



**Private Drainage Key**

- Foul Inspection Chamber (Depth <math>< 0.6m</math> [1 side connection])
- Foul Inspection Chamber (Depth <math>< 1.2m</math> [2 side connections])
- Foul BR manhole PCC Ring (1.2-1.5m)
- Foul BR manhole PCC Ring (1.50-2.7m)
- Storm Inspection Chamber (Depth <math>< 0.6m</math> [1 side connection])
- Storm Inspection Chamber (Depth <math>< 1.2m</math> [2 side connections])
- Storm BR manhole PCC Ring (1.2-1.5m)
- Storm BR manhole PCC Ring (1.50-2.7m)

**Package Treatment Plant**

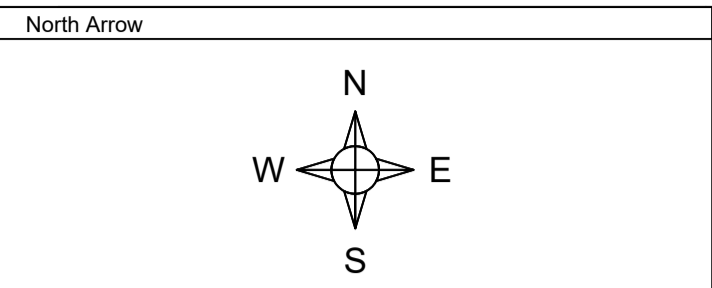
- Kingspan Klargester Package Treatment Plant Model BC (24Pop)
- Diameter = 2450mm
- Inlet Depth = 1100mm (107.37m)
- Outlet Depth = 1185mm (107.285m)

**French Drain**

- 1500 French Drain (600mm wide trench)

**Surface Water Attenuation**

- POLYSTORH-Lite (PSM2) Cellular Storage Storm Water Management System
- Cellular storage tanks suitable for vehicular loading (where applicable) with 95% voids wrapped in an impermeable geo-membrane.
- Permeable Block Paving
- Load Category 4 permeable paving (infiltration) on subgrade
- 5% soaked CBR, 80mm Permeable Block, 50mm laying course material comprising mostly gassing 6.3mm sieve and mostly retained on a 3mm sieve, 70mm dense bitumen macadam hole punched with 75mm Dia holes at 750mm centres.
- 300mm Type 3 aggregate laid in layers not exceeding 100mm thick, each layer to be well compacted.



- NOTES**
- The contractor shall check all tie-ins for line and level with existing before commencing any works. The Engineer shall be notified immediately, in writing, should any errors be found.
  - Any discrepancies, of whatever nature, must be reported to the Engineer prior to the commencement or continuation of any further works.
  - All private drainage works to be in accordance with the requirements of Building Regulations 2010, Part H, "Drainage and waste disposal", (01st October 2015).
  - All pipes to be bedded and backfilled in accordance with Part H, Diagram 10. Shallow pipes shall be protected in accordance with Part H, Diagram 11.
  - Unless otherwise stated, all private drainage to be 100mm diameter. Gradients have been shown where there are pipe capacity issues and these should be regarded as minimums. Unless there are constraints dictating otherwise, gradients shall generally be 1 in 50. 100mm diameter pipes shall not be laid flatter than 1 in 80, 150mm diameter pipes shall not be laid flatter than 1 in 150.
  - All pipes, chambers and fittings to be installed strictly in accordance with the manufacturers instructions.
  - Pipes which run adjacent to buildings shall be installed in strict accordance with Part H, Clauses 2.23 to 2.25 and Diagram 8.
  - All private manholes, inspection chambers and drainage channels to comply with BS EN124. Cover strengths to be: Class D400 in heavy trafficked areas (access roads, service yards etc.); Class C250 in lightly trafficked areas (car parks, driveways etc.); Class B125 in non trafficked areas; Class A15 in landscaping areas.
  - All drains in the vicinity of existing or proposed trees to be constructed in accordance with the requirements of NHBC Practice Note 3.
  - Private drainage frames must be tied to manhole risers by use of manufacturers ties (e.g. Potstop ref. FR600 fixing kit and FR601 block ties). The ground works contractor will be held fully responsible for any accidents due to incorrect fitting or failure to use the correct manufacturers fixing equipment.
  - All existing land drains encountered on site during construction to be re-connected.
  - Should any departure from the slab level be considered, agreement shall be sought from the Engineer immediately and prior to commencement or continuance of any works, and should take full account of all restrictions to the slab level.
  - Garage slabs relate to the finished level of the concrete at the front entrance of the garage.
  - Where a drive slopes towards a garage there is to be a 75mm ramp up to the garage slab.
  - Maximum gradients of gardens to be 1 in 6 (unless stated otherwise), except for designed banking works.
  - All dimensions in metres unless otherwise stated.
  - As underlying ground conditions may be variable across the site the Contractor shall undertake onsite porosity tests at the location and depth of each soakaway. Tests should be undertaken in accordance with BRE365 and results forwarded to the Engineers to allow verification of designs.
  - All existing services, sewers and drains indicated on this drawing and any other related drawings are shown only indicatively, and shall have their positions and level confirmed on site by the Contractor.
  - The invert levels of all existing sewers, drains, ditches, tanks or other features and apparatus where a new connection is to be made shall have their precise position and level confirmed on site by the Contractor prior to commencement of any construction work. The results of the investigations shall be confirmed to MTC Engineering (Cambridge) Ltd so that the design can be verified.

ATTENUATION	AT-01
Lowest Cover Level (m)	10.00
Level top of Cells (m)	9.275
Base level of Cells (m)	8.475
Pipe invert (m)	8.475
Contributing area (m2)	2320
Dimension on Plan (m)	16.0x2.0x0.8(d)
Cell Thickness (m)	0.8
Void Space (%)	95
Maximum Storage Volume (m3)	24.32

PHASE 0 (PRIVATE)							
MH No.	MANHOLE DIAMETER (mm)	MANHOLE TYPE	COVER LEVEL (m)	INVERT LEVEL (m)	DEPTH TO SOFFIT (m)	EASTING (m)	NORTHING (m)
PS1	250	250 Inspection	10.000	9.566	0.284	-69.681	-27.181
PS2	250	250 Inspection	10.000	9.411	0.438	-67.659	-18.365
PS3	250	Unknown	10.000	9.248	0.602	-65.520	-9.041
PS4	250	Unknown	10.000	9.047	0.802	-62.899	2.389
PS5	450	450 Inspection	10.000	8.920	0.930	-61.222	9.677
PS6	1200	Type E	10.000	8.446	1.329	-41.432	5.468
PS7	---	HEADWALL	10.000	8.350	1.425	-26.973	-1.590
PS8	450	450 Inspection	10.000	9.058	0.842	-59.436	17.487
PS9	450	450 Inspection	10.000	9.230	0.670	-57.190	27.281
PS10	450	450 Inspection	10.000	9.396	0.504	-55.008	36.791
PS11	450	450 Inspection	10.000	8.706	1.144	-39.740	12.970
PS12	450	450 Inspection	10.000	8.878	0.972	-37.494	22.763
PS13	250	Unknown	10.000	9.045	0.805	-35.313	32.274
PS14	450	450 Inspection	10.000	8.708	1.142	-43.203	-2.129
PS15	450	450 Inspection	10.000	8.908	0.941	-45.825	-13.559
PS16	250	Unknown	10.000	9.072	0.778	-47.963	-22.882
PS17	250	Unknown	10.000	9.227	0.673	-49.985	-31.698
PF1	250	250 Inspection	10.000	9.408	0.492	-45.284	36.334
PF2	250	250 Inspection	10.000	9.383	0.517	-43.849	35.989
PF3	450	450 Inspection	10.000	9.229	0.671	-34.845	33.924
PF4	450	450 Inspection	10.000	8.721	1.179	-33.050	3.498
PF5	1200	Type E	10.000	8.696	1.204	-30.738	2.959
PF6	---	HEADWALL	10.000	8.620	1.280	-26.229	2.299
PF7	450	450 Inspection	10.000	9.036	0.864	-41.412	12.906
PF8	450	450 Inspection	10.000	9.224	0.676	-48.757	14.591
PF9	450	450 Inspection	10.000	9.261	0.639	-50.199	14.906
PF10	450	450 Inspection	10.000	8.857	1.043	-42.571	-1.830
PF11	450	450 Inspection	10.000	8.908	0.992	-43.473	-5.763
PF12	450	450 Inspection	10.000	9.001	0.899	-45.147	-13.062
PF13	450	450 Inspection	10.000	9.029	0.871	-45.642	-15.217
PF14	450	450 Inspection	10.000	9.108	0.792	-47.059	-21.397
PF15	450	450 Inspection	10.000	9.262	0.638	-49.801	-33.352
PF16	250	250 Inspection	10.000	9.341	0.559	-56.022	-31.918
PF17	250	250 Inspection	10.000	9.439	0.461	-63.605	-30.178
PF18	450	450 Inspection	10.000	9.113	0.787	-46.989	-0.824
PF19	450	450 Inspection	10.000	9.221	0.679	-51.189	0.147

**FOR APPROVAL**

REV	DATE	DESCRIPTION/REASON FOR ISSUE	APPR



**PROJECT**  
Monks Green Farm, Brickendon  
Hertford, Hertfordshire

**TITLE**  
Proposed Drainage Design

<b>ORIG</b> JTC	<b>DATE</b> 30.11.23
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<b>CHKD</b>	<b>SCALE</b> 1:200 @ A1
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<b>APPR</b>	<b>DRAWING NO</b> 3218-02
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REV -

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