



**01** Foul Drainage Layout-Zone 4  
SCALE 1:500

MANHOLE NO.	DIAMETER	TYPE	COVER LEVEL	INVERT LEVEL	DEPTH TO SOFFIT	EASTING	NORTHING	MANHOLE NO.	DIAMETER	TYPE	COVER LEVEL	INVERT LEVEL	DEPTH TO SOFFIT	EASTING	NORTHING
FMH1	1200	Type B	22.975	21.793	1.072	706697.614	804653.836	FMH38	1200	Type B	14.323	12.286	1.987	707020.583	804213.486
FMH2	1200	Type B	21.233	20.000	1.083	706617.124	804113.561	FMH39	1200	Type B	13.147	11.095	1.902	707010.712	804243.307
FMH3	1200	Type B	20.973	19.65	1.13	706628.287	804122.428	FMH40	1200	Type B	11.827	7.982	1.833	707041.168	804208.693
FMH4	1200	Type B	21.223	19.879	1.196	706697.949	804151.315	FMH41	1200	Type B	19.45	9.35	1.05	707008.339	804208.694
FMH5	1200	Type B	20.969	19.258	1.139	706673.907	804143.180	FMH42	1200	Type B	10.172	6.622	1.210	706997.944	804208.473
FMH6	1200	Type B	20.524	19.13	1.342	706644.229	804179.622	FMH43	1200	Type B	17.982	16.00	1.232	706964.467	804178.796
FMH7	1200	Type B	20.274	18.85	1.199	706622.279	804181.249	FMH44	1200	Type B	16.273	15.00	1.123	706938.569	804203.220
FMH8	1200	Type B	18.622	17.381	1.316	707048.984	804173.372	FMH45	1200	Type B	15.642	14.28	1.232	706977.504	804202.299
FMH9	1200	Type B	21.628	20.295	1.181	706734.947	804205.071	FMH46	1200	Type B	18.841	14.109	1.507	706977.092	804307.221
FMH10	1200	Type B	21.152	19.803	1.198	706717.832	804179.029	FMH47	1200	Type B	13.724	12.427	1.062	706973.834	804191.882
FMH11	1200	Type B	21.008	19.40	1.158	706722.251	804199.765	FMH48	1200	Type B	15.811	12.19	3.177	706977.812	804307.514
FMH12	1200	Type B	18.689	17.101	1.418	707048.665	804193.187	FMH49	1200	Type B	18.009	16.70	1.159	706974.654	804307.408
FMH13	1200	Type B	18.721	16.371	1.125	706958.93	804183.783	FMH50	1200	Type B	11.300	10.55	1.273	706988.432	804181.851
FMH14	1200	Type B	15.615	14.286	1.104	706665.863	804177.386	FMH51	1200	Type B	16.595	11.75	1.187	706925.295	804183.872
FMH15	1200	Type B	19.127	17.80	1.177	706620.001	804198.243	FMH52	1200	Type B	12.502	11.57	1.212	706978.509	804204.871
FMH16	1200	Type B	17.888	16.52	0.988	706651.178	804208.432	FMH53	1200	Type B	13.846	11.305	2.281	706988.537	804307.535
FMH17	1200	Type B	18.389	16.28	1.177	706614.633	804182.744	FMH54	1200	Type B	14.541	11.17	3.029	706977.171	804310.377
FMH18	1200	Type B	20.229	15.99	4.076	706653.280	804199.180	FMH55	1200	Type B	13.488	10.854	2.586	707014.533	804304.458
FMH19	1200	Type B	19.628	15.80	3.837	706651.631	804246.829	FMH56	1200	Type B	10.840	9.844	1.946	706978.782	804443.904
FMH20	1200	Type B	18.295	17.00	1.145	706651.146	804233.289	FMH57	1200	Type B	11.489	9.30	2.031	706977.145	804191.873
FMH21	1200	Type B	19.602	16.20	3.187	706651.802	804263.432	FMH58	1200	Type B	12.981	9.00	1.831	706973.841	804308.518
FMH22	1200	Type B	19.593	15.50	3.396	706651.235	804262.879	FMH59	1200	Type B	11.263	8.67	2.352	706988.882	804201.242
FMH23	1200	Type B	18.710	17.469	1.091	707011.005	804196.482	FMH60	1200	Type B	9.938	8.11	1.878	706988.445	804485.153
FMH24	1200	Type B	17.464	14.708	1.676	706647.770	804249.564	FMH61	1200	Type B	10.153	8.40	1.691	706988.305	804488.345
FMH25	1200	Type B	15.514	14.00	1.180	706661.626	804243.139	FMH62	1200	Type B	10.084	8.00	1.839	706977.319	804248.285
FMH26	1200	Type B	14.864	13.624	1.092	706664.425	804251.814	FMH63	1200	Type B	9.034	8.986	1.198	706974.781	804462.736
FMH27	1200	Type B	13.672	12.802	0.720	706670.241	804268.183	FMH64	1200	Type B	10.383	7.682	1.704	706977.532	804165.652
FMH28	1200	Type B	14.608	12.127	1.653	706668.815	804255.893	FMH65	1200	Type B	9.190	7.38	1.655	706975.547	804308.481
FMH29	1200	Type B	13.910	11.969	1.719	706643.874	804270.539	FMH66	1200	Type B	9.270	7.031	2.014	706970.079	804373.223
FMH30	1200	Type B	15.203	13.862	1.191	706684.623	804190.951	FMH67	1200	Type B	9.970	6.418	2.529	706981.324	804307.215
FMH31	1200	Type B	14.722	13.381	1.191	706674.249	804200.000	FMH68	1200	Type B	7.096	6.80	0.248	706977.993	804308.893
FMH32	1200	Type B	15.009	13.15	1.602	706651.458	804245.025	FMH69	1200	Type B	8.050	6.654	2.448	706951.634	804208.238
FMH33	1200	Type B	12.298	10.743	1.240	706697.273	804208.530	FMH70	1200	Type B	8.823	6.30	2.443	706951.664	804174.254
FMH34	1200	Type B	7.761	7.80	-0.189	707025.845	804264.839	FMH71	1200	Type B	9.175	6.81	3.512	706943.735	804457.844
FMH35	1200	Type A	11.616	7.422	4.063	707061.193	804241.225	FMH72	1200	Type A	8.589	5.772	2.611	706983.816	804248.390
FMH36	1200	Type A						FMH73	1200	Type A	8.749	5.33	3.402	706977.462	804267.217
FMH37	1200	Type A						FMH74	1200	Type A	8.773	5.244	2.391	706988.569	804373.484
FMH38	1200	Type A						FMH75	1200	Type A	8.723	5.21	3.388	706983.414	804377.473

- DRAINAGE LEGEND:**
- FOUL DRAINAGE PIPELINE
  - FOUL WATER MAN-HOLE
  - FOUL WATER MAN-HOLE WITH CONCRETE SURROUND
  - FOUL WATER INSPECTION CHAMBER
  - FOUL SEWER PIPE DIAMETER & FALL
  - STORM DRAINAGE PIPELINE
  - SURFACE WATER MANHOLE
  - SURFACE WATER MANHOLE WITH CONCRETE SURROUND
  - STORM DRAIN PIPE DIAMETER & FALL
  - SURFACE WATER ROAD GULLY

- NOTES:**
- FOUL DRAINAGE PIPEWORK SHALL BE UPVC BY WAVIN OR SIMILAR APPROVED, MANUFACTURED TO IS EN 1401 2009/2012, APPLICATION CODE 'UD' WITH STIFFNESS CLASS OF 8kN/m<sup>2</sup>. ALL FOUL DRAINAGE PIPEWORK SHALL BE THE SIZES AND LAID TO THE GRADIENTS SHOWN ON LAYOUT PLAN AND LONGITUDINAL SECTIONS.
  - WHERE MH ARE LOCATED IN GRASS AREAS THEY WILL BE SURROUNDED BY A 200mm CONCRETE PLINTH.
  - ALL SEWERS & OR ATTENUATION TANKS WILL HAVE A MINIMUM CLEARANCE OF 3M FROM ANY PROPOSED DEVELOPMENT STRUCTURE, THIS LAYOUT IS ALSO INTENDED TO COMPLY WITH IRISH WATERS TYPICAL SERVICE LAYOUT SEPARATION DISTANCES AS PER DETAIL STD-WW-05.
  - THE EXTERNAL FACE OF ALL PROPOSED MANHOLES WILL BE A MIN. 0.5m FROM ANY KERB LINE AND THE EXTERNAL FACE OF ANY SEWER WILL A MIN. 0.1m FROM ANY KERB LINE.
  - EACH DWELLING WILL HAVE THEIR OWN INSPECTION CHAMBER AND CONNECTION TO THE MAIN SEWER LINE AND SHOULD BE CONSTRUCTED IN ACCORDANCE WITH IRISH WATERS STANDARD DETAILS STD-WW-02 & STD-WW-03.
  - FOUL SEWER PIPE SIZE (DIAMETER) AND GRADIENT IS INDICATED AND IN ALL CASES IS INTENDED TO COMPLY WITH SECTION 2.4.3 & 2.4.4 OF THE WASTEWATER CODE OF PRACTICE.

- NOTES:**
- EXACT INVERT LEVELS OF EXISTING SEWERS TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION OF NEW FOUL SEWERS.
- THE PROPOSED FOUL SEWERS ARE A MAXIMUM DIAMETER OF 150mm LAD AT THE GRADIENTS SHOWN WHICH ARE IN ACCORDANCE WITH IRISH WATER GUIDELINES. THE DESIGN OF THE FOUL SEWERS IS BASED ON A ROUGHNESS COEFFICIENT OF 1.49m.
- THE PROPOSED FOUL DRAINAGE SYSTEM FOR THE NEW DEVELOPMENT WILL DISCHARGE INTO THE PROPOSED FOUL SEWER PUMPING LOCATION AS SHOWN ON THE LAYOUT FROM WHERE IT WILL BE PUMPED TO THE PUBLIC MAINS. THE INVERT LEVEL OF THE CONNECTION POINTS TO BE CONFIRMED.
- ALL COVER LEVELS ARE INDICATIVE AND THE FINAL COVER LEVELS TO MATCH FINISHED PATHWAY LEVELS.
- ALL LEVELS OF PIPES TO BE CHECKED AND VERIFIED PRIOR TO WORK COMMENCING ON SITE.
- THE LAYOUT OF THE BRANCH DRAINS FROM THE INDIVIDUAL SITES ARE AS SHOWN ON THE DWELLINGS LAYOUT PLAN. ANY CHANGES ARE TO BE AGREED PRIOR TO CONSTRUCTION. THE DISTANCE FROM THE FINAL ACCESS JUNCTION ON EACH INDIVIDUAL SITE TO THE CONNECTION TO THE MAIN DRAIN TO BE A MAXIMUM OF 12m.
- THE CONNECTION OF THE BRANCH DRAINS TO MAIN DRAINS SHOULD BE MADE AT A MANHOLE WHERE POSSIBLE OR BY USING AN OBSCURE TYPE SADDLE. SADDLES SHOULD NOT BE USED ON PIPES OF 100mm DIAMETER NOR TO CONNECT PIPES OF THE SAME DIAMETER.
- ALL PIPES SHOULD HAVE FLEXIBLE JOINTS FORMED BY A METHOD RECOMMENDED BY THE PIPE MANUFACTURER. ELASTOMERIC SEALING RINGS, COMPLYING WITH THE REQUIREMENTS OF BS 2464, TYPE D, SHOULD BE USED.
- MANHOLE COVERS AND FRAMES TO COMPLY WITH THE REQUIREMENTS OF IS EN 1242 CLASS CLASS ROADWAYS, HARSH/SHOULDERS, VEHICULAR ACCESSES FOOTWAYS, GRASS VERGES A 15 AREAS ACCESSIBLE TO MOTOR VEHICLES.
- ALL BRANCH CONNECTIONS FROM ACCESS JUNCTIONS (A/S) TO BE 100mm UPVC PIPES AT A GRADIENT OF 1 in 68.
- LOCATION AND INVERT LEVELS OF EXISTING (OR PROPOSED) MANHOLES OR OUTFALL POINTS TO BE VERIFIED PRIOR TO COMMENCEMENT OF CONSTRUCTION OF PROPOSED DRAINAGE NETWORK.
- THE TYPE OF PIPE AND FITTINGS TO BE USED TO BE UPVC (IN ACCORDANCE WITH THE REQUIREMENTS OF IS 824) UNLESS OTHERWISE STATED BY ENGINEER.
- TRENCH WIDTH AT THE LEVEL OF THE TOP OF THE PIPE SHOULD GENERALLY BE AS NARROW AS SAFE WORKING CONDITIONS WOULD ALLOW, WITH A MINIMUM WIDTH OF 300mm PLUS THE EXTERNAL DIAMETER OF THE PIPE BARREL.
- DRAINS SHALL BE ACCESSIBLE FOR MAINTENANCE AND REPAIR AND SHALL BE CONSTRUCTED ON PUBLIC PROPERTY. ACCESS SHALL GENERALLY BE PROVIDED BY MEANS OF A MANHOLE BUT, SUBJECT TO APPROVAL, PROPRIETARY ACCESS JUNCTION MAY BE USED IN LIEU OF A MANHOLE, ON A DRAIN WHERE THE DEPTH TO INVERT IS LESS THAN 600mm.
- FLEXIBLE PIPES SHOULD BE LAID WITH A MINIMUM COVER OF 1.2m IN ROADS AND DRIVEWAYS, 0.9m IN OPEN SPACES AND FOOTPATHS NOT ADJACENT TO ROADWAYS AND 0.6m IN GARDENS. WHERE IT IS NOT POSSIBLE TO ACHIEVE THESE MINIMUM COVERS, ADDITIONAL MEASURES SHOULD BE TAKEN IN ORDER TO PROTECT PIPEWORK. DETAILS SHOULD BE AGREED WITH THE ENGINEER PRIOR TO CONSTRUCTING THE PIPELINE.
- ALL WORKS WILL BE CARRIED OUT IN CONJUNCTION WITH IRISH WATER CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE AND IRISH WATER STANDARD DETAILS FOR WASTEWATER. FOUL DRAINAGE DETAILS TO COMPLY WITH IRISH WATERS STANDARD DETAILS IW-CDS-603-01.

B	Issued for Planning	May 2019	T. Finn
A	Issued for Irish Water for Statement of Acceptance	26th April 2019	T. Finn
REV. NO.	DESCRIPTION	DATE	INITIALS

**finn**  
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**124 B**

**GENE**

**1703**

**124 B**

**Foul Drainage Layout Zone 4**

PROJECT: Residential Development @ Haggardstown, Blackrock, Co Louth

CLIENT: Kingsbridge Consultancy Ltd  
1st Floor, Block 1, Quayside Business Park, Mill Street, Dundalk, Co. Louth.

SCALE: 1:500 @ A1 DRAWN: PC

DATE: November 2018 CHECKED:

STATUS: Planning Permission

JOB NO: 1703

NOTES:  
1. Copyright Reserved 2019 ©  
2. This is a technical drawing. Do not scale drawings.  
3. The contractor is responsible for checking all levels and dimensions on site and shall refer all discrepancies to the Architect.  
4. Where appropriate, for details of c. structure, or mechanical and electrical details, see Engineers drawings.  
5. Proprietary items shall be fixed in strict accordance with manufacturers instructions.  
6. Details of proprietary items shall be checked with manufacturer.  
7. The contractor shall be responsible for the coordination of structure, finishes and services.

CIVIL, STRUCTURAL ENGINEERING, PROJECT MANAGEMENT