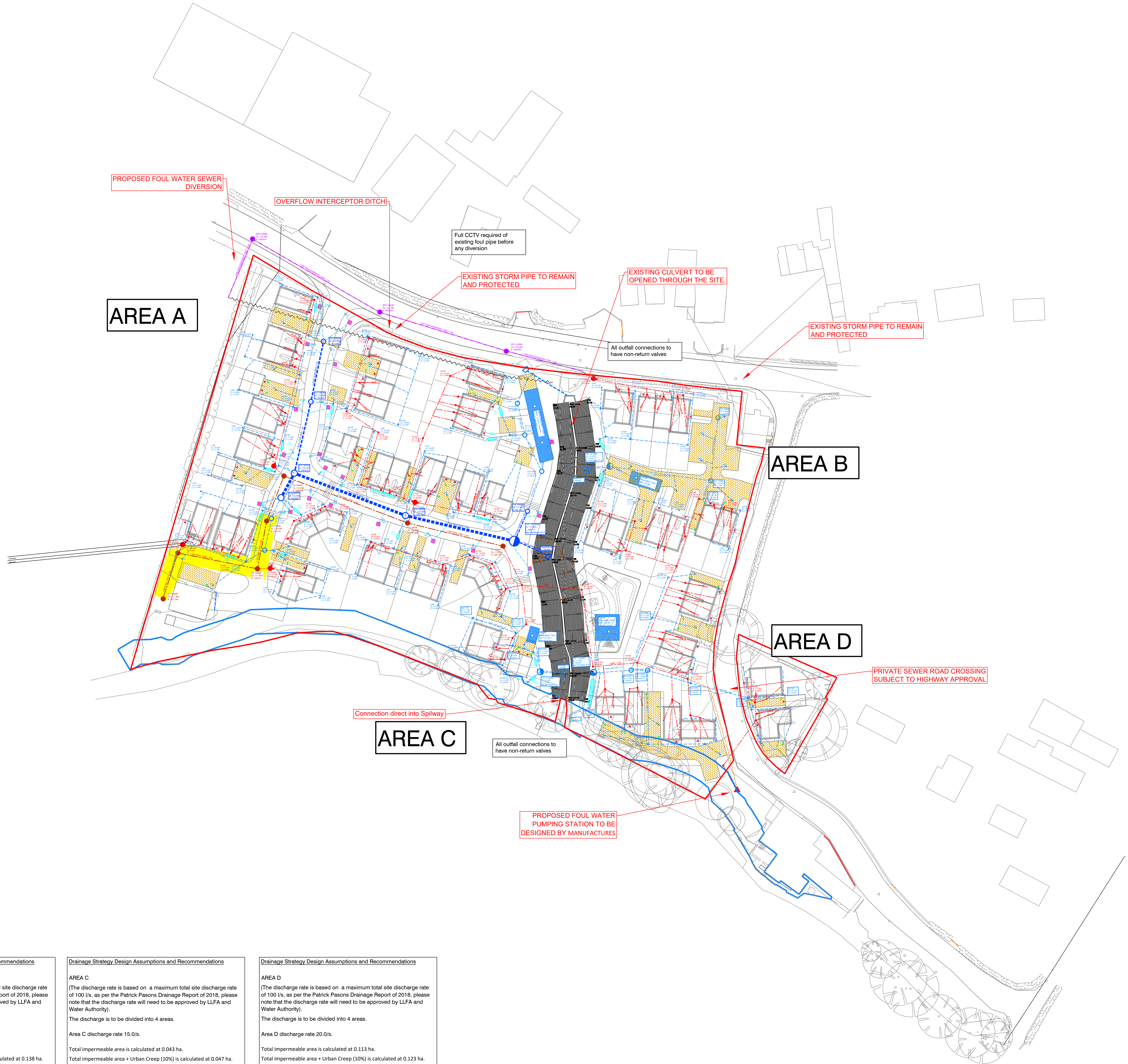
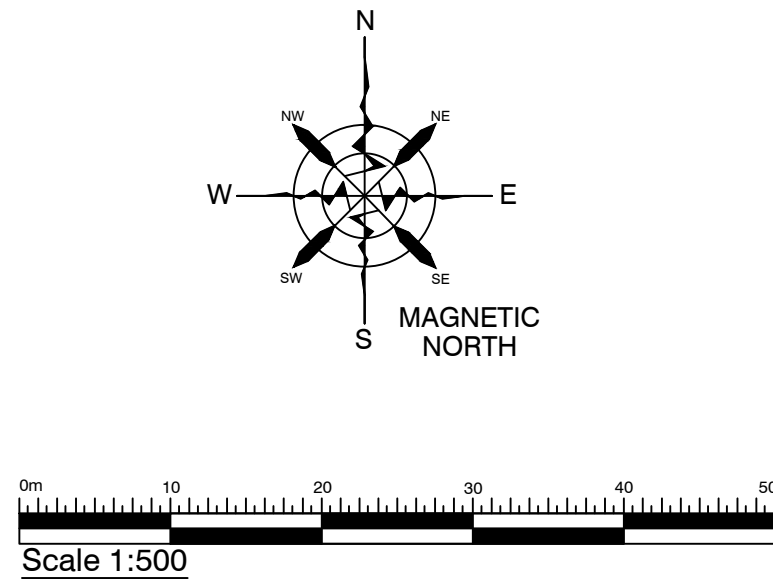




KEY

- Existing Storm Drain
- Existing Storm Drain Abandoned
- Existing Foul Drain
- Existing Foul Drain Abandoned
- Foul Drain
- Foul Inspection Chamber
- Foul Drainage Offered for Adoption
- Foul Manhole Offered for Adoption
- Storm Drain
- Storm Inspection Chamber
- Storm Manhole
- Storm Drainage Offered for Adoption
- Storm Manhole Offered for Adoption
- Drainage Channel
- Gully
- Storm Rooding Eye
- Foul Rising Man
- Permeable Paving with overflow
- Sewer Easement
- Filter Trench
- Sewer Easement
- S185 FWS diversion
- S185 SWS diversion

Notes

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- Due to a change in legislation on 1st October 2011, there could be formally private sewers which have transferred over to the responsibility of the Sewerage Undertaker. If such sewers are located on site during construction works, please contact Mucklow & Harris Ltd so that a Section 106 Agreement can be prepared to divert these sewers.
- The survey information used in the preparation of this drawing is not warranted. The contractor shall check all dimensions and levels on site.
- This drawing must be read in conjunction with the site investigation report. Before work commences, the contractor shall liaise with all Statutory Authorities to determine the exact location of all apparatus and any operations deemed necessary to locate, protect and where necessary divert such equipment.
- This drawing is subject to approval by Local Authority, Building Control, Sewerage Undertaker and the Environment Agency. Any works undertaken prior to the granting of these approvals is carried out at all to others.
- Should any surplus excavated material require disposal off site, it should be taken to a suitable licensed landfill site.
- The contractor shall check all dimensions and levels on site.
- Setting out to be confirmed by the Architect.
- Prior to commencing work on the drainage, all existing drains, sewers, manholes and outfalls to remain shall be located, identified and a CCTV condition survey carried out. Where necessary, protection to the existing drainage infrastructure shall be provided.
- All existing sewers and manholes abandoned due to the proposed works are to be either removed and suitably backfilled or grouted up.
- All external drainage works shall be constructed in accordance with civil engineering specification for the water industry and Design Construction Guidance for adoptable drainage for private drainage in accordance with the Building Regulations Part 10 and BS EN 125.
- All existing drainage levels, diameters & locations need to be checked on site prior to any drainage work, and any discrepancies need to be reported back to the Engineer.
- Concrete for manholes are appropriate only and should be adjusted to match surrounding levels.
- All manholes and drainage covers shall comply with BS EN124. Manhole covers within black paved areas and buildings shall be recessed. Cover strengths to be: Class B200 in areas of heavy loading. Class D400 in heavy trafficked areas (roads, service yards). Class C200 in landscape and non trafficked areas (pav. 100mm dp drive).
- Drainage down 100mm diameter unless stated otherwise.
- Pipes to be: 110mm clay BS EN 206 or Concrete to BS EN 1402 or uPVC pipes to BS EN 1402 or Thermoplastic Structural wall pipes complying with W8 4.26-01. BS 5400 Standard. Class B4000 nominal short term max stiffness.
- All pipes to be laid with soft soil, unless noted otherwise.
- Where cover to pipe is less than 1200mm under carriageway, concrete bed and surround or concrete protection slab is required.
- All open beneath buildings to be SBS in concrete. Where cover is less than 300mm the concrete is to be cast integrally with the floor slab.
- Pipes Penetrating Walls.
- An opening is to be formed through walls to give pipes at least 60mm clearance all round. Blockwork cover shall be supported by limits. Opening to be treated each side with rigid sheet piling.
- Pipes embedded in walls shall have joints formed within 150mm of either wall face. Adjacent to pipe of max 600mm length with flexible joints shall continue the pipework.
- Pipes runs near Buildings.
- If trench is within 1m of a building it shall be filled with concrete up to the lowest level of the adjacent foundation. If trench is greater than 1m from a building the trench shall be filled with concrete up to a level below the building equal to the distance from the building less 150mm.
- Ventilation shall be provided at the head of the foul drainage runs.
- For setting out of BFF and BFFP, use established layout.
- Thermoplastic drainage is required where levels fall towards a building entrance. Architects to confirm final requirements.
- Hard gully profiles and materials should be adjusted on site to suit levels.
- All gully positions to suit low points and to be inspected.
- Root glands shall be spaced 400 diameter x 300mm deep with Class D 400 frame and gelling to BS EN 124.
- Drainage channel detailed design to be undertaken by manufacturers. Alternative channels may be used, subject to Engineers approval.
- All concrete to drainage, manholes bases, surrounds etc to be in accordance with the BRE special digest 1. Concrete in aggressive ground. Refer to site investigation report for suitable requirements.
- All manholes, pipe trenches etc. to be backfilled with imported granular fill to Class 4F (see Clipping material) to (S185) Table 6.1 & completed in accordance with Table 6.1.
- All pipelines shall be tested both before and after backfilling, using either air test or water test, in accordance with BS EN 125.
- Derivation manholes and lateral drains need to be constructed in accordance with the Water & WPA "Design Construction Guidance".
- All works to sewers/ manholes being offered for adoption or on existing public sewers should be in accordance with Design Construction Guidance and the Adopting Water Authority's recommendations.
- Requirement for Land Drains to be assessed on site by the Site Manager.

Drainage Strategy Design Assumptions and Recommendations

AREA A

(The discharge rate is based on a maximum total site discharge rate of 100 l/s, as per the Patrick Parsons Drainage Report of 2016, please note that the discharge rate will need to be approved by LLFA and Water Authority).

The discharge is to be divided into 4 areas.

Area A discharge rate 50.0/s.

Total impermeable area is calculated at 0.50 ha.

Total impermeable area + Urban Creep (10%) is calculated at 0.55 ha.

Therefore, with the above discharge rate of 50.0 l/s the following attenuation value have been calculated.

Return Period	Type	Volume attenuated
1 in 30 year	Pipes (75.791 x 0.825m)	40.5m³
1 in 100 years + 40%	Tank (100 x 0.4m)	40m³

Drainage Strategy Design Assumptions and Recommendations

AREA B

(The discharge rate is based on a maximum total site discharge rate of 100 l/s, as per the Patrick Parsons Drainage Report of 2016, please note that the discharge rate will need to be approved by LLFA and Water Authority).

The discharge is to be divided into 4 areas.

Area B discharge rate 15.0/s.

Total impermeable area is calculated at 0.125 ha.

Total impermeable area + Urban Creep (10%) is calculated at 0.138 ha.

Therefore, with the above discharge rate of 15.0 l/s the following attenuation value have been calculated.

Return Period	Type	Volume attenuated
1 in 100 years + 40%	Tank (38 x 0.8m)	30m³

Drainage Strategy Design Assumptions and Recommendations

AREA C

(The discharge rate is based on a maximum total site discharge rate of 100 l/s, as per the Patrick Parsons Drainage Report of 2016, please note that the discharge rate will need to be approved by LLFA and Water Authority).

The discharge is to be divided into 4 areas.

Area C discharge rate 15.0/s.

Total impermeable area is calculated at 0.043 ha.

Total impermeable area + Urban Creep (10%) is calculated at 0.047 ha.

Therefore, with the above discharge rate of 15.0 l/s the following attenuation value have been calculated.

Return Period	Type	Volume attenuated
1 in 100 years + 40%	Tank (38 x 0.4m)	6m³

Drainage Strategy Design Assumptions and Recommendations

AREA D

(The discharge rate is based on a maximum total site discharge rate of 100 l/s, as per the Patrick Parsons Drainage Report of 2016, please note that the discharge rate will need to be approved by LLFA and Water Authority).

The discharge is to be divided into 4 areas.

Area D discharge rate 20.0/s.

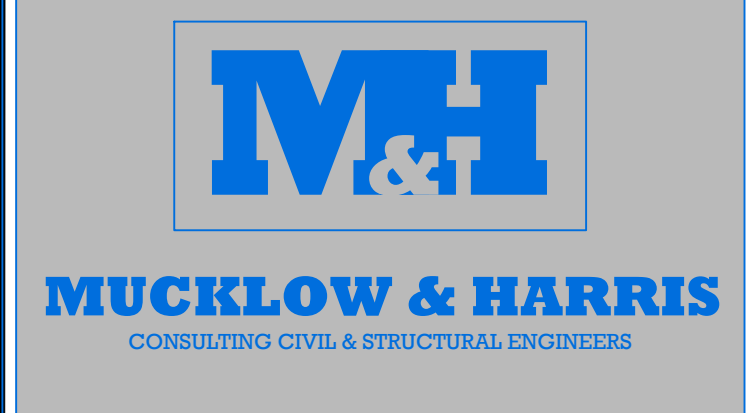
Total impermeable area is calculated at 0.113 ha.

Total impermeable area + Urban Creep (10%) is calculated at 0.123 ha.

Therefore, with the above discharge rate of 20.0 l/s the following attenuation value have been calculated.

Return Period	Type	Volume attenuated
1 in 100 years + 40%	Tank (60 x 0.4m)	24m³

N	17.12.25	LLFA amendments	RAA
M	23.07.25	Additional Sudo added	RAA
L	23.06.25	Scale amended	RAA
J	16.11.22	Updated to latest layout	RAA
H	31.10.22	Attenuation relocated	RAA
G	27.08.22	Updated to latest layout	RAA
F	30.06.22	Diversion amended	RAA
E	30.06.22	New Layout, drainage updated	ZH
D	20.04.22	New Layout, drainage updated	RAA
C	20.12.21	Updated to FRA	RAA
B	28.11.21	Updated to FRA	RAA
A	15.10.21	Drainage amended to suit new FFLs	RAA
REV	DATE	AMENDMENT	BY



DRAWING STATUS: PRELIMINARY

CLIENT: ANDMORE

PROJECT: Fole Dairy Uttoxeter

TITLE: Drainage Strategy

DATE: 16.07.21	DRAWN: RAA
SCALE: 1:500	CHECKED: AM
DRAWING NUMBER: 21047-101	REVISION: N