

19th June 2024

Bloor Homes North West
2 - 4 Whiteside Business Park
Station Road
Holmes Chapel
Cheshire
CW4 8AA



SUDS MAINTENANCE AND MANAGEMENT PLAN

SITE: HOLLINGWORTH ROAD, LITTLEBOROUGH

We have been asked to prepare an outline Sustainable Drainage Systems Maintenance and Management Plan to support the proposed development at the site above. The purpose of this statement is to identify the typical requirements, in accordance with CIRIA (2015) for maintenance and management of the drainage infrastructure that has been proposed (see **Appendix A**). The Technical Due Diligence plans dated December 2023 (and supporting calculations) have been appended to this statement for completeness (see **Appendix A** for further details). It should be noted that this initial drainage design work is based on an earlier iteration of the planning layout, however the overall drainage strategy proposed would not alter drastically because of the current revision of the planning layout in comparison.

In terms of the proposed surface water management infrastructure, this is shown to be in the form of an underground pipe network, along with a series of up to 7no. SuDS Basins to cater for the stormwater storage generated in the events up to and including the 1 in 100yr plus 45% climate change allowance event. Lined permeable surfacing is also proposed for the private driveways onsite where this is practical to be installed, given the underlying ground conditions and steep gradients.

The proposals are to also utilise a below ground pipework to deal with the proposed foul water flows generated by the proposed development site also, although this system will be kept separate to the proposed surface water system in accordance with best practice guidance. The proposed drainage infrastructure will be offered to United Utilities for adoption. When adopted, United Utilities should be inspecting any assets regularly, preferably during and after heavy rainfall to check effective operation.

The following section will consider the typical maintenance and management techniques recommended for the types of drainage infrastructure identified in the Technical Due Diligence plans. Regular inspection and maintenance of drainage systems are important for their effective and continued operation. Maintenance responsibility for systems should be placed with a responsible organisation (in this case the proposals are to offer the proposed drainage infrastructure to United Utilities).

Maintenance activities can be broadly defined as regular, occasional, and remedial maintenance. The proposed maintenance regime for the surface and foul water drainage infrastructure should follow typical guidance for management and maintenance, guidance can also be sought from the CIRIA 753 SuDS Manual where appropriate but will also need to adhere to the standard requirements of the adoptee (United Utilities in this case). Guidance

Page 1 of 4



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on the operation and maintenance requirements that may be appropriate are outlined subsequently; this is not exhaustive, and some actions may not always be required.

LINED PERMEABLE SURFACING

To ensure that permeable surfacing operates effectively, these should be regularly inspected and maintained. Regular clearance of silt/sediment/debris should be undertaken to maintain the infiltration capacity of these permeable surfaces. As previously noted, permeable surfacing is proposed for the private driveways onsite (where levels permit). **Table 1** below identifies the general guidance for maintenance of permeable surfacing as outlined within the CIRIA 753 SuDS Manual. It should be noted that some actions may not always be required, and the schedule should be adjusted following monitoring to specifically suit the maintenance requirements of the permeable surfacing specifically constructed onsite.

Table 1: Recommended Maintenance Routines for Permeable Surfacing (CIRIA, 2015)

Regular Maintenance	Frequency
Brushing and vacuuming (standard cosmetic sweep over whole surface)	Annually (after autumn leaf fall)
Occasional Maintenance	Frequency
Stabilise and mow contributing and adjacent areas	As required
Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required, or annually on less frequently used pavements
Remedial Actions	Frequency
Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving	As required
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	As required
Rehabilitation of surface and upper substructure by remedial sweeping	As required
Monitoring	Frequency
Initial inspection	Monthly (for three months post-installation)
Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Every 3 months (48hr following large storms for first 6 months)
Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
Monitor inspection chambers	Annually

PIPEWORK, MANHOLES AND INSPECTION CHAMBERS

Regular inspection and maintenance are required to ensure the effective long-term operation of below-ground systems. Below ground pipework and manholes should be routinely monitored to ensure they are operating safely and sustainably. The pipework should be inspected routinely, and any defects repaired as and when required.

HYDROBRAKE FLOW CONTROL DEVICES

Generally, Hydrobrake devices require little maintenance and have a design life greater than that of the upstream drainage infrastructure. Should the device get blocked, then the main chamber would flood and depending on the specific Hydrobrake product being installed, most come equipped with by-pass doors (or similar) to allow the device to be accessed and drained manually to provide appropriate access for maintenance to be undertaken. In terms of management, the typical routines for maintenance are like that of inlets, outlets, and overflows. The main priority is regular inspection to prevent blockages and be cleared where needed. Sediment can be removed from inlets and outlets when required and any inlets and outlets can be repaired if damage is picked up in the regular inspections.

DETENTION BASIN

At present there are 7no. SuDS swales/basins proposed on the Site, these features have been considered further in terms of initial design work to ensure that they can provide the required attenuation for the proposals considering the Site-specific constraints. Regular and ongoing maintenance is required for SuDS basins to ensure that they continue to operate to the design performance standards. Different designs will have different operational and maintenance requirements (to be confirmed at the detailed design stage).

Detailed specifications and frequencies should be provided for the required maintenance, along with annual costs and any potential machinery necessary to undertake such maintenance. This will need to be designed to cater for the extreme storm event volumes up to and including the 100yr return period event with 45% allowance for climate change. The requirements set out in **Table 2** below refer to the typical recommendations in The SuDS Manual CIRIA (2015) for maintenance of SuDS Basins in general.

Table 2: Recommended Maintenance Routines for Detention Basins (CIRIA, 2015)

Regular Maintenance	Frequency
Remove litter and debris	Monthly
Manage vegetation and remove nuisance plants (inc. cutting grass for spillways/access routes)	Monthly (during growing season), or as required
Cut grass – meadow grass in and around basin	Half yearly (spring – before nesting season, and autumn)

Inspect inlets, outlets and overflows for blockages, and clear as required	Monthly
Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
Inspect inlets and facility surface for silt accumulation: establish appropriate silt removal frequencies	Monthly (for first year), then annually/as required
Check any penstocks and other mechanical devices	Annually
Tidy all dead growth before start of growing season	Annually
Remove sediment from inlets, outlets and forebay	Annually (or as required)
Manage wetland plants in outlet pool – where provided	Annually
Occasional Maintenance	Frequency
Reseed areas of poor vegetation growth	As required
Prune and trim any trees and remove cuttings	Every 2 years, or as required
Remove sediment from inlets, outlets, forebay and main basin where required	Every 5 years, or as required (likely to be minimal where effective upstream source control is provided)
Remedial Actions	Frequency
Repair erosion or other damage by reseedling or re-turfing	As required
Realignment of riprap	As required
Repair/rehabilitation of inlets, outlets, and overflows	As required
Relevel uneven surfaces and reinstate design levels	As required

I trust you will find the above and attached are of assistance. If you however have any queries or require further information, please do not hesitate to contact me.

Yours sincerely,



Kirsty Halliday BSc (Hons) MCIWEM
Associate
BETTS HYDRO

APPENDED **Appendix A – Technical Due Diligence Drainage Plans**

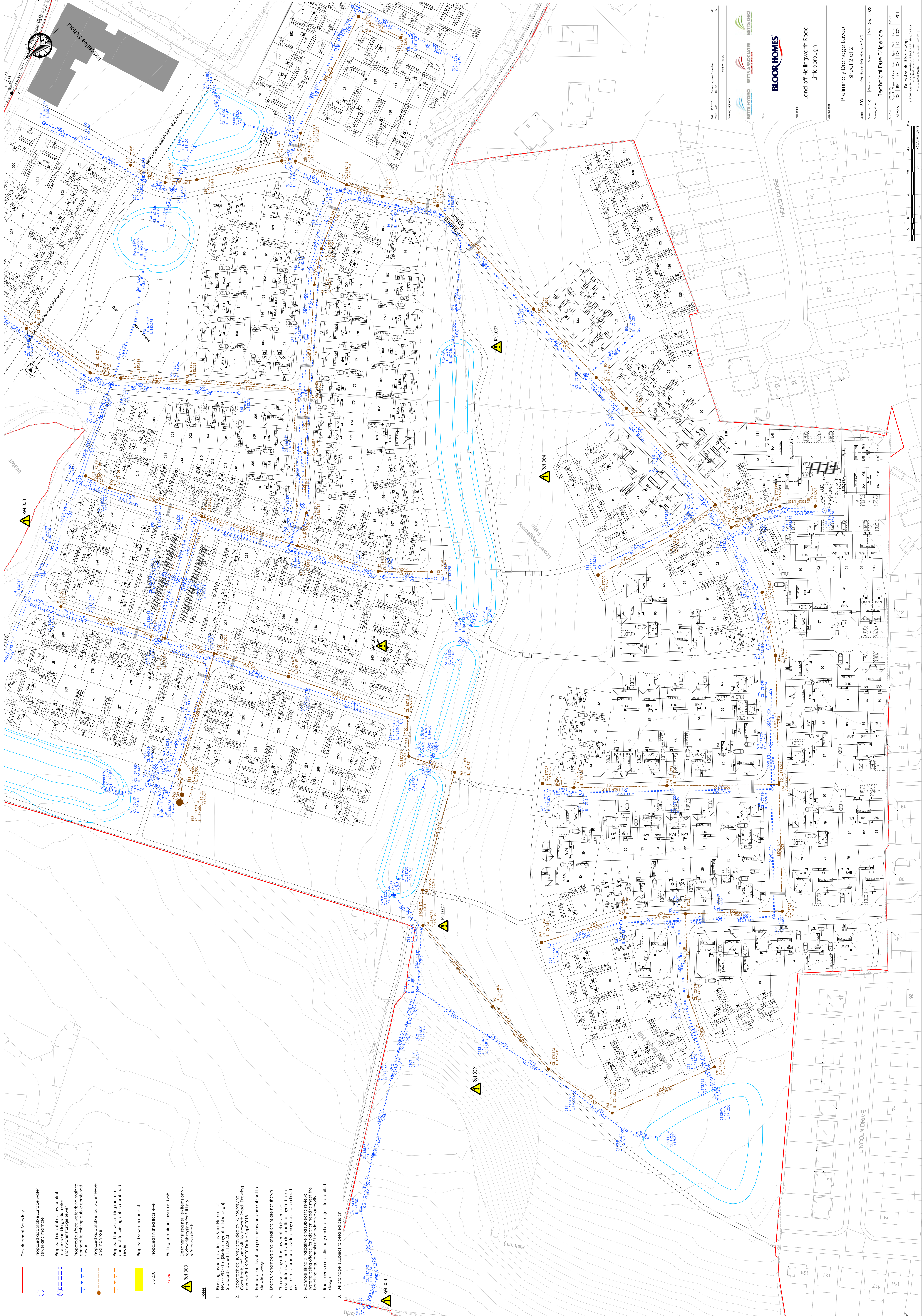
Page 4 of 4

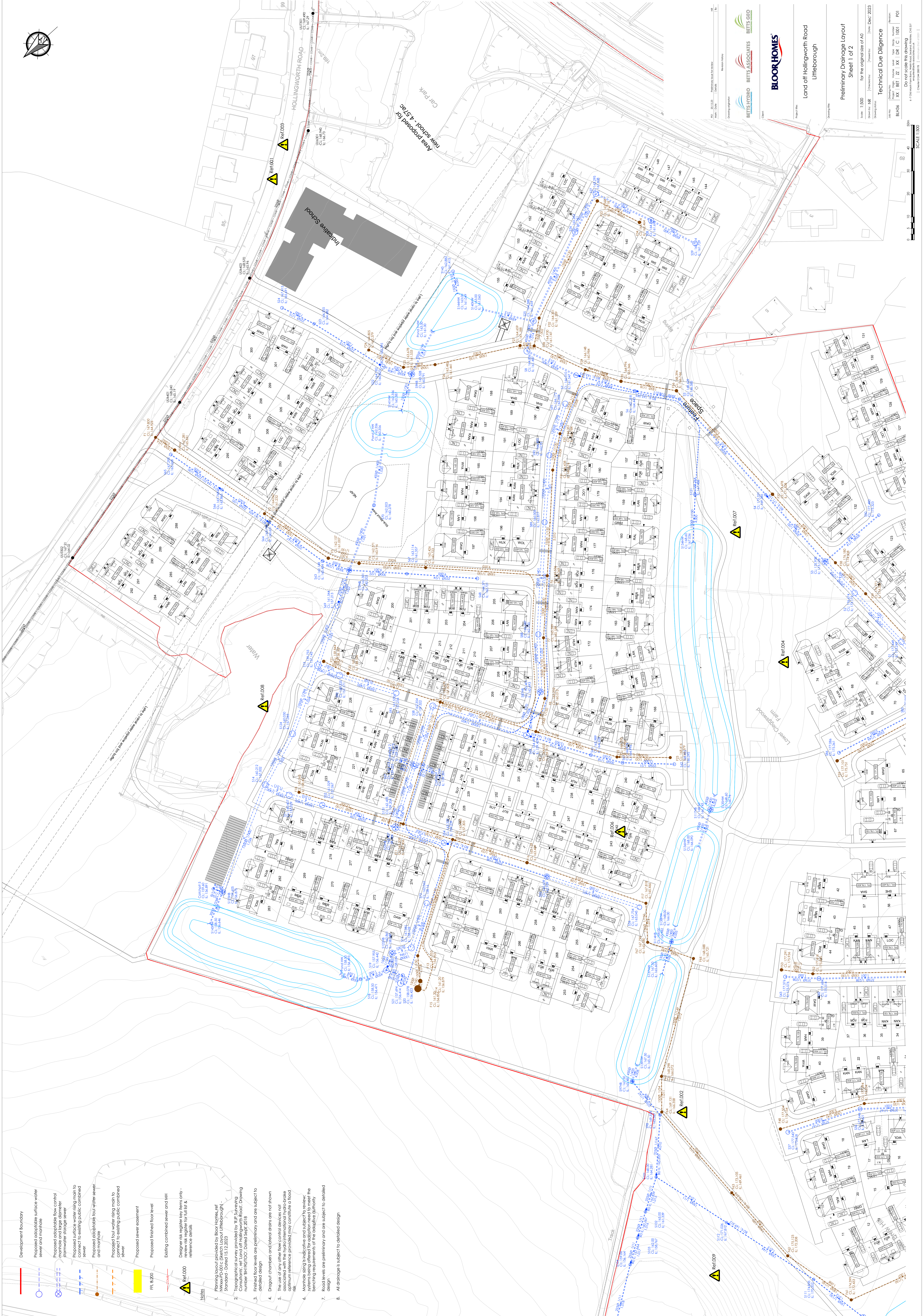


APPENDIX A – TECHNICAL DUE DILIGENCE DRAINAGE PLANS

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