

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 BE 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 ws 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 laid to the dragout invert level shown.
8. Levels given on drag out chambers are incoming pipe levels.
9. House drainage runs to be kept within the curtilage of the plot they serve wherever possible.
10. The Contractor shall be responsible for ensuring that any existing underground services (e.g. gas, water, electricity, etc.) are not damaged or disturbed during the course of the works.
11. The Contractor should satisfy himself as to the position and depth of any existing Statutory Undertakers plant which could effect the works before the works are commenced.
12. Road gully connections are to be 150mm Ø connecting either directly to manholes shown, or to sewer runs using pre-formed junctions.
13. All connections to adoptable sewers shall be by manufactured junction pipes. Saddle connections will not be permitted.
14. All sewers for adoption with greater than 1.20 metres cover on roads or 0.9m metres cover in fields shall have Class S granular bed and surround.
15. Any sewer for adoption with less than 1.2 metres cover in roads or 0.9 metres cover in fields shall have a minimum of 150mm ST4 concrete surround. Flexibility shall be maintained by the provision of Flexcrete or similar approved joint filler bricks in the concrete surround at each pipe joints

FOUNDATIONS TO BE DESIGNED / CONSTRUCTED
TO TAKE INTO ACCOUNT THE PROXIMITY AND
DEPTH OF ADJACENT SEWERS AND DRAINS 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 WORKS UNDERTAKEN IN ACCORDANCE WITH THE DESIGNS 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 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 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 ABORTIVE
WORKS IF THIS PROCEDURE IS
NOT FOLLOWED

OUTSIDE OF NEW SEWERS TO BE
LOCATED 1.0m MINIMUM FROM
KERBLINES OUTSIDE OF MANHOL
CHAMBERS TO BE LOCATED 0.5m
MINIMUM FROM KERBLINES

CONTRACTOR/CLIENT SHOULD NOTE THE EXISTENCE OF EXISTING BURIED PLANT AND OR OVERHEAD POWER CABLE(S) BEFORE WORK COMMENCES CONTRACTOR MUST UNDERTAKE RISK ASSESSMENT AND PROVIDE METHOD STATEMENT FOR WORKING IN THIS AREA IN ACCORDANCE WITH HSE AND POWER SUPPLIERS GUIDELINES TO SATISFACTION OF THE PRINCIPLE DESIGNER

TO CATER FOR ANY DEVIATIONS IN THE
AS CONSTRUCTED ROAD / FOOTPATH LEVELS
IN RELATION TO THE DESIGN LEVELS,
THE PROPOSED FLOOR LEVELS SHOWN
MUST BE CHECKED ON SITE BY THE SITE AGENT
OR ENGINEER IN RELATION TO AS BUILT ROAD
LEVELS TO ENSURE COMPLIANCE WITH PART M
OF THE BUILDING REGULATIONS

ALL EXISTING SERVICES TO BE LOCATED
AT COMMENCEMENT IN ACCORDANCE WITH
UNDERTAKERS REQUIREMENTS
AND PROTECTED ACCORDINGLY DURING
THE WORKS

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

**PLEASE NOTE: EXTRA CARE TO BE
TAKEN AROUND EXISTING BRICK
CULVERT WHEN CONSTRUCTING NEW
MANHOLE S100. SEGMENTED RING TO
BE CUT TO FACILITATE EXISTING
BRICK CULVERT**

**PROPOSED SURFACE WATER TO
CONNECT TO EXISTING SURFACE
WATER CULVERT SUBJECT TO
APPROVAL BY LLFA**

EXISTING INVERT LEVEL 42.715m
CONFIRMED BY CLIENT, TO BE
CHECKED BY CONTRACTOR BEFORE
ANY ON SITE SEWERS ARE LAID TO
ENABLE DESIGN CHANGES TO BE
MADE AS REQUIRED.
TRIAL HOLE EXCAVATIONS / DRAINAGE
SURVEY WILL BE REQUIRED TO
LOCATE THIS EXISTING SEWER TO
ASCERTAIN DEPTH

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

1 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 CONTRACTOR
IN ACCORDANCE WITH HSE GUIDANCE

4 WORKING ADJACENT TO EXISTING
CULVERTED WATERCOURSE OR LIVE
FOUL SEWER (WEIL'S DISEASE)

 WORKING CLOSE TO EXISTING CULVERT

 WORKING CLOSE TO EXISTING RAILWAY LINE

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

GENERAL

1. All adoptable sewers and associated works are to comply fully with 'Design and Construction Guidance' & Local Practices
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 Part H of the Building Regulations.
4. All existing invert levels to be checked by the Contractor at the start of works and any discrepancies notified to REFA.
All levels are based on topographical survey information provided to the contractors.
5. All materials to bear the relevant B.S./ENmark and comply fully with the relevant standards.
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)
6. All opening notices etc. as required under highways acts etc. are to be obtained prior to commencement of the works.
All works are to be inspected by LA, NHBC or Relevant Water Authority as applicable.

C.D.M. REGULATIONS 2015

In line with the above regulations we are obliged to inform the Client of their responsibilities under section CDM 15/1, 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, however due to the very nature of this type of work it is not possible to remove all the risks from the design.

1. Support / treatment for ALL excavation work.
 2. Guarding to edges of excavations to prevent people, materials and vehicles falling into excavation.
 3. Closure 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. Certification 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.

G	TO SPOONING LAYOUT REV M, FFL'S REVISED	Rev	13.07.03
F	S106 & S107 CL REVISED REVISED TO LATEST DESIGN	AS	03.04.02
E	REVISED TO LATEST DESIGN	AS	27.03.02
D	REVISED FOLLOWING LLFA COMMENTS	AS	22.02.02
C	REVISED TO CLIENT COMMENTS	AS	19.02.02
B	REVISED TO LATEST DESIGN	AS	18.01.02
A	TO LATEST LAYOUT REV H/TD LLFA COMMENTS	AS	21.12.01
rev	Revision details	Rev/D	Date

as recognised by

worksafe
designer

www.smasltd.com

SSIP

SAFETY
SCHEMES IN
PROCUREMENT

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

Client

KELLEN HOMES

Job title

**BENNETT STREET
MANCHESTER**

Drawing title

SURFACE WATER CULVERT DIVERSION

REFA

CONSULTING ENGINEERS
CIVIL • STRUCTURAL
GEOTECHNICAL • ENVIRONMENTAL

Date 18.11.22	Scale 1/500	Drawn AS
------------------	----------------	-------------

DRAWING No	22122/104/1	Rev	G
------------	-------------	-----	---

© This drawing is the property of REFA and should not be copied or its contents divulged without prior written consent.

A1 SHEET