

- All additional drainage works have been designed and are to be constructed in accordance with current Design & Construction Standards & local authority requirements.
- All precast concrete work shall be Extra Strength Class 45/55 in accordance with BS 5891-1
- All clay groundwater pipework shall be to the class stated on the drawings in accordance with BS EN 1916/2002.
- All manholes and inspection chambers shall be constructed in concrete.
- The Contractor may elect to use reinforced PVC pipework in accordance with BS EN 12201-1.
- All structural wall and floor slabs to comply with 45 + 45/50 up to and including 200mm (Pipes to comply with adopting authority approval).
- All concrete to be tested to BS 5891-1
- All levels relate to an Ordnance Datum.
- This drawing is to be read in conjunction with all other relevant drawings.
- House drainage connections to sewers must be 150mm Ø.
- All underground drainage shall be installed in accordance with BS 5262.
- Levels given on drain out chambers are incoming pipe levels.
- House drainage runs to be kept within the curtilage of the plot.
- All drainage runs shall be installed in accordance with BS 5262.
- The Contractor shall be responsible for ensuring that any existing drainage runs are not damaged by the proposed works.
- The Contractor shall satisfy himself as to the position and depth of any existing Statutory Underground pipe(s) which could effect the works.
- All connections to existing drains shall be made in accordance with BS 5262.
- Road gully connections are to be 150mm Ø connecting either junction pits or manholes to sewer runs using pre-formed junctions.
- All connections to adoptable sewers shall be by manufactured manholes.
- All connections to public sewers shall be by manholes.
- All sewers for adoption with greater than 1.20 metres cover in roads or public places or in fields shall have Class 5 granular bed and surmount.
- Any sewer for adoption with less than 1.2 metres cover in roads or public places or in fields shall have Class 5 150mm STP surmount. Flexibility shall be maintained by the provision of flexible or flexible joint pipe/breaks in the concrete surround of all pipe joints.

ALL PIPES TO HAVE CLASS "S" BED
AND SURROUND UNLESS SHOWN OTHERWISE
ALL CONCRETE PIPES TO BE CLASS 120
ALL CLAY PIPES TO BE EXTRA STRENGTH VITRIFIED CLAY
ALL UPVC PIPES TO COMPLY WITH BS 4600:2000 & BS EN 1401-1
STRUCTURED WALL UPVC PIPES TO COMPLY WITH WIS 4-35-01
MAX. PIPE LENGTH TO BE 3.0m

FOUNDATIONS TO BE DESIGNED / CONSTRUCTED TO TAKE INTO ACCOUNT THE PROXIMITY AND DEPTH OF ALL EXISTING AND OUTSIDE FOUNDATIONS IN ACCORDANCE WITH SFA 7TH EDITION PART B

CONTRACTOR TO BE AWARE OF AND TAKE APPROPRIATE ACTION TO ENSURE DE-STABILISATION OF ANY EXISTING STRUCTURES, TREES, EMBANKMENTS OR OTHER FEATURES DOES NOT OCCUR AS A RESULT OF ANY EXCAVATIONS. WORKERS TO BE IN ACCORDANCE WITH THE DESIGNS SHOWN ON THIS DRAWING

IF CONTRACTOR IS UNSURE ABOUT ANY ASPECT OF THE ABOVE HE SHOULD STOP WORK BEFORE COMMENCING EXCAVATION WORK.

OUTSIDE OF NEW SEWERS TO BE LOCATED 1.0m MINIMUM FROM KERBLINE AND OUTSIDE OF EXISTING SEWERS TO BE LOCATED 0.5m MINIMUM FROM KERBLINES

ALL STORAGE MAN-HOLES ON THE TANK SEWER WILL BE TO BE CONCRETE SURROUNDED AS THEY ARE WATER RETAINING.

THE OFF SITE SEWER CONNECTION(S) HAVE BEEN DESIGNED TO TIE IN WITH THE EXISTING SEWERS AND WHILST IT IS ANTICIPATED NO CLASHES WITH EXISTING SERVICES WILL OCCUR, DUE TO THE INHERENT

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 UNDERTAKE PRIOR TO ANY CONSTRUCTION ON SITE TO ALLOW DESIGN CHANGES TO BE MADE.

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

ALL EXISTING MANHOLE INVERT LEVELS ARE TO
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

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

	EXISTING SERVICES EXISTING ELECTRIC MAIN
	WORKING ON EXISTING HIGHWAY AND IN AREAS WHERE MEMBERS OF PUBLIC MAY HAVE ACCESS
	DANGER OF COLLAPSE TO ALL EXCAVATIONS - RISK TO BE ASSESSED AND MANAGED BY THE CONTRACTOR IN ACCORDANCE WITH HSE GUIDANCE
	WORKING ADJACENT TO EXISTING CULVERTED WATERCOURSE OR LIVE FLOW SEWER (WELL'S DISEASE)
	WORKING CLOSE TO EXISTING CULTIVET
	WORKING CLOSE TO EXISTING RAILWAY LINE

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

REFA Ltd has followed its Design Risk Management process for Hazard Elimination and Risk reduction in developing the designs 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/TENDER PURPOSES ONLY UNTIL TECHNICAL APPROVAL HAS BEEN GRANTED.
ANY WORK UNDERTAKEN PRIOR TO TECHNICAL APPROVAL BEING GRANTED IS AT THE CLIENTS RISK.

GENERAL

1. All adoptable sewers and associated works are to comply with the "Design and Construction Guidelines" with Local Practices.
2. All highway works to be to adoptable standards and to comply with the "Design and Construction Guidelines".
3. All private drainage works are to comply fully with the "Design and Construction Guidelines".
4. All existing invert levels to be checked by the Contractor at the start of works and any necessary adjustments to be reported to RCT. All levels are based on topographical survey information provided by others.
5. All manholes and sewer access points to be marked with B.S. benchmark and comply fully with the specifications.
6. All concrete & concrete products must use sulphate resistant cement. (Note: the site investigation report proves that sulphate attack from soils and groundwater will not occur)
7. All options for access, or required under highways acts etc. are to be obtained prior to commencement of works.
8. All works are to be inspected by LA, NHBC or Relevant Water Authority as applicable.

C.O.M. REGULATIONS 2015

In line with the above regulations we are obliged to inform the Client of their responsibilities under section 308(1), 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, and the remaining risk is the very nature of the type of work it is not possible to remove all of 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 remaining risks in this type of work and in particular those highlighted by REFA 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. Undermining 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 REFA.

F	REVISED FOLLOWING CLIENTS COMMENTS		08-17-20
G	TO PLANNING LAYOUT REV D REVISED FOLLOWING MCC COMMENTS		26-10-20
H	REVISED FOLLOWING CON COMMENTS		12-20-20
I	TO PLANNING LAYOUT REV M. FTS IS REVISED HIS REVISED, SUB COMMENTS ADDRESSED		13-07-20
J	UPDATED TO PLANNING LAYOUT REV L REVISED TO LATEST SEWER DESIGN		06-24-20
K	TO LATEST DESIGN		14-02-21
rev	Revision details	Date	

Drawing Stage		Drawing Status	
	Draft		● Tender
●	Issued	Information	Construction
		● Approval	As Built

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

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GEOTECHNICAL • ENVIRONMENTAL

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