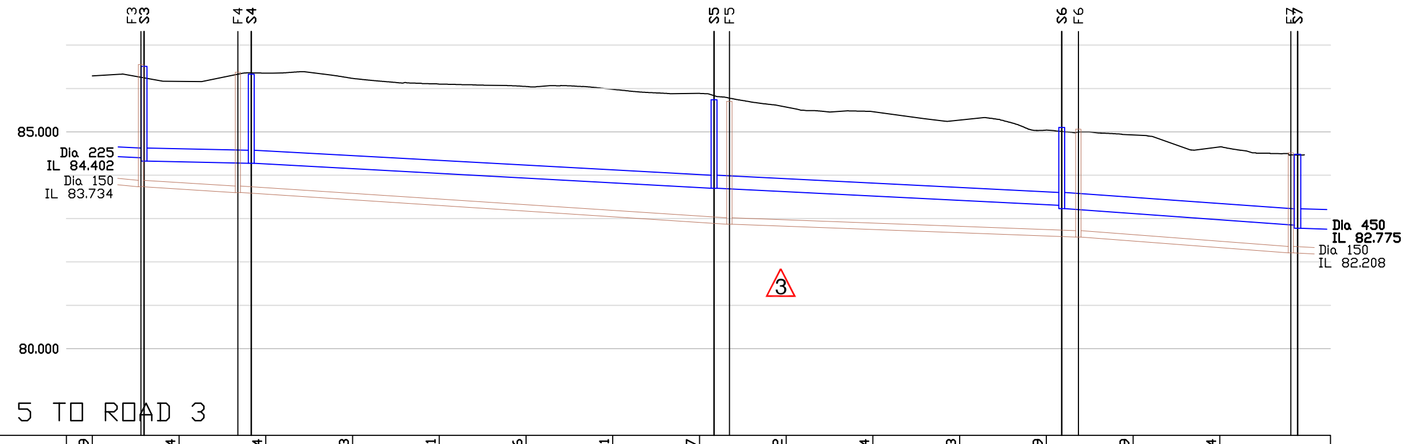
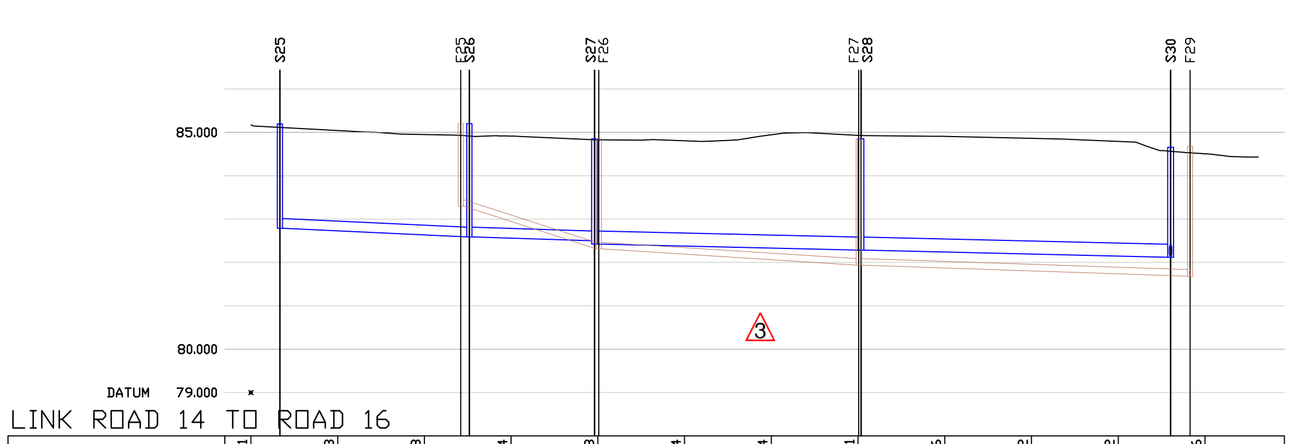
SEWERS LAID IN EASEMENT IN FAVOUR OF DCWW
REFER TO S104 LAYOUT FOR DETAILS



LINK ROAD 5 TO ROAD 3

GROUND LEVEL	86.289	86.164	86.354	86.233	86.101	86.046	85.981	85.887	85.572	85.464	85.273	85.039	84.929	84.654
STORMWATER DETAILS	CL 86.510 IL 84.327	Pipe 1.002 Dia 300 Circular UPVC 1 in 229 11.930	CL 86.327 IL 84.275 IL 84.275	Pipe 1.003 Dia 300 Circular UPVC 1 in 93 53.353				CL 85.738 IL 83.699 IL 83.699	Pipe 1.004 Dia 300 Circular UPVC 1 in 101 40.083			CL 85.100 IL 83.304 IL 83.229	Pipe 1.005 Dia 375 Circular CONC 1 in 72 27.218	CL 84.484 IL 82.850
FOULWATER DETAILS	CL 86.554 IL 83.734	Pipe 1.002 Dia 150 Circular UPVC 1 in 84 11.186	CL 86.373 IL 83.600 IL 83.600	Pipe 1.003 Dia 150 Circular UPVC 1 in 78 57.002				CL 85.700 IL 82.870 IL 82.870	Pipe 1.004 Dia 150 Circular UPVC 1 in 135 40.239			CL 85.061 IL 82.572 IL 82.572	Pipe 1.005 Dia 150 Circular UPVC 1 in 67 24.482	CL 84.517 IL 82.208

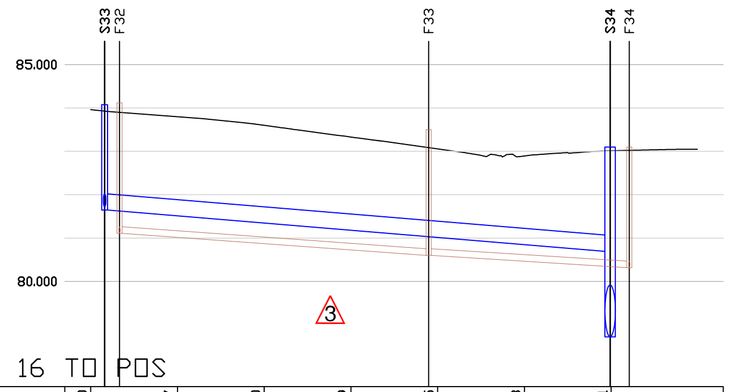
SEWERS LAID IN EASEMENT IN FAVOUR OF DCWW
REFER TO S104 LAYOUT FOR DETAILS



LINK ROAD 14 TO ROAD 16

GROUND LEVEL	85.171	85.043	84.948	84.914	84.828	84.804	84.944	84.931	84.906	84.862	84.792	84.506
STORMWATER DETAILS	CL 85.191 IL 82.787	Pipe 4.000 Dia 225 Circular UPVC 1 in 100 19.867	CL 85.200 IL 82.588 IL 82.588	Pipe 4.000 Dia 225 UPVC 1 in 167 14.878	CL 84.850 IL 82.499 IL 82.424	Pipe 4.002 Dia 300 Circular UPVC 1 in 219 30.730		CL 84.850 IL 82.284 IL 82.284	Pipe 4.003 Dia 300 Circular UPVC 1 in 220 36.041		CL 84.657 IL 82.120	
FOULWATER DETAILS			CL 85.200 IL 83.300	Pipe 4.000 Dia 150 UPVC 1 in 17 16.641	CL 84.850 IL 82.312 IL 82.312	Pipe 4.001 Dia 150 Circular UPVC 1 in 80 29.956		CL 84.850 IL 81.938 IL 81.938	Pipe 4.002 Dia 150 Circular UPVC 1 in 150 37.909		CL 84.682 IL 81.685	

SEWERS LAID IN EASEMENT IN FAVOUR OF DCWW
REFER TO S104 LAYOUT FOR DETAILS



LINK ROAD 16 TO POS

GROUND LEVEL	83.960	83.797	83.600	83.329	83.055	82.893	83.011
STORMWATER DETAILS	CL 84.075 IL 81.645	Pipe 4.005 Dia 375 Circular CONC 1 in 61 58.279					CL 83.100 IL 80.694
FOULWATER DETAILS	CL 84.120 IL 81.109	Pipe 4.004 Dia 150 Circular UPVC 1 in 70 35.639		CL 83.500 IL 80.601 IL 80.601	Pipe 4.005 Dia 150 Circular UPVC 1 in 82 23.147		CL 83.100 IL 80.319

SEWERS LAID IN EASEMENT IN FAVOUR OF DCWW
REFER TO S104 LAYOUT FOR DETAILS



LINK ROAD 2 TO ROAD 18

GROUND LEVEL	84.353	84.330	84.259	84.170	84.054	83.868	83.591	83.315	83.063	82.899	82.732	82.623	82.589	82.518	82.420	82.335	82.175
STORMWATER DETAILS	CL 84.385 IL 78.918	Pipe 1.015 Dia 1200 Circular CONC 1 in 393 31.802		CL 84.137 IL 78.837 IL 78.837	Pipe 1.016 Dia 1200 Circular CONC 1 in 394 45.351				CL 83.100 IL 78.722 IL 78.722	Pipe 1.017 Dia 1200 Circular CONC 1 in 396 38.798			CL 82.570 IL 78.624 IL 78.624	Pipe 1.018 Dia 1200 CONC 1 in 391 13.697	CL 82.446 IL 78.589 IL 78.589	Pipe 1.019 Dia 1200 CONC 1 in 395 10.664	CL 81.855 IL 78.562
FOULWATER DETAILS	CL 84.346 IL 80.862	Pipe 1.015 Dia 150 Circular UPVC 1 in 145 35.308		CL 84.130 IL 80.618 IL 80.618	Pipe 1.016 Dia 150 Circular UPVC 1 in 137 41.038				CL 83.100 IL 80.319 IL 80.319	Pipe 1.017 Dia 150 Circular UPVC 1 in 146 43.595			CL 82.561 IL 80.020 IL 78.087	Pipe 1.018 Dia 150 Circular UPVC 1 in 145 23.679		CL 81.824 IL 77.924	

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.

Note 1- SFA 7th Footnote

The Developer must self-vet and certify that the design criteria, material standards and workmanship specifications for the proposed adoptable sewers are in accordance with those set out in "Sewers for Adoption" 7th Edition and the requirements of DCWW as the Statutory Sewerage Undertaker, and the Welsh Ministers Build Standards.

Note 2 - Connection

"A Section 106 application to connect to adopted sewers must be made to DCWW, the developer shall give 21 days notice prior to connection, the works may only be undertaken by a DCWW Health & Safety approved contractor."

Note - 3 Materials

All materials are to comply fully with the requirements of clause "E" in Sewers for Adoption 7th Edition, of which the contractor must fully acquaint himself with to ensure compliance.

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
2. WORKING ON EXISTING HIGHWAY WORKING IN AREAS ABOVE MEMBERS OF THE PUBLIC HAVE ACCESS
3. DANGER OF COLLAPSE TO ALL EXCAVATIONS - RISK TO BE MANAGED BY THE CONTRACTOR IN ACCORDANCE WITH HSE GUIDANCE

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

THE OFF SITE SEWER CONNECTIONS 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 CAN BE MADE.

DUE TO THE NEED FOR OFF SITE SEWER WORKS IT IS STRONGLY ADVISED THAT THESE ARE CONSTRUCTED PRIOR TO ANY WORKS ON SITE TO ALLOW DESIGN CHANGES ON SITE TO BE MADE IN THE EVENT THAT THE OFF SITE DESIGNS REQUIRE REVISION.
REFA WILL NOT BE HELD RESPONSIBLE FOR ANY ABORTIVE WORKS IF THIS PROCEDURE IS NOT FOLLOWED

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

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.

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

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

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

SCALE IN METRES
0 5 10 20 50

HYDROBRAKE DETAILS

MH. No.	S70
TYPE	MD-SHE-0301-5500-1500-5500
DESIGN HEAD (m)	1.50
MAX. FLOW (0lms/sec)	55.00
ORIFICE DIA. (mm)	301
SURCHARGED OUTFALL PIPE	NO

BENCH MARK INFORMATION

HORIZONTAL AND VERTICAL CONTROL ESTABLISHED USING SMARTNET GPS NETWORK AND OSGB36(02) COORDINATE SYSTEM

GENERAL

1. All adoptable sewers and associated works are to comply fully with "Sewers for Adoption" 7th.Edition dated August 2012.
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 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.
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.

A	TO PLANNING REV P	GWH	28.8.18
rev	Revision details	Rev.By	Date

smas worksafe consultant www.smasltd.com SSIP SAFETY SCHEMES IN PROCUREMENT

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

Client
ANWYL HOMES
BELLWAY HOMES

Job title
GRESFORD ROAD
LLAY, WREXHAM

Drawing title
ROAD AND MAIN
LONG SECTIONS DRG 10

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Wigan, Lancs
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CONSULTING ENGINEERS
CIVIL• STRUCTURAL
GEOTECHNICAL• ENVIRONMENTAL

Date	Scale	Drawn
12.2.18	1/500H &1/100V	GWH

DRAWING No 17040/08/17 Rev A

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A1 SHEET