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 BE 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 Structured wall upvc pipes to comply with wis 4-35-01 up to and including 300mm.(By prior agreement with adopting authority) MAX. PIPE LENGTH TO BE 3.0m
5. All levels relate to an Ordnance Datum.
6. This drawing is to be read in conjunction with all other relevant drawings.
7. 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 invert levels indicated on drawings are correct before work commences.
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 in 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 Flexcell 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 120
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 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 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.

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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

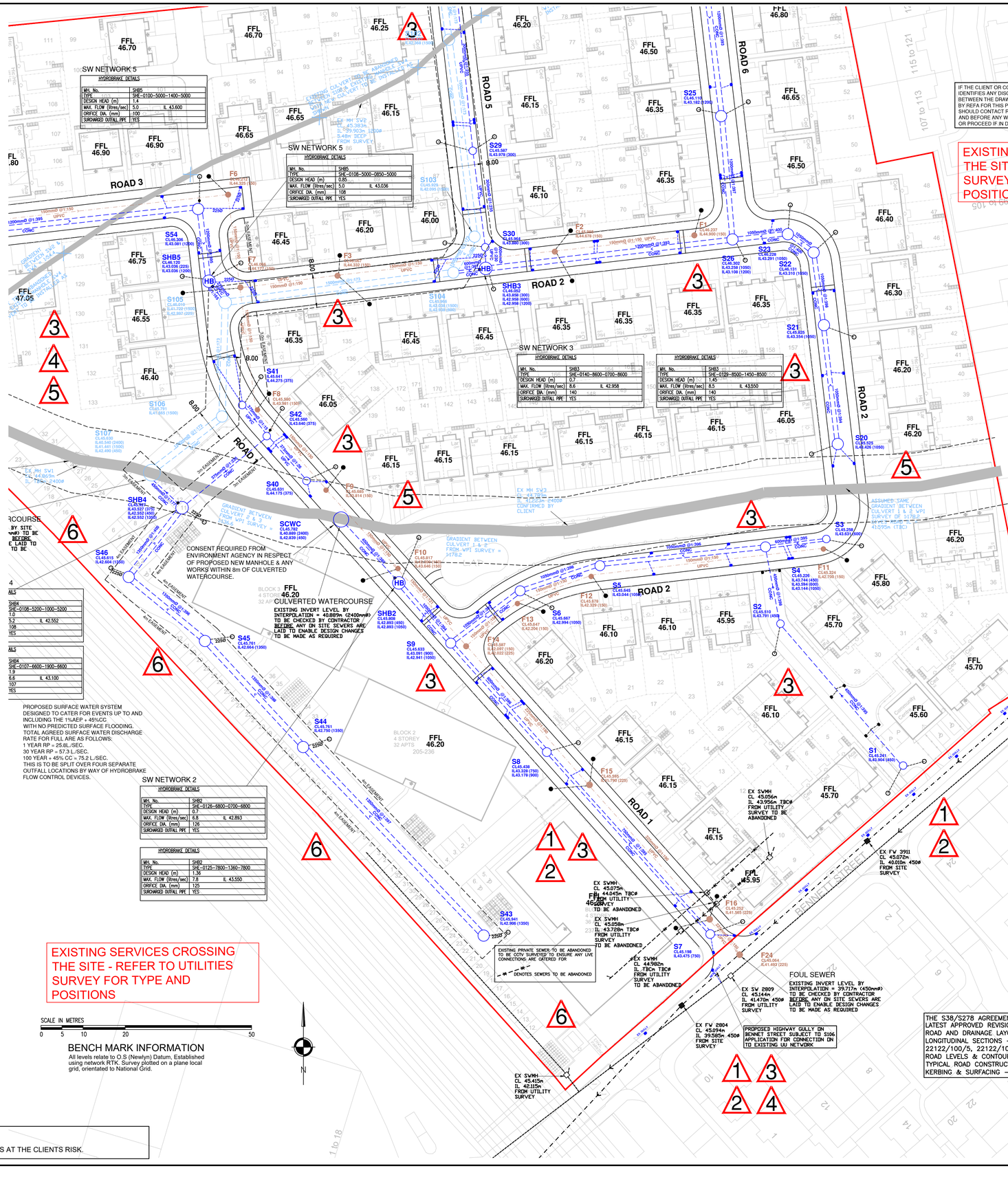
CIVILS DESIGN RISK MANAGEMENT

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 ASSSESED AND MANAGED BY CONTRACTOR IN ACCORDANCE WITH HSE GUIDANCE
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5. WORKING CLOSE TO EXISTING CULVERT
6. WORKING CLOSE TO EXISTING RAILWAY LINE

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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.

rev	Revision details	Rev.By	Date
M	TO PLANNING LAYOUT REV U	RW	26.02.24
L	DRAINAGE KEY UPDATED	RW	29.01.24
K	APARTMENT BLOCK FFL'S UPDATED	RW	29.11.23
J	REVISED FOLLOWING CLIENTS COMMENTS	RW	06.11.23
i	TO PLANNING LAYOUT REV O REVISED FOLLOWING MCC COMMENTS	RW	20.10.23
H	REVISED FOLLOWING S38 COMMENTS	RW	22.09.23
G	TO PLANNING LAYOUT REV M, HB'S REVISED, FFL'S UPDATED, S38 COMMENTS ADDRESSED	RW	13.07.23
F	NEW LAYOUT. SEWER REDESIGN FOLLOWING UPDATED EXISTING SEWER INFORMATION	RF	06.04.23
E	REVISED FOLLOWING LLFA COMMENTS	AS	23.02.23
D	FFL'S REVISED FOLLOWING EXTERNALS UPDATES	RW	25.01.23
C	NEW LAYOUT REV H. CULVERT DIVERSION & NETWORK 4 REVISED. MNOR CL CHANGES	RF	30.01.23
B	DRAGOUTS TO SHB4 & S43 UPSIZED TO 225mm	RW	08.12.22
A	NEW LAYOUT REV F. MINOR SEWER REVISIONS F10, F18 & S53 REMOVED	RF	30.11.22

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

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
ROAD & MAIN DRAINAGE LAYOUT 1

REFA
45 Bridgeman Terrace
Wigan, Lancs
WN1 1TT
Tel:-(01942) 826020
Fax:-(01942) 230816
CONSULTING ENGINEERS
CIVIL STRUCTURAL
GEOTECHNICAL ENVIRONMENTAL

Date	Scale	Drawn
17.11.22	1:500	RF

DRAWING No 22122/100/1 Rev M

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THE S38/S278 AGREEMENT FOR THIS SCHEME IS ALSO ASSOCIATED WITH THE LATEST APPROVED REVISION OF THE FOLLOWING PLANS:–
ROAD AND DRAINAGE LAYOUT – DRGS: 22122/100/1, 22122/100/2
LONGITUDINAL SECTIONS – DRGS: 22122/100/3, 22122/100/4, 22122/100/5, 22122/100/6, 22122/100/7
ROAD LEVELS & CONTOURS – DRGS: 22122/101/1
TYPICAL ROAD CONSTRUCTION DETAILS – DRGS: 22122/113/1, 22122/113/2
KERBING & SURFACING – DRGS: 22122/116/1, 22122/116/2

THIS DRAWING IS BASED ON PLANNING LAYOUT PROVIDED BY CLIENT
DRAWING NUMBER:- KH006/A-100
REVISION:- U
CLIENT TO ENSURE THE ABOVE LAYOUT IS CURRENT BEFORE USING THIS DRAWING FOR CONSTRUCTION PURPOSES

A1 SHEET

SCALE IN METRES
0 5 10 20 50

BENCH MARK INFORMATION

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

PROPOSED SURFACE WATER SYSTEM DESIGNED TO CATER FOR EVENTS UP TO AND INCLUDING THE 1%AEP + 45%CC WITH NO PREDICTED SURFACE FLOODING. TOTAL AGREED SURFACE WATER DISCHARGE RATE FOR FULL ARE AS FOLLOWS:
1 YEAR RP = 25.8L./SEC.
30 YEAR RP = 57.3 L./SEC.
100 YEAR + 45% CC = 75.2 L./SEC.
THIS IS TO BE SPLIT OVER FOUR SEPARATE OUTFALL LOCATIONS BY WAY OF HYDROBRAKE FLOW CONTROL DEVICES.

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

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

SW NETWORK 2

HYDROBRAKE DETAILS

MH. No.	SHB2
TYPE	SHE-0126-6800-0700-6800
DESIGN HEAD (m)	0.7
MAX. FLOW (litres/sec)	6.8 IL 42.893
ORIFICE DIA. (mm)	126
SURCHARGED OUTFALL PIPE	YES

HYDROBRAKE DETAILS

MH. No.	SHB2
TYPE	SHE-0125-7800-1360-7800
DESIGN HEAD (m)	1.36
MAX. FLOW (litres/sec)	7.8 IL 43.550
ORIFICE DIA. (mm)	125
SURCHARGED OUTFALL PIPE	YES

SW NETWORK 5

HYDROBRAKE DETAILS

MH. No.	SHB5
TYPE	SHE-0108-5000-0850-5000
DESIGN HEAD (m)	0.85
MAX. FLOW (litres/sec)	5.0 IL 43.036
ORIFICE DIA. (mm)	108
SURCHARGED OUTFALL PIPE	YES

HYDROBRAKE DETAILS

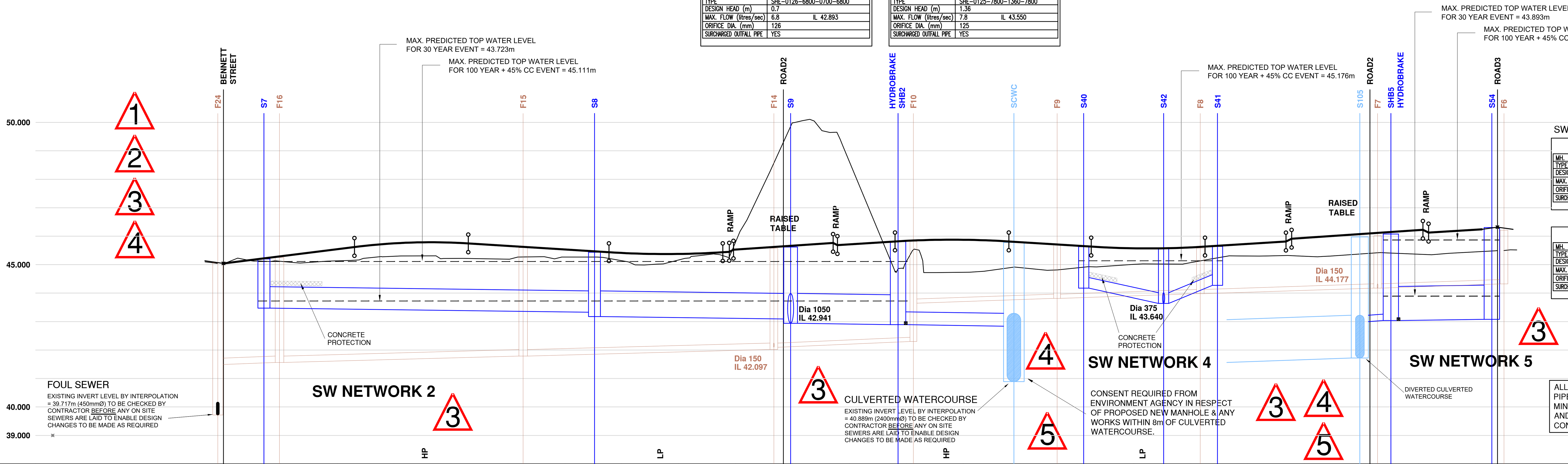
MH. No.	SHB5
TYPE	SHE-0100-5000-1400-5000
DESIGN HEAD (m)	1.4
MAX. FLOW (litres/sec)	5.0 IL 43.600
ORIFICE DIA. (mm)	100
SURCHARGED OUTFALL PIPE	YES

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ALL PIPES TO HAVE CLASS "S" BED EXCEPT PIPES WITH CONCRETE PROTECTION. MINIMUM 150mm THICK GRANULAR BEDDING AND SURROUND MATERIAL TO PIPES WITH CONCRETE PROTECTION.

ROAD1

EXISTING GROUND LEVEL	45.045, 45.118, 45.135, 45.294, 45.218, 45.194, 45.267, 45.139, 45.165, 45.790, 49.981, 48.623, 45.102, 44.731, 44.898, 44.886, 45.010, 45.073, 45.304, 45.297, 45.378, 45.367, 45.449, 45.494
ALIGNMENT LEVEL	45.045, 45.295, 45.545, 45.621, 45.666, 45.749, 45.785, 45.787, 45.775, 45.746, 45.659, 45.534, 45.437, 45.412, 45.379, 45.374, 45.377, 45.407, 45.437, 45.451, 45.526, 45.531, 45.666, 45.763, 45.688, 45.715, 45.815, 45.837, 45.872, 45.877, 45.875, 45.847, 45.815, 45.790, 45.665, 45.634, 45.607, 45.575, 45.572, 45.575, 45.607, 45.634, 45.728, 45.812, 45.912, 45.943, 46.079, 46.214, 46.225, 46.125, 46.228, 46.242
VERTICAL ALIGNMENT	G= 2.500% 1: 40.0; L= 20.000 KF= -5.33333; G= -1.250% 1: -80.0; KF= 8.0 L= 20.000; G= 1.250% 1: 80.0; G= 10.000% 1: 10.0; G= 1.357% 1: 73.7; G= -10.000% 1: -10.0; G= 1.250% 1: 80.0; L= 20.000 KF= -8.0; G= -1.250% 1: -80.0; KF= 8.0 L= 20.000; G= 1.250% 1: 80.0; G= 10.000% 1: 10.0; G= 1.358% 1: 73.6; G= -10.000% 1: -10.0; G= 1.250% 1: 80.0
HORIZONTAL ALIGNMENT	R= 40.000; Pipe 1.003 Dia 225 Circular UPVC 1 in 165 6.407
STORMWATER DETAILS	CL 45.198, IL 43.475; Pipe 3.000 Dia 750 Circular CONC 1 in 395 58.092; CL 45.438, IL 43.328, IL 43.178; Pipe 3.001 Dia 900 Circular CONC 1 in 396 34.467; CL 45.633, IL 43.091, IL 42.941; Pipe 1.005 Dia 1050 Circular CONC 1 in 394 18.894; CL 45.808, IL 42.893, IL 42.893; Pipe 1.006 Dia 450 Circular CONC 1 in 380 20.350; CL 45.782, IL 42.839; CL 45.631, IL 44.175; 1.000 Dia 375 CONC 1 in 26 14.043; CL 45.560, IL 43.640, IL 43.640; 2.000 Dia 375 CONC 1 in 15 9.566; IL 44.275, CL 45.641; CL 46.010, IL 41.722, IL 42.997; CL 46.120, IL 43.036; Pipe 1.002 Dia 1200 Circular CONC 1 in 394 17.752; CL 46.306, IL 43.081
FOULWATER DETAILS	CL 45.064, IL 41.493; 1.009 Dia 225 UPVC 1 in 150 10.845; IL 41.565, IL 41.565, CL 45.252; Pipe 1.008 Dia 225 Circular UPVC 1 in 190 42.816; CL 45.595, IL 41.790, IL 41.790; Pipe 1.007 Dia 225 Circular UPVC 1 in 190 44.072; CL 45.587, IL 42.022, IL 42.097; Pipe 1.006 Dia 150 Circular UPVC 1 in 121 24.510; CL 45.817, IL 42.300, IL 43.646; Pipe 1.005 Dia 150 Circular UPVC 1 in 150 25.264; CL 45.685, IL 43.814, IL 43.814; Pipe 1.004 Dia 150 Circular UPVC 1 in 150 25.058; CL 45.580, IL 43.981, IL 43.981; Pipe 1.003 Dia 150 Circular UPVC 1 in 150 29.335; CL 46.066, IL 44.177, IL 44.177; Pipe 2.002 Dia 150 Circular UPVC 1 in 150 22.212; IL 44.325
CHAINAGE	0.000, 10.000, 20.000, 23.037, 25.000, 30.000, 35.000, 36.371, 40.000, 43.037, 50.000, 60.000, 67.760, 70.000, 75.000, 77.760, 80.000, 85.000, 87.760, 88.892, 89.643, 90.000, 98.394, 100.000, 107.149, 107.900, 110.000, 118.032, 120.000, 125.000, 128.032, 130.000, 135.000, 138.032, 140.000, 150.000, 152.507, 155.000, 160.000, 162.507, 165.000, 168.749, 170.000, 172.507, 180.000, 186.735, 187.734, 190.000, 193.217, 200.000, 201.475, 210.000, 210.791, 211.791, 220.000, 223.891

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H	REVISED FOLLOWING S38 COMMENTS	RW	22.09.23
G	TWL'S & HB'S REVISED FOLLOWING SW RECALCULATIONS	RW	13.07.23
F	CONCRETE PROTECTION NOTE ADDED AS PER S104 COMMENTS	RF	24.05.23
E	FW REFERNCE NUMBERS CORRECTED	RF	04.05.23
D	SEWER REDESIGN FOLLOWING UPDATED EXISTING SEWER INFORMATION	RF	06.04.23
C	REVISED FOLLOWING LLFA COMMENTS	AS	23.02.23
B	CULVERT DIVERSION & NETWORK 4 REVISED ROADS 4, 5 & RAMPS REVISED	RF	20.01.23
A	MINOR SEWER REVISIONS TO NETWORK 5 & FW FROM F11-F12	RF	30.11.22

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

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
LONGITUDINAL SECTIONS 1

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CIVIL STRUCTURAL
GEOTECHNICAL ENVIRONMENTAL

Date	Scale	Drawn
17.11.22	1:500 H ; 1:100 V	RF

DRAWING No 22122/100/3 Rev H

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A1 SHEET

SCALE IN METRES

0 5 10 20 50

BENCH MARK INFORMATION

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

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PROPOSED SURFACE WATER SYSTEM DESIGNED TO CATER FOR EVENTS UP TO AND INCLUDING THE 1%AEP + 45%CC WITH NO PREDICTED SURFACE FLOODING. TOTAL AGREED SURFACE WATER DISCHARGE RATE FOR FULL ARE AS FOLLOWS:
1 YEAR RP = 25.8L./SEC.
30 YEAR RP = 57.3 L./SEC.
100 YEAR + 45% CC = 75.2 L./SEC.
THIS IS TO BE SPLIT OVER FOUR SEPARATE OUTFALL LOCATIONS BY WAY OF HYDROBRAKE FLOW CONTROL DEVICES.

SW NETWORK 3

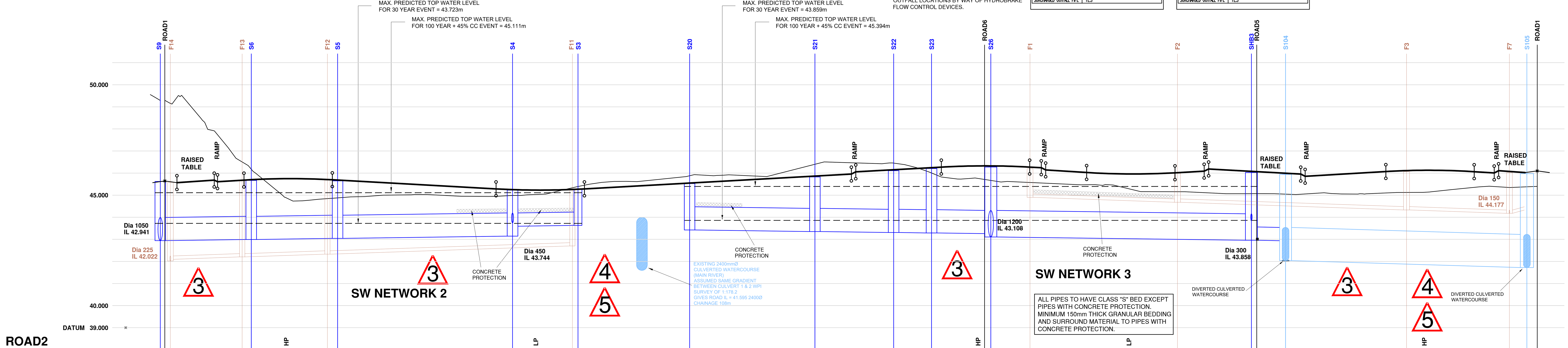
HYDROBRAKE DETAILS

MH. No.	SHB3	
TYPE	SHE-0140-8600-0700-8600	
DESIGN HEAD (m)	0.7	
MAX. FLOW (litres/sec)	8.6	IL 42.958
ORIFICE DIA. (mm)	140	
SURCHARGED OUTFALL PIPE	YES	

HYDROBRAKE DETAILS

MH. No.	SHB3	
TYPE	SHE-0129-8500-1450-8500	
DESIGN HEAD (m)	1.45	
MAX. FLOW (litres/sec)	8.5	IL 43.550
ORIFICE DIA. (mm)	140	
SURCHARGED OUTFALL PIPE	YES	

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



ROAD2	
EXISTING GROUND LEVEL	49.297, 47.998, 46.080, 44.737, 44.892, 44.999, 45.021, 44.945, 44.986, 45.229, 45.601, 45.676, 45.927, 45.898, 46.032, 46.500, 46.439, 46.256, 45.728, 45.609, 45.538, 45.475, 45.204, 45.157, 45.067, 45.068, 45.078, 45.050, 45.123, 45.223, 45.401, 45.394, 45.398
ALIGNMENT LEVEL	45.568, 45.667, 45.682, 45.608, 45.683, 45.706, 45.742, 45.749, 45.747, 45.724, 45.696, 45.673, 45.562, 45.451, 45.340, 45.288, 45.388, 45.307, 45.258, 45.159, 45.229, 45.340, 45.451, 45.563, 45.674, 45.785, 45.896, 45.956, 46.056, 46.096, 46.207, 46.271, 46.308, 46.326, 46.327, 46.317, 46.279, 46.271, 46.242, 46.142, 46.135, 46.026, 46.011, 45.971, 45.960, 45.960, 45.980, 46.012, 46.027, 46.086, 46.186, 46.145, 46.033, 45.954, 45.854, 45.876, 45.995, 46.070, 46.105, 46.127, 46.128, 46.119, 46.080, 46.063, 46.019, 46.007, 46.107, 46.022
VERTICAL ALIGNMENT	G= 1.361% 1: 73.5; G= -10.000% 1: -10.0; G= 1.250% 1: 80.0; L= 20.000 KF= -8.47099; G= -1.111% 1: -90.0; KF= 9.00439 L= 20.000; G= 1.110% 1: 90.1; G= 10.000% 1: 10.0; G= 1.111% 1: 90.0; L= 20.000 KF= -9.00090; G= -1.111% 1: -90.0; G= -10.000% 1: -10.0; G= 1.250% 1: -80.0; KF= 8.47099 L= 20.000; G= 1.111% 1: 90.0; G= 10.000% 1: 10.0; G= -1.111% 1: -90.0; G= -10.000% 1: -10.0; G= 1.182% 1: 84.6; L= 20.000 KF= -8.22389; G= -1.250% 1: -80.0; G= 10.000% 1: 10.0; G= -1.419% 1: -70.5
HORIZONTAL ALIGNMENT	R= 49.977; R= 8.750; R= 8.750
STORMWATER DETAILS	CL 45.633 IL 42.941; Pipe 1.004 Dia 1050 Circular CONC 1 in 393 20.825; CL 45.667 IL 42.994; IL 42.994; Pipe 1.003 Dia 1050 Circular CONC 1 in 398 19.914; CL 45.645 IL 43.044; IL 43.044; Pipe 1.002 Dia 1050 Circular CONC 1 in 396 39.612; CL 45.226 IL 43.144; IL 43.594; Pipe 2.000 Dia 600 CONC 1 in 395 14.620; CL 45.258 IL 43.631; CL 45.525 IL 43.426; Pipe 1.000 Dia 1050 Circular CONC 1 in 394 28.368; CL 45.825 IL 43.354; IL 43.354; Pipe 1.001 Dia 1050 Circular CONC 1 in 398 17.516; CL 46.131 IL 43.310; IL 43.310; 1.002 1050 CONC 1:400 7.592; IL 43.228; IL 43.291 CL 46.204; 1.003 Dia 1050 CONC 1 in 400 13.232; CL 46.302 IL 43.258; IL 43.108; Pipe 1.004 Dia 1200 Circular CONC 1 in 393 58.992; CL 46.052 IL 42.958; IL 42.958; CL 45.966 IL 42.938; IL 42.038; Pipe 1.005 Dia 600 Circular CONC 1 in 387 7.736
FOULWATER DETAILS	CL 45.578 IL 42.097; Pipe 3.002 Dia 150 Circular UPVC 1 in 150 16.006; CL 45.647 IL 42.204; IL 42.204; Pipe 3.001 Dia 150 Circular UPVC 1 in 150 18.756; CL 45.678 IL 42.329; IL 42.329; Pipe 3.000 Dia 150 Circular UPVC 1 in 150 55.625; CL 45.224 IL 42.700; CL 46.237 IL 44.900; Pipe 1.000 Dia 150 Circular UPVC 1 in 150 33.367; CL 45.985 IL 44.678; IL 44.678; Pipe 1.001 Dia 150 Circular UPVC 1 in 150 51.863; CL 46.067 IL 44.332; IL 44.332; Pipe 1.002 Dia 150 Circular UPVC 1 in 150 23.292; CL 46.066 IL 44.177
CHAINAGE	0.000, 2.750, 8.219, 10.000, 11.178, 11.928, 17.913, 20.000, 25.000, 28.501, 30.000, 35.000, 37.913, 38.791, 40.000, 50.000, 60.000, 70.000, 74.662, 75.662, 80.000, 82.637, 83.638, 90.000, 90.669, 100.000, 104.413, 110.000, 120.000, 130.000, 140.000, 150.000, 155.406, 156.405, 160.000, 161.957, 170.000, 175.701, 175.779, 180.000, 185.000, 185.559, 185.779, 190.000, 195.000, 195.779, 198.403, 199.402, 200.000, 208.662, 210.000, 215.000, 219.251, 220.000, 225.000, 228.662, 230.000, 235.284, 236.284, 240.000, 247.165, 250.000, 257.133, 258.133, 260.000, 270.000, 276.411, 280.000, 285.000, 286.131, 290.000, 295.000, 296.411, 300.000, 300.923, 301.923, 310.665

ALL PIPES TO HAVE CLASS "S" BED EXCEPT PIPES WITH CONCRETE PROTECTION. MINIMUM 150mm THICK GRANULAR BEDDING AND SURROUND MATERIAL TO PIPES WITH CONCRETE PROTECTION.

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 ASSSESED AND MANAGED BY CONTRACTOR IN ACCORDANCE WITH HSE GUIDANCE
4. WORKING ADJACENT TO EXISTING CULVERTED WATERCOURSE OR LIVE FOUL SEWER (WEIL'S 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 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

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 4660:2000 & 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 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.

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

ALL DRAGOUT CONNECTIONS FROM MAIN SEWER MANHOLES TO FIRST INSPECTION CHAMBER TO BE 150mm Ø UNLESS INDICATED OTHERWISE

ALL ROAD GULLY CONNECTIONS TO BE 150mm Ø

ALL STORAGE MANHOLES ON THE TANK SEWER WILL NEED TO BE CONCRETE SURROUNDED AS THEY ARE WATER RETAINING.

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

THE S38/S278 AGREEMENT FOR THIS SCHEME IS ALSO ASSOCIATED WITH THE LATEST APPROVED REVISION OF THE FOLLOWING PLANS:-
ROAD AND DRAINAGE LAYOUT – DRGS: 22122/100/1, 22122/100/2
LONGITUDINAL SECTIONS – DRGS: 22122/100/3, 22122/100/4, 22122/100/5, 22122/100/6, 22122/100/7
ROAD LEVELS & CONTOURS – DRGS: 22122/101/1
TYPICAL ROAD CONSTRUCTION DETAILS – DRGS: 22122/113/1, 22122/113/2
KERBING & SURFACING – DRGS: 22122/116/1, 22122/116/2

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 fully with "Design and Construction Guidance" & Local Practices
2. All highway works to be to adoptable standards and to 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 by others.
5. All materials to bear the relevant B.S.Kitemark and comply fully with the specifications. 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 works. All works are to be inspected by L.A., 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. 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 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.

rev	Revision details	Rev.By	Date
H	REVISED FOLLOWING MCC COMMENTS	RW	19.10.23
G	REVISED FOLLOWING S38 COMMENTS	RW	22.09.23
F	TWL'S & HB'S REVISED FOLLOWING SW RECALCULATIONS	RW	13.07.23
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D	SEWER REDESIGN FOLLOWING UPDATED EXISTING SEWER INFORMATION	RF	06.04.23
C	REVISED FOLLOWING LLFA COMMENTS	AS	23.02.23
B	CULVERT DIVERSION & NETWORK 4 REVISED ROADS 4, 5 & RAMPS REVISED	RF	20.01.23
A	MINOR FW REVISIONS BETWEEN F17-F21 F18 REMOVED	RF	30.11.22

smas worksafe designer www.smasltd.com — as recognised by SSIP SAFETY SCHEMES IN PROCUREMENT

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

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
LONGITUDINAL SECTIONS 2

REFA
45 Bridgeman Terrace
Wigan, Lancs
WN1 1TT
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Fax:-(01942) 230816
CONSULTING ENGINEERS
CIVIL • STRUCTURAL
GEOTECHNICAL • ENVIRONMENTAL

Date	Scale	Drawn
17.11.22	1:500 H ; 1:100 V	RF

DRAWING No 22122/100/4 Rev H

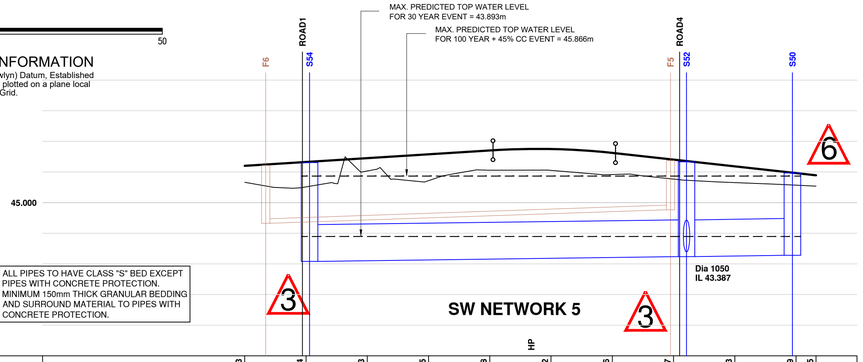
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A1 SHEET

SCALE IN METRES
0 5 10 20 50

BENCH MARK INFORMATION

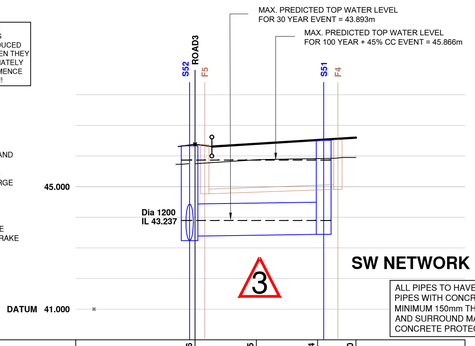
All levels relate to O.S (Newlyn) Datum, Established using network RTK. Survey plotted on a plane local grid, orientated to National Grid.



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1 YEAR RP = 25.8L/SEC.
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EXISTING SERVICES CROSSING THE SITE - REFER TO UTILITIES SURVEY FOR TYPE AND POSITIONS

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ROAD LEVELS & CONTOURS – DRGS: 22122/101/1
TYPICAL ROAD CONSTRUCTION DETAILS – DRGS: 22122/113/1, 22122/113/2
KERBING & SURFACING – DRGS: 22122/116/1, 22122/116/2

ROAD3

EXISTING GROUND LEVEL	45.663	45.514	46.033	45.715	46.058	46.032	45.916	45.767	45.653	45.569	45.545	
ALIGNMENT LEVEL	46.201	46.326	46.451	46.576	46.701	46.707 / 46.746 / 46.753 / 46.748	46.708	46.624	46.612	46.404	46.184	45.964	45.892
VERTICAL ALIGNMENT		G= 1.250% 1: 80.0				L= 20.000 KF= -5.79710				G= -2.200% 1: -45.5			
HORIZONTAL ALIGNMENT													
STORMWATER COVER LEVEL		CL 46.306 IL 43.081	Pipe 1.001 Dia 1200 Circular CONC 1 in 394 61.541						CL 46.333 IL 43.237	IL 43.237	Pipe 1.000 Dia 1200 Circular CONC 1 in 393 17.288	CL 45.966 IL 43.281
FOULWATER COVER LEVEL	CL 46.212 IL 44.325	Pipe 2.001 Dia 150 Circular UPVC 1 in 150 66.089							CL 46.371 IL 44.766			
CHAINAGE	0.000	9.415	10.000	20.000	30.000	40.000	40.536	45.000	47.782	50.000	55.000	60.000	60.536	70.000	70.987	80.000	90.000	93.265

ROAD4

EXISTING GROUND LEVEL	45.746	45.875	45.914	45.930	
ALIGNMENT LEVEL	46.306	46.397	46.522	46.600	
VERTICAL ALIGNMENT		G= 1.250% 1: 80.0			
HORIZONTAL ALIGNMENT					
STORMWATER DETAILS	CL 46.333 IL 43.387	Pipe 2.000 Dia 1050 Circular CONC 1 in 398 21.885	CL 46.511 IL 43.442		
FOULWATER DETAILS	CL 46.371 IL 44.766	Pipe 2.000 Dia 150 Circular UPVC 1 in 150 21.743	CL 46.377 IL 44.811		
CHAINAGE	0.000	2.750	10.000	20.000	26.271

CIVILS DESIGN RISK MANAGEMENT

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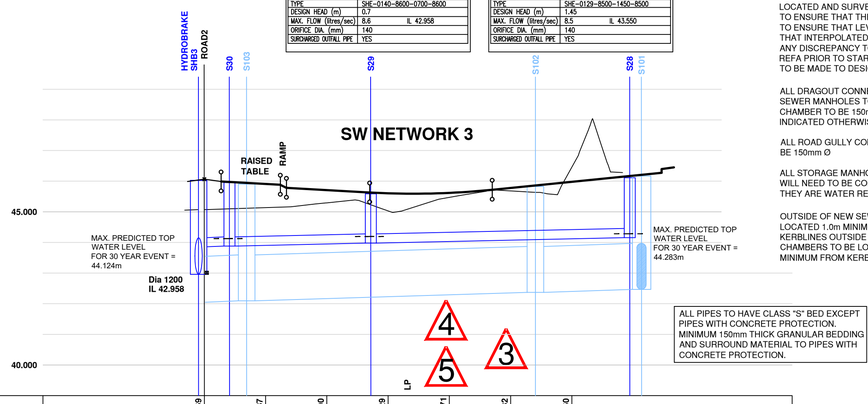
SW NETWORK 3

HYDROBRAKE DETAILS

MH. No.	SHB3
TYPE	SHE-0140-8600-0700-8600
DESIGN HEAD (m)	0.7
MAX. FLOW (litres/sec)	8.6 IL 42.958
ORIFICE DIA. (mm)	140
SURCHARGED OUTFALL PIPE	YES

HYDROBRAKE DETAILS

MH. No.	SHB3
TYPE	SHE-0129-8500-1450-8500
DESIGN HEAD (m)	1.45
MAX. FLOW (litres/sec)	8.5 IL 43.550
ORIFICE DIA. (mm)	140
SURCHARGED OUTFALL PIPE	YES



ALL PIPES TO HAVE CLASS "S" BED EXCEPT PIPES WITH CONCRETE PROTECTION. MINIMUM 150mm THICK GRANULAR BEDDING AND SURROUND MATERIAL TO PIPES WITH CONCRETE PROTECTION.

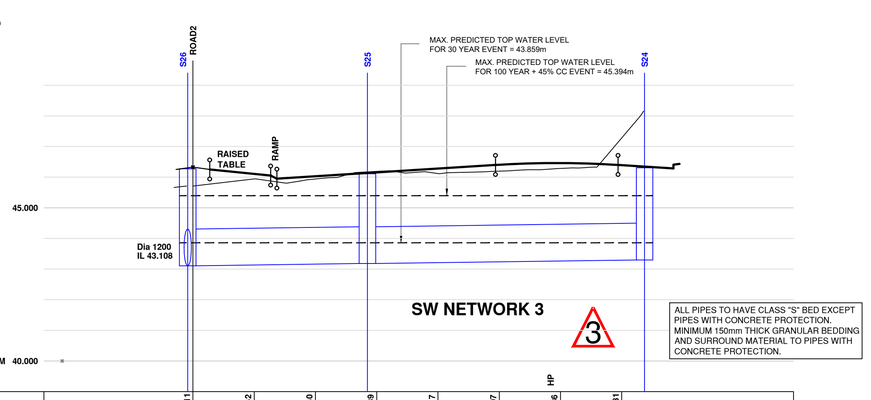
ALL EXISTING MANHOLE INVERT LEVELS ARE TO LOCATED AND SURVEYED PRIOR TO START ON SITE TO ENSURE THAT THEY ARE CORRECT AND ALSO TO ENSURE THAT LEVEL CLASHES ARE AVOIDED AND THAT INTERPOLATED INVERT LEVELS ARE CORRECT. ANY DISCREPANCY TO BE REPORTED TO REFA PRIOR TO START TO ENABLE ANY CHANGES TO BE MADE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

ALL DRAGOUT CONNECTIONS FROM MAIN SEWER MANHOLES TO FIRST INSPECTION CHAMBER TO BE 150mm Ø UNLESS INDICATED OTHERWISE

ALL ROAD GULLY CONNECTIONS TO BE 150mm Ø

ALL STORAGE MANHOLES ON THE TANK SEWER WILL NEED TO BE CONCRETE SURROUNDED AS THEY ARE WATER RETAINING.

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



ALL PIPES TO HAVE CLASS "S" BED EXCEPT PIPES WITH CONCRETE PROTECTION. MINIMUM 150mm THICK GRANULAR BEDDING AND SURROUND MATERIAL TO PIPES WITH CONCRETE PROTECTION.

ROAD5

EXISTING GROUND LEVEL	45.069	45.137	45.290	45.029	45.471	45.682	46.460																	
ALIGNMENT LEVEL	45.898	45.908	45.681	45.761	45.708	45.630	45.604	45.591	45.591	45.617	45.682	45.719	45.779	45.979	46.179	46.272								
VERTICAL ALIGNMENT		G= -1.111% 1: -90.0		G= -10.000% 1: -10.0		G= -1.111% 1: -90.0		KF= 6.42880 L= 20.000				G= 2.000% 1: 50.0												
HORIZONTAL ALIGNMENT																								
STORMWATER DETAILS	Pipe 3.002 Dia 300 Circular UPVC 1 in 230 5.068	CL 46.052 IL 43.958	CL 45.964 IL 43.880	IL 43.880	Pipe 3.001 Dia 300 Circular UPVC 1 in 235 23.076		CL 45.587 IL 43.978	IL 43.978	Pipe 3.000 Dia 300 Circular UPVC 1 in 235 42.277					CL 46.113 IL 44.158									
CHAINAGE	0.000	2.750	10.000	12.411	13.411	20.000	26.995	30.000	34.137	35.000	40.000	45.000	46.995	50.000	60.000	70.000	74.852							

ROAD6

EXISTING GROUND LEVEL	45.711	45.942	45.940	46.188	46.117	46.197	46.286	47.281																
ALIGNMENT LEVEL	46.250	46.105	46.051	45.951	46.030	46.155	46.280	46.398	46.405	46.448	46.460	46.460	46.441	46.398	46.390	46.285								
VERTICAL ALIGNMENT		G= -1.999% 1: -50.0		G= -10.000% 1: -10.0		G= 1.250% 1: 80.0					L= 20.000 KF= -8.0			G= -1.250% 1: -80.0										
HORIZONTAL ALIGNMENT																								
STORMWATER DETAILS	CL 46.302 IL 43.109	Pipe 2.001 Dia 1200 Circular CONC 1 in 397 29.343			CL 46.110 IL 43.182	IL 43.182	Pipe 2.000 Dia 1200 Circular CONC 1 in 393 45.238								CL 46.308 IL 43.297									
CHAINAGE	0.000	2.750	10.000	12.699	13.699	20.000	30.000	40.000	49.397	50.000	55.000	59.397	60.000	65.000	69.397	70.000	78.437							

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C.D.M. REGULATIONS 2015

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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.

rev	Revision details	Rev.By	Date
G	REVISED FOLLOWING S38 COMMENTS	RW	22.09.23
F	TWL'S & HB'S REVISED FOLLOWING SW RECALCULATIONS	RW	13.07.23
E	FW REFERNCE NUMBERS CORRECTED	RF	04.05.23
D	SEWER REDESIGN FOLLOWING UPDATED EXISTING SEWER INFORMATION	RF	06.04.23
C	REVISED FOLLOWING LLFA COMMENTS	AS	23.02.23
B	CULVERT DIVERSION & NETWORK 4 REVISED ROADS 4, 5 & RAMPS REVISED	RF	20.01.23
A	MINOR SEWER REVISIONS TO SW & FW SEWERS IN ROADS 3,& 4 , F10 & S53 REMOVED	RF	30.11.22

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

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
LONGITUDINAL SECTIONS 3

REFA
45 Bridgeman Terrace
Wigan, Lancs
WN1 1TT
Tel:-(01942) 826020
Fax:-(01942) 230816
CONSULTING ENGINEERS
CIVIL STRUCTURAL
GEOTECHNICAL ENVIRONMENTAL

Date	Scale	Drawn
17.11.22	1:500 H ; 1:100 V	RF

DRAWING No 22122/100/5 Rev G

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A1 SHEET

SCALE IN METRES

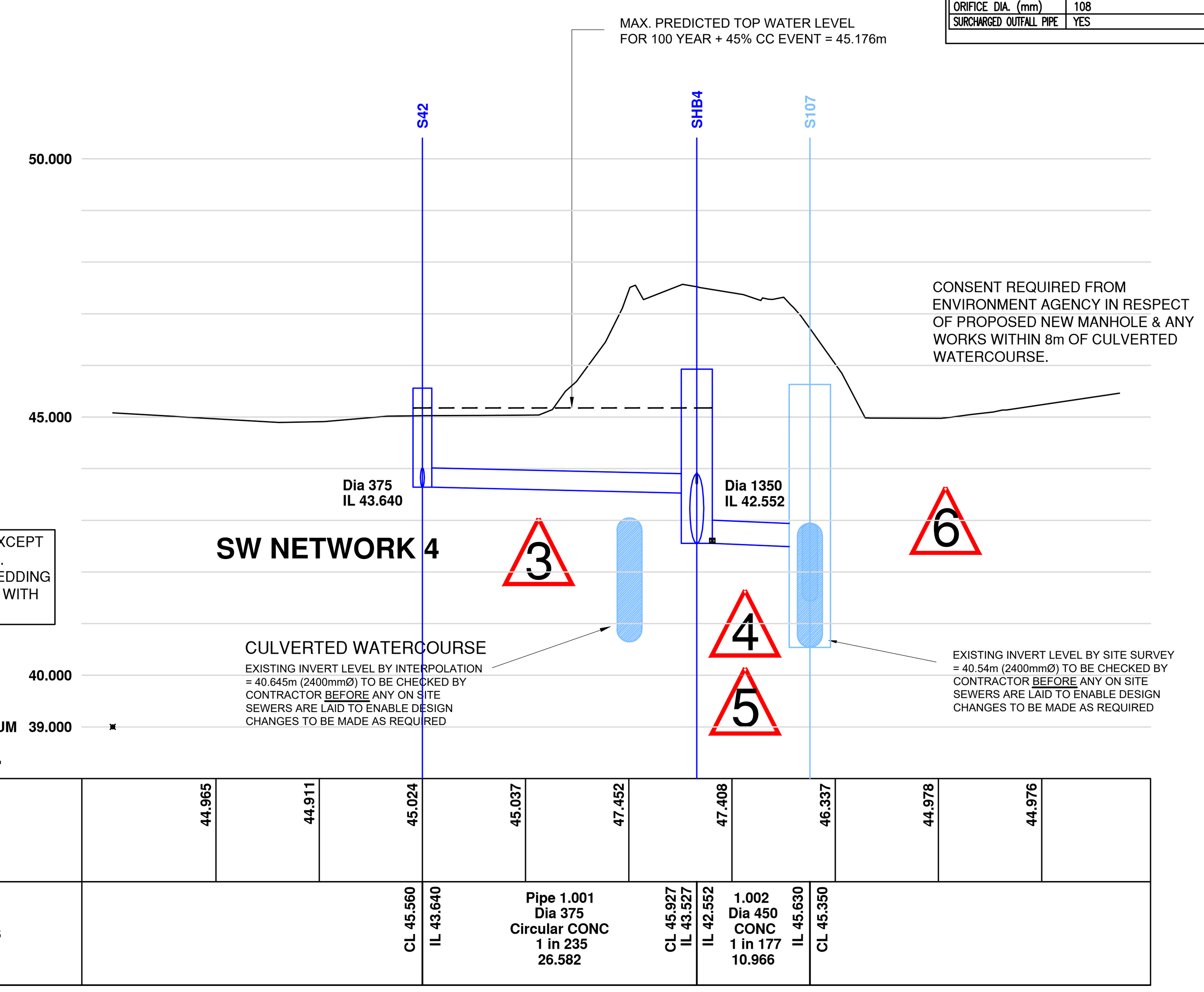
0 5 10 20 50

BENCH MARK INFORMATION

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

PROPOSED SURFACE WATER SYSTEM DESIGNED TO CATER FOR EVENTS UP TO AND INCLUDING THE 1%AEP + 45%CC WITH NO PREDICTED SURFACE FLOODING.
TOTAL AGREED SURFACE WATER DISCHARGE RATE FOR FULL ARE AS FOLLOWS:
1 YEAR RP = 25.8L./SEC.
30 YEAR RP = 57.3 L./SEC.
100 YEAR + 45% CC = 75.2 L./SEC.
THIS IS TO BE SPLIT OVER FOUR SEPARATE OUTFALL LOCATIONS BY WAY OF HYDROBRAKE FLOW CONTROL DEVICES.

ALL PIPES TO HAVE CLASS "S" BED EXCEPT PIPES WITH CONCRETE PROTECTION. MINIMUM 150mm THICK GRANULAR BEDDING AND SURROUND MATERIAL TO PIPES WITH CONCRETE PROTECTION.



SW NETWORK 4

HYDROBRAKE DETAILS	
MH. No.	SHB4
TYPE	SHE-0108-5200-1000-5200
DESIGN HEAD (m)	1.0
MAX. FLOW (litres/sec)	5.2 IL 42.552
ORIFICE DIA. (mm)	108
SURCHARGED OUTFALL PIPE	YES

HYDROBRAKE DETAILS	
MH. No.	SHB4
TYPE	SHE-0107-6600-1900-6600
DESIGN HEAD (m)	1.9
MAX. FLOW (litres/sec)	6.6 IL 43.100
ORIFICE DIA. (mm)	107
SURCHARGED OUTFALL PIPE	YES

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

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

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 ASSSESED AND MANAGED BY CONTRACTOR IN ACCORDANCE WITH HSE GUIDANCE
4. WORKING ADJACENT TO EXISTING CULVERTED WATERCOURSE OR LIVE FOUL SEWER (WEIL'S 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 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

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 4660:2000 & 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 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.

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

ALL DRAGOUT CONNECTIONS FROM MAIN SEWER MANHOLES TO FIRST INSPECTION CHAMBER TO BE 150mm Ø UNLESS INDICATED OTHERWISE

ALL ROAD GULLY CONNECTIONS TO BE 150mm Ø

ALL STORAGE MANHOLES ON THE TANK SEWER WILL NEED TO BE CONCRETE SURROUNDED AS THEY ARE WATER RETAINING.

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

GENERAL

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C.D.M. REGULATIONS 2015

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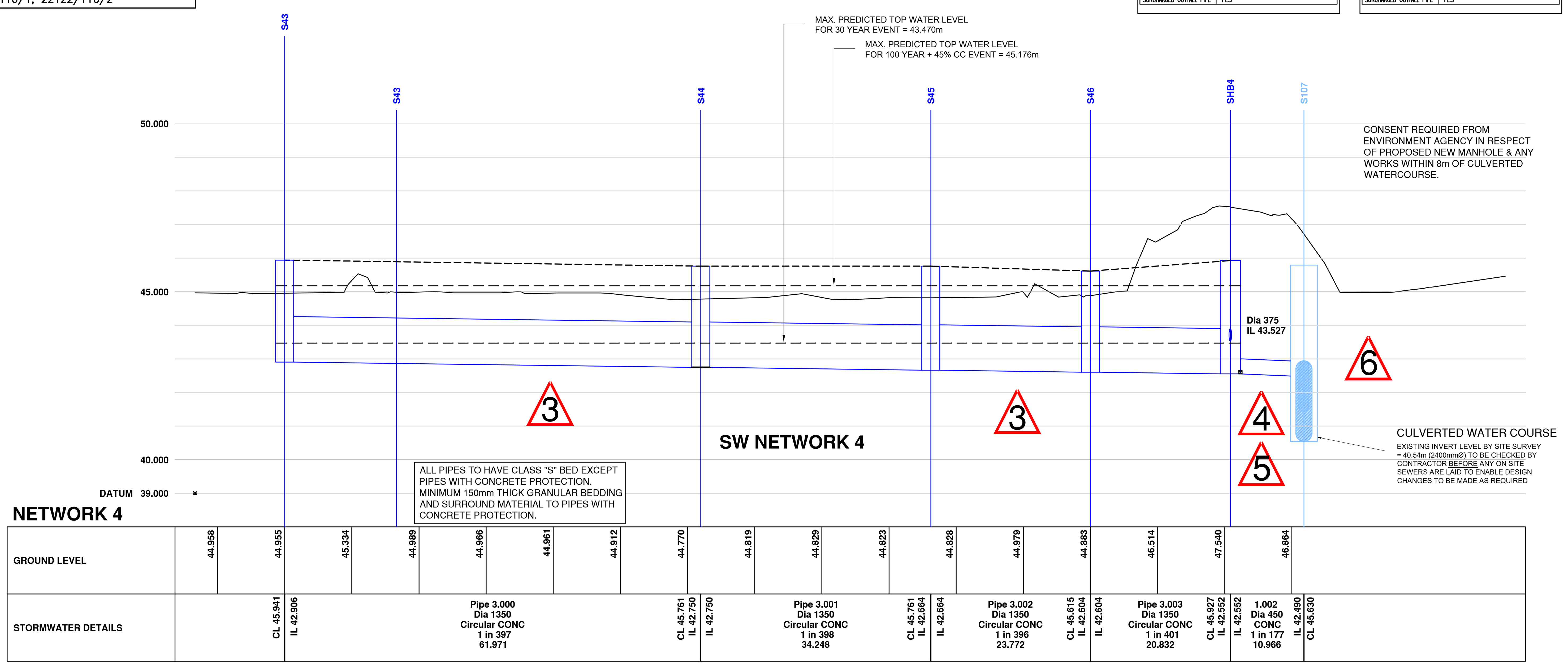
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THE S38/S278 AGREEMENT FOR THIS SCHEME IS ALSO ASSOCIATED WITH THE LATEST APPROVED REVISION OF THE FOLLOWING PLANS:-
ROAD AND DRAINAGE LAYOUT - DRGS: 22122/100/1, 22122/100/2
LONGITUDINAL SECTIONS - DRGS: 22122/100/3, 22122/100/4, 22122/100/5, 22122/100/6, 22122/100/7
ROAD LEVELS & CONTOURS - DRGS: 22122/101/1
TYPICAL ROAD CONSTRUCTION DETAILS - DRGS: 22122/113/1, 22122/113/2
KERBING & SURFACING - DRGS: 22122/116/1, 22122/116/2

SW NETWORK 4

HYDROBRAKE DETAILS	
MH. No.	SHB4
TYPE	SHE-0108-5200-1000-5200
DESIGN HEAD (m)	1.0
MAX. FLOW (litres/sec)	5.2 IL 42.552
ORIFICE DIA. (mm)	108
SURCHARGED OUTFALL PIPE	YES

HYDROBRAKE DETAILS	
MH. No.	SHB4
TYPE	SHE-0107-6600-1900-6600
DESIGN HEAD (m)	1.9
MAX. FLOW (litres/sec)	6.6 IL 43.100
ORIFICE DIA. (mm)	107
SURCHARGED OUTFALL PIPE	YES



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rev	Revision details	Rev.By	Date
E	REVISED FOLLOWING S38 COMMENTS	RW	22.09.23
D	TWL'S & HB'S REVISED FOLLOWING SW RECALCULATIONS	RW	13.07.23
C	SEWER REDESIGN FOLLOWING UPDATED EXISTING SEWER INFORMATION	RF	06.04.23
B	REVISED FOLLOWING LLFA COMMENTS	AS	23.02.23
A	CULVERT DIVERSION & NETWORK 4 REVISED ROADS 4, 5 & RAMPS REVISED	RF	20.01.23

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

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
LONGITUDINAL SECTIONS 4

REFA
45 Bridgeman Terrace
Wigan, Lancs
WN1 1TT
Tel:-(01942) 826020
Fax:-(01942) 230816
CONSULTING ENGINEERS
CIVIL STRUCTURAL GEOTECHNICAL ENVIRONMENTAL

Date	Scale	Drawn
17.11.22	1:500 H ; 1:100 V	RF

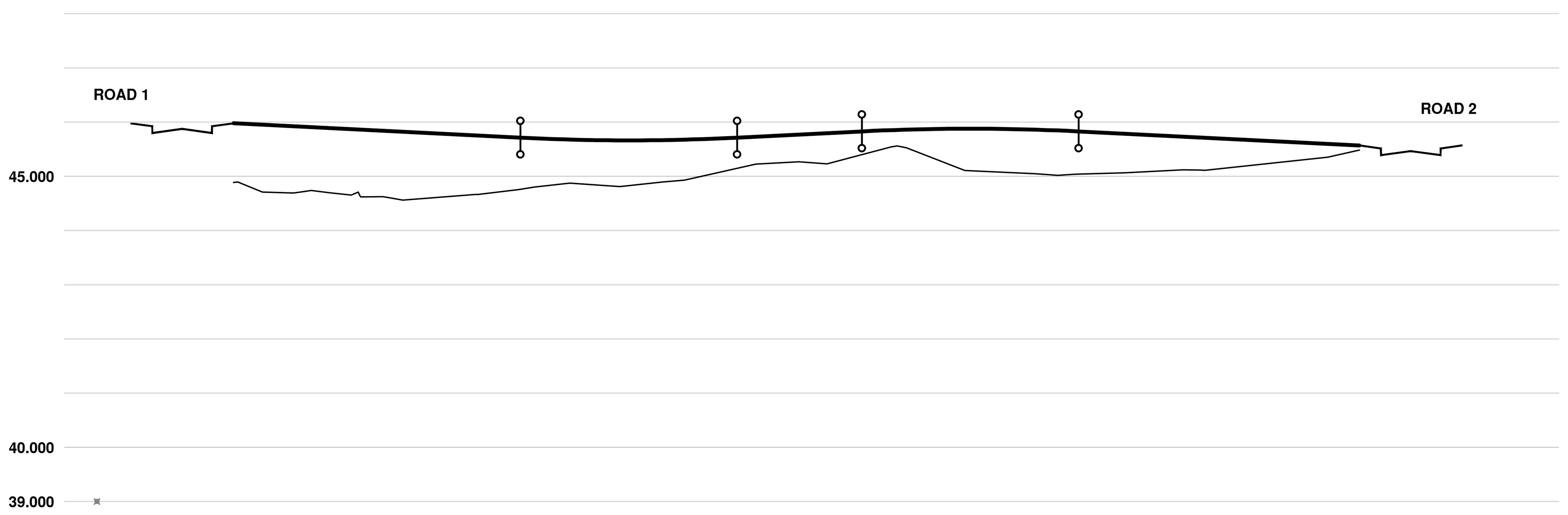
DRAWING No 22122/100/6 Rev E

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A1 SHEET

SCALE IN METRES
0 5 10 20 50

BENCH MARK INFORMATION
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PRIVATE DRIVE PLOTS 139 - 156

CHAINAGE	EXISTING GROUND LEVEL	ALIGNMENT LEVEL
0.000	44.885	45.977
0.699		
10.000	44.671	45.877
14.309		
20.000	44.626	45.777
26.478		45.712
30.000	44.849	45.683
35.000		45.663
36.478		45.662
40.000	44.902	45.668
45.000		45.698
46.478		45.712
50.000	45.243	45.747
57.981		45.827
60.000	45.505	45.845
65.000		45.873
67.981		45.877
70.000	45.082	45.875
75.000		45.852
77.981		45.827
80.000	45.049	45.807
90.000	45.116	45.707
100.000	45.329	45.607
103.891	45.483	45.568

VERTICAL ALIGNMENT: G= -1.000% 1: -100.0 | KF= 10.0 L= 20.000 | G= 1.000% 1: 100.0 | L= 20.000 KF= -10.0 | G= -1.000% 1: -100.0

HORIZONTAL ALIGNMENT: R= 22.250

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LONGITUDINAL SECTIONS – DRGS: 22122/100/3, 22122/100/4, 22122/100/5, 22122/100/6, 22122/100/7
ROAD LEVELS & CONTOURS – DRGS: 22122/101/1
TYPICAL ROAD CONSTRUCTION DETAILS – DRGS: 22122/113/1, 22122/113/2
KERBING & SURFACING – DRGS: 22122/116/1, 22122/116/2

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

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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 ASSSESED AND MANAGED BY CONTRACTOR IN ACCORDANCE WITH HSE GUIDANCE
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6. WORKING CLOSE TO EXISTING RAILWAY LINE

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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 4660:2000 & 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 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.

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

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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

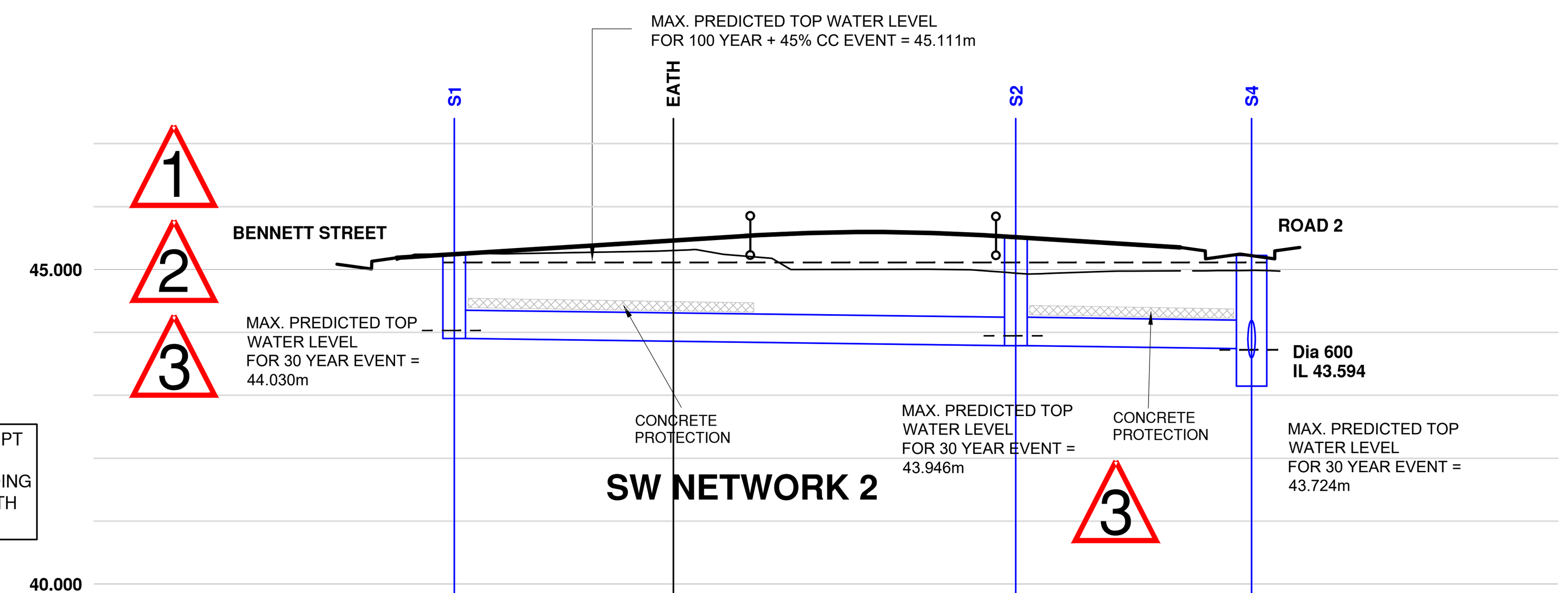
ALL DRAGOUT CONNECTIONS FROM MAIN SEWER MANHOLES TO FIRST INSPECTION CHAMBER TO BE 150mm Ø UNLESS INDICATED OTHERWISE

ALL ROAD GULLY CONNECTIONS TO BE 150mm Ø

ALL STORAGE MANHOLES ON THE TANK SEWER WILL NEED TO BE CONCRETE SURROUNDED AS THEY ARE WATER RETAINING.

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

ALL PIPES TO HAVE CLASS "S" BED EXCEPT PIPES WITH CONCRETE PROTECTION. MINIMUM 150mm THICK GRANULAR BEDDING AND SURROUND MATERIAL TO PIPES WITH CONCRETE PROTECTION.



EMERGENCY ACCESS

CHAINAGE	EXISTING GROUND LEVEL	ALIGNMENT LEVEL
0.000	45.147	45.187
10.000	45.255	45.312
20.000	45.291	45.437
26.567		45.519
30.000	45.158	45.555
35.000		45.580
36.567		45.582
40.000	45.003	45.574
45.000		45.537
46.567		45.519
47.370		
50.000	44.931	45.476
52.111		
60.000	44.976	45.351
62.313	44.979	45.322

VERTICAL ALIGNMENT: G= 1.250% 1: 80.0 | L= 20.000 KF= -6.75883 | G= -1.709% 1: -58.5

HORIZONTAL ALIGNMENT: R= 7.750

STORMWATER DETAILS: CL 45.241 IL 43.904 | Pipe 1.000 Dia 450 Circular CONC 1 in 395 44.606 | CL 45.510 IL 43.791 IL 43.791 | Pipe 1.001 Dia 450 Circular CONC 1 in 397 18.682 | CL 45.226 IL 43.744

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.

rev	Revision details	Rev.By	Date
D	REVISED FOLLOWING MCC COMMENTS	RW	19.10.23
C	REVISED FOLLOWING S38 COMMENTS	RW	22.09.23
B	TWL'S & HB'S REVISED FOLLOWING SW RECALCULATIONS	RW	13.07.23
A	CONCRETE PROTECTION NOTE ADDED AS PER S104 COMMENTS	RF	24.05.23

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

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
LONGITUDINAL SECTIONS 5

REFA
45 Bridgeman Terrace
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CONSULTING ENGINEERS
CIVIL STRUCTURAL
GEOTECHNICAL ENVIRONMENTAL

Date	Scale	Drawn
06.04.23	1:500 H ; 1:100 V	RF

DRAWING No 22122/100/7 Rev D

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A1 SHEET

SCALE IN METRES
0 5 10 20 50

N

BENCH MARK INFORMATION

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

ROAD 1
ROAD 2
ROAD 3
ROAD 4
ROAD 5
ROAD 6
PRIVATE ROAD
BENNETT STREET
ERCALL AVENUE

BLOCK 3 4 STOREY 32 APTS 173-204 FFL 46.20
BLOCK 2 4 STOREY 32 APTS 205-236 FFL 46.20
BLOCK 1 4 STOREY 36 APTS 237-272 FFL 46.20

EXISTING PRIVATE SEWER TO BE ABANDONED. TO BE CCTV SURVEYED TO ENSURE ANY LIVE CONNECTIONS ARE CATERED FOR
W DENOTES SEWERS TO BE ABANDONED

PROPOSED HIGHWAY GULLY DN BENNET STREET SUBJECT TO S106 APPLICATION FOR CONNECTION DN TO EXISTING UU NETWORK

THIS DRAWING IS BASED ON PLANNING LAYOUT PROVIDED BY CLIENT
DRAWING NUMBER:- KH006/A-100
REVISION:- U
CLIENT TO ENSURE THE ABOVE LAYOUT IS CURRENT BEFORE USING THIS DRAWING FOR CONSTRUCTION PURPOSES

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 fully with "Design and Construction Guidance" & Local Practices
2. All highway works to be to adoptable standards and to 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 by others.
5. All materials to bear the relevant B.S.Kitemark and comply fully with the specifications. 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 works. All works are to be inspected by L.A., 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.
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 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.

rev	Revision details	Rev.By	Date
K	TO PLANNING LAYOUT REV U	RW	26.02.24
J	APARTMENT BLOCK FFL'S UPDATED	RW	29.11.23
i	REVISED FOLLOWING CLIENTS COMMENTS	RW	06.11.23
H	TO PLANNING LAYOUT REV O REVISED FOLLOWING MCC COMMENTS	RW	19.10.23
G	REVISED FOLLOWING S38 COMMENTS	RW	22.09.23
F	TO PLANNING LAYOUT REV M, FFL'S REVISED, S38 COMMENTS ADDRESSED	RW	13.07.23
E	REVISED TO LATEST LAYOUT ROADS 2, 5 & 6 LEVELS REVISED	RF	06.04.23
D	REVISED FOLLOWING LLFA COMMENTS	AS	23.02.23
C	FFL'S REVISED FOLLOWING EXTERNALS UPDATES	RW	25.01.23
B	REVISED TO NEW LAYOUT REV H ROADS 5 & 6 REVISED, RAMPS REVISED	RF	20.01.23
A	FFL REVISED FOLLOWING EXTERNALS & NEW LAYOUT REV F	RF	29.11.22

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

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
ROAD LEVELS & CONTOURS

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CONSULTING ENGINEERS
CIVIL• STRUCTURAL
GEOTECHNICAL• ENVIRONMENTAL

Date	Scale	Drawn
17.11.22	1:500	RF

DRAWING No 22122/101/1 Rev K

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A1 SHEET

SCALE IN METRES
0 5 10 20 50

N

BENCH MARK INFORMATION

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

ROAD 1
ROAD 2
ROAD 3
ROAD 4
ROAD 5
ROAD 6
PRIVATE ROAD
BENNETT STREET
ERCALL AVENUE

FFL 46.70 FFL 46.70 FFL 46.25 FFL 46.20 FFL 46.65 FFL 46.80 FFL 46.80 FFL 46.65 FFL 46.15 FFL 46.50 FFL 46.65 FFL 46.80 FFL 46.65 FFL 46.90 FFL 46.90 FFL 46.80 FFL 46.45 FFL 46.30 FFL 46.15 FFL 46.35 FFL 46.50 FFL 46.10 FFL 46.35 FFL 46.40 FFL 46.45 FFL 46.20 FFL 46.00 FFL 46.75 FFL 46.90 FFL 47.05 FFL 46.55 FFL 46.35 FFL 46.45 FFL 46.45 FFL 46.35 FFL 46.35 FFL 46.35 FFL 46.30 FFL 46.40 FFL 46.05 FFL 46.15 FFL 46.15 FFL 46.15 FFL 46.15 FFL 46.05 FFL 46.20 FFL 46.20 FFL 45.80 FFL 46.10 FFL 46.10 FFL 45.95 FFL 45.70 FFL 46.20 FFL 45.70 FFL 46.15 FFL 46.10 FFL 45.60 FFL 46.15 FFL 45.70 FFL 46.15 FFL 45.95 FFL 46.20 BLOCK 1 4 STOREY 36 APTS 237-272 FFL 46.20 BLOCK 2 4 STOREY 32 APTS 205-236 FFL 46.20 BLOCK 3 4 STOREY 32 APTS 173-204

8.00 6.00 3m EASEMENT 4m EASEMENT

FALL ARROWS SHOWING DIRECTION OF WATER FLOW ALONG SITE ROAD/PROPERTY CURTILAGES DURING EXTREME WEATHER EVENTS OR POSSIBLE BLOCKAGES

EXISTING PRIVATE SEWER TO BE ABANDONED. TO BE CCTV SURVEYED TO ENSURE ANY LIVE CONNECTIONS ARE CATERED FOR
DENOTES SEWERS TO BE ABANDONED

PROPOSED HIGHWAY GULLY ON BENNET STREET SUBJECT TO S106 APPLICATION FOR CONNECTION ON TO EXISTING UU NETWORK

THIS DRAWING IS BASED ON PLANNING LAYOUT PROVIDED BY CLIENT
DRAWING NUMBER:- KH006/A-100
REVISION:- U
CLIENT TO ENSURE THE ABOVE LAYOUT IS CURRENT BEFORE USING THIS DRAWING FOR CONSTRUCTION PURPOSES

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 fully with "Design and Construction Guidance" & Local Practices
2. All highway works to be to adoptable standards and to 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 by others.
5. All materials to bear the relevant B.S.Kitemark and comply fully with the specifications.
   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 works.
   All works are to be inspected by L.A., 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.
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 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.

rev	Revision details	Rev.By	Date
E	TO PLANNING LAYOUT REV U	RW	26.02.24
D	APARTMENT BLOCK FFL'S UPDATED	RW	29.11.23
C	REVISED FOLLOWING CLIENTS COMMENTS	RW	06.11.23
B	TO PLANNING LAYOUT REV O REVISED FOLLOWING MCC COMMENTS	RW	19.10.23
A	TO PLANNING LAYOUT REV M FFL'S REVISED	RW	13.07.23

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

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
FLOOD WATER EXCEEDANCE PLAN

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CONSULTING ENGINEERS
CIVIL• STRUCTURAL
GEOTECHNICAL• ENVIRONMENTAL

Date	Scale	Drawn
20.06.23	1:500	AS

DRAWING No 22122/101/2 Rev E

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A1 SHEET

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 BE 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 Structured wall upvc pipes to comply with wis 4-35-01 up to and including 300mm.(By prior agreement with adopting authority) MAX. PIPE LENGTH TO BE 3.0m
5. All levels relate to an Ordnance Datum.
6. This drawing is to be read in conjunction with all other relevant drawings.
7. 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 invert levels indicated on drawings are correct before work commences.
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 in 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 Flexcell 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 120
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 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 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.

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

ALL STORAGE MANHOLES ON THE TANK SEWER WILL NEED 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 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

ALL DRAGOUT CONNECTIONS FROM MAIN SEWER MANHOLES TO FIRST INSPECTION CHAMBER TO BE 150mm Ø UNLESS INDICATED OTHERWISE

ALL ROAD GULLY CONNECTIONS TO BE 150mm Ø

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

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 ASSSESED AND MANAGED BY CONTRACTOR IN ACCORDANCE WITH HSE GUIDANCE
4. WORKING ADJACENT TO EXISTING CULVERTED WATERCOURSE OR LIVE FOUL SEWER (WEIL'S 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 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

SCALE IN METRES
0 5 10 20 50

BENCH MARK INFORMATION

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

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

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

EXISTING CULVERTED WATERCOURSE TO BE ABANDONED TO BE CCTV SURVEYED TO ENSURE ANY LIVE CONNECTIONS ARE CATERD FOR

DENOTES CULVERT TO BE ABANDONED

PROPOSED SURFACE WATER SYSTEM DESIGNED TO CATER FOR EVENTS UP TO AND INCLUDING THE YEARS + 40%CC WITH NO PREDICTED SURFACE FLOODING. TOTAL AGREED SURFACE WATER DISCHARGE RATE FOR FULL ARE AS FOLLOWS:
1 YEAR RP = 25.8L /SEC.
30 YEAR RP = 57.3 L /SEC.
100 YEAR + 40% CC = 79.2 L /SEC.
THIS IS TO BE SPLIT OVER FOUR SEPARATE OUTFALL LOCATIONS BY WAY OF HYDROBRAKE FLOW CONTROL DEVICES.

CONSENT REQUIRED FROM LLFA IN RESPECT OF PROPOSED CULVERTED WATERCOURSE DIVERSION

CONSENT REQUIRED FROM ENVIRONMENT AGENCY IN RESPECT OF PROPOSED NEW MANHOLE & ANY WORKS WITHIN 8m OF CULVERTED WATERCOURSE.

CONSENT REQUIRED FROM ENVIRONMENT AGENCY IN RESPECT OF PROPOSED NEW MANHOLE & ANY WORKS WITHIN 8m OF CULVERTED WATERCOURSE.

CULVERTED WATERCOURSE
EXISTING INVERT LEVEL BY SITE INTERPOLATION = 43.20m (Q100cmH) EXISTING INVERT LEVEL TO BE CONFIRMED BEFORE ANY ON SITE SEWERS ARE LAID TO ENABLE DESIGN CHANGES TO BE MADE AS REQUIRED

CULVERTED WATERCOURSE
EXISTING INVERT LEVEL BY INTERPOLATION = 43.20m (Q100cmH) EXISTING INVERT LEVEL TO BE CONFIRMED BEFORE ANY ON SITE SEWERS ARE LAID TO ENABLE DESIGN CHANGES TO BE MADE AS REQUIRED

SW NETWORK 5

HYDROBRAKE DETAILS	
MH_No.	SHB5
TYPE	HE-0108-5000-1400-5000
DESIGN HEAD (m)	1.4
MAX. FLOW (l/ms) (lps)	5.0
ORIFICE DIA. (mm)	300
S/MONHED (VITAL PIP)	YES

SW NETWORK 5

HYDROBRAKE DETAILS	
MH_No.	SHB4
TYPE	HE-0108-5000-2850-5000
DESIGN HEAD (m)	0.85
MAX. FLOW (l/ms) (lps)	5.0
ORIFICE DIA. (mm)	108
S/MONHED (VITAL PIP)	YES

SW NETWORK 3

HYDROBRAKE DETAILS	
MH_No.	SHB3
TYPE	HE-0142-5600-0700-5600
DESIGN HEAD (m)	0.7
MAX. FLOW (l/ms) (lps)	8.6
ORIFICE DIA. (mm)	140
S/MONHED (VITAL PIP)	YES

SW NETWORK 3

HYDROBRAKE DETAILS	
MH_No.	SHB2
TYPE	HE-0139-8000-1400-8000
DESIGN HEAD (m)	0.45
MAX. FLOW (l/ms) (lps)	8.5
ORIFICE DIA. (mm)	140
S/MONHED (VITAL PIP)	YES

SW NETWORK 4

HYDROBRAKE DETAILS	
MH_No.	SHB1
TYPE	HE-0137-5000-1300-5000
DESIGN HEAD (m)	1.0
MAX. FLOW (l/ms) (lps)	5.0
ORIFICE DIA. (mm)	108
S/MONHED (VITAL PIP)	YES

SW NETWORK 4

HYDROBRAKE DETAILS	
MH_No.	SHB6
TYPE	HE-0137-6600-1900-6600
DESIGN HEAD (m)	1.9
MAX. FLOW (l/ms) (lps)	8.6
ORIFICE DIA. (mm)	157
S/MONHED (VITAL PIP)	YES

SW NETWORK 2

HYDROBRAKE DETAILS	
MH_No.	SHB7
TYPE	HE-0135-6800-2700-6800
DESIGN HEAD (m)	0.3
MAX. FLOW (l/ms) (lps)	9.3
ORIFICE DIA. (mm)	226
S/MONHED (VITAL PIP)	YES

SW NETWORK 2

HYDROBRAKE DETAILS	
MH_No.	SHB8
TYPE	HE-0135-7800-1360-7800
DESIGN HEAD (m)	1.8
MAX. FLOW (l/ms) (lps)	105
ORIFICE DIA. (mm)	105
S/MONHED (VITAL PIP)	YES

PROPOSED SURFACE WATER SYSTEM DESIGNED TO CATER FOR EVENTS UP TO AND INCLUDING THE YEARS + 40%CC WITH NO PREDICTED SURFACE FLOODING. TOTAL AGREED SURFACE WATER DISCHARGE RATE FOR FULL ARE AS FOLLOWS:
1 YEAR RP = 25.8L /SEC.
30 YEAR RP = 57.3 L /SEC.
100 YEAR + 40% CC = 79.2 L /SEC.
THIS IS TO BE SPLIT OVER FOUR SEPARATE OUTFALL LOCATIONS BY WAY OF HYDROBRAKE FLOW CONTROL DEVICES.

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 DRAGOUT PRIVATE
- FOUL WATER DRAGOUT PRIVATE
- CULVERT TO BE ABANDONED

THE S38/S278 AGREEMENT FOR THIS SCHEME IS ALSO ASSOCIATED WITH THE LATEST APPROVED REVISION OF THE FOLLOWING PLANS:-
ROAD AND DRAINAGE LAYOUT – DRGS: 22122/100/1, 22122/100/2
LONGITUDINAL SECTIONS – DRGS: 22122/100/3, 22122/100/4, 22122/100/5, 22122/100/6, 22122/100/7
ROAD LEVELS & CONTOURS – DRGS: 22122/101/1
TYPICAL ROAD CONSTRUCTION DETAILS – DRGS: 22122/113/1; 22122/113/2
KERBING & SURFACING – DRGS: 22122/116/1, 22122/116/2

SCALE IN METRES
0 5 10 20 50

BENCH MARK INFORMATION

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

EXISTING PRIVATE SEWER TO BE ABANDONED TO BE CCTV SURVEYED TO ENSURE ANY LIVE CONNECTIONS ARE CATERED FOR

DENOTES SEWERS TO BE ABANDONED

FOUL SEWER
EXISTING INVERT LEVEL BY INTERPOLATION = 43.450m(mH) EXISTING INVERT LEVEL TO BE CHECKED BY CONTRACTOR BEFORE ANY ON SITE SEWERS ARE LAID TO ENABLE DESIGN CHANGES TO BE MADE AS REQUIRED

PROPOSED SURFACE WATER GULLY ON BONNET THROUGH SUBJECT TO S106 APPLICATION FOR CONNECTION ON TO EXISTING NETWORK

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

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 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 by others.
5. All materials to bear the relevant B.S.Kitemark and comply fully with the specifications. 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 works. All works are to be inspected by L.A., NHBC or Relevant Water Authority as applicable.

C.D.M. REGULATIONS 2015

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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.

rev	Revision details	Date
H	TO PLANNING LAYOUT REV U	05.02.24
G	APARTMENT BLOCK FFL'S UPDATED	05.11.23
F	REVISED FOLLOWING CLIENTS COMMENTS	05.11.23
E	TO PLANNING LAYOUT REV O REVISED FOLLOWING MCC COMMENTS	01.10.23
D	REVISED FOLLOWING S38 COMMENTS	22.09.23
C	TO PLANNING LAYOUT REV M, FFL'S REVISED HIP'S REVISED, S38 COMMENTS ADDRESSED	13.07.23
B	UPDATED TO PLANNING LAYOUT REV L REVISED TO LATEST SEWER DESIGN	05.04.23
A	TO LATEST DESIGN	01.02.23

Drawing Stage			
	Draft		Comments
●	Issued		Information
		●	Approval

● Tender
Construction
As Built

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
S104 AGREEMENT PLAN

REFA
45 Bridgeman Terrace
Wigan, Lancs
WN1 1TT
Tel:-(01942) 826020
Fax:-(01942) 230816
CONSULTING ENGINEERS
CIVIL • STRUCTURAL
GEOTECHNICAL • ENVIRONMENTAL

Date	Scale	Drawn
30.01.23	1:500	RF

DRAWING No: 22122/110/1 Rev: H

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THIS DRAWING IS BASED ON PLANNING LAYOUT PROVIDED BY CLIENT
DRAWING NUMBER:- KH006/A-100
REVISION:- U
CLIENT TO ENSURE THE ABOVE LAYOUT IS CURRENT BEFORE USING THIS DRAWING FOR CONSTRUCTION PURPOSES

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A0 SHEET



GRID REFERENCE
SJ 86200 97028

rev	Revision details	Date
D	TD PLANNING LAYOUT REV U	26.02.24
C	TD PLANNING LAYOUT REV D	20.10.23
B	TD PLANNING LAYOUT REV M	13.07.23
A	UPDATED TD PLANNING LAYOUT REV L	06.04.23

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

Client

KELLEN HOMES LIMITED

Job title

BENNETT STREET MANCHESTER

Drawing title

DEED OF GRANT ON SITE

REFA
45 Bridgeman Terrace
Wigan, Lancs
WN1 1TT
Tel:-(01942) 826020
Fax:-(01942) 230816
CONSULTING ENGINEERS
CIVIL • STRUCTURAL
GEOTECHNICAL • ENVIRONMENTAL

Date	Scale	Drawn
30.01.23	1:1250	RF

DRAWING No 22122/111/1 Rev D

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A3 SHEET

SCALE IN METRES
0 5 10 20 50

BENCH MARK INFORMATION

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

N

BLACK BROOK CULVERT TO BE DIVERTED, PLEASE REFER TO LATEST REVISION OF THE FOLLOWING PLANS FOR DETAILS :-
SW CULVERT DIVERSION WORKS – DRGS: 22122/104/1
SW CULVERT DIVERSION LONG SECTIONS – DRGS: 22122/104/2
SW CULVERT DIVERSION SCHEMATICS – DRGS: 22122/104/3, 22122/104/4, 22122/104/5, 22122/104/8, 22122/104/9 AND 22122/104/10.
CORN BROOK CULVERT IS TO REMAIN.

CONSENT REQUIRED FROM LLFA IN RESPECT OF PROPOSED CULVERTED WATERCOURSE DIVERSION

CONSENT REQUIRED FROM ENVIRONMENT AGENCY IN RESPECT OF PROPOSED NEW MANHOLE & ANY WORKS WITHIN 8m OF CULVERTED WATERCOURSE.

CONSENT REQUIRED FROM ENVIRONMENT AGENCY IN RESPECT OF PROPOSED NEW MANHOLE & ANY WORKS WITHIN 8m OF CULVERTED WATERCOURSE.

ROAD 1
ROAD 2
ROAD 3
ROAD 4
ROAD 5
ROAD 6

LAND OFFERED FOR DEDICATION AND ADOPTION 18m2

LAND OFFERED FOR DEDICATION AND ADOPTION 36m2

EXISTING PRIVATE SEWERS TO BE ABANDONED TO BE 100% SURVEYED TO ENSURE ANY LIVE CONNECTIONS ARE DETECTED FOR

DENOTES SEWERS TO BE ABANDONED

BLOCK 1 4 STOREY 36 APTS 237-272
BLOCK 2 4 STOREY 32 APTS 205-236
BLOCK 3 4 STOREY 32 APTS 173-204

Maple Industrial Estate

BLUCHER ST
ERCALL AVENUE
OSTRON AVENUE
ROSTRON A...

SECTION 38 PLAN KEY

- PROPOSED SECTION 38 ROADS
- PROPOSED SECTION 38 FOOTWAYS
- PROPOSED SECTION 278 WORKS
- LAND OFFERED FOR DEDICATION AND ADOPTION
- TITLE BOUNDARY
- G — ADOPTABLE ROAD GULLY & CONNECTION
- G — PRIVATE ROAD GULLY & CONNECTION
- STREET LIGHT LOCATIONS
- STREET NAME PLATE LOCATIONS
- TACTILE CROSSING LOCATIONS

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 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 by others.
5. All materials to bear the relevant B.S.Kitemark and comply fully with the specifications.
   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)
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   All works are to be inspected by L.A., NHBC or Relevant Water Authority as applicable.

C.D.M. REGULATIONS 2015

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3. Guarding of excavations outside working hours to prevent unauthorised access.
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6. Dealing with existing services.
7. Traffic management on existing highways.
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9. Method of working where contaminated ground is present on site.
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For clarification on any item please contact REFA.

rev	Revision details	Date
J	TO PLANNING LAYOUT REV U	30.02.24
I	REVISED FOLLOWING S38 COMMENTS	15.11.23
H	REVISED FOLLOWING S38 COMMENTS	13.11.23
G	REVISED FOLLOWING CLIENTS COMMENTS	06.11.23
F	TO PLANNING LAYOUT REV O REVISED FOLLOWING MCC COMMENTS	31.10.23
E	REVISED FOLLOWING S38 COMMENTS	23.09.23
D	TO PLANNING LAYOUT REV M S38 COMMENTS ADDRESSED	13.07.23
C	FOOTPATH WORKS ADDED	21.04.23
B	UPDATED TO PLANNING LAYOUT REV L AND NEW DRAINAGE DESIGN	18.04.23
A	TO LATEST DESIGN	16.02.23

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

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
S38 & S278 LEGAL AGREEMENT PLAN

REFA
45 Bridgeman Terrace
Wigan, Lancs
WN1 1TT
Tel:-(01942) 826200
Fax:-(01942) 230816
CONSULTING ENGINEERS
CIVIL• STRUCTURAL
GEOTECHNICAL• ENVIRONMENTAL

Date	Scale	Drawn
30.01.23	1:500	RF

DRAWING No 22122/112/1 Rev J

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THIS DRAWING IS BASED ON PLANNING LAYOUT PROVIDED BY CLIENT
DRAWING NUMBER:- KH006/A-100
REVISION:- U
CLIENT TO ENSURE THE ABOVE LAYOUT IS CURRENT BEFORE USING THIS DRAWING FOR CONSTRUCTION PURPOSES

A0 SHEET

BLACK BROOK CULVERT TO BE DIVERTED, PLEASE REFER TO LATEST REVISION OF THE FOLLOWING PLANS FOR DETAILS :-
SW CULVERT DIVERSION WORKS – DRGS: 22122/104/1
SW CULVERT DIVERSION LONG SECTIONS – DRGS: 22122/104/2
SW CULVERT DIVERSION SCHEMATICS – DRGS: 22122/104/3, 22122/104/4, 22122/104/5, 22122/104/8, 22122/104/9 AND 22122/104/10.
CORN BROOK CULVERT IS TO REMAIN.

THE S38/S278 AGREEMENT FOR THIS SCHEME IS ALSO ASSOCIATED WITH THE LATEST APPROVED REVISION OF THE FOLLOWING PLANS:-
ROAD AND DRAINAGE LAYOUT – DRGS: 22122/100/1, 22122/100/2
LONGITUDINAL SECTIONS – DRGS: 22122/100/3, 22122/100/4, 22122/100/5, 22122/100/6, 22122/100/7
ROAD LEVELS & CONTOURS – DRGS: 22122/101/1
TYPICAL ROAD CONSTRUCTION DETAILS – DRGS: 22122/113/1, 22122/113/2
KERBING & SURFACING – DRGS: 22122/116/1, 22122/116/2

CONSENT REQUIRED FROM LLFA IN RESPECT OF PROPOSED CULVERTED WATERCOURSE DIVERSION

500mm MAINTENANCE MARGIN

ROAD 1
ROAD 2
ROAD 3
ROAD 4
ROAD 5
ROAD 6

SECTION 38 PLAN KEY

- PROPOSED SECTION 38 ROADS
- PROPOSED SECTION 38 FOOTWAYS
- TITLE BOUNDARY
- S38 ADOPTION BOUNDARY
- ADOPTABLE ROAD GULLY & CONNECTION
- PRIVATE ROAD GULLY & CONNECTION
- STREET LIGHT LOCATIONS
- 20mph REPEATER SIGNS ATTACHED TO PROPOSED LAMP COLUMNS HEADROOM CLEARANCE 2.3m
- TACTILE CROSSING LOCATIONS
- EXISTING CULVERTED WATERCOURSE
- PROPOSED ROAD SIGN HEADROOM CLEARANCE 2.3m
- STREET NAME PLATE LOCATIONS

SCALE IN METRES
0 5 10 20 50

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

EXISTING PRIVATE SEWER TO BE ABANDONED/ DIVERTED AS NECESSARY TO ENSURE ANY UU CONNECTIONS ARE DIVERTED FIRST
DENOTES SEWERS TO BE ABANDONED

PROPOSED HIGHWAY GULLY ON BENNETT STREET SUBJECT TO S106 APPLICATION FOR CONNECTION ON TO EXISTING UU NETWORK

Maple Industrial Estate
BLUCHER ST
ROSTRON AVENUE
OSTRON AVENUE
ERCALL AVENUE

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THIS DRAWING IS BASED ON PLANNING LAYOUT PROVIDED BY CLIENT
DRAWING NUMBER:- KH006/A-100
REVISION:- U
CLIENT TO ENSURE THE ABOVE LAYOUT IS CURRENT BEFORE USING THIS DRAWING FOR CONSTRUCTION PURPOSES

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 to comply fully with the Local Authority specification.
3. All private drainage works are to comply fully with part H of the Building Regulations
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C.D.M. REGULATIONS 2015

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rev	Revision details	Date
E	TO PLANNING LAYOUT REV U	25.02.24
D	REVISED FOLLOWING S38 COMMENTS	13.11.23
C	REVISED FOLLOWING CLIENTS COMMENTS	26.11.23
B	TO PLANNING LAYOUT REV O REVISED FOLLOWING MCC COMMENTS	25.10.23
A	REVISED FOLLOWING S38 COMMENTS	23.09.23

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

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
S38 AGREEMENT
GENERAL ARRANGEMENT

REFA
CONSULTING ENGINEERS
CIVIL • STRUCTURAL
GEOTECHNICAL • ENVIRONMENTAL
45 Bridgeman Terrace
Wigan, Lancs
WN1 1TT
Tel.-(01942) 826020
Fax.-(01942) 230816

Date	Scale	Drawn
08.06.23	1:500	RW

DRAWING No. 22122/118/1 Rev E

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BLACK BROOK CULVERT TO BE DIVERTED, PLEASE REFER TO LATEST REVISION OF THE FOLLOWING PLANS FOR DETAILS :-
SW CULVERT DIVERSION WORKS – DRGS: 22122/104/1
SW CULVERT DIVERSION LONG SECTIONS – DRGS: 22122/104/2
SW CULVERT DIVERSION SCHEMATICS – DRGS: 22122/104/3, 22122/104/4, 22122/104/5, 22122/104/8, 22122/104/9 AND 22122/104/10.
CORN BROOK CULVERT IS TO REMAIN.

THE S38/S278 AGREEMENT FOR THIS SCHEME IS ALSO ASSOCIATED WITH THE LATEST APPROVED REVISION OF THE FOLLOWING PLANS:-
ROAD AND DRAINAGE LAYOUT – DRGS: 22122/100/1, 22122/100/2
LONGITUDINAL SECTIONS – DRGS: 22122/100/3, 22122/100/4, 22122/100/5, 22122/100/6, 22122/100/7
ROAD LEVELS & CONTOURS – DRGS: 22122/101/1
TYPICAL ROAD CONSTRUCTION DETAILS – DRGS: 22122/113/1, 22122/113/2
KERBING & SURFACING – DRGS: 22122/116/1, 22122/116/2

500mm MAINTENANCE MARGIN

500mm MAINTENANCE MARGIN

ROAD 1
ROAD 2
ROAD 3
ROAD 4
ROAD 5
ROAD 6

Maple Industrial Estate
BENNETT STREET
ERCALL AVENUE
OSTRON AVENUE
BLUCHER ST
Unit 1 to 18

PLEASE NOTE THAT THIS DRAWING IS ISSUED FOR INFORMATION/TENDER PURPOSES ONLY UNTIL TECHNICAL APPROVAL HAS BEEN GRANTED.
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THIS DRAWING IS BASED ON PLANNING LAYOUT PROVIDED BY CLIENT
DRAWING NUMBER:- KH006/A-100
REVISION:- U
CLIENT TO ENSURE THE ABOVE LAYOUT IS CURRENT BEFORE USING THIS DRAWING FOR CONSTRUCTION PURPOSES

GENERAL
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rev	Revision details	Date
C	TO PLANNING LAYOUT REV U	05.02.24
B	REVISED FOLLOWING CLIENTS COMMENTS	06.11.23
A	TO PLANNING LAYOUT REV O REVISED FOLLOWING MCC COMMENTS	05.10.23

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

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
S38 AGREEMENT VISIBILITY SPLAYS

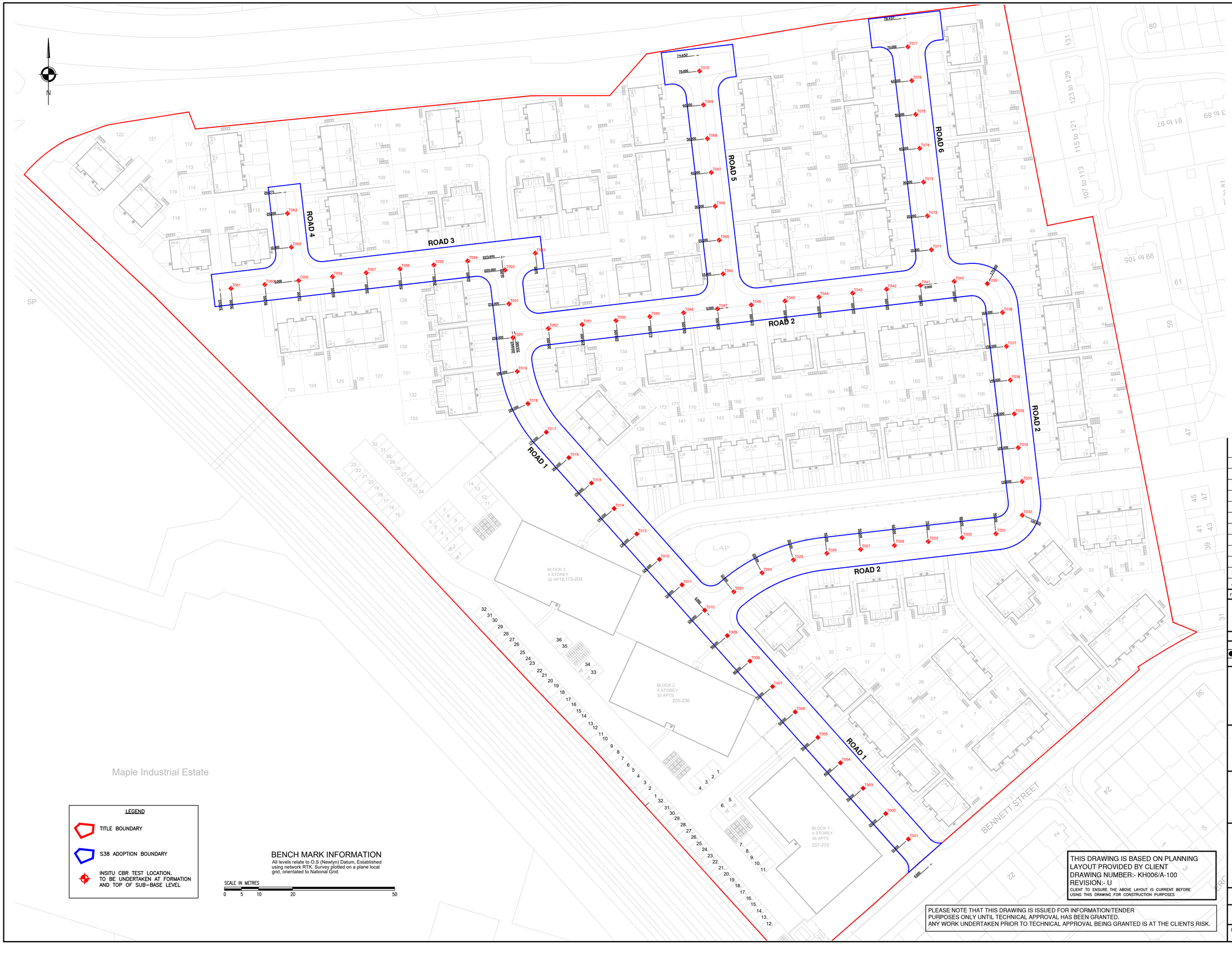
REFA
45 Bridgeman Terrace
Wigan, Lancs
WN1 1TD
Tel.-(01942) 826200
Fax.-(01942) 230816
CONSULTING ENGINEERS
CIVIL • STRUCTURAL
GEOTECHNICAL • ENVIRONMENTAL

Date	Scale	Drawn
08.06.23	1:500	PW

DRAWING No 22122/118/2 Rev C

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A0 SHEET



GENERAL

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LEGEND

- TITLE BOUNDARY
- S38 ADOPTION BOUNDARY
- INSITU CBR TEST LOCATION. TO BE UNDERTAKEN AT FORMATION AND TOP OF SUB-BASE LEVEL

BENCH MARK INFORMATION

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

SCALE IN METRES
0 5 10 20 50

THIS DRAWING IS BASED ON PLANNING LAYOUT PROVIDED BY CLIENT
DRAWING NUMBER:- KH006/A-100
REVISION:- U
CLIENT TO ENSURE THE ABOVE LAYOUT IS CURRENT BEFORE USING THIS DRAWING FOR CONSTRUCTION PURPOSES

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rev	Revision details	Rev.By	Date
B	TD PLANNING LAYOUT REV U	RW	26.02.24
A	TD PLANNING LAYOUT REV D	RW	20.10.23

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

Client
KELLEN HOMES LIMITED

Job title
BENNETT STREET MANCHESTER

Drawing title
CBR LOCATION PLAN

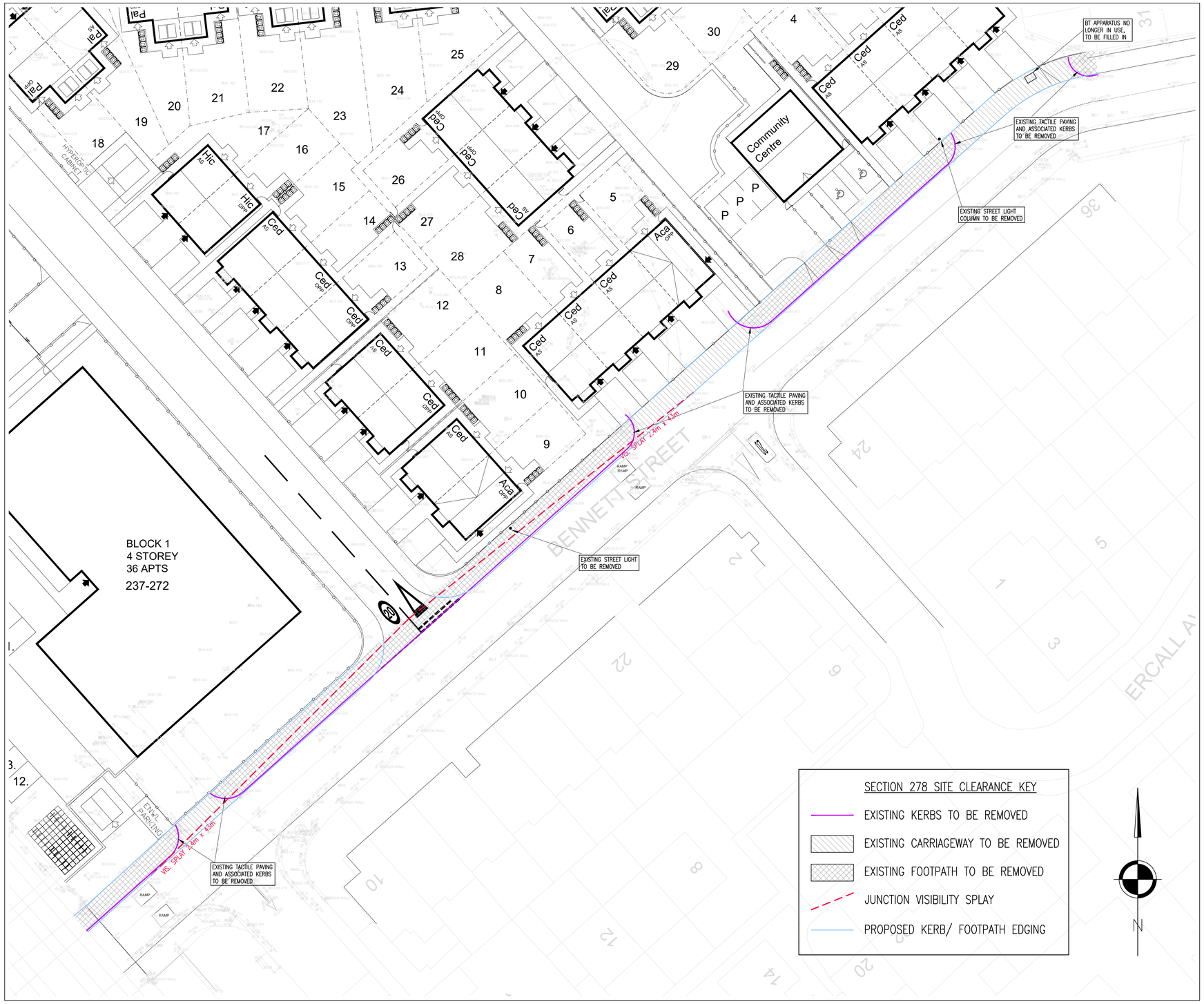
REFA
45 Bridgeman Terrace
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WN1 1TT
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Fax:-(01942) 230816
CONSULTING ENGINEERS
CIVIL • STRUCTURAL
GEOTECHNICAL • ENVIRONMENTAL

Date	Scale	Drawn
08.06.23	1:500	RW

DRAWING No 22122/119/1 Rev B

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A1 SHEET



THIS DRAWING IS BASED ON PLANNING LAYOUT PROVIDED BY CLIENT
DRAWING NUMBER:- KH006 A-100
REVISION:- U
CLIENT TO ENSURE THE ABOVE LAYOUT IS CURRENT BEFORE USING THIS DRAWING FOR CONSTRUCTION PURPOSES

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 fully with "Design and Construction Guidance" & Local Practices
2. All highway works to be to adoptable standards and to 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 by others.
5. All materials to bear the relevant B.S.Kitemark and comply fully with the specifications. 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 works. All works are to be inspected by L.A., 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.
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 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.

rev	Revision details	Rev.By	Date
A	TO PLANNING LAYOUT REV U	RW	26.02.24

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

Client
KELLEN HOMES

Job title
BENNETT STREET MANCHESTER

Drawing title
SECTION 278 SITE CLEARANCE PLAN

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CIVIL• STRUCTURAL
GEOTECHNICAL• ENVIRONMENTAL

Date	Scale	Drawn
25.10.23	1:250	RW

DRAWING No 22122/122/1 Rev A

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A1 SHEET