

- SECTION 104 & 38 NOTES
1. All adoptable drainage works have been designed and are to be constructed in accordance with current Design & Construction Guidance & local practices.
 2. All clay pipe work shall be Extra Strength Clayware to B.S. EN 295:1991 Part 1.
 3. All precast concrete pipework shall be to the class stated on the drawings in accordance with BS EN 1916:2002.
 4. All manholes and chambers shall be to BS EN 1917:2002.
 5. The Contractor may elect to use reinforced PVC pipes as covered by BS 4660:2000 & BS EN 1401-1.
 6. Structured wall upvc pipes to comply with wts 4-35-01 up to and including 300mm (By prior agreement with adopting authority).
 7. MAX. PIPE LENGTH TO BE 3.0m.
 8. All levels relate to an Ordnance Datum.
 9. This drawing is to be read in conjunction with all other relevant drawings.
 10. House drainage connections to sewers must be 150mm Ø and unless otherwise stated lead to the draught invert level shown.
 11. Levels given on drag out chambers are incoming pipe levels.
 12. House drainage runs to be kept within the curtilage of the plot they serve wherever possible.
 13. The Contractor shall be responsible for ensuring that any existing invert levels indicated on drawings are correct before work commences.
 14. The Contractor should satisfy himself as to the position and depth of any existing Statutory Undertakers plant which could affect the works before the works are commenced.
 15. Road gully connections are to be 150mm Ø connecting either directly to manholes shown, or to sewer runs using pre-formed junctions.
 16. All connections to adoptable sewers shall be by manufactured junction pipes. Saddle connections will not be permitted.
 17. All sewers for adoption with greater than 1.20 metres cover in roads or 0.3m metres cover in fields shall have Class S granular bed and surround.
 18. Any sewer for adoption with less than 1.2 metres cover in roads or 0.3 metres cover in fields shall have a minimum of 150mm ST4 concrete surround. Flexibility shall be maintained by the provision of Flexaloc or similar approved joint filler breaks in the concrete surround at each pipe joints.

ALL PIPES TO HAVE CLASS 'S' BED AND SURROUND UNLESS SHOWN OTHERWISE.
ALL CONCRETE PIPES TO BE CLASS 'SD'.
ALL CLAY PIPES TO BE EXTRA STRENGTH VITRIFIED CLAY.
ALL UPVC PIPES TO COMPLY WITH BS 4660:2000 & BS EN 1401-1.
STRUCTURED WALL UPVC PIPES TO COMPLY WITH WTS 4-35-01.
MAX. PIPE LENGTH TO BE 3.0m.

FOUNDATIONS TO BE DESIGNED / CONSTRUCTED TO TAKE INTO ACCOUNT THE PROXIMITY AND DEPTH OF ADJACENT SEWERS AND DRAINS IN ACCORDANCE WITH BS 7719:2001 PART 8.

CONTRACTOR TO BE AWARE OF AND TAKE APPROPRIATE ACTION TO ENSURE DE-STABILISATION OF ANY EXISTING STRUCTURES, TREES, OR ORNAMENTS OR OTHER FEATURES DOES NOT OCCUR AS A RESULT OF ANY EXCAVATIONS WORKS UNDERTAKEN IN ACCORDANCE WITH THE DESIGN SHOWN ON THIS DRAWING. IF CONTRACTOR IS UNSURE ABOUT ANY ASPECT OF THE ABOVE HE SHOULD SEEK ADVICE BEFORE COMMENCING EXCAVATION WORK.

THE OFF SITE SEWER CONNECTIONS HAVE BEEN DESIGNED TO THE IN WITH THE EXISTING SEWERS AND MANHOLE IT IS ANTICIPATED NO CLASHES WITH EXISTING SERVICES WILL OCCUR, DUE TO THE INHERENT INACCURACIES IN DEPTHS OF EXISTING SERVICES THIS CANNOT BE GUARANTEED.

REFA WOULD ADVISE THE CLIENT TO EMPLOY A SUITABLY EXPERIENCED COMPANY TO UNDERTAKE A SURVEY ALONG THE ROUTE OF THE CONNECTIONS TO ASCERTAIN THE EXISTENCE AND PROXIMITY OF ANY SERVICES AND ADVISE REFA OF ANY POTENTIAL CLASHES TO ASCERTAIN IF DESIGN CHANGES NEED BE MADE.

DUE TO THE NEED FOR OFF SITE SEWER WORKS IT IS STRONGLY ADVISED THAT THESE INVESTIGATIONS ARE UNDERTAKEN PRIOR TO ANY CONSTRUCTION ON SITE TO ALLOW DESIGN CHANGES TO BE MADE.

REFA WILL NOT BE HELD RESPONSIBLE FOR ANY ADVERTIVE WORKS IF THIS PROCEDURE IS NOT FOLLOWED.

ALL EXISTING MANHOLE INVERT LEVELS ARE TO BE LOCATED AND SURVEYED PRIOR TO START ON SITE TO ENSURE THAT THEY ARE CORRECT AND ALSO TO ENSURE THAT LEVEL CLASHES ARE AVOIDED AND THAT INTERPOLATED INVERT LEVELS ARE CORRECT. ANY DISCREPANCY TO BE REPORTED TO REFA PRIOR TO START TO ENABLE ANY CHANGES TO BE MADE TO DESIGN THAT PROVE NECESSARY.

CIVILS DESIGN RISK MANAGEMENT

Abnormal or unusual residual risks associated with the design outcomes shown on this drawing are:

1	EXISTING SERVICES EXISTING ELECTRIC MAIN
2	WORKING ON EXISTING HIGHWAY AND IN AREAS WHERE MEMBERS OF PUBLIC MAY HAVE ACCESS
3	DANGER OF COLLAPSE TO ALL EXCAVATIONS: RISK TO BE ASSESSED AND MANAGED BY CONTRACTOR IN ACCORDANCE WITH HSE GUIDANCE
4	WORKING ADJACENT TO EXISTING CULVERTED WATERCOURSE OR LIVE TOWN SEWER (LEVEL 1 DISEASE)
5	WORKING CLOSE TO EXISTING CULVERT
6	WORKING CLOSE TO EXISTING RAILWAY LINE

REFA Ltd has followed its Design Risk Management process for Hazard Elimination and Risk reduction in developing the design shown on this drawing. Abnormal or unusual residual risks may be shown above where it is considered that such risk may not normally be expected by competent persons engaged on work of this nature or type.

SECTION 104 PLAN KEY

- TITLE BOUNDARY
- S38 ROAD GULLY & CONNECTION
- S104 SURFACE WATER SEWER
- S104 FOUL WATER SEWER
- S104 SEWER EASEMENT
- EXISTING CULVERTED WATERCOURSE
- PROPOSED CULVERT DIVERSION
- EXISTING FOUL WATER SEWER
- EXISTING SURFACE WATER SEWER
- SURFACE WATER DRAUGHT PRIVATE
- FOUL WATER DRAUGHT PRIVATE
- CULVERT TO BE ABANDONED

BENCH MARK INFORMATION

All levels relate to O.S. (Newlyn) Datum. Established using network RTM. Survey plotted on a plane local grid, orientated to National Grid.

PLEASE NOTE THAT THIS DRAWING IS ISSUED FOR INFORMATION/ENDER PURPOSES ONLY UNTIL TECHNICAL APPROVAL HAS BEEN GRANTED. ANY WORK UNDERTAKEN PRIOR TO TECHNICAL APPROVAL BEING GRANTED IS AT THE CLIENTS RISK.

