GENERAL DRAINAGE SPECIFICATION

1. All private drains shall be constructed and commissioned in accordance with the relevant sections of the Building Regulations Approved Documents and relevant British Standards.

2. Private surface water drains shall be 100Ø laid at a minimum gradient of 1 in 100 or to the gradients and invert levels shown unless noted otherwise.

3. Private foul water drains shall be 100Ø laid at a minimum gradient of 1 in 80 or to the gradients and invert levels shown unless notes otherwise.

4. Foul pipework connections to first access point shall be laid at a minimum gradient of 1 in 40.

5. All connections to be made soffit to soffit unless noted otherwise.

6. Pipe bedding to be class 'S' bedding (100 mm granular bed and surround) or ST2 concrete if specified, in accordance with 7. a) below.

7. Where cover to soffit of pipe is less than 600 mm in private areas, or concrete surround has been noted the following shall apply:-

   a) Vitrified clay pipes - provide a 100 mm min. thick concrete bed and surround (instead of class 'S' bedding) and a 13 mm thick compressible filler at each joint.
   b) uPVC pipes - provide a concrete bridging (in addition to class 'S' bedding) in accordance with appendix A15, Building Regulations part 'H'.

8. All concrete indicated in the construction of drainage infrastructure (pipe bedding, bridging, manholes etc) shall be standardised prescribed concrete ST2 and is to conform to BS EN 206-1 and BS 8500-2. The maximum aggregate size shall be 20mm.

9. Foundations adjacent to pipe runs or manholes are to have their formation level set above the invert level no higher than the equivalent of the horizontal distance between the pipe/excavation trench and the foundation, minus 500mm.

10. Excavations for manholes, pipe runs etc located within a 45 degree load distribution splay from any adjoining existing foundations, are to be adequately supported for the duration of the works and pipe runs protected as note 8 above.

11. Where excavations for pipe runs are parallel and in close proximity to each other and/or other service trenches, The Contractor shall ensure that adequate safety measures, including temporary shoring, are provided in line with current health & safety legislation and good practice. Particular attention is to be paid to adjacent trenches of differing invert levels.

12. All existing drainage found on site during the works shall be investigated, its operational status confirmed and the following applied:-

a) Inoperative drainage shall be cut back and pipe runs filled with concrete grout.

b) 'Live' drainage shall be advised to the engineer.

13. All drainage shall be constructed from the outfall working upstream.

NORTH

Key

- Private underground surface water drain
- Private SW manhole chamber
- Private large SW inspection chamber
- Private small SW inspection chamber
- Private SW rodding eye
- Private suspended surface water drain
- Linear drain
- Yard Gully
- Rainwater downpipe
- Existing SW drainage
- Private underground foul water drain
- Private large FW inspection chamber
- Trapped FW gully
- SVP / stack / direct connection
- Existing FW drainage

Existing drainage to remain accessible in void under floor. Chambers to be rebuilt to ensure 600mm rodding radius is achieved and covers replaced with lightweight A15 covers suitable for lifting in a confined space environment

Internal drainage points to be brought to underground drainage by M&E engineer beneath floor construction
Existing manhole to be re-benched to suit new connection

Existing drainage to be protected with a concrete slab or bridged over and the foundations taken below the invert of the pipe plus 150mm min where construction over pipe is required

Car park to fall to permeable paving with 375mm deep open graded sub-base, lined with terram 1000 geotextile.
Based on 5 x 10-6 m/s infiltration rate (assumed) - In-situ infiltration testing must be carried out prior to construction to verify rate.

3 x 6 x 0.4m cellular storage tank (6.75m3 storage)
Base level 39.100

Drain passing under access road to be encased in concrete

CL 40.240
(Anti-slip cover)
IL 39.640

Ø150 1/135

Catchpit
CL 40.250
IL 39.425

Ø150 1/8

Hydrobrake flow control
CL 40.250
IL 39.050
Design flow: 2 l/s
Design head: 0.4m

TBC

IL to be confirmed before commencing drainage work. Precise location of existing SW to be determined for full length between upstream and downstream manholes

High risk of sewer/foundation clash and requirement for buildover agreement to be entered into with TWUL until precise sewer location confirmed (survey shows sewer 'from record' only)

Ø100 1/80

FW

CL 40.300
IL 39.700

EX CL 40.120
EX IL 39.58

Ø100 1/12

FFL 41.605

CL 41.605
IL 40.400

CL 41.605
IL 40.750

Ø150 1/80

CL 41.605
IL 41.000

FFL 41.605

Ø225

SCALE 1 : 200 @ A1

0m 5 10 15 20

HEALTH, SAFETY & ENVIRONMENT

It is the responsibility of the client to ensure that those undertaking the works are competent and experienced in the type of work to be undertaken.

In addition to the hazards usually associated with the types of work detailed on this drawing, the following specific hazards have been identified through design risk assessment. The planning and execution of the works should take into account all usual and specific hazards.

Hazards should also be taken into account in the maintenance, operation, decommissioning and demolition of the works.

- LIVE SERVICES MAY BE PRESENT ON SITE
- EXISTING GROUND MAY BE CONTAMINATED
- DEEP EXCAVATIONS NECESSARY

DRAWING NOTES

1. This drawing and information contained within is the copyright of Ramtech Consulting and must not be distributed or reproduced without explicit written consent.
2. Information is specific to the site detailed in the title block and must not be replicated for any other project.
3. Do not scale from this drawing. only work to given dimensions.
4. Information must be checked against all other disciplines design drawings and discrepancies reported to the client or engineer immediately.
5. Building drainage connection points shown indicatively, subject to architect design.
6. All drain runs in proximity to extisting services are to be hand dug.

Rev.	Date	Description	Drawn	Checked	Approved
T1	21.09.18	Floorplan and ramp revised, notes updated & issued for tender	TR	RP	RP
P2	30.07.18	Building footprint and drainage revised	TR	RP	RP
P1	12.07.18	First Issue	TR	RP	RP

TENDER

Hillingdon Hospital
A&E Expansion

Drainage General Arrangement

RAMTECH CONSULTING LTD
16 HILLCROFT CRESCENT
WATFORD
HERTS WD19 4NY
PH: 020 8432 3241
www.ramtechgroup.co.uk

Ramtech Consulting

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