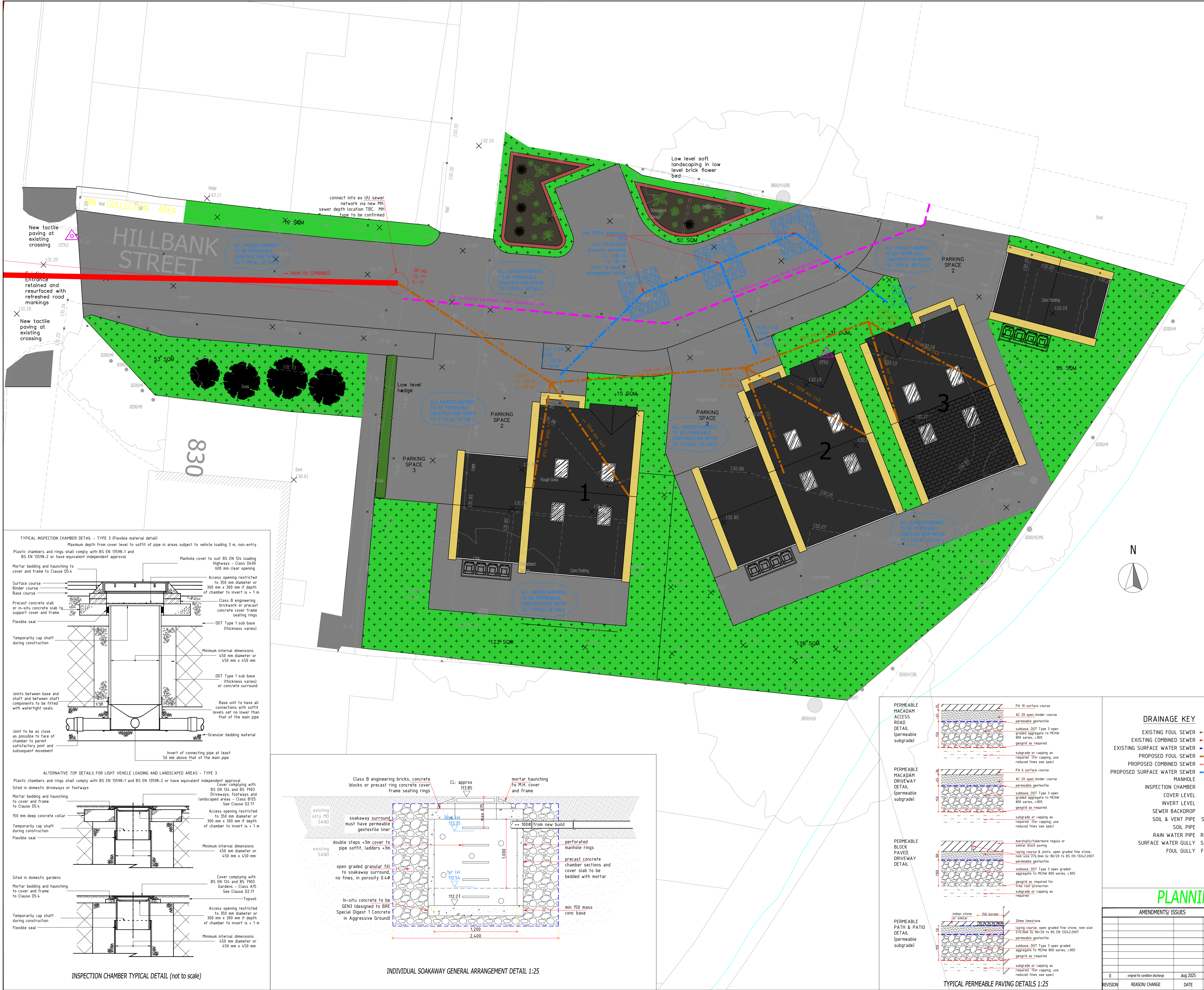




GENERAL NOTES

0.0 THIS DRAWING IS COPYRIGHT & IS SENT TO YOU IN CONFIDENCE IT MUST NOT BE COPIED, USED OR DISCLOSED IN WHOLE OR IN PART, TO THIRD PARTIES WITHOUT WRITTEN PERMISSION. IT REMAINS THE PROPERTY OF TJB&A AND MUST BE RETURNED ON REQUEST.

0.1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT CONTRACTUAL DOCUMENTS.

0.2 All dims in mm unless o/w stated.

0.3 All levels to SITE DATUM.

0.4 Refer to architect's details for SBM.

0.5 Contractor to confirm SGP/SOL's prior to ordering material/ construction.

0.6 Do not scale, the contractor must verify all dims prior to commencing shop drawings or work on site.

0.7 All work to be carried out in accordance with CDM 2015.

1.0 HIGHWAYS/ACCESS ROADS & PRIVATE DRIVES.

1.1 as per architect's details.

2.0 DRAINAGE.

2.1 To be read in conjunction with T J Booth Associates drainage calculations.

2.2 Manhole cover levels indicative only, to be adjusted to suit final finish site levels.

2.3 Sewers/manholes to be constructed in accordance with the water authorities sewers for adoption (if/when applicable), B. Regs. Approved Doc. H, and BS EN 752-4.

2.4 Class 5 granular bed and surround to all new sewers.

2.5 Sewers must have min 150th concrete surround if:-

- adoptable assets with less than 12m of cover under highways or driveways;
- private assets with less than 900mm of cover under private highways.

2.6 All conc including pipes and manholes to be sulphate resisting unless otherwise agreed in writing by eng.

2.7 Foul water must be to the following gradients in accordance with Bregs and Sewers For Adoption.

- 100e at gradients not less than 180 where at least 1 WC is connected and not less than 140 where no WC is connected.
- 150e foul gradients to be not less than 150 with at least 5 WCs connected.

2.8 Surface water must be to the following gradients in accordance with Bregs.

- 100e at gradients not less than 100.
- 150e foul gradients to be not less than 150.

2.8 Adoptable surface water must be to the following gradients in accordance with Sewers for Adoption.

- 100e at gradients not less than 180.
- 150e foul gradients to be not less than 150.

2.9 No construction work to be undertaken on the United Utilities network unless approval granted under either S10b or S10a as appropriate.

3.0 MANHOLES.

3.1 Manhole diameters to be in accordance with SFA clause 2.9.3, and according to largest manhole pipe diameter.

Pipe dia	MH dia
<375	1200
375-750	1500
750-900	1800

5.2 Rocker pipes (clause 5.6.6.2) to be the following lengths:

150-600e	0-6m
<600-700e	10m
>750e	12.5m

5.2 Inspection chambers/manholes to have min 150granular surround in soft landscaping areas and not less than 150 conc surround to driveways/car parks.

3.1 Manhole covers and frames shall comply with the relevant provisions of BS EN 124 and shall be of non-rising design which does not rely on the use of cushion inserts.

3.4 Cover sizes to be in strict accordance with adoptive undertakers standard requirements.

3.5 Cover strength (clause 5.7.1.1) comprising minimum strength for location as follows:

Roads/highways	D400 Vehicle impact.
Car Parks	C250 Light Vehicle loading.
Footway/Driveway	B125 Occasional vehicle loading.
Gardens	A15 Pedestrian & cyclist DN.

3.6 All manhole covers shall be the non-venting type (unless indicated otherwise) and shall have closed keyways.

3.7 Manhole frames (clause 5.6.7) to be set to level, bedded and haunched externally over the base and sides of the frame in mortar, in accordance with the manufacturers instructions. The frame shall be sealed on not less than 2 courses of class B engineering brick, on precast concrete masonry units or on precast concrete cover frame sealing rings to regulate the distance between the top of the cover and the top rung to no greater than 675mm. A mortar fillet shall be provided where the corners to an opening in a slab are chamfered and the brickwork is not flush with the edges of the opening.

PPPP Hierarchy of Surface Water Discharge Options

DISCHARGE TYPE	METHOD ADOPTED	REASONING
1 into the ground	YES	Infiltration tests undertaken and good infiltration rates obtained. Site suitable for soakaways & general infiltration.
2 to a surface water body	NO	Not identified locally.
3 to a SW sewer, highway drain, or another drainage system	NO	Not identified locally.
4 to a combined sewer	NO	Not required.

IMPLEMENTATION SCHEDULE FOR DRAINAGE SYSTEMS, ATTENUATION TANKS & SOAKAWAYS

PHASE	ACTION	REASON
Construction phase	All drainage pipes, gullies & manholes installed must be either covered, plugged or connections capped to isolate from construction SW flows.	To ensure construction debris does not enter the system while allowing general construction of the drainage system ready for start completion.
Pre-habitation Phase	Only finished plots & associated drainage pipes, manholes & gullies may be brought online as long as they will not be subject to further construction flows & debris from upstream works.	To ensure adequate drainage of completed parts of the Site, while protecting the wider drainage system to parts of the Site still under construction from potential blockages.
Post Construction Phase	Site attenuation tank, chamber/hydrobrake or soakaway may only be brought online after construction of the Site has finished and construction debris and silt entering the system is mitigated. All silt traps, control chambers and accessible soakaways to be checked for silt/debris, and cleaned accordingly.	To ensure protection of the attenuation tank & hydrobrake, and to ensure they are not subject to SW flow overload with silt/debris which could damage or reduce long term storage capacity. To ensure the system is free from silt/debris accumulation prior to sign off.

CEMA CFS3 TABLE 13.1 OPERATION & MAINTENANCE REQUIREMENTS FOR SOAKAWAYS

MANTENANCE SCHEDULE	TYPICAL ACTION	TYPICAL FREQUENCY
Regular maintenance	Inspect for sediment and debris in pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings. Cleaning of gutters and any filters on downpipes. Trimming any roots that may be causing blockages.	Annually for as required based on inspections. Annually for as required.
Occasional maintenance	Remove sediment and debris from pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings.	As required, based on inspections.
Remedial Actions	Reconstruct soakaway and/or replace or clean void fill, if performance deteriorates or failure occurs. Replacement of clogged geotextile (will require reconstruction of soakaway).	As required. Monthly in the first year and then annually.
Monitoring	Inspect silt traps and note rate of sediment accumulation. Check soakaway to ensure emptying is occurring.	Monthly in the first year and then annually. Annually.

CEMA CFS3 TABLE 20.5 OPERATION & MAINTENANCE REQUIREMENTS FOR PERVIOUS PAVEMENTS

MANTENANCE SCHEDULE	TYPICAL ACTION	TYPICAL FREQUENCY
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface).	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations - pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment.
Occasional maintenance	Stabilise and mow contributing and adjacent areas. Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying.	As required. As required - once per year on less frequently used pavements.
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving. Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material. Rehabilitation of surface and upper substructure by remedial sweeping.	As required. As required. Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging).
Monitoring	Initial inspection. Inspect for evidence of poor operation and/or weed growth - if required, take remedial action. Inspect silt accumulation rates and establish appropriate brushing frequencies. Monitor inspection chambers.	Monthly for three months after installation. Three-monthly, 48 h after large storms in first six months. Annually. Annually.

PERMEABLE MACADAM ACCESS ROAD DETAIL (permeable subgrade)

PERMEABLE MACADAM DRIVEWAY DETAIL (permeable subgrade)

PERMEABLE BLOCK PAVED DRIVEWAY DETAIL

PERMEABLE PATH & PATIO DETAIL (permeable subgrade)

TYPICAL PERMEABLE PAVING DETAILS 1:25

INSPECTION CHAMBER TYPICAL DETAIL (not to scale)

INDIVIDUAL SOAKAWAY GENERAL ARRANGEMENT DETAIL 1:25

DRAINAGE KEY

EXISTING FOUL SEWER

EXISTING COMBINED SEWER

EXISTING SURFACE WATER SEWER

PROPOSED FOUL SEWER

PROPOSED COMBINED SEWER

PROPOSED SURFACE WATER SEWER

MANHOLE

INVERT LEVEL

COVER LEVEL

SEWER BACKDROP

SOIL & VENT PIPE

SOIL PIPE

RAIN WATER PIPE

SURFACE WATER GULLY

FOUL GULLY

PLANNING

AMENDMENTS/ISSUES

REVISION

REASON/CHANGE

DATE

BY

LOCATION PLAN 1:1250

T J BOOTH ASSOCIATES

20A Eastgate Street Rochdale Lancashire OL16 1DH Tel: 0161 268 8828

HARRISON / HILLBANK ST & CHURCH AVE

DRAINAGE PLAN & DETAILS HILLBANK STREET SITE

FILE NAME: dwg-tjb-HCL-Hillbank St & Church Ave-170725

SCALE: 1 : 100 @ A1