

The Contractor is to check and verify all building and site dimensions, levels and areas against the approved plans and specifications 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 the 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 constraints. Each area of ground related upon to support any structure depicted (including drainage) must be investigated by the Contractor. A suitable method of investigation should be provided allowing for suitable ground conditions. Any aspect of the ground constraints on or within the ground, should be further investigated by a suitable expert. Any geotechnical construction shown indicate typical slopes for guidance only & should be further investigated by a suitable expert. Where existing structures are to be retained they should be subject to a full specialist inspection for safety. All areas are to be planned 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) in any civil or other party arising out of the Client, the Developer or Contractor but not limited thereto) non-compliance with other mentioned provisions. © This drawing is the property of Residential & Commercial Engineering Limited and may not be copied or used for any purpose other than that for which it is supplied without the express written authority of Residential & Commercial Engineering Limited.

PRELIMINARY SUBJECT TO CLIENT & TECHNICAL APPROVAL

- GENERAL NOTES**
- ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
 - ALL WORKS TO BE TO THE SPECIFICATION FOR HIGHWAY WORKS AND SIZE SPECIFICATION.
 - LEVEL OF EXISTING ROAD AT POINT OF THE ALTERNATIVE PROPOSED PIPE MUST BE VERIFIED PRIOR TO COMMENCEMENT OF WORKS.
 - ALL ADAPTABLE DRAINAGE MUST COMPLY WITH SEWERS FOR ADOPTABLE EDITION AND SEWERS TREAT WATER.
 - PROPOSED DRIVE VALUES, AGGREGATE SETTS, AGGREGATE GRANULAR FILLS AND PENETRATION VALUES FOR ALL SURFACE COURSE MATERIALS MUST BE CHECKED WITH HIGHWAYS AGENCY APPROVED CONTRACT DOCUMENTS.
 - PROTECT EXISTING SERVICES/STATUTORY UNDERTAKERS ADJACENT TO EXISTING ADJACENT TO EXISTING PROPOSED SEWERS IS TO BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING WORK.
 - A SCREEN IS TO BE FITTED OVER THE OUTSIDE PIPE TO THE LAST MANHOLE AND JOINT MANHOLES BEFORE ENTERING ADOPTABLE EDITION. THE SCREEN SHALL ONLY BE REMOVED ONCE CONSTRUCTION WORKS HAVE BEEN COMPLETED.
 - WHERE IT IS PROPOSED TO LAY FOLW SEWERS ABOVE STORM & TO AVOID CROSS CONNECTION, THE FOLW SEWER SHALL BE INSTALLED WITH AN IMMEDIATELY ABOVE STORM MANHOLE.

- NOTE**
- LEVELS INDICATED IN BLOCKS ARE FINISHED FLOOR LEVELS WHICH ARE GENERALLY 150MM ABOVE GROUND LEVEL.
 - ROADS FOOTPATHS AND PARKING BAYS WHICH FORM PART OF THE HIGHWAY ACT 1980 SHALL COMPLY WITH THE RELEVANT COUNCIL HIGHWAY SPECIFICATION.
 - SEWERS TO BE ADOPTED UNDER SECTION 104 OF THE WATER INDUSTRIES ACT 1991 SHALL COMPLY WITH THE WATER AUTHORITIES ASSOCIATION 'SEWERS FOR ADOPTION EDITION AND COMBINED ADOPTION'.
 - ALL PIPES TO BE USED IN ADOPTABLE SEWERS SHALL BE EITHER UPVC/PVC TO BS EN 205-1/1991 AND BS 60191 (surface water pipes only), UPVC/PVC TO BS 6911-1/2002 OR UNLESS OTHERWISE STATED TO BE HDPE TO BS EN 4101-1/1996 WITH CLASS B BEADING UNLESS OTHERWISE STATED. THE MINIMUM REQUIREMENT FOR PIPES TO BE USED IN ADOPTABLE SEWERS IS TO BE AS FOLLOWS:

- MINIMUM DIMENSIONS FOR MANHOLES**
- | Type | Size of top (mm) | Min. internal diameter (mm) | Min. depth (mm) | Min. depth (mm) | Min. depth (mm) |
|----------------------|------------------|-----------------------------|-----------------|-----------------|-----------------|
| Manhole | 1000 | 750 | 1000 | 1000 | 1000 |
| | 1200 | 900 | 1200 | 1200 | 1200 |
| | 1500 | 1100 | 1500 | 1500 | 1500 |
| 1.0m depth | 1000 | 750 | 1000 | 1000 | 1000 |
| | 1200 | 900 | 1200 | 1200 | 1200 |
| | 1500 | 1100 | 1500 | 1500 | 1500 |
| Manhole depth > 1.0m | 1000 | 750 | 1000 | 1000 | 1000 |
| | 1200 | 900 | 1200 | 1200 | 1200 |
| | 1500 | 1100 | 1500 | 1500 | 1500 |

NOTE:

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

SEWERS TREAT WATER MANHOLE REQUIREMENTS FOR SEWERS FOR ADOPTION 6TH EDITION - ADAPTS & DIVERSIONS

GENERAL REQUIREMENTS

COPIES OF DELIVERY NOTES FOR UPVC/PVC AND PIPE BEADING WILL BE REQUIRED INTERNETMENTALLY AS THE JOB PROGRESSES. ALL OTHER COMPONENT UNITS MUST BE KITS-MARKED.

CHANNELS AND BENCHING

ALL CHAMBERS WITH PIPE SIZES 150MM, 225MM, 300MM MUST HAVE SWIFT BENDS AND CHANNELS. ALL BEADING TO BE A MINIMUM 40MM THICK GRANULITHIC UPVC/PVC TRIMMELED TO A SMOOTH FINISH.

WORKING 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 300MM BETWEEN LADDER AND BACK OF SHIRT. 600MM BEHIND FROM FINISHED COVER LEVEL TO THE TOP OF THE BENCHING. THE MAXIMUM DISTANCE BETWEEN COVER LEVEL AND THE FIRST STEP MUST BE 675MM.

BRICKWORK

MIX 2 MAX 4 COURSES UNDER FRAME AND MUST BE SOLID CLASS B ENGINEERING BRICKS OR UPVC/PVC SPACING RINGS NEATLY POINTED UP. ENGLISH BOND TO BE USED ON ALL BRICKWORK. SOLI-PASTE RESISTING CEMENT MUST BE USED IN ALL LOCATIONS.

COLES AND FRAMES

COVER SLAB OPENING, COVER AND FRAMES MUST BE 675 X 675 UNLESS OTHERWISE APPROVED. GRASS SHALL BE USED AT ALL LOCATIONS. ON SPINE ROADS MUST BE 1500MM DEEP. ON RESIDENTIAL COLLE-GRASS 100MM MAY BE USED SUBJECT TO APPROVAL. FRAMES FOR MANHOLE COVERS SHOULD BE SETTED IN A POLYESTER RESIN BEDDING MORTAR IN ALL SITUATIONS WHERE COVERS ARE SITED IN NRSWA ROAD CATEGORIES I & II OR II.

INFILL TYPE COVERS SHOULD NOT BE USED.

IN BLOCK PAVED AREAS 150MM DEEP FRAMES MUST BE USED IN ACCORDANCE WITH CL 2.8.8 (PART 2).

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 ADAPTABLE MANHOLE AS THE DEMARCATION CHAMBER UNLESS THERE IS ONLY ON PROPERTY WHEN A PLASTIC CHAMBER TO BS750 IS ALLOWED. LOCABLE AND HAS COVERS MAY BE ALLOWED IN CERTAIN LOCATIONS SUBJECT TO APPROVAL. THE DEMARCATION SHOULD BE INSIDE THE BOUNDARY OF THE PROPERTY, NO MORE THAN 1M FROM THE BOUNDARY. PREFERABLY IN THE DRIVEWAY AND NOT IN THE WHEEL TRACKS OF VEHICLES.

GENERAL NOTES

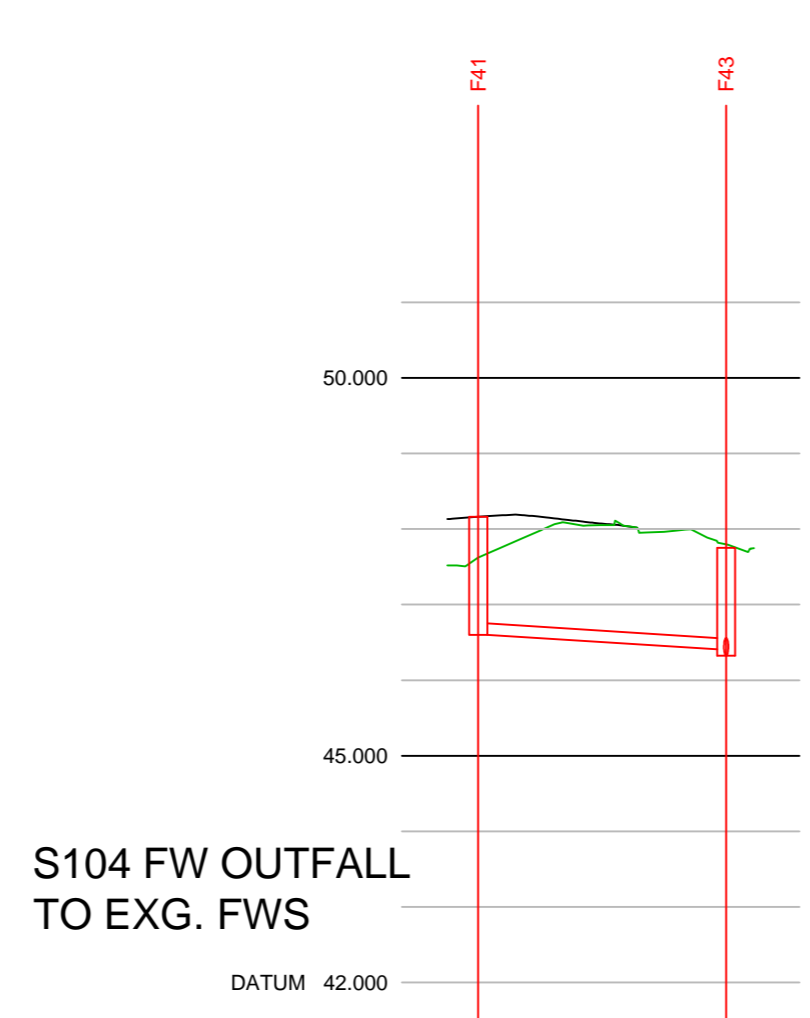
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MINIMUM DIMENSIONS FOR MANHOLES

Type	Size of top (mm)	Min. internal diameter (mm)	Min. depth (mm)	Min. depth (mm)	Min. depth (mm)
Manhole	1000	750	1000	1000	1000
	1200	900	1200	1200	1200
	1500	1100	1500	1500	1500
1.0m depth	1000	750	1000	1000	1000
	1200	900	1200	1200	1200
	1500	1100	1500	1500	1500
Manhole depth > 1.0m	1000	750	1000	1000	1000
	1200	900	1200	1200	1200
	1500	1100	1500	1500	1500

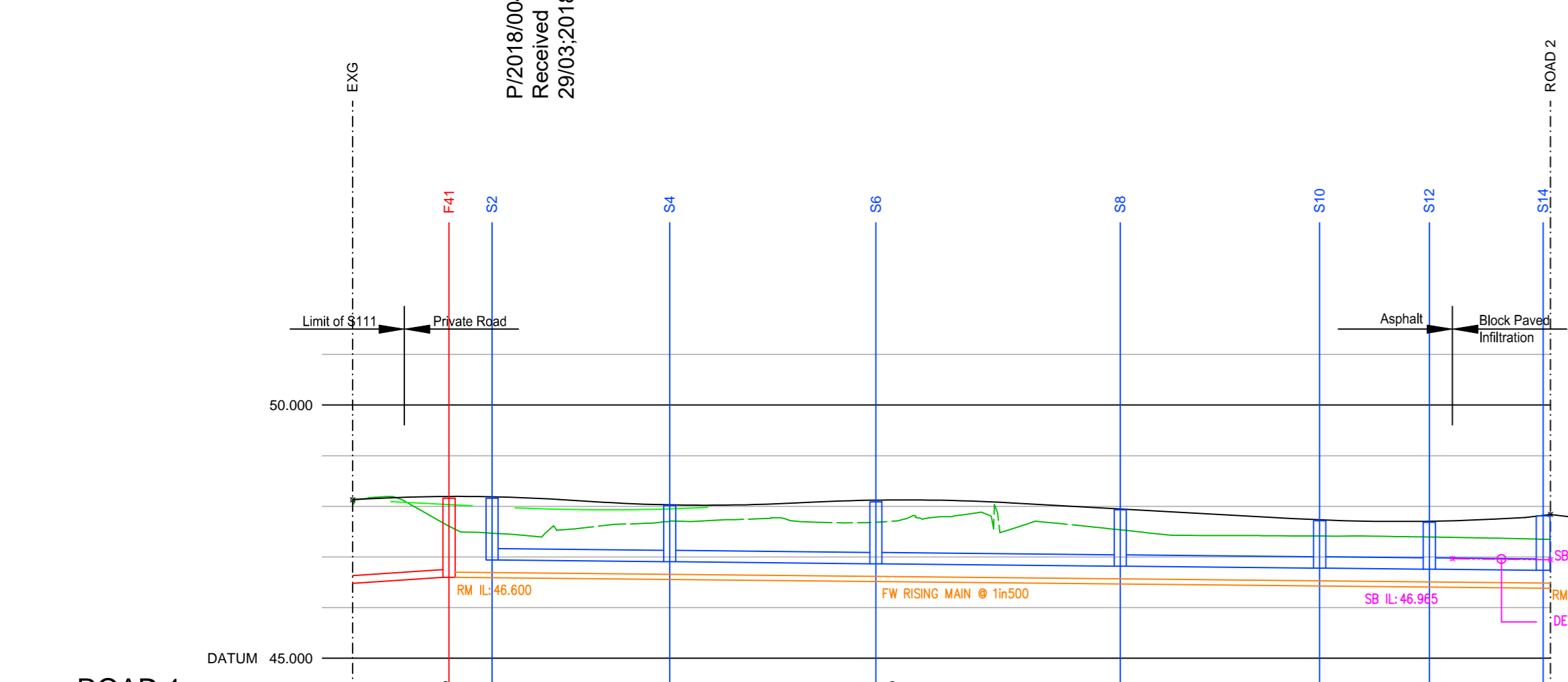
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S104 FW OUTFALL TO EXG. FWS

GROUND LEVEL	48.131	48.076	47.734
FOULWATER COVER LEVEL	48.162	48.076	47.734
FOULWATER INVERT	46.800	46.800	46.800
FOULWATER DETAILS	Pipe 1.000 Dia 150 Circular CLAY 1 in 87		
FOULWATER LENGTHS	16.402		



CHANGE	0.000	2.251	5.000	8.850	13.212	18.000	23.000	28.000	33.000	38.000	43.000	48.000	53.000	58.000	63.000	68.000	73.000	78.000	83.000	88.000	93.000	98.000	103.000	108.000	113.000	118.000	123.000	128.000	133.000	138.000	143.000	148.000	153.000	158.000	163.000	168.000	173.000	178.000	183.000	188.000	193.000	198.000	203.000	208.000	213.000	218.000	223.000	228.000	233.000	238.000	243.000	248.000	253.000	258.000	263.000	268.000	273.000	278.000	283.000	288.000	293.000	298.000	303.000	308.000	313.000	318.000	323.000	328.000	333.000	338.000	343.000	348.000	353.000	358.000	363.000	368.000	373.000	378.000	383.000	388.000	393.000	398.000	403.000	408.000	413.000	418.000	423.000	428.000	433.000	438.000	443.000	448.000	453.000	458.000	463.000	468.000	473.000	478.000	483.000	488.000	493.000	498.000	503.000	508.000	513.000	518.000	523.000	528.000	533.000	538.000	543.000	548.000	553.000	558.000	563.000	568.000	573.000	578.000	583.000	588.000	593.000	598.000	603.000	608.000	613.000	618.000	623.000	628.000	633.000	638.000	643.000	648.000	653.000	658.000	663.000	668.000	673.000	678.000	683.000	688.000	693.000	698.000	703.000	708.000	713.000	718.000	723.000	728.000	733.000	738.000	743.000	748.000	753.000	758.000	763.000	768.000	773.000	778.000	783.000	788.000	793.000	798.000	803.000	808.000	813.000	818.000	823.000	828.000	833.000	838.000	843.000	848.000	853.000	858.000	863.000	868.000	873.000	878.000	883.000	888.000	893.000	898.000	903.000	908.000	913.000	918.000	923.000	928.000	933.000	938.000	943.000	948.000	953.000	958.000	963.000	968.000	973.000	978.000	983.000	988.000	993.000	998.000																																																																																																																																																																																																																																							
EXISTING GROUND LEVEL	48.000	48.000	47.950	47.900	47.850	47.800	47.750	47.700	47.650	47.600	47.550	47.500	47.450	47.400	47.350	47.300	47.250	47.200	47.150	47.100	47.050	47.000	46.950	46.900	46.850	46.800	46.750	46.700	46.650	46.600	46.550	46.500	46.450	46.400	46.350	46.300	46.250	46.200	46.150	46.100	46.050	46.000	45.950	45.900	45.850	45.800	45.750	45.700	45.650	45.600	45.550	45.500	45.450	45.400	45.350	45.300	45.250	45.200	45.150	45.100	45.050	45.000	44.950	44.900	44.850	44.800	44.750	44.700	44.650	44.600	44.550	44.500	44.450	44.400	44.350	44.300	44.250	44.200	44.150	44.100	44.050	44.000	43.950	43.900	43.850	43.800	43.750	43.700	43.650	43.600	43.550	43.500	43.450	43.400	43.350	43.300	43.250	43.200	43.150	43.100	43.050	43.000	42.950	42.900	42.850	42.800	42.750	42.700	42.650	42.600	42.550	42.500	42.450	42.400	42.350	42.300	42.250	42.200	42.150	42.100	42.050	42.000	41.950	41.900	41.850	41.800	41.750	41.700	41.650	41.600	41.550	41.500	41.450	41.400	41.350	41.300	41.250	41.200	41.150	41.100	41.050	41.000	40.950	40.900	40.850	40.800	40.750	40.700	40.650	40.600	40.550	40.500	40.450	40.400	40.350	40.300	40.250	40.200	40.150	40.100	40.050	40.000	39.950	39.900	39.850	39.800	39.750	39.700	39.650	39.600	39.550	39.500	39.450	39.400	39.350	39.300	39.250	39.200	39.150	39.100	39.050	39.000	38.950	38.900	38.850	38.800	38.750	38.700	38.650	38.600	38.550	38.500	38.450	38.400	38.350	38.300	38.250	38.200	38.150	38.100	38.050	38.000	37.950	37.900	37.850	37.800	37.750	37.700	37.650	37.600	37.550	37.500	37.450	37.400	37.350	37.300	37.250	37.200	37.150	37.100	37.050	37.000	36.950	36.900	36.850	36.800	36.750	36.700	36.650	36.600	36.550	36.500	36.450	36.400	36.350	36.300	36.250	36.200	36.150	36.100	36.050	36.000	35.950	35.900	35.850	35.800	35.750	35.700	35.650	35.600	35.550	35.500	35.450	35.400	35.350	35.300	35.250	35.200	35.150	35.100	35.050	35.000	34.950	34.900	34.850	34.800	34.750	34.700	34.650	34.600	34.550	34.500	34.450	34.400	34.350	34.300	34.250	34.200	34.150	34.100	34.050	34.000	33.950	33.900	33.850	33.800	33.750	33.700	33.650	33.600	33.550	33.500	33.450	33.400	33.350	33.300	33.250	33.200	33.150	33.100	33.050	33.000	32.950	32.900	32.850	32.800	32.750	32.700	32.650	32.600	32.550	32.500	32.450	32.400	32.350	32.300	32.250	32.200	32.150	32.100	32.050	32.000	31.950	31.900	31.850	31.800	31.750	31.700	31.650	31.600	31.550	31.500	31.450	31.400	31.350	31.300	31.250	31.200	31.150	31.100	31.050	31.000	30.950	30.900	30.850	30.800	30.750	30.700	30.650	30.600	30.550	30.500	30.450	30.400	30.350	30.300	30.250	30.200	30.150	30.100	30.050	30.000	29.950	29.900	29.850	29.800	29.750	29.700	29.650	29.600	29.550	29.500	29.450	29.400	29.350	29.300	29.250	29.200	29.150	29.100	29.050	29.000	28.950	28.900	28.850	28.800	28.750	28.700	28.650	28.600	28.550	28.500	28.450	28.400	28.350	28.300	28.250	28.200	28.150	28.100	28.050	28.000	27.950	27.900	27.850	27.800	27.750	27.700	27.650	27.600	27.550	27.500	27.450	27.400	27.350	27.300	27.250	27.200	27.150	27.100	27.050	27.000	26.950	26.900	26.850	26.800	26.750	26.700	26.650	26.600	26.550	26.500	