

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. All manholes and chambers shall be to BS EN 1917:2002.
4. The Contractor may elect to use reinforced PVC pipes as covered by BS 4660:2000 & BS EN 1401-1.
5. Structured wall upvc pipes to comply with wts 4-35-01 up to and including 300mm (By prior agreement with adopting authority).
6. MAX. PIPE LENGTH TO BE 3.0m.
7. All levels relate to an Ordnance Datum.
8. This drawing is to be read in conjunction with all other relevant drawings.
9. House drainage connections to sewers must be 150mm Ø and unless otherwise stated lead to the draught invert level shown.
10. Levels given on drag out chambers are incoming pipe levels.
11. House drainage runs to be kept within the curtilage of the plot they serve wherever possible.
12. The Contractor shall be responsible for ensuring that any existing invert levels indicated on drawings are correct before work commences.
13. 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.
14. Road gully connections are to be 150mm Ø connecting either directly to manholes shown, or to sewer runs using pre-formed junctions.
15. All connections to adoptable sewers shall be by manufactured junction pipes. Saddle connections will not be permitted.
16. 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.
17. 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 7718:2003 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 DEPTH 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 REF A 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.
REF A 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 REF A PRIOR TO START TO ENABLE ANY CHANGES TO BE MADE TO DESIGN THAT PROVE NECESSARY.

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ANY DISCREPANCY TO BE REPORTED TO REF A 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

REF A 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.

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

SCALE IN METRES

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.



IF THE CLIENT OR CONTRACTOR IDENTIFIES ANY DISCREPANCIES BETWEEN THE DRAWINGS PRODUCED BY REF A FOR THIS PROJECT THEN THEY SHOULD CONTACT REF A IMMEDIATELY AND BEFORE ANY WORKS COMMENCE OR PROCEED IF IN DOUBT ASK REF A.

EXISTING SERVICES CROSSING THE SITE - REFER TO UTILITIES SURVEY FOR TYPE AND POSITIONS

PROPOSED SURFACE WATER SYSTEM DESIGNED TO CATER FOR EVENTS UP TO AND INCLUDING THE 1:100 YR ARI. WITH NO PREDICTED SURFACE FLOODING. TOTAL AGREED SURFACE WATER DISCHARGE RATE FOR FULL ARE AS FOLLOWS:
1 YEAR RP = 25.1 L/SEC.
50 YEAR RP = 47.3 L/SEC.
100 YEAR = 49.6 L/SEC. (75.3 L/SEC. THIS IS TO BE SPLIT OVER FOUR SEPARATE OUTFALL LOCATIONS BY WAY OF HYDROGRADE FLOW CONTROL DEVICES.

CONSENT REQUIRED FROM LPA IN RESPECT OF PROPOSED CULVERTED WATERCOURSE DIVERSION

IF THE CLIENT OR CONTRACTOR IDENTIFIES ANY DISCREPANCIES BETWEEN THE DRAWINGS PRODUCED BY REF A FOR THIS PROJECT THEN THEY SHOULD CONTACT REF A IMMEDIATELY AND BEFORE ANY WORKS COMMENCE OR PROCEED IF IN DOUBT ASK REF A.

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

SCALE IN METRES

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.

SW NETWORK 4

MANHOLE NO.	DEPTH (m)	INVERT (m)	OUTLET (m)	DIAMETER (mm)	LENGTH (m)	SHOULDER (mm)	SHOULDER (mm)
S44	1.0	46.75	46.75	150	1.0	1.0	1.0
S45	1.0	46.75	46.75	150	1.0	1.0	1.0

SW NETWORK 2

MANHOLE NO.	DEPTH (m)	INVERT (m)	OUTLET (m)	DIAMETER (mm)	LENGTH (m)	SHOULDER (mm)	SHOULDER (mm)
S46	1.0	46.75	46.75	150	1.0	1.0	1.0
S47	1.0	46.75	46.75	150	1.0	1.0	1.0

THE S38/S278 AGREEMENT FOR THIS SCHEME IS ALSO ASSOCIATED WITH THE LATEST APPROVED REVISION OF THE FOLLOWING PLANS:-
ROAD AND DRAINAGE LAYOUT - DRS: 2212/100/1, 2212/100/2
CONDITIONAL SECTIONS - DRS: 2212/100/3, 2212/100/4,
2212/100/5, 2212/100/6, 2212/100/7
ROAD LEVELS & CONTOURS - DRS: 2212/101/1
TYPICAL ROAD CONSTRUCTION DETAILS - DRS: 2212/113/1, 2212/113/2
KERBING & SURFACING - DRS: 2212/116/1, 2212/116/2

- GENERAL**
1. All adoptable sewers and associated works are to comply fully with 'Design and Construction Guidance'.
 2. All highway works to be to adoptable standards and to comply fully with the Local Authority specification.
 3. All private drainage works are to comply fully with BS 5250:2001 and BS 5250:2001.
 4. All existing invert levels to be checked by the Contractor at the start of works and any discrepancies notified by others.
 5. All materials to bear the relevant B.S. Kitemark and comply fully with the specifications.
 6. All concrete & concrete products must use Sulphate resistant cement (unless the site investigation report proves that sulphate attack from soils and groundwater will not occur).
 7. All existing structures etc. are to be retained under highways etc. are to be obtained prior to commencement of work.
 8. All works are to be inspected by L.A., NERC or relevant Water Authority as applicable.
- CIVIL REGULATIONS 2015**
- In line with the above regulations we are obliged to inform the Client of their responsibilities under section 104(15) and residual risks that may be encountered in the construction of these works. All design work has been carried out with Health and Safety aspects given full consideration. Wherever possible risks have been eliminated from the design, however due to the very nature of this type of work it is not possible to remove all the risks from the design.
- We would also respectfully remind the Client of his obligations to take all reasonable steps in ensuring that only competent Contractors who have a valid safety policy are employed. They should also provide satisfactory responses at tender stage as to the manner in which they will deal with the elements of risk involved in this type of work and in particular those highlighted by REF A below:-
1. Support / treatment for ALL excavation work.
 2. Guarding to edges of excavations to prevent people, materials and vehicles falling into excavation.
 3. Guarding of excavations outside working hours to prevent unauthorised access.
 4. Underpinning to adjacent roads or structures.
 5. Confined space operations.
 6. Dealing with existing services.
 7. Traffic management on existing highways.
 8. Procedure to be followed in event of accident or emergency.
 9. Method of working where contaminated ground is present on site.
 10. Confirmation will be required that all operatives are adequately trained, copies of relevant training certificates to be supplied.
- The above list is by no means exhaustive but it does highlight operations that present a risk to contractors and the general public. For clarification on any item please contact REF A.

Rev	Revision details	Date
A	TO LATEST DESIGN	20/12/22
B	REVISED TO LATEST SEWER DESIGN	09/01/23
C	TO PLANNING LAYOUT REV M. FTL'S REVISED. HRS REVISED. SDR COMMENTS ADDRESSED	19/01/23
D	REVISED TO PLANNING LAYOUT REV L. REVISED TO LATEST SEWER DESIGN	09/01/23

Drawing Stage	Drawing Status
Drawn	Information
Issued	Approval
Drawn	Construction
Issued	As Built

Client
KELLEN HOMES LIMITED
Job title
BENNETT STREET MANCHESTER
Drawing title
S104 AGREEMENT PLAN

REF A
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THIS DRAWING IS BASED ON PLANNING LAYOUT PROVIDED BY CLIENT
DRAWING NUMBER: K4000/A-100
REVISION: M
CULVERT TO ENSURE THE ABOVE LAYOUT IS CURRENT BEFORE USING THIS DRAWING FOR CONSTRUCTION PURPOSES.

Date 30.01.23	Scale 1:500	Drawn RF
DRAWING No	22122/110/1	Rev C
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