0000	3.000	0.0000
0.700	0.0000	1.500	0.0000	2.300	0.0000		
0.800	0.0000	1.600	0.0000	2.400	0.0000		

Storage Structures for Storm

Cellular Storage Manhole: SPS Soakaway, DS/PN: S4.004

Invert Level (m) 31.355 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.47520 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.47520

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	9.0	9.0	1.201	0.0	33.0
1.200	9.0	33.0			

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	1999
Site Location	GB 547300 246450 TL 47300 46450
C (1km)	-0.027
D1 (1km)	0.290
D2 (1km)	0.300
D3 (1km)	0.284
E (1km)	0.314
F (1km)	2.477
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	450.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S4.000	SMH10	15 Winter	1	+0%	100/15 Summer				32.674
S4.001	SMH09	15 Winter	1	+0%	100/15 Summer				32.528
S4.002	SMH13	15 Winter	1	+0%	100/15 Summer				32.367
S5.000	SMH11	15 Summer	1	+0%					32.760
S4.003	SMH12	15 Winter	1	+0%	100/15 Summer				32.319
S4.004	SPS Soakaway	30 Winter	1	+0%	30/15 Summer				31.498

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S4.000	SMH10	-0.121	0.000	0.08			1.4	OK	
S4.001	SMH09	-0.112	0.000	0.15			2.4	OK	
S4.002	SMH13	-0.103	0.000	0.22			3.1	OK	
S5.000	SMH11	-0.135	0.000	0.02			0.8	OK	
S4.003	SMH12	-0.101	0.000	0.24			3.8	OK	
S4.004	SPS Soakaway	-0.007	0.000	0.00		22	0.0	OK	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	1999
Site Location	GB 547300 246450 TL 47300 46450
C (1km)	-0.027
D1 (1km)	0.290
D2 (1km)	0.300
D3 (1km)	0.284
E (1km)	0.314
F (1km)	2.477
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	450.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S4.000	SMH10	15 Winter	30	+0%	100/15 Summer				32.698
S4.001	SMH09	15 Winter	30	+0%	100/15 Summer				32.569
S4.002	SMH13	15 Winter	30	+0%	100/15 Summer				32.424
S5.000	SMH11	15 Summer	30	+0%					32.771
S4.003	SMH12	15 Winter	30	+0%	100/15 Summer				32.380
S4.004	SPS Soakaway	30 Winter	30	+0%	30/15 Summer				31.913

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S4.000	SMH10	-0.097	0.000	0.27			4.5	OK	
S4.001	SMH09	-0.071	0.000	0.54			9.0	OK	
S4.002	SMH13	-0.046	0.000	0.81			11.4	OK	
S5.000	SMH11	-0.124	0.000	0.07			2.5	OK	
S4.003	SMH12	-0.040	0.000	0.87			13.8	OK	
S4.004	SPS Soakaway	0.408	0.000	0.00		43	0.0	SURCHARGED	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coeffiecient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
Number of Online Controls 1 Number of Storage Structures 1 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	1999
Site Location	GB 547300 246450 TL 47300 46450
C (1km)	-0.027
D1 (1km)	0.290
D2 (1km)	0.300
D3 (1km)	0.284
E (1km)	0.314
F (1km)	2.477
Cv (Summer)	0.750
Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	450.0
Analysis Timestep	2.5 Second Increment (Extended)
DTS Status	ON
DVD Status	OFF
Inertia Status	OFF

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S4.000	SMH10	15 Winter	100	+40%	100/15 Summer				32.852
S4.001	SMH09	15 Winter	100	+40%	100/15 Summer				32.815
S4.002	SMH13	15 Winter	100	+40%	100/15 Summer				32.654
S5.000	SMH11	15 Winter	100	+40%					32.783
S4.003	SMH12	15 Winter	100	+40%	100/15 Summer				32.546
S4.004	SPS Soakaway	30 Winter	100	+40%	30/15 Summer				32.523

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S4.000	SMH10	0.057	0.000	0.53			8.8	SURCHARGED	
S4.001	SMH09	0.175	0.000	0.96			15.9	SURCHARGED	
S4.002	SMH13	0.184	0.000	1.44			20.2	SURCHARGED	
S5.000	SMH11	-0.112	0.000	0.15			5.4	OK	
S4.003	SMH12	0.126	0.000	1.56			24.7	SURCHARGED	
S4.004	SPS Soakaway	1.018	0.000	0.00		66	0.0	SURCHARGED	

Drainage Legend

- Proposed primary surface water drainage network.
- Proposed primary foul water drainage network.
- Existing surface water drainage network.
- Existing foul water drainage network.
- FO — Proposed Foul Outlet with 100mm Ø outlet pipe at minimum 1:40 gradient.
- YG — Proposed Yard Gully with 100mm Ø outlet pipe at minimum 1:40 gradient.
- RG — Road gully with 150mm Ø outlet pipe.
- EG — Existing road gully to existing soakaway.
- Proposed drainage channel.
- Proposed soakaway. Refer to plan for details.
- Proposed permeable surfacing to drain via infiltration.

NOTE

RWP locations on main building TBC upon receipt of Architect's details.

NOTES:

1. This drawing is to be read in conjunction with all Peter Dann Consulting Engineers, Architects, MEP Engineers and Specialists drawings along with all relevant specifications.
2. All gridlines, building lines, etc. are to be set out in accordance with the relevant Architects drawings. Any discrepancies between the information given by the Engineer and that provided by others must be referred to the Architect before work proceeds.
3. Dimensions are NOT to be scaled from this drawing. If in doubt ask. Dimensions marked * are subject to confirmation by site measurement before construction commences.
4. All proprietary fixings shall be installed in accordance with the manufacturer's recommendations.
5. The Contractor shall comply with the health and safety requirements as set out by the CDM Regulations, THE HEALTH AND SAFETY EXECUTIVE.
6. All works are to be undertaken in accordance with the Building Regulations and latest relevant British Standards.
7. All construction products are to be CE marked in accordance with the Construction Products Regulation (EU) No. 305/2011.

CDM 2015

CONSTRUCTION - It is considered that the proposed works are within the scope of a competent contractor and as such no unusual hazards have been identified, with the exception of the following:-

- New extension constructed on footprint of existing fire damaged building. Survey of the existing foundations and below ground services is to be completed prior to proposed construction works starting.
- Contamination including suspected asbestos containing material identified in existing ground. Asbestos survey to be completed prior to commencement of groundworks. Health and safety requirements to be followed during groundworks.

LIFETIME/USAGE - The building has no exceptional structural features that present a hazard to potential users, with the exception of the following:-

- Any additional proposed trees / planting in the vicinity of foundations should not be planted without the approval of the Structural Engineer (medium volume change potential).

DECOMMISSIONING/DEMOLITION - There are no unusual structural aspects to this building that require highlighting in the event that the building is demolished.

RECORD INFORMATION - The record drawings / operating manual for the building should be thoroughly studied and its implications assessed by the demolition contractor.

Soakaway 3

4.0m x 1.0m x 1.2m Dp Polypipe Polystorm ref: PSM1 40 tonne units.
Soakaway to be installed in accordance with manufacturers details.

Ground Level: 33.820
Top of Tank: 33.175
Tank Invert Level: 31.975
Incoming Pipe Invert Level: 32.800

*Location to be a minimum of 10m from existing building.

Soakaway Catchment Area = 0.014ha.
Design for 1 in 100 year return period and 40% Climate Change.

NOTE

New road gullies draining to soakaway to be provided at entrance to improve existing drainage.

NOTE

Proposed FW Network to form gravity connection to existing network at MH4.

NOTE

Hardstanding to be leveled to utilise existing gullies.

NOTE

Proposed carpark to fall to channel drain and outfall into filter trenches within permeable surfacing.

NOTE

Proposed SW network for roof area of pre-school to drain via gravity to new soakaway.

NOTE

Proposed SW network for roof area of main building to drain via gravity to new soakaway.

Soakaway 1

30.0m x 1.0m x 1.2m Dp Polypipe Polystorm ref: PSM1 40 tonne units.
Soakaway to be installed in accordance with manufacturers details.

Ground Level: 33.860
Top of Tank: 33.260
Tank Invert Level: 32.060
Incoming Pipe Invert Level: 32.485

*Location to be a minimum of 10m from existing building.

Soakaway Catchment Area = 0.093ha.
Design for 1 in 100 year return period and 40% Climate Change.

Soakaway 2

9.0m x 1.0m x 1.2m Dp Polypipe Polystorm ref: PSM1 40 tonne units.
Soakaway to be installed in accordance with manufacturers details.

Ground Level: 33.560
Top of Tank: 32.960
Tank Invert Level: 31.760
Incoming Pipe Invert Level: 32.185

*Location to be a minimum of 10m from existing building.

Soakaway Catchment Area = 0.026ha.
Design for 1 in 100 year return period and 40% Climate Change.

REV	DATE	DRWN	CHK	DESCRIPTION
P07	17.01.22	MD	JB	Soakaway tank invert levels revised to suit LLFA response.
P06	29.09.21	SM	JB	Updated to suit latest pre-school layout. FO added in main building. RWPs and associated note added. Legend amended. Bin store gully relocated.
P05	24.08.21	SM	JB	Updated to suit latest landscape layout.
P04	26.07.21	SM	JB	CCM notes updated.
P03	15.07.21	SM	JB	CCM notes added.
P02	12.07.21	SM	JB	Updated to suit latest landscape layout. Yard gully added to bin store. Pipe sizes updated.
P01	30.06.21	SM	JB	Initial preliminary issue.

AMENDMENTS

peter dann consulting engineers
peter dann limited | newton house
cambridge road | barton | cambridge | CB23 7WJ
t: 01223 264688 www.peterdann.com info@peterdann.com

JOB TITLE
Duxford Primary School

DRAWING TITLE
Proposed Drainage Strategy

DATE	DRAWN	CHECKED	SCALE	
Jun '21	SM	JB	1:200	@A0

DRAWING STATUS	POL JOB REF.	CLIENT
PRELIMINARY	10-9757	KIER

KIER REF-ORIGINATOR-VOLUME-LEVEL-TYPE-ROLE-NUM	REV.	STATUS CODE
DPS-PDL-XX-ZZ-DR-C-2100	P07	S1

Drainage Legend

- Proposed primary surface water drainage network.
- Proposed primary foul water drainage network.
- Existing surface water drainage network.
- Existing foul water drainage network.
- XXXØ SW PERF — Proposed surface water perforated pipe.
- RWP — Proposed rain water pipe with 100mm Ø outlet pipe at minimum 1:100 gradient U.N.O.
- RG — Road gully with Heelguard grating and 150mm Ø outlet pipe.
- YG — Yard gully with Heelguard grating and 150mm Ø outlet pipe.
- M100D XXXX — Proposed drainage channel with universal sump unit and D400 Heelguard grating or similar. See layout for reference.
- FO — Proposed Foul Outlet with 100mm Ø outlet pipe at minimum 1:40 gradient.
- YG — Proposed Yard Gully with Heelguard grating and 100mm Ø outlet pipe at minimum 1:40 gradient.
- EG — Existing road gully to be re-used. Gullies to be emptied and jetted.
- Proposed soakaway. Refer to plan for details.
- Proposed permeable surfacing to drain via infiltration.

NOTE

Existing road gully to be re-used. Gullies to be emptied and jetted. Location and condition of existing soakaways to be confirmed.

NOTE

Proposed FW Network to form gravity connection to existing network at MH2.

NOTE

Existing road gully to be re-used. Gullies to be emptied and jetted. CCTV survey to be carried out in order for location and condition of existing soakaways to be confirmed.

NOTE

Proposed SW network for roof area of pre-school to drain via gravity to new soakaway.

NOTE

Proposed SW network for roof area of main building to drain via gravity to new soakaway.

NOTE

100Ø 'Mushroom' vent in accordance with Soakaway crate manufacturers details.

NOTE

New road gullies draining to soakaway to be provided at entrance to improve existing drainage.

Soakaway 1

2 No. 17.5m x 1.0m x 1.2m Dp Polypipe Polystorm ref: PSM1 40 tonne units. Soakaway to be installed in accordance with manufacturers details.

Ground Level: 33.860
Top of Tank: 33.260
Tank Invert Level: 32.060
Incoming Pipe Invert Level: 32.485

*Location to be a minimum of 10m from existing building.

Soakaway Catchment Area = 0.108ha.
Design for 1 in 100 year return period and 40% Climate Change.

Soakaway 2

9.0m x 1.0m x 1.2m Dp Polypipe Polystorm ref: PSM1 40 tonne units. Soakaway to be installed in accordance with manufacturers details.

Ground Level: 33.560
Top of Tank: 32.960
Tank Invert Level: 31.760
Incoming Pipe Invert Level: 32.185

*Location to be a minimum of 10m from existing building.

Soakaway Catchment Area = 0.026ha.
Design for 1 in 100 year return period and 40% Climate Change.

Soakaway 3

4.0m x 1.0m x 1.2m Dp Polypipe Polystorm ref: PSM1 40 tonne units. Soakaway to be installed in accordance with manufacturers details.

Ground Level: 33.820
Top of Tank: 33.175
Tank Invert Level: 31.975
Incoming Pipe Invert Level: 32.800

*Location to be a minimum of 10m from existing building.

Soakaway Catchment Area = 0.014ha.
Design for 1 in 100 year return period and 40% Climate Change.

NOTES:

1. This drawing is to be read in conjunction with all Peter Dann Consulting Engineers, Architects, MEP Engineers and Specialists drawings along with all relevant specifications.
2. All gridlines, building lines, etc. are to be set out in accordance with the relevant Architects drawings. Any discrepancies between the information given by the Engineer and that provided by others must be referred to the Architect before work proceeds.
3. Dimensions are NOT to be scaled from this drawing. If in doubt ask. Dimensions marked * are subject to confirmation by site measurement before construction commences.
4. All proprietary fixings shall be installed in accordance with the manufacturer's recommendations.
5. The Contractor shall comply with the health and safety requirements as set out by the CDM Regulations, THE HEALTH AND SAFETY EXECUTIVE.
6. All works are to be undertaken in accordance with the Building Regulations and latest relevant British Standards.
7. All construction products are to be CE marked in accordance with the Construction Products Regulation (EU) No. 305/2011.

CDM 2015

CONSTRUCTION - It is considered that the proposed works are within the scope of a competent contractor and as such no unusual hazards have been identified, with the exception of the following:-

- New extension constructed on footprint of existing fire damaged building. Survey of the existing foundations and below ground services is to be completed prior to proposed construction works starting.
- Contamination including suspected asbestos containing material identified in existing ground. Asbestos survey to be completed prior to commencement of groundworks. Health and safety requirements to be followed during groundworks.

LIFETIME/USAGE - The building has no exceptional structural features that present a hazard to potential users, with the exception of the following:-

- Any additional proposed trees / planting in the vicinity of foundations should not be planted without the approval of the Structural Engineer (medium volume change potential).

DECOMMISSIONING/DEMOLITION - There are no unusual structural aspects to this building that require highlighting in the event that the building is demolished.

RECORD INFORMATION - The record drawings / operating manual for the building should be thoroughly studied and its implications assessed by the demolition contractor.

REV	DATE	DWN	CHK	DESCRIPTION
P04	13.01.22	SM	JB	Soakaway levels updated.
P03	06.01.22	SM	JB	Updated to suit comments.
P02	14.12.21	SM	JB	Updated to suit comments and latest landscape information.
P01	13.12.21	SM	JB	Issue 1 status.

AMENDMENTS

peter dann consulting engineers
peter dann limited | newton house
cambridge road | barton | cambridge | CB23 7WJ
t: 01223 264688 www.peterdann.com info@peterdann.com

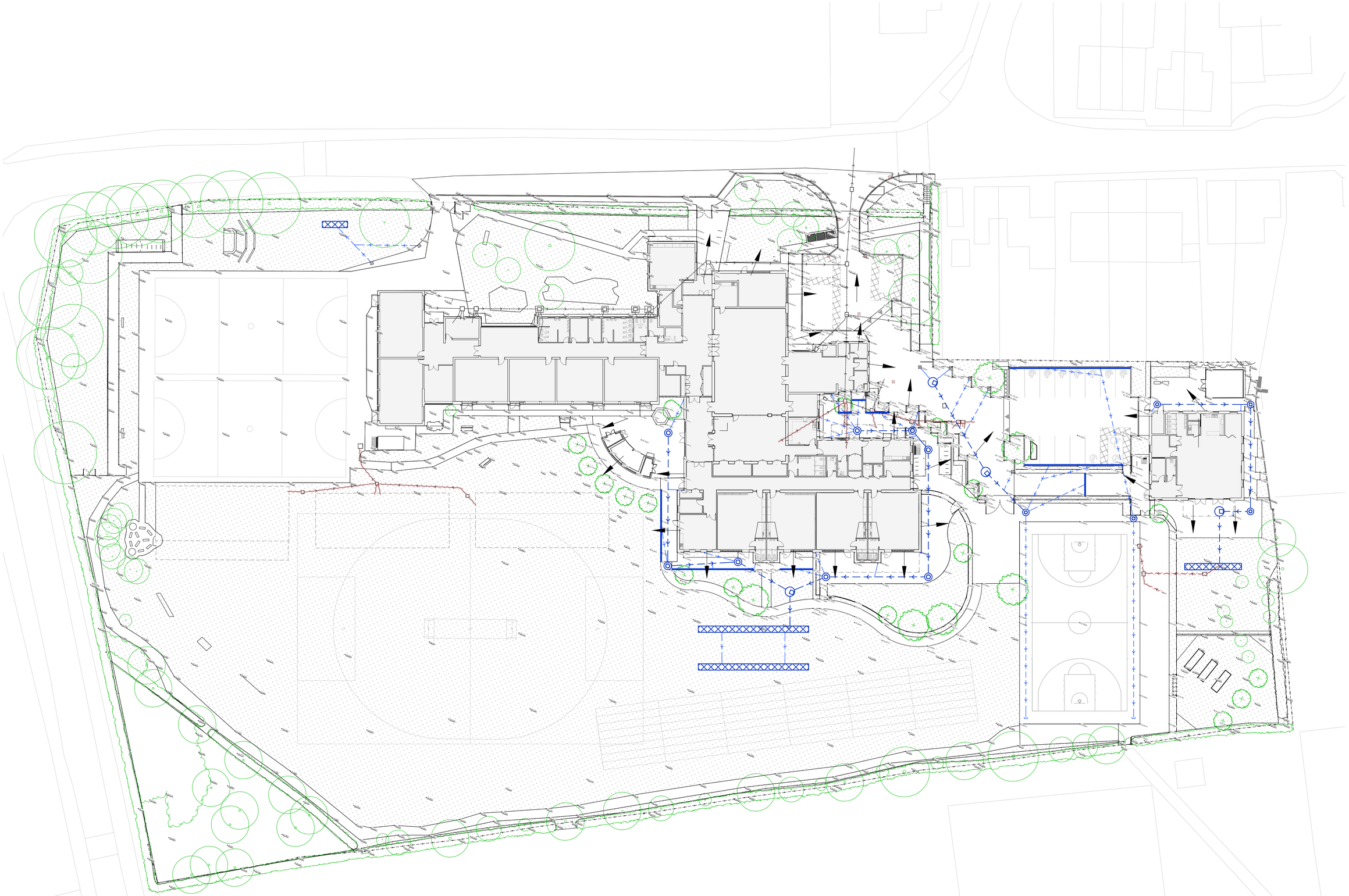
JOB TITLE
Duxford Primary School

DRAWING TITLE
Proposed Drainage Layout

DATE	DRAWN	CHECKED	SCALE
Dec '21	SM	JB	1:125 @A0

DRAWING STATUS	PDL JOB REF	CLIENT
PRELIMINARY	10-9757	KIER

KIER REF- ORIGINATOR-VOLUME-LEVEL-TYPE-ROLE-NUM	REV	STATUS CODE
DPS-PDL-XX-ZZ-DR-C-2000	P04	S1



NOTES:

1. This drawing is to be read in conjunction with all Peter Dann Consulting Engineers, Architects, MEP Engineers and Specialists drawings along with all relevant specifications.
2. All gridlines, building lines, etc. are to be set out in accordance with the relevant Architects drawings. Any discrepancies between the information given by the Engineer and that provided by others must be referred to the Architect before work proceeds.
3. Dimensions are NOT to be scaled from this drawing. If in doubt ask. Dimensions marked * are subject to confirmation by site measurement before construction commences.
4. All proprietary fixings shall be installed in accordance with the manufacturer's recommendations.
5. The Contractor shall comply with the health and safety requirements as set out by the CDM Regulations, THE HEALTH AND SAFETY EXECUTIVE.
6. All works are to be undertaken in accordance with the Building Regulations and latest relevant British Standards.
7. All construction products are to be CE marked in accordance with the Construction Products Regulation (EU) No. 305/2011.

CDM 2015

CONSTRUCTION - It is considered that the proposed works are within the scope of a competent contractor and as such no unusual hazards have been identified, with the exception of the following:-

- New extension constructed on footprint of existing fire damaged building. Survey of the existing foundations and below ground services is to be completed prior to proposed construction works starting.
- Contamination including suspected asbestos containing material identified in existing ground. Asbestos survey to be completed prior to commencement of groundworks. Health and safety requirements to be followed during groundworks.

LIFETIME/USAGE - The building has no exceptional structural features that present a hazard to potential users, with the exception of the following:-

- Any additional proposed trees / planting in the vicinity of foundations should not be planted without the approval of the Structural Engineer (medium volume change potential).

DECOMMISSIONING/DEMOLITION - There are no unusual structural aspects to this building that require highlighting in the event that the building is demolished.

RECORD INFORMATION - The record drawings / operating manual for the building should be thoroughly studied and its implications assessed by the demolition contractor.

REV	DATE	DRN	CHK	DESCRIPTION
P01	18.02.22	SM	JB	Initial preliminary issue

AMENDMENTS

peter dann consulting engineers
peter dann limited | newton house
cambridge road | barton | cambridge | CB23 7WJ
t: 01223 264688 www.peterdann.com info@peterdann.com

JOB TITLE
Duxford Primary School

DRAWING TITLE
Proposed Drainage Layout
Exceedance Flows

DATE	DRAWN	CHECKED	SCALE
Feb '22	SM	JB	1:200 @A0

DRAWING STATUS	PDL JOB REF	CLIENT
PRELIMINARY	10-9757	KIER

KIER REF-ORIGINATOR-VOLUME-LEVEL-TYPE-ROLE-NUM	REV	STATUS CODE
DPS-PDL-XX-ZZ-DR-C-2020	P01	S1

NEW SURFACE WATER MANHOLE SCHEDULE
Note: Levels to be confirmed. Levels to Ordanance Survey Datum.

MANHOLE REF	COVER LEVEL (m) approx	INVERT LEVEL (m)	MANHOLE TYPE	COVER & FRAME	NOTES	BACKDROP/ CATCHPIT
SWMH 1	33.791	32.975	600 dia Type D (B.19a)	Class B125	-	-
SWMH 2	33.750	32.915	600 dia Type D (B.19a)	Class B125	-	-
SWMH 3	33.740	32.890	600 dia Type D (B.19a)	Class B125	-	-
SWMH 4	33.728	32.770	600 dia Type D (B.19a)	Class B125	-	-
SWMH 5	33.746	32.670	600 dia Type D (B.19a)	Class B125	-	-
SWMH 6	33.771	32.955	600 dia Type D (B.19a)	Class B125	-	-
SWMH 7	33.762	32.830	600 dia Type D (B.19a)	Class B125	-	-
SWMH 8	33.785	32.763	600 dia Type D (B.19a)	Class B125	-	-
SWMH 9	33.145	32.490	450 dia Type D (B.19a)	Class B125	-	-
SWMH 10	33.395	32.645	450 dia Type D (B.19a)	Class B125	-	-
SWMH 11	33.470	32.270	1,200 dia Type B (B.10)	Class B125	-	Catchpit
SWMH 12	33.503	32.320	450 dia Type D (B.19a)	Class B125	-	-
SWMH 13	33.432	32.542	450 dia Type D (B.19a)	Class B125	-	-
SWMH 14	33.477	32.649	450 dia Type D (B.19a)	Class B125	-	-
SWMH 17	33.551	32.733	1,200 dia Type B (B.10)	Class D400	-	-
SWMH 18	33.564	32.694	1,200 dia Type B (B.10)	Class D400	-	-
SWMH 20	33.586	32.766	1,200 dia Type B (B.10)	Class D400	-	-
SWMH 22	33.810	32.632	1,200 dia Type B (B.10)	Class B125	-	Catchpit

NEW FOUL WATER MANHOLE SCHEDULE
Note: Levels to be confirmed. Levels to Ordanance Survey Datum.

MANHOLE REF	COVER LEVEL (m) approx	INVERT LEVEL (m)	MANHOLE TYPE	COVER & FRAME	NOTES	BACKDROP/ CATCHPIT
FWMH 1	33.474	32.566	450 dia Type D (B.19a)	Class B125	-	-
FWMH 2	33.450	32.795	450 dia Type D (B.19a)	Class B125	-	-
FWMH 3	33.727	32.323	450 dia Type D (B.19a)	Class B125	-	-
FWMH 4	33.716	32.312	450 dia Type D (B.19a)	Class B125	-	-
FWMH 5	33.752	32.268	450 dia Type D (B.19a)	Class B125	-	Backdrop
FWMH 6	33.552	32.223	1,200 dia Type B (B.10)	Class D400	-	-
FWMH 7	33.776	33.176	450 dia Type D (B.19b)	Class B125	-	-
FWMH 8	33.783	33.103	450 dia Type D (B.19b)	Class B125	-	-
FWMH 9	33.708	32.912	450 dia Type D (B.19b)	Class B125	-	-
FWMH 10	33.679	32.842	450 dia Type D (B.19b)	Class B125	-	-
FWMH 11	33.708	32.958	450 dia Type D (B.19a)	Class B125	-	-
FWMH 12	33.754	32.938	450 dia Type D (B.19a)	Class B125	-	-
FWMH 13	33.747	32.348	450 dia Type D (B.19a)	Class B125	-	Backdrop

REV	DATE	DWN	CHK	DESCRIPTION
P02	14.12.21	SM	JB	Updated to suit comments.
P01	07.12.21	SM	JB	Initial preliminary issue.

AMENDMENTS

NOTES.

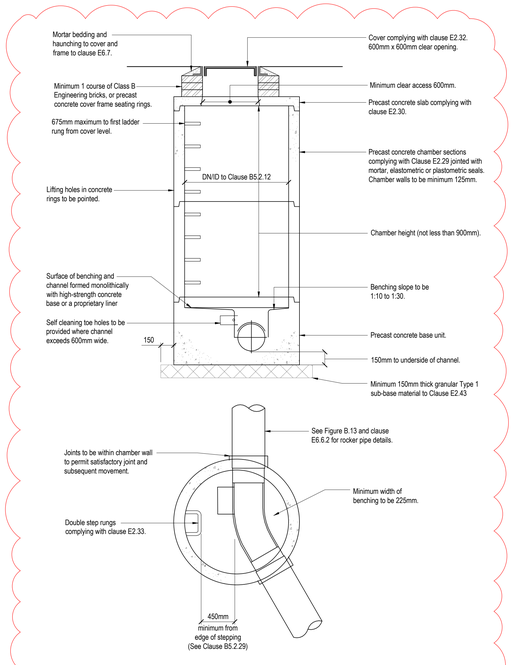
1. This drawing is to be read in conjunction with all Peter Dann Consulting Engineers, Architects, MEP Engineers and Specialists drawings along with all relevant specifications.
2. All gridlines, building lines, etc. are to be set out in accordance with the relevant Architects drawings. Any discrepancies between the information given by the Engineer and that provided by others must be referred to the Architect before work proceeds.
3. Dimensions are NOT to be scaled from this drawing. If in doubt ask. Dimensions marked * are subject to confirmation by site measurement before construction commences.
4. All proprietary fixings shall be installed in accordance with the manufacturer's recommendations.
5. The Contractor shall comply with the health and safety requirements as set out by the CDM Regulations, THE HEALTH AND SAFETY EXECUTIVE.
6. All works are to be undertaken in accordance with the Building Regulations and latest relevant British Standards.
7. All construction products are to be CE marked in accordance with the Construction Products Regulation (EU) No. 305/2011.

peter dann consulting engineers
peter dann limited | newton house
cambridge road | barton | cambridge | CB23 7WJ
t: 01223 264688 www.peterdann.com info@peterdann.com

Duxford Primary School
Proposed Drainage Layout
Manhole Schedules

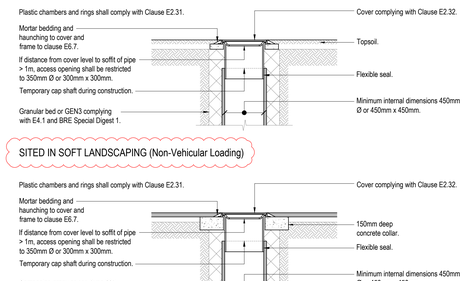
DRAWN SM CHECKED JB
DATE Dec '21
SCALE NTS @A3

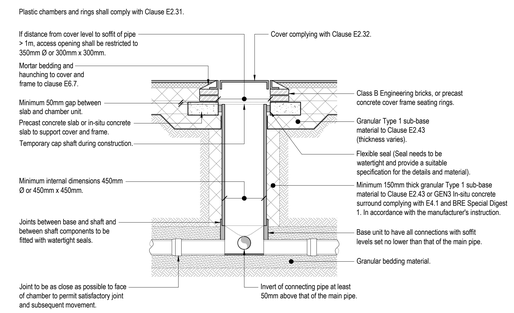
DRAWING STATUS PRELIMINARY
STATUS CODE S1
KIER REF-ORIGINATOR-VOLUME-LEVEL-TYPE-ROLE-NUM
DPS-PDL-XX-XX-DR-C-2050
REV P02



Typical Manhole Detail - Type B (1:25)

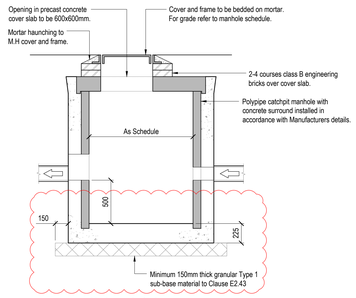
(Depth from cover level to soffit of pipe 1.5m to 3.0m).





Typical Inspection Chamber Detail - Type D (1:25)

(Depth from cover level to soffit of pipe up to 2m).

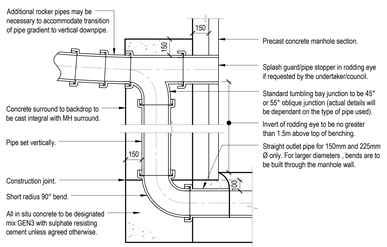


Typical Catchpit Detail (1:25)

Non-adopted

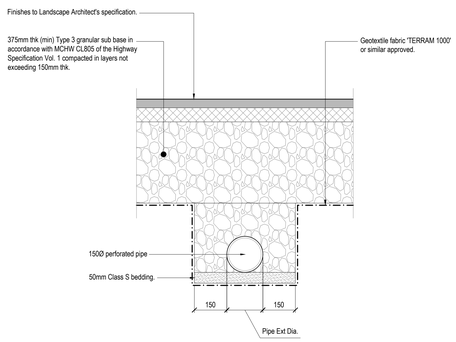
(Max depth from cover level to soffit of pipe of 3.0m)

All manhole construction shall comply with Sewers for Adoption 7th Edition or as currently revised

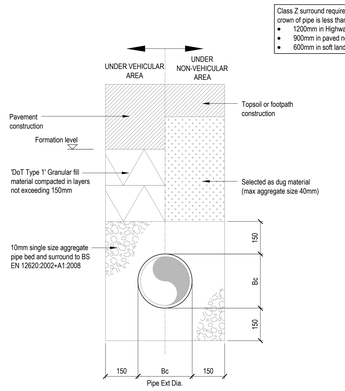


Typical External Vertical Backdrop Detail (1:20)

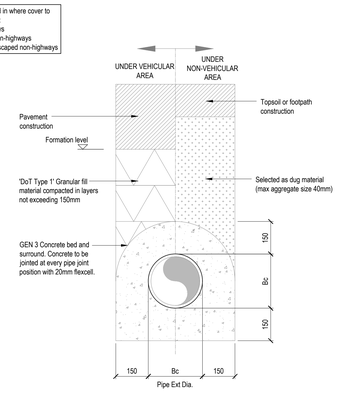
(WHERE THE DROP IS NOT EXCESSIVE A 45° DROP PIPE MAY BE USED)



Typical Perforated Pipe Detail (1:10)



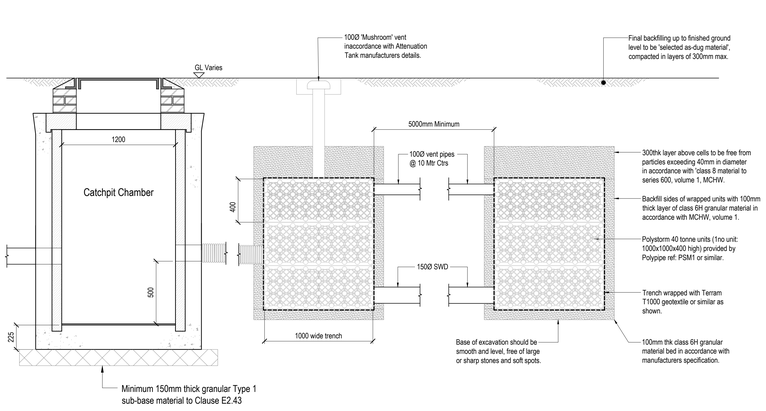
Class S Granular Pipe Bed and Surround (1:10)



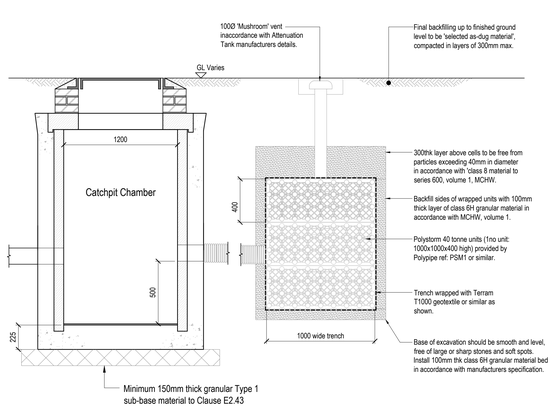
Class Z Concrete Bed and Surround (1:10)

NOTES:

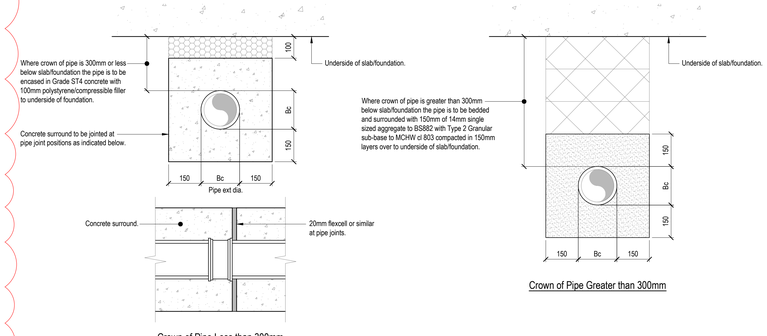
1. This drawing is to be read in conjunction with all Peter Dann Consulting Engineers, Architects, MEP Engineers and Specialists drawings along with all relevant specifications.
2. All gridlines, building lines, etc. are to be set out in accordance with the relevant Architects drawings. Any discrepancies between the information given by the Engineer and that provided by others must be referred to the Architect before work proceeds.
3. Dimensions are NOT to be scaled from this drawing. If in doubt ask. Dimensions marked * are subject to confirmation by site measurement before construction commences.
4. All proprietary fixings shall be installed in accordance with the manufacturer's recommendations.
5. The Contractor shall comply with the health and safety requirements as set out by the CDM Regulations, THE HEALTH AND SAFETY EXECUTIVE.
6. All works are to be undertaken in accordance with the Building Regulations and latest relevant British Standards.
7. All construction products are to be CE marked in accordance with the Construction Products Regulation (EU) No. 305/2011.



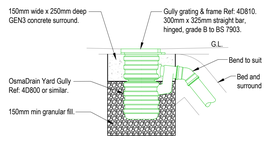
Typical Soakaway 1 Detail (1:20)



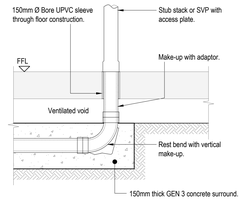
Typical Soakaway 2 & 3 Detail (1:20)



Pipe Bedding Details Under Slab/Foundation (1:10)



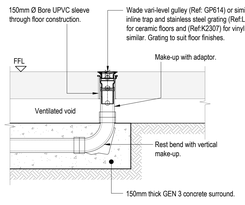
Yard Gully Detail (1:20)



SS / SVP Detail (1:20)

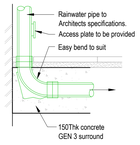
(SS - Stub stack)

(SVP - Soil vent pipe)

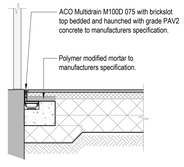


Floor Gulley Detail (1:20)

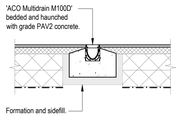
(Vari-Level)



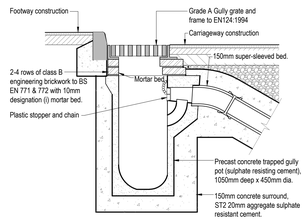
RWP Detail (1:20)



Threshold Channel Detail (1:20)



ACO Multidrain M100D Detail (1:20)



Trapped Road Gully (1:20)

P04	14.12.21	SM	JB	Updated to suit comments.
P03	07.12.21	SM	JB	Stage 4 issue.
P02	12.07.21	SM	JB	Yard gully detail added.
P01	30.06.21	SM	JB	Initial preliminary issue.
REV.	DATE	DWN.	CHK.	DESCRIPTION.

AMENDMENTS

peter dann consulting engineers
peter dann limited | newton house
cambridge road | barton | cambridge | CB23 7WJ
t: 01223 264688 www.peterdann.com info@peterdann.com

JOB TITLE

Duxford Primary School

DRAWING TITLE

Proposed Drainage Details

DATE	DRAWN	CHECKED	SCALE
Jun 21	SM	JB	As Shown

DRAWING STATUS	PDL JOB REF.	CLIENT
PRELIMINARY	10-9757	KIER

Project-Originator-Volume-Floor-Type-Role-Number: DPS-PDL-XX-ZZ-DR-C-2300 | REV.: P04 | STATUS CODE: S1