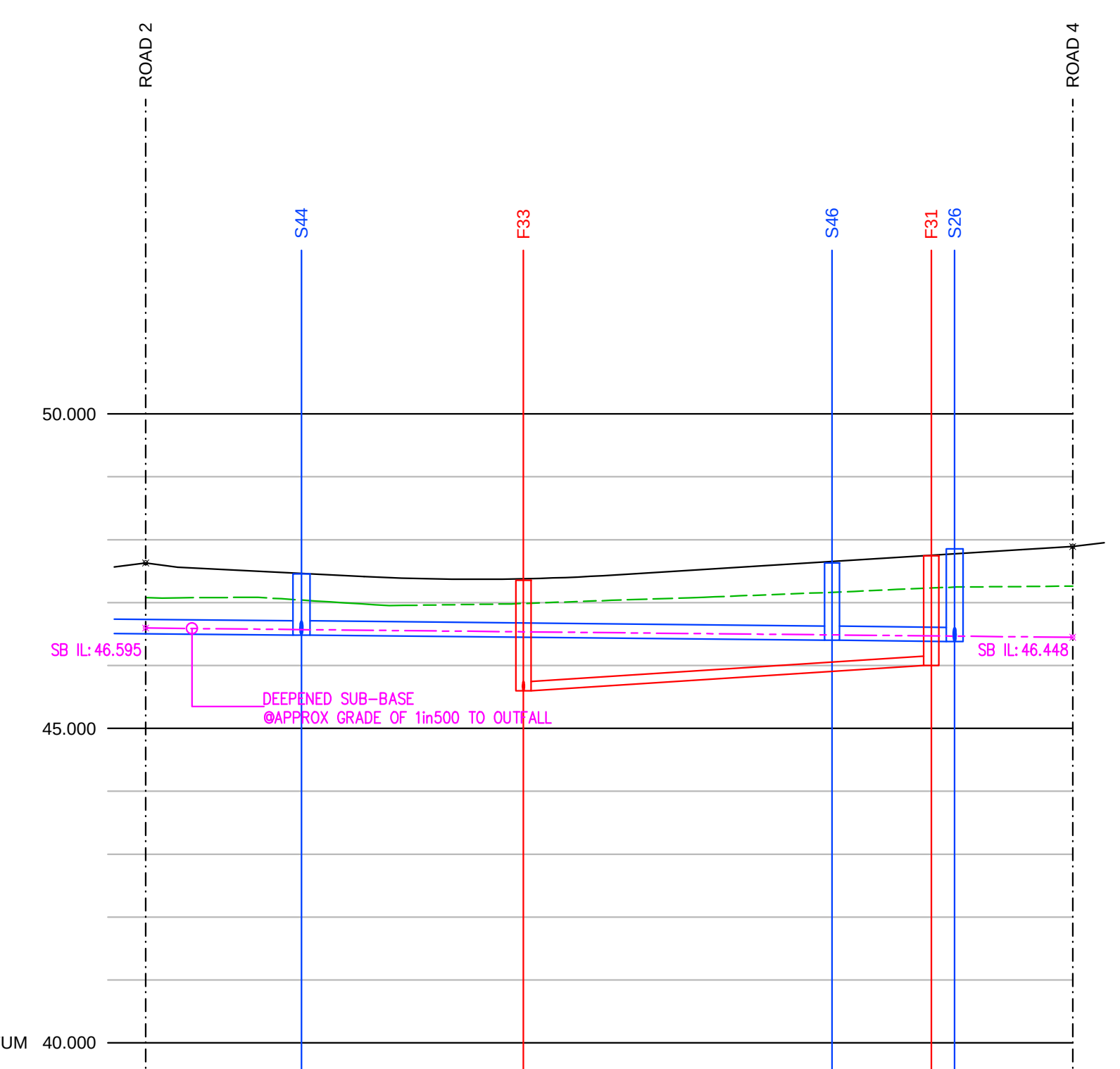
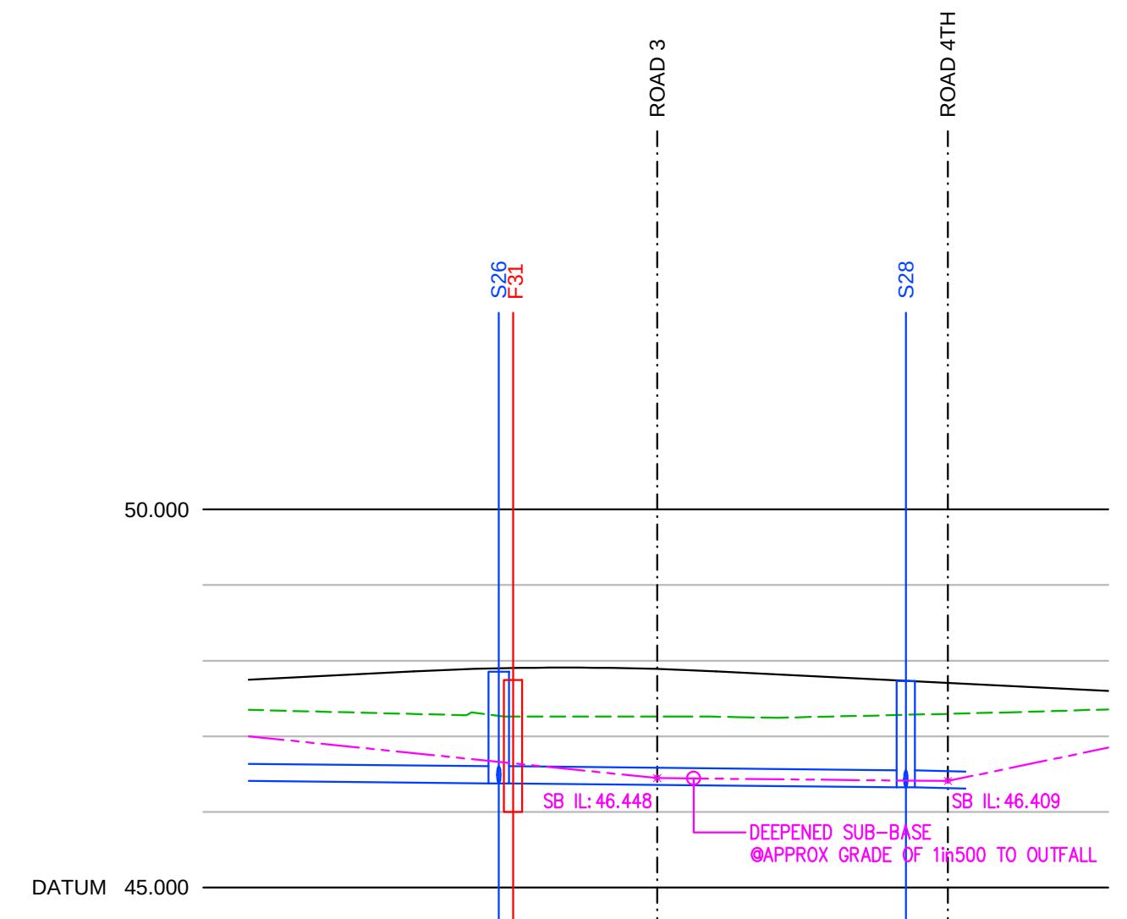
P/2018/00438
Received
29/03;2018



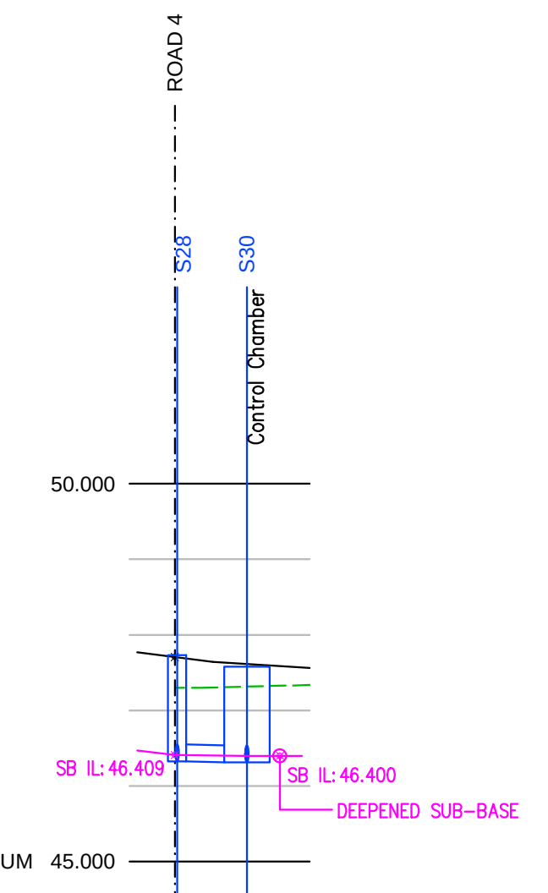
ROAD 3

CHAINAGE	-2.579 -0.033 9.795 10.000 12.084 14.769 15.000 17.983 20.000 23.658 25.000 27.441 30.000 34.417 34.769 40.000 44.670 50.000 51.966 59.849 60.000 61.707 71.092
EXISTING GROUND LEVEL	47.078 47.075 47.037 46.961 47.004 47.073 47.148 47.233 47.260 47.261
ALIGNMENT LEVEL	47.563 47.462 47.415 47.412 47.378 47.370 47.371 47.393 47.440 47.505 47.630 47.755 47.843
VERTICAL ALIGNMENT	G= -1.000% 1: -100.0 KF= 8.88889 L= 20.000 G= 1.250% 1: 80.0
HORIZONTAL ALIGNMENT	R= 9.000 R= 27.000 R= 50.000
STORMWATER COVER LEVEL	47.455 47.629 47.855
STORMWATER INVERT	46.484 46.400 46.379
STORMWATER DETAILS	Pipe 7.000 Dia 225 Circular CLAY 1 in 499 Perforated Pipe Pipe 5.005 Dia 225 Circular CLAY 1 in 500 Perforated Pipe Pipe 5.006 Dia 225 Circular CLAY 1 in 500 Perforated Pipe
STORMWATER LENGTHS	10.979 42.023 10.490
FOULWATER COVER LEVEL	47.356 47.743
FOULWATER INVERT	45.596 46.000
FOULWATER DETAILS	Pipe 3.000 Dia 150 Circular CLAY 1 in 80
FOULWATER LENGTHS	32.304



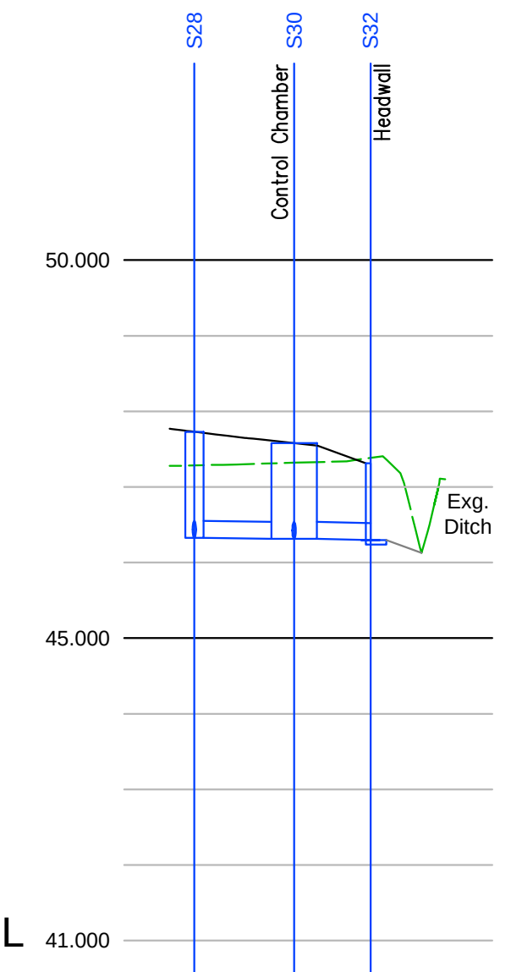
ROAD 4

CHAINAGE	0.000 10.000 10.917 15.000 16.543 17.485 20.000 20.917 25.000 27.012 30.000 30.917 40.000 43.456 46.241 50.000 56.834
EXISTING GROUND LEVEL	47.350 47.300 47.262 47.261 47.269 47.315 47.357
ALIGNMENT LEVEL	47.750 47.850 47.859 47.892 47.909 47.909 47.901 47.868 47.859 47.768 47.668 47.600
VERTICAL ALIGNMENT	G= 1.000% 1: 100.0 L= 20.000 KF= -10.0 G= -1.000% 1: -100.0
HORIZONTAL ALIGNMENT	R= 500.000
STORMWATER COVER LEVEL	47.855 47.730
STORMWATER INVERT	46.379 46.325
STORMWATER DETAILS	Pipe 1.011 Dia 225 Circular CLAY 1 in 502 Perforated Pipe Pipe 1.012 Dia 225 Circular CLAY 1 in 499 Perforated Pipe
STORMWATER LENGTHS	41.136 26.963



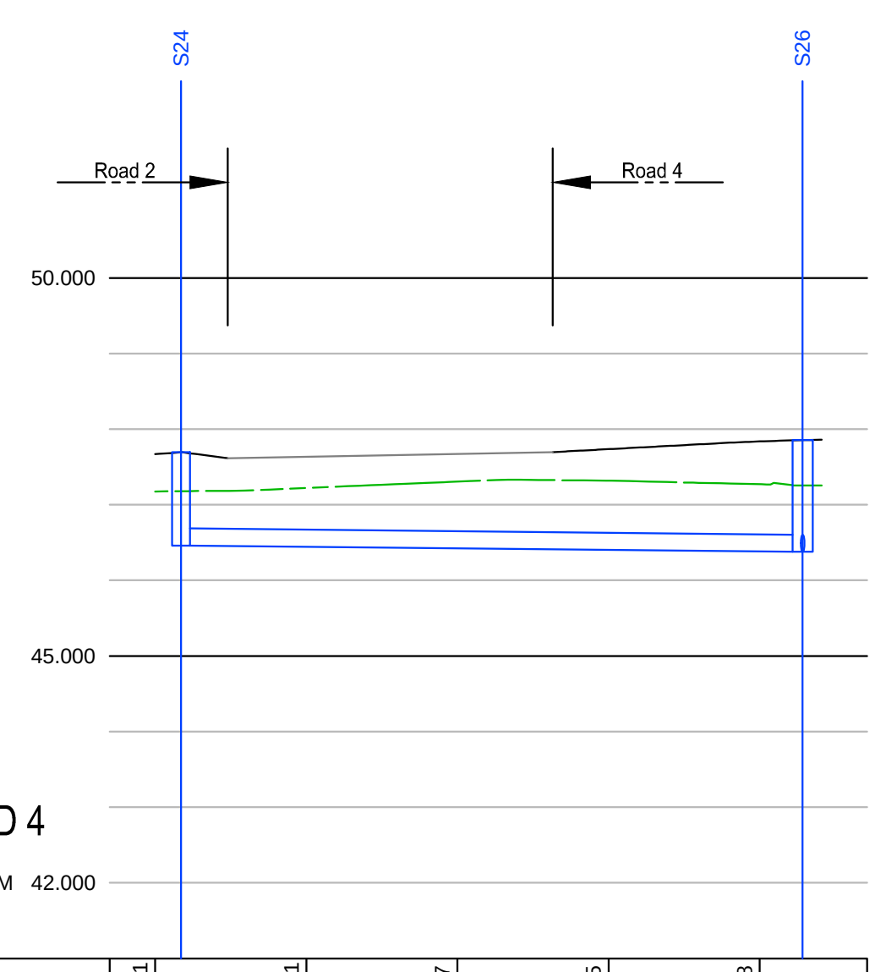
ROAD 4TH

CHAINAGE	-2.500 -2.352 0.000 2.262 6.407
EXISTING GROUND LEVEL	47.298 47.304 47.336
ALIGNMENT LEVEL	47.643 47.563
VERTICAL ALIGNMENT	G= -1.250% 1: -80.0
HORIZONTAL ALIGNMENT	
STORMWATER COVER LEVEL	47.730 47.579
STORMWATER INVERT	46.325 46.312
STORMWATER DETAILS	Pipe 1.013 Dia 225 Circ CLAY 1 in 507 Perforated Pipe
STORMWATER LENGTHS	6.594



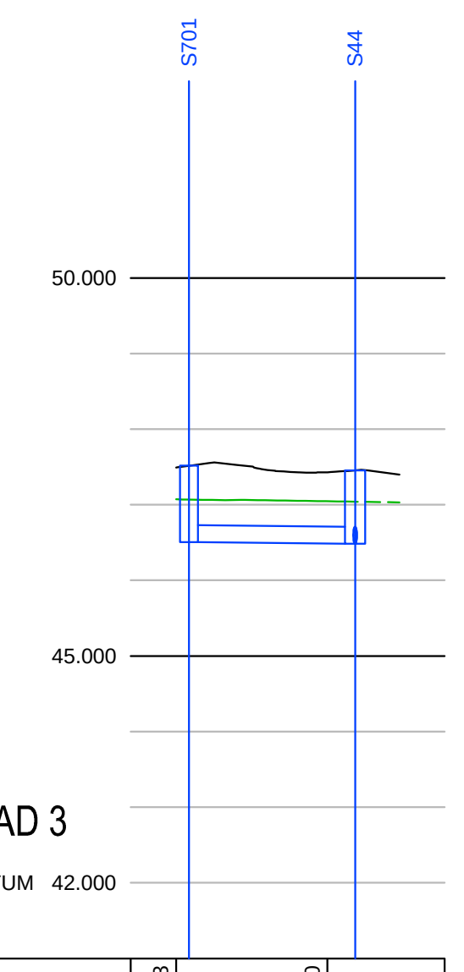
SW OUTFALL TO DITCH

GROUND LEVEL	47.770 47.330
STORMWATER COVER LEVEL	47.730 47.579 47.400
STORMWATER INVERT	46.325 46.312 46.300
STORMWATER DETAILS	Pipe 1.013 Dia 225 Circ CLAY 1 in 507 Perforated Pipe Pipe 1.014 Dia 225 Circ CLAY 1 in 422
STORMWATER LENGTHS	6.594 5.061



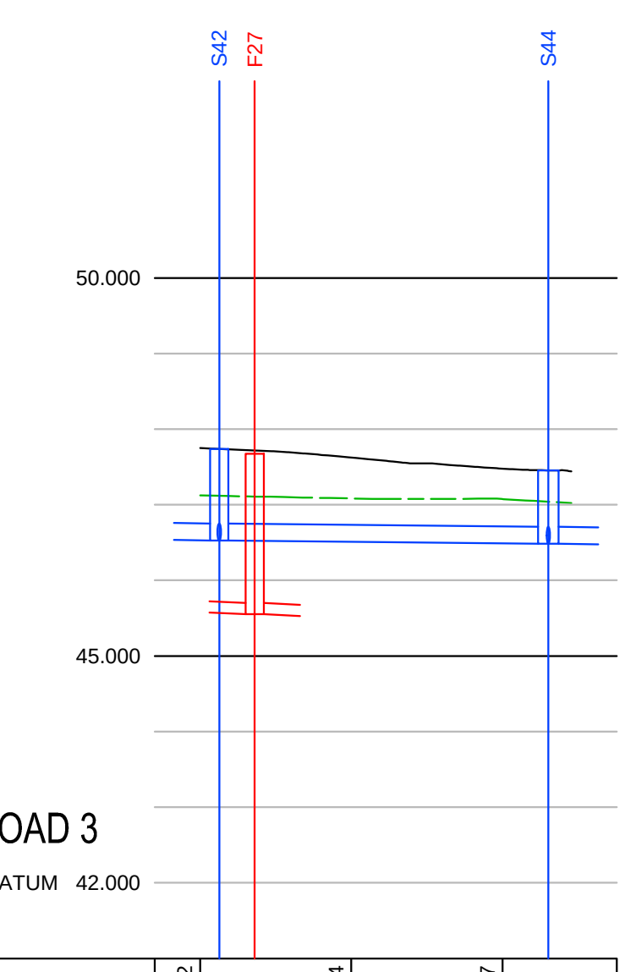
S24 - S26
ROAD 2 TO ROAD 4

GROUND LEVEL	47.671 47.221 47.307 47.735 47.838
STORMWATER COVER LEVEL	47.695 47.855
STORMWATER INVERT	46.461 46.379
STORMWATER DETAILS	Pipe 1.011 Dia 225 Circular CLAY 1 in 502 Perforated Pipe
STORMWATER LENGTHS	41.136



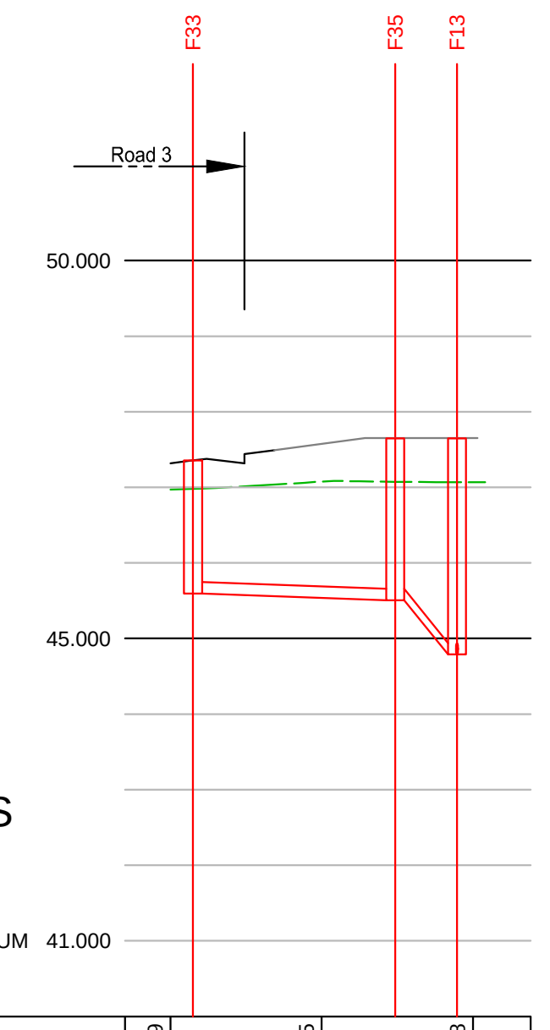
S701 - S44
ROAD 2 TO ROAD 3

GROUND LEVEL	47.493 47.430
STORMWATER COVER LEVEL	47.517 47.455
STORMWATER INVERT	46.506 46.484
STORMWATER DETAILS	Pipe 7.000 Dia 225 Circular CLAY 1 in 499 Perforated Pipe
STORMWATER LENGTHS	10.979



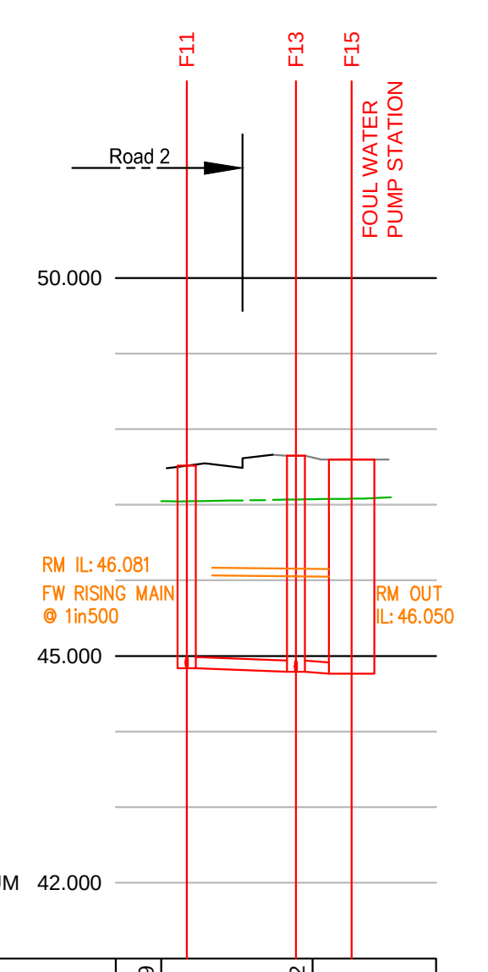
S42 - S44
ROAD 2 TO ROAD 3

GROUND LEVEL	47.752 47.624 47.477
STORMWATER COVER LEVEL	47.739 47.455
STORMWATER INVERT	46.528 46.484
STORMWATER DETAILS	Pipe 5.004 Dia 225 Circular CLAY 1 in 500 Perforated Pipe
STORMWATER LENGTHS	21.765



FW ACROSS POS AREA

GROUND LEVEL	47.319 47.075 47.068
FOULWATER COVER LEVEL	47.356 47.650 47.650
FOULWATER INVERT	45.596 45.507 45.507 44.789
FOULWATER DETAILS	Pipe 3.001 Dia 150 Circular CLAY 1 in 150 Pipe 3.002 Dia 150 Circ CLAY 1 in 6
FOULWATER LENGTHS	13.352 4.089



FW OUTFALL TO FWPS

GROUND LEVEL	47.049 47.072
FOULWATER COVER LEVEL	47.519 47.650 47.600
FOULWATER INVERT	44.837 44.789 44.765
FOULWATER DETAILS	Pipe 1.005 Dia 150 Circ CLAY 1 in 150 Pipe 1.006 Dia 150 Circ CLAY 1 in 150
FOULWATER LENGTHS	7.222 3.675

SEVERN TRENT WATER MANHOLE REQUIREMENTS FOR SEWERS FOR ADOPTION 6TH EDITION - ADOPTIONS & DIVERSIONS

GENERAL REQUIREMENTS

COPIES OF DELIVERY NOTES FOR UPVCRETE AND PIPE BEDDING WILL BE REQUIRED INTERMITTENTLY AS THE JOB PROGRESSES. ALL OTHER COMPONENT UNITS MUST BE KITE-MARKED.

CHANNELS AND BENCHING

ALL CHAMBERS WITH PIPE SIZES 150MM, 225MM, 300MM MUST HAVE SWEPT BENDS AND CHANNELS. ALL BENCHING TO BE A *MINIMUM 40MM THICK* GRANOLITHIC UPVCRETE *TROWELLED TO A SMOOTH FINISH.*

IRONWORK IN MANHOLES

IF THE CHAMBER IS LESS THAN 3M DEEP WE REQUIRE DOUBLE ENCAPSULATED STEP RUNGS UNLESS OTHERWISE APPROVED. IF THE CHAMBER IS OVER 3M DEEP WE REQUIRE *HOT DIPPED GALVANISED MILD STEEL LADDERS*. THERE MUST BE 900MM BETWEEN LADDER AND BACK OF SHAFT. DEPTH IS MEASURED FROM FINISHED COVER LEVEL TO THE TOP OF THE BENCHING. THE MAXIMUM DISTANCE BETWEEN COVER LEVEL AND THE FIRST STEP MUST BE 675MM.

BRICKWORK

MIN 2 MAX 4 COURSES UNDER FRAME AND MUST BE SOLID CLASS B ENGINEERING BRICKS OR UPVCRETE SPACING RINGS NEATLY POINTED UP. ENGLISH BOND TO BE USED ON ALL BRICKWORK. SULPHATE RESISTING CEMENT MUST BE USED IN ALL LOCATIONS.

COVER AND FRAMES

COVER SLAB OPENING, COVER AND FRAMES MUST BE 675 X 675 *UNLESS OTHERWISE APPROVED*. DN400 SHALL BE USED AT ALL LOCATIONS. ON SPINE ROADS MUST BE 150MM DEEP. ON RESIDENTIAL CUL-DE-SACS 100MM MAY BE USED SUBJECT TO APPROVAL. FRAMES FOR MANHOLE COVERS SHOULD BE BEDDED IN A POLYESTER RESIN BEDDING MORTAR IN ALL SITUATIONS WHERE COVERS ARE SITED IN NRSWA ROAD CATEGORIES I, II OR III.

'INFILL' TYPE COVERS SHOULD NOT BE USED.

IN BLOCK PAVED AREAS 150MM DEEP FRAMES MUST BE USED (IN ACCORDANCE WITH CL 2.8.6 SFA6 P.25)

LATERALS

THEY SHOULD BE LAID TO THE SAME STANDARD AS PUBLIC SEWERS. THEY SHOULD HAVE NO CHANGES OF LINE OR GRADIENT BETWEEN THE SEWER AND THE DEMARCATION CHAMBER. THEY SHOULD HAVE AN ADOPTABLE MANHOLE AS THE DEMARCATION CHAMBER UNLESS THERE IS ONLY ON PROPERTY WHEN A PLASTIC CHAMBER TO BS7158 IS ALLOWED. LOCKABLE B125 AND A15 COVERS MAY BE ALLOWED IN CERTAIN LOCATIONS SUBJECT TO APPROVAL. THE DEMARCATION SHOULD BE INSIDE THE BOUNDARY OF THE PROPERTY, NO MORE THAN 1M INSIDE THE BOUNDARY, PREFERABLY IN THE DRIVEWAY AND NOT IN THE WHEEL TRACKS OF VEHICLES.

GENERAL NOTES

1. LEVELS INDICATED IN BLOCKS ARE FINISHED FLOOR LEVELS WHICH ARE GENERALLY 150MM ABOVE GROUND LEVEL.
2. ROADS FOOTPATHS AND PARKING BAYS WHICH FORM PART OF THE HIGHWAY TO BE ADOPTED UNDER SECTION 38 OF THE HIGHWAYS ACT 1980 SHALL COMPLY WITH THE RELEVANT COUNCIL HIGHWAY SPECIFICATION.
3. SEWERS TO BE ADOPTED UNDER SECTION 104 OF THE WATER INDUSTRIES ACT 1991 SHALL COMPLY WITH THE WATER AUTHORITIES ASSOCIATION "SEWERS FOR ADOPTION 6TH EDITION AND COMBINED ADDENDUM".
4. ALL PIPES TO BE USED IN ADOPTABLE SEWERS SHALL BE EITHER UPVCWARE TO BS EN 295-1:1991 AND BS 65:1991 (surface water pipes only), UPVCRETE TO BS 5911-1:2002 OR UNPLASTICISED PVC PIPES TO BS 4660/ BS EN1401-1:1998 WITH CLASS S BEDDING UNLESS OTHERWISE STATED. THE MINIMUM REQUIREMENT FOR PIPES TO BE USED IN ADOPTABLE SEWERS IS TO BE AS FOLLOWS:

4.1. 150MM DIA - CLASS 187 - MIN CRUSHING STRENGTH 28KN/M
225MM DIA - CLASS 120 - MIN CRUSHING STRENGTH 28KN/M
300MM DIA - CLASS 120 - MIN CRUSHING STRENGTH 36KN/M

4.2. LARGER THAN 300MM DIA - HIGH STRENGTH UPVCRETE. WHERE COVER TO PIPES IS LESS THAN 1200MM UNDER CARRIAGEWAY OR VEHICULAR ACCESS AREAS THEY SHALL BE SURROUNDED WITH 150MM GRADE C20 UPVCRETE, FLEXIBILITY OF JOINTS BEING MAINTAINED BY USING COMPRESSIBLE FIBREBOARD AT INTERVALS NOT EXCEEDING 5M.

5. ALL EXISTING DRAINAGE INVERT LEVELS, DIAMETERS AND LOCATIONS ARE TO BE CHECKED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY PROPOSED DRAINAGE WORK. ANY DIFFERENCE BETWEEN ACTUAL AND DRAWN DETAILS IS TO REPORTED IMMEDIATELY.
6. POSITIONS OF EXISTING SERVICES/STAUTORY UNDERTAKERS APPARATUS ADJACENT TO OR CROSSING PROPOSED SEWERS IS TO BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING WORK.

MINIMUM DIMENSIONS FOR MANHOLES

Type	Size of largest pipe (DN)	Min internal dimensions¹ Rectangular length and width	Circular diameter	Min clear opening size¹ Rectangular length and width	Circular diameter
Manhole < 1.5m deep to soffit	≤ 150 225 300 >300	750 x 675⁷ 1200 x 675 1200 x 750 1800 x (DN+450)	1000⁷ 1200 1200 The larger of 1800 or (DN+450)	750 x 675² 1200 x 675²	na³
> 1.5m deep to soffit	≤ 225 300 375-450 >450	1200 x 1000 1200 x 1075 1350 x 1225 1800 x (DN+775)	1200 1200 1200 The larger of 1800 or (DN+775)	675 x 675	600
Manhole shaft⁴ > 3.0m deep to soffit of pipe	Steps⁵	1050 x 800	1050	675 x 675	600
	Ladder⁵	1200 x 800	1200		
	Winch⁶	900 x 800	900	675 x 675	600

Notes:
1) Larger sizes may be required for manholes on bends or where there are junctions.
2) May be reduced to 600 by 600 where required by highway loading considerations, subject to a safe system of work being specified.
3) Not applicable due to working space needed.
4) Minimum height of chamber in shafted manhole 2m from benching to underside of reducing slab.
5) Min clear space between ladders or steps and the opposite face of the shaft should be approximately 900mm.
6) Winch only - no steps or ladders, permanent or removable
7) The minimum size of any manhole serving a sewer (i.e any drain serving more than one property) should be 1200 mm x 675 mm rectangular or 1200 mm diameter

NOTE:-

PIPE BEDDING CALCULATIONS & DEFORMATION CALCULATIONS FOR THE UPVC PIPES ARE TO BE PROVIDED BY THE PIPE MANUFACTURER TO SEVERN TRENT WATER AS SOON AS THE CONTRACTOR AND PIPE SUPPLIER HAS BEEN CONFIRMED.

The Contractor is to check and verify all building and site dimensions, levels and sewer invert levels at connection points before work starts. The Contractor is to comply in all respects with current Building Legislation, British Standard Specifications , Building Regulations, Construction (Design & Management) Regulations, Party Wall Act, etc. whether or not specifically stated on this drawing. This drawing must be read with and checked against any structural, geotechnical or other specialist documentation provided. This drawing is not intended to show details of foundations, ground conditions or ground contaminants. Each area of ground relied upon to support any structure depicted (including drainage) must be investigated by the Contractor. A suitable method of foundation should be provided allowing for existing ground conditions. Any suspect or fluid ground, contaminates on or within the ground, should be further investigated by a suitable expert. Any earthwork constructions shown indicate typical slopes for guidance only & should be further investigated by a suitable expert.
Where existing trees / structures are to be retained they should be subject to a full specialist inspection for safety. All trees are to be planted so as to ensure they are a minimum of 5 metres from buildings. A suitable method of foundation is to be provided to accommodate the proposed tree planting.
Residential & Commercial Engineering Limited do not accept any responsibility for any losses (financial or otherwise) to any Client or third party arising out of the Clients (be it Developer or Contractor but not limited thereto) non-compliance with afore mentioned provisos.

PRELIMINARY
SUBJECT TO CLIENT &
TECHNICAL APPROVAL

GENERAL NOTES

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
2. ALL WORKS TO BE TO THE SPECIFICATION FOR HIGHWAY WORKS AND SCC SPECIFICATION.
3. LEVEL OF EXISTING ROAD AT POINT OF TIE IN WITH PROPOSED SITE MUST BE VERIFIED PRIOR TO COMMENCEMENT OF WORKS.
4. ALL ADOPTABLE DRAINAGE MUST COMPLY WITH SEWERS FOR ADOPTION 6TH EDITION AND SEVERN TRENT WATER REQUIREMENTS.
5. POLISHED STONE VALUES, AGGREGATE SIZES, AGGREGATE ABRASION VALUES AND PENETRATION VALUES OF ALL SURFACE COURSE MATERIALS MUST BE CHECKED WITH HIGHWAY AUTHORITY AND COMPLY WITH ALL CODES OF PRACTICE PRIOR TO ORDERING AND LAYING OF MATERIALS.
6. POSITIONS OF EXISTING SERVICES/STAUTORY UNDERTAKERS APPARATUS ADJACENT TO OR CROSSING PROPOSED SEWERS IS TO BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING WORK.
7. A SCREEN IS TO BE FITTED OVER THE OUTGOING PIPE TO THE LAST NEW SURFACE AND FOUL MANHOLES BEFORE ENTERING THE EXISTING SEWERS IN ACCORDANCE WITH SEWERS FOR ADOPTION 6TH EDITION. THE SCREEN SHALL ONLY BE REMOVED ONCE ON-SITE CONSTRUCTION WORKS HAVE BEEN COMPLETED.
8. WHERE IT IS PROPOSED TO LAY FOUL SEWERS ABOVE STORM & TO AVOID CROSS CONTAMINATION; THE FOUL SEWER SHALL BE WRAPPED WITH AN IMPERMEABLE GEOTEXTILE MEMBRANE.

S106 APPLICATION

1. A SECTION 106 APPLICATION TO SEVERN TRENT WATER MUST BE COMPLETED FOR THE RE USE OF ANY EXISTING CONNECTION INTO THE EXISTING PUBLIC SEWERAGE SYSTEM OR THE CONSTRUCTION OF A NEW CONNECTION.
2. AN APPLICATION WILL BE REQUIRED FOR THE FOUL AND SURFACE WATER DRAINAGE ARRANGEMENTS AND THIS SHOULD BE COMPLETED BY THE CONTRACTOR.

Rev	Description	Date	Drawn	Check

Revisions:

Lioncourt Homes
RACE
RESIDENTIAL & COMMERCIAL ENGINEERING

Drawing Status:
Subject to the following approvals:
S111 - Subject to Technical Approval from Staffordshire CC Highways
S104 - Subject to Technical Approval from Severn Trent Water
S106 - Developer to complete application/approval with STW.
Consent to Discharge - Developer to complete application/approval with SCC Land Drainage Team

Client:
LIONCOURT HOMES

Project:
TATENHILL LANE, BRANSTON

Title:
LONG SECTIONS
(Sheet 2 of 2)

Job Number. RACE/LCH/TLB
Drawing No. ENG_201
Revision. #

Scale: 1:500/1:100 @ A0
Date: JUNE ' 17
Drawn by: SM
Checked by: GJ

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