Appendix C Causeway Storm Water Drainage Design Calculations

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	10	Minimum Velocity (m/s)	1.00
FSR Region	Scotland and Ireland	Connection Type	Level Soffits
M5-60 (mm)	18.500	Minimum Backdrop Height (m)	0.200
Ratio-R	0.263	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
SMH 1.0	0.030	4.00	88.035	1200	709490.729	727724.901	1.350
SMH 1.1			88.035	1200	709489.050	727733.317	1.495
SMH 1.2			88.035	1200	709481.695	727735.483	1.624
SMH 1.3	0.054	4.00	88.035	1200	709482.144	727746.290	1.663
SMH 1.4			88.035	1200	709461.829	727750.071	2.011
SMH 1.5	0.038	4.00	88.035	1200	709460.563	727743.687	2.121
SMH 1.6			88.035	1200	709458.123	727744.151	2.238
Attenuation Tank & Pump			88.035	1200	709460.329	727754.126	2.298
SMH 2.0	0.017	4.00	90.140	1500	709476.622	727783.311	1.365
SMH 2.1	0.015	4.00	90.140	1500	709460.984	727782.945	1.392
SMH 2.2 Outfall			90.400	1200	709453.012	727784.568	1.700
SMH 1.7		4.00	91.290	1200	709446.543	727744.269	1.777
SMH 1.8 Outfall			91.290	1200	709444.675	727744.659	1.810

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
S1.006	SMH 1.6	Attenuation Tank & Pump	10.216	0.600	85.797	85.737	0.060	170.0	225	5.06	50.0
S1.005	SMH 1.5	SMH 1.6	2.484	0.600	85.914	85.872	0.042	59.1	150	4.89	50.0
S1.004	SMH 1.4	SMH 1.5	6.508	0.600	86.024	85.914	0.110	59.2	150	4.85	50.0
S1.003	SMH 1.3	SMH 1.4	20.664	0.600	86.372	86.024	0.348	59.4	150	4.77	50.0
S1.002	SMH 1.2	SMH 1.3	10.816	0.600	86.411	86.372	0.039	277.3	150	4.51	50.0
S1.001	SMH 1.1	SMH 1.2	7.667	0.600	86.540	86.411	0.129	59.4	150	4.21	50.0
S1.000	SMH 1.0	SMH 1.1	8.582	0.600	86.685	86.540	0.145	59.2	150	4.11	50.0
S2.001	SMH 2.1	SMH 2.2 Outfall	8.136	0.600	88.748	88.700	0.048	170.0	225	4.40	50.0
S2.000	SMH 2.0	SMH 2.1	15.642	0.600	88.775	88.748	0.027	580.0	600	4.26	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
S1.006	1.000	39.7	18.2	2.013	2.073	0.122	0.0	107	0.978
S1.005	1.310	23.2	18.2	1.971	2.013	0.122	0.0	100	1.448
S1.004	1.310	23.1	12.5	1.861	1.971	0.084	0.0	79	1.336
S1.003	1.307	23.1	12.5	1.513	1.861	0.084	0.0	79	1.334
S1.002	0.598	10.6	4.5	1.474	1.513	0.030	0.0	68	0.574
S1.001	1.307	23.1	4.5	1.345	1.474	0.030	0.0	45	1.015
S1.000	1.310	23.1	4.5	1.200	1.345	0.030	0.0	45	1.018
S2.001	1.000	39.7	4.8	1.167	1.475	0.032	0.0	52	0.677
S2.000	1.004	283.8	2.5	0.765	0.792	0.017	0.0	40	0.317

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
S1.007	SMH 1.7	SMH 1.8 Outfall	1.908	0.600	89.513	89.480	0.033	57.8	225	4.02	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
S1.007	1.723	68.5	0.0	1.552	1.585	0.000	0.0	0	0.000

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
S1.006	10.216	170.0	225	Circular	88.035	85.797	2.013	88.035	85.737	2.073
S1.005	2.484	59.1	150	Circular	88.035	85.914	1.971	88.035	85.872	2.013
S1.004	6.508	59.2	150	Circular	88.035	86.024	1.861	88.035	85.914	1.971
S1.003	20.664	59.4	150	Circular	88.035	86.372	1.513	88.035	86.024	1.861
S1.002	10.816	277.3	150	Circular	88.035	86.411	1.474	88.035	86.372	1.513
S1.001	7.667	59.4	150	Circular	88.035	86.540	1.345	88.035	86.411	1.474
S1.000	8.582	59.2	150	Circular	88.035	86.685	1.200	88.035	86.540	1.345
S2.001	8.136	170.0	225	Circular	90.140	88.748	1.167	90.400	88.700	1.475
S2.000	15.642	580.0	600	Circular	90.140	88.775	0.765	90.140	88.748	0.792
S1.007	1.908	57.8	225	Circular	91.290	89.513	1.552	91.290	89.480	1.585

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
S1.006	SMH 1.6	1200	Manhole	Adoptable	Attenuation Tank & Pump	1200	Manhole	Adoptable
S1.005	SMH 1.5	1200	Manhole	Adoptable	SMH 1.6	1200	Manhole	Adoptable
S1.004	SMH 1.4	1200	Manhole	Adoptable	SMH 1.5	1200	Manhole	Adoptable
S1.003	SMH 1.3	1200	Manhole	Adoptable	SMH 1.4	1200	Manhole	Adoptable
S1.002	SMH 1.2	1200	Manhole	Adoptable	SMH 1.3	1200	Manhole	Adoptable
S1.001	SMH 1.1	1200	Manhole	Adoptable	SMH 1.2	1200	Manhole	Adoptable
S1.000	SMH 1.0	1200	Manhole	Adoptable	SMH 1.1	1200	Manhole	Adoptable
S2.001	SMH 2.1	1500	Manhole	Adoptable	SMH 2.2 Outfall	1200	Manhole	Adoptable
S2.000	SMH 2.0	1500	Manhole	Adoptable	SMH 2.1	1500	Manhole	Adoptable
S1.007	SMH 1.7	1200	Manhole	Adoptable	SMH 1.8 Outfall	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SMH 1.0	709490.729	727724.901	88.035	1.350	1200				
						0	S1.000	86.685	150
SMH 1.1	709489.050	727733.317	88.035	1.495	1200	1	S1.000	86.540	150
									
						0	S1.001	86.540	150
SMH 1.2	709481.695	727735.483	88.035	1.624	1200	1	S1.001	86.411	150
									
						0	S1.002	86.411	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
SMH 1.3	709482.144	727746.290	88.035	1.663	1200		1	S1.002	86.372	150
							0	S1.003	86.372	150
SMH 1.4	709461.829	727750.071	88.035	2.011	1200		1	S1.003	86.024	150
							0	S1.004	86.024	150
SMH 1.5	709460.563	727743.687	88.035	2.121	1200		1	S1.004	85.914	150
							0	S1.005	85.914	150
SMH 1.6	709458.123	727744.151	88.035	2.238	1200		1	S1.005	85.872	150
							0	S1.006	85.797	225
Attenuation Tank & Pump	709460.329	727754.126	88.035	2.298	1200		1	S1.006	85.737	225
										
SMH 2.0	709476.622	727783.311	90.140	1.365	1500					
							0	S2.000	88.775	600
SMH 2.1	709460.984	727782.945	90.140	1.392	1500		1	S2.000	88.748	600
							0	S2.001	88.748	225
SMH 2.2 Outfall	709453.012	727784.568	90.400	1.700	1200		1	S2.001	88.700	225
										
SMH 1.7	709446.543	727744.269	91.290	1.777	1200					
							0	S1.007	89.513	225
SMH 1.8 Outfall	709444.675	727744.659	91.290	1.810	1200		1	S1.007	89.480	225
										

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	Scotland and Ireland	Skip Steady State	x
M5-60 (mm)	18.500	Drain Down Time (mins)	240
Ratio-R	0.263	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	10	0	0

Node Attenuation Tank & Pump Offline Pump Control

Flap Valve	x	Design Depth (m)	1.000	Switch off depth (m)	0.200
Loop to Node	SMH 1.7	Design Flow (l/s)	1.0		
Invert Level (m)	84.400	Switch on depth (m)	0.400		

Depth (m)	Flow (l/s)
0.150	1.000

Node SMH 2.1 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	88.748	Product Number	CTL-SHE-0047-1000-1000-1000
Design Depth (m)	1.000	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.0	Min Node Diameter (mm)	1200

Node Attenuation Tank & Pump Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	84.400
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	35.0	0.0	2.000	35.0	0.0	2.001	0.0	0.0

Results for 100 year +10% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SMH 1.0	12	87.030	0.345	12.7	0.5437	0.0000	SURCHARGED
15 minute winter	SMH 1.1	12	87.003	0.463	10.7	0.5242	0.0000	SURCHARGED
15 minute winter	SMH 1.2	12	86.975	0.564	10.6	0.6383	0.0000	SURCHARGED
15 minute winter	SMH 1.3	11	86.934	0.562	27.3	1.0005	0.0000	SURCHARGED
15 minute winter	SMH 1.4	11	86.448	0.424	25.1	0.4791	0.0000	SURCHARGED
15 minute winter	SMH 1.5	11	86.264	0.350	38.6	0.5209	0.0000	SURCHARGED
720 minute winter	SMH 1.6	585	86.132	0.335	5.2	0.3790	0.0000	SURCHARGED
720 minute winter	Attenuation Tank & Pump	585	86.132	0.395	5.2	61.0695	0.0000	OK
120 minute winter	SMH 2.0	96	89.741	0.966	2.5	1.9472	0.0000	SURCHARGED
120 minute winter	SMH 2.1	96	89.741	0.993	2.7	1.9689	0.0000	SURCHARGED
15 minute summer	SMH 2.2 Outfall	1	88.700	0.000	0.8	0.0000	0.0000	OK
15 minute summer	SMH 1.7	17	89.533	0.020	1.0	0.0231	0.0000	OK
15 minute summer	SMH 1.8 Outfall	17	89.499	0.019	1.0	0.0000	0.0000	OK

ink Event ream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Disch Vol
nute winter	SMH 1.0	S1.000	SMH 1.1	10.7	1.190	0.464	0.1511	
nute winter	SMH 1.1	S1.001	SMH 1.2	10.6	0.839	0.457	0.1350	
nute winter	SMH 1.2	S1.002	SMH 1.3	12.5	0.711	1.184	0.1904	
nute winter	SMH 1.3	S1.003	SMH 1.4	25.1	1.424	1.085	0.3638	
nute winter	SMH 1.4	S1.004	SMH 1.5	25.7	1.457	1.108	0.1146	
nute winter	SMH 1.5	S1.005	SMH 1.6	38.4	2.184	1.660	0.0433	
inute winter	SMH 1.6	S1.006	Attenuation Tank & Pump	5.2	0.677	0.131	0.4063	
inute winter	Attenuation Tank & Pump	Pump	SMH 1.7	1.0				
inute winter	SMH 2.0	S2.000	SMH 2.1	0.6	0.112	0.002	4.4060	
inute winter	SMH 2.1	Hydro-Brake®	SMH 2.2 Outfall	1.0				
nute summer	SMH 1.7	S1.007	SMH 1.8 Outfall	1.0	0.595	0.015	0.0032	

Appendix D Met Eireann Rainfall Data

Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 309529, Northing: 227727,

	Interval		Years												
DURATION	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,
5 mins	2.6,	3.8,	4.5,	5.5,	6.2,	6.8,	8.6,	10.8,	12.2,	14.3,	16.1,	17.6,	19.9,	21.7,	23.1,	N/A ,
10 mins	3.6,	5.3,	6.3,	7.7,	8.7,	9.5,	12.0,	15.0,	17.0,	19.9,	22.5,	24.5,	27.7,	30.2,	32.3,	N/A ,
15 mins	4.3,	6.3,	7.4,	9.1,	10.2,	11.1,	14.2,	17.7,	20.1,	23.4,	26.5,	28.9,	32.6,	35.5,	37.9,	N/A ,
30 mins	5.6,	8.2,	9.6,	11.7,	13.2,	14.4,	18.2,	22.6,	25.5,	29.7,	33.5,	36.4,	41.0,	44.6,	47.6,	N/A ,
1 hours	7.4,	10.7,	12.5,	15.2,	17.0,	18.5,	23.3,	28.8,	32.5,	37.7,	42.4,	46.0,	51.7,	56.1,	59.8,	N/A ,
2 hours	9.8,	14.0,	16.2,	19.7,	22.0,	23.8,	29.9,	36.7,	41.3,	47.8,	53.6,	58.1,	65.1,	70.5,	75.0,	N/A ,
3 hours	11.5,	16.3,	18.9,	22.9,	25.6,	27.7,	34.5,	42.4,	47.6,	54.9,	61.5,	66.6,	74.5,	80.6,	85.7,	N/A ,
4 hours	12.8,	18.2,	21.1,	25.5,	28.4,	30.7,	38.3,	46.9,	52.6,	60.6,	67.8,	73.3,	81.9,	88.6,	94.2,	N/A ,
6 hours	15.1,	21.3,	24.6,	29.6,	33.0,	35.7,	44.3,	54.1,	60.6,	69.7,	77.8,	84.1,	93.8,	101.3,	107.6,	N/A ,
9 hours	17.7,	24.9,	28.7,	34.5,	38.4,	41.4,	51.2,	62.4,	69.7,	80.1,	89.3,	96.4,	107.3,	115.8,	122.9,	N/A ,
12 hours	19.9,	27.8,	32.0,	38.4,	42.7,	46.0,	56.8,	69.0,	77.1,	88.4,	98.4,	106.2,	118.1,	127.4,	135.1,	N/A ,
18 hours	23.3,	32.5,	37.4,	44.6,	49.5,	53.4,	65.7,	79.6,	88.8,	101.6,	113.0,	121.7,	135.2,	145.7,	154.3,	N/A ,
24 hours	26.1,	36.3,	41.7,	49.7,	55.1,	59.3,	72.9,	88.1,	98.1,	112.1,	124.5,	134.1,	148.8,	160.2,	169.6,	202.4,
2 days	33.0,	44.6,	50.6,	59.5,	65.5,	70.0,	84.6,	100.8,	111.3,	125.8,	138.5,	148.3,	163.2,	174.6,	184.0,	216.5,
3 days	38.5,	51.3,	57.8,	67.4,	73.8,	78.7,	94.2,	111.1,	122.1,	137.1,	150.3,	160.3,	175.5,	187.1,	196.7,	229.5,
4 days	43.4,	57.1,	64.1,	74.3,	81.0,	86.2,	102.4,	120.1,	131.5,	147.0,	160.6,	170.8,	186.4,	198.3,	208.0,	241.2,
6 days	51.9,	67.2,	75.0,	86.3,	93.6,	99.2,	116.8,	135.7,	147.8,	164.2,	178.4,	189.2,	205.4,	217.7,	227.8,	262.0,
8 days	59.4,	76.2,	84.6,	96.7,	104.5,	110.5,	129.2,	149.2,	161.9,	179.1,	194.0,	205.1,	222.0,	234.7,	245.1,	280.2,
10 days	66.3,	84.3,	93.3,	106.2,	114.5,	120.8,	140.5,	161.4,	174.7,	192.6,	207.9,	219.5,	236.9,	250.0,	260.6,	296.6,
12 days	72.8,	91.9,	101.4,	115.0,	123.7,	130.3,	150.9,	172.7,	186.4,	204.9,	220.8,	232.7,	250.6,	264.0,	274.9,	311.8,
16 days	84.8,	105.9,	116.3,	131.1,	140.6,	147.7,	169.8,	193.2,	207.8,	227.4,	244.2,	256.7,	275.4,	289.5,	300.9,	339.2,
20 days	96.0,	118.8,	130.0,	145.9,	156.0,	163.6,	187.1,	211.8,	227.1,	247.7,	265.2,	278.4,	297.9,	312.5,	324.3,	363.9,
25 days	109.1,	133.9,	146.0,	163.0,	173.8,	182.0,	207.0,	233.1,	249.4,	271.0,	289.4,	303.1,	323.5,	338.7,	351.0,	392.0,

NOTES:
N/A Data not available
These values are derived from a Depth Duration Frequency (DDF) Model
For details refer to:
'Fitzgerald D. L. (2007), Estimates of Point Rainfall Frequencies, Technical Note No. 61, Met Eireann, Dublin',
Available for download at www.met.ie/climate/dataproducts/Estimation-of-Point-Rainfall-Frequencies_TN61.pdf

Appendix E Irish Water Pre Connection Correspondence

Seosamh O'Coileir

Carnegie House
Library Road
Dun Laoghaire
Dublin

Uisce Éireann
Bosca OP 448
Oifig Sheachadta
Cathrach Theas
Cathair Chorcaí

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City.

www.water.ie

26 April 2021

Re: CDS21001876 pre-connection enquiry - Subject to contract | Contract denied

Connection for Multi/Mixed Use Development of 37 unit(s) at Greenhills Road, Tallaght, Co. Dublin

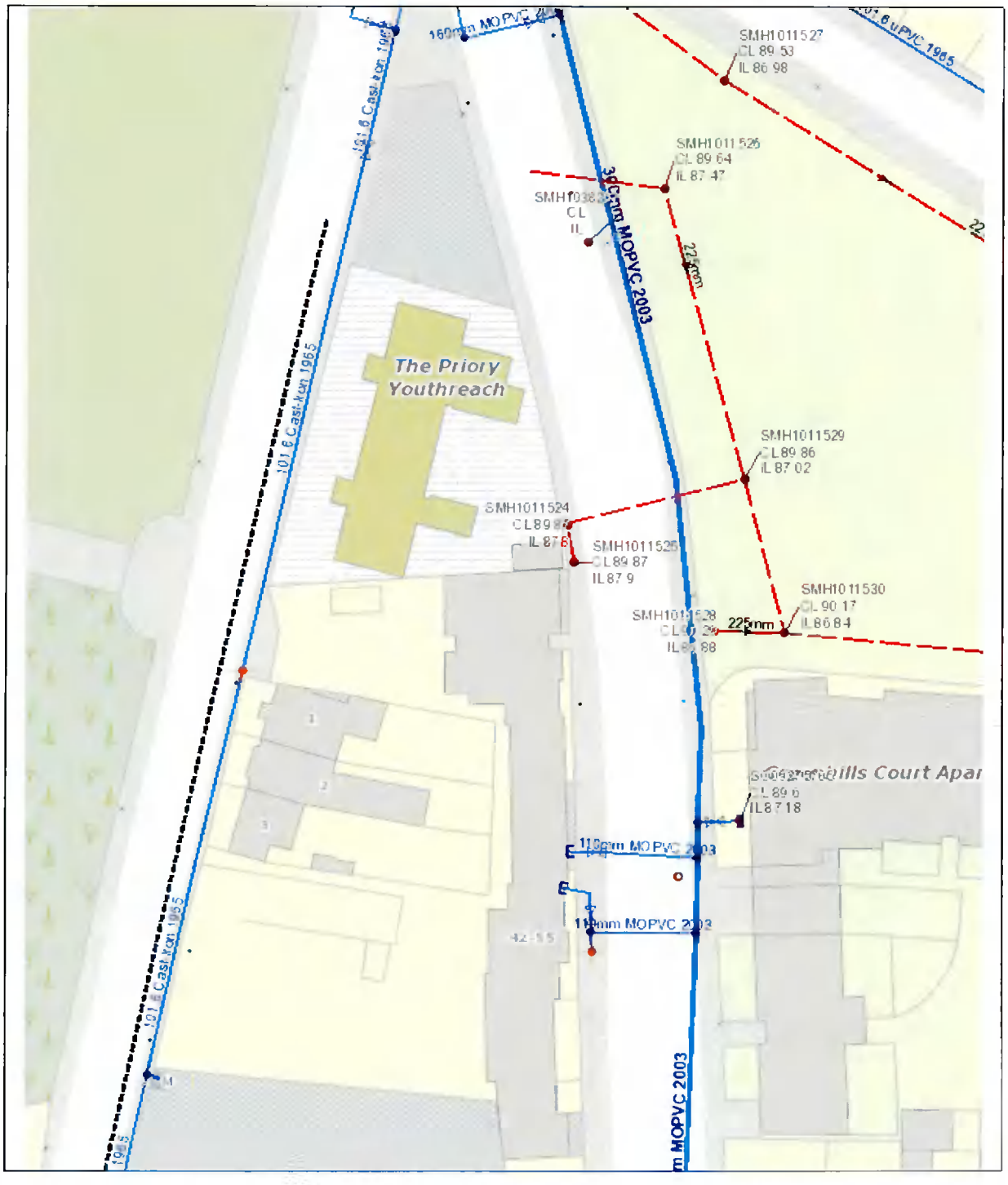
Dear Sir/Madam,

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at Greenhills Road, Tallaght, Co. Dublin (the **Premises**). Based upon the details you have provided with your pre-connection enquiry and on our desk top analysis of the capacity currently available in the Irish Water network(s) as assessed by Irish Water, we wish to advise you that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

SERVICE	OUTCOME OF PRE-CONNECTION ENQUIRY THIS IS NOT A CONNECTION OFFER. YOU MUST APPLY FOR A CONNECTION(S) TO THE IRISH WATER NETWORK(S) IF YOU WISH TO PROCEED.
Water Connection	Feasible without infrastructure upgrade by Irish Water
Wastewater Connection	Feasible without infrastructure upgrade by Irish Water
SITE SPECIFIC COMMENTS	
Water Connection	This Confirmation of Feasibility to connect to the Irish Water infrastructure does not extend to your fire flow requirements. Please note that Irish Water can not guarantee a flow rate to meet fire flow requirements and in order to guarantee a flow to meet the Fire Authority requirements, you should provide adequate fire storage capacity within your development.
Wastewater Connection	N/A

The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this development shall comply with the Irish Water Connections and Developer Services Standard Details and Codes of Practice that are available on the Irish Water website. Irish Water reserves the right to supplement these requirements with Codes of Practice and these will be issued with the connection agreement.

The map included below outlines the current Irish Water infrastructure adjacent to your site:



General Notes:

1) The initial assessment referred to above is carried out taking into account water demand and wastewater discharge volumes and infrastructure details on the date of the assessment. **The availability of capacity may change at any date after this assessment.**
2) This feedback does not constitute a contract in whole or in part to provide a connection to any Irish Water infrastructure. All feasibility assessments are subject to the constraints of the Irish Water Capital Investment Plan.
3) The feedback provided is subject to a Connection Agreement/contract being signed at a later date.
4) A Connection Agreement will be required to commencing the connection works associated with the enquiry this can be applied for at https://www.water.ie/connections/get-connected/
5) A Connection Agreement cannot be issued until all statutory approvals are successfully in place.
6) Irish Water Connection Policy/ Charges can be found at https://www.water.ie/connections/information/connection-charges/
7) Please note the Confirmation of Feasibility does not extend to your fire flow requirements.
8) Irish Water is not responsible for the management or disposal of storm water or ground waters. You are advised to contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges
9) To access Irish Water Maps email datarequests@water.ie
10) All works to the Irish Water infrastructure, including works in the Public Space, shall have to be carried out by Irish Water.

If you have any further questions, please contact Marko Komso from the design team on or email mkomso@water.ie For further information, visit **www.water.ie/connections.**

Yours sincerely,

Yvonne Harris

Yvonne Harris

Head of Customer Operations

Appendix F Causeway Foul Drainage Design Calculations

Design Settings

Frequency of use (kDU)	1.00	Minimum Velocity (m/s)	1.00
Flow per dwelling per day (l/day)	4000	Connection Type	Level Soffits
Domestic Flow (l/s/ha)	1.0	Minimum Backdrop Height (m)	0.200
Industrial Flow (l/s/ha)	0.0	Preferred Cover Depth (m)	1.200
Additional Flow (%)	0	Include Intermediate Ground	✓

Nodes

Name	Cover Level (m)	Manhole Type	Easting (m)	Northing (m)	Depth (m)
FMH 1.0	90.500	Adoptable	709499.165	727736.018	2.150
FMH 1.1	90.550	Adoptable	709512.310	727745.543	3.480
FMH 2.0	90.110		709471.649	727775.347	0.620
FMH 2.1	90.110		709486.556	727779.751	0.820

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)
F1.000	FMH 1.0	FMH 1.1	16.233	1.500	88.350	87.070	1.280	12.7	150
F2.000	FMH 2.0	FMH 2.1	15.544	1.500	89.490	89.290	0.200	77.7	150

Name	Pro Vel @ 1/3 Q (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Dwellings (ha)	Σ Units (ha)	Σ Add Inflow (ha)	Pro Depth (mm)	Pro Velocity (m/s)
F1.000	0.000	2.469	43.6	0.0	2.000	3.330	0.000	0	0.0	0.0	0	0.000
F2.000	0.000	0.994	17.6	0.0	0.470	0.670	0.000	0	0.0	0.0	0	0.000

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
F1.000	16.233	12.7	150	Circular	90.500	88.350	2.000	90.550	87.070	3.330
F2.000	15.544	77.7	150	Circular	90.110	89.490	0.470	90.110	89.290	0.670

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
F1.000	FMH 1.0	1200	Manhole	Adoptable	FMH 1.1	1200	Manhole	Adoptable
F2.000	FMH 2.0		Junction		FMH 2.1		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
FMH 1.0	709499.165	727736.018	90.500	2.150	1200				
						0	F1.000	88.350	150
FMH 1.1	709512.310	727745.543	90.550	3.480	1200	1	F1.000	87.070	150
									

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
FMH 2.0	709471.649	727775.347	90.110	0.620		0	F2.000	89.490	150
FMH 2.1	709486.556	727779.751	90.110	0.820		1	F2.000	89.290	150

Appendix G Irish Water Diversion Correspondence

O'Mahony Holdings SPRL
Rue Du Congres 35
1000 Brussels Belgium

26 May 2021

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City

www.water.ie

Dear Sir/Madam,

Re: Diversion Reference DIV21114 Build near enquiry. Subject to contract | Contract denied

Irish Water has reviewed your enquiry in relation to building near Irish Water's 100mm diameter watermain as part of the proposed development at Greenhills Road Tallaght, Co. Dublin as indicated on proposed drawing no. 202253-PUNCH-XX-XX-DR-C-0300-C01 submitted on 29/04/2021.

Based upon the details you have provided with your enquiry and as assessed by Irish Water, we wish to advise you that, subject to valid agreement/s being put in place, the proposed build near can be facilitated.

Conditions of the agreement will include that you:

(i) indemnify Irish Water for any increased costs in connection with or arising out of Irish Water's repair, maintenance and/or operation, etc. of the [pipe]; and

(ii) exclude any liability on the part of Irish Water in connection with or arising out of:

a. the presence of the [pipe]; and/or

b. any settlement and/or subsidence of the soil in which the [pipe] is laid; and/or

c. any leakage from the [pipe] or failure or defect therein.

You are advised that this correspondence does not constitute an agreement in whole or in part to build near any Irish Water infrastructure and is provided subject to a build near agreement being executed at a later date. You are advised to make contact with the diversions team at diversions@water.ie once planning permission has been granted and prior to any works commencing on site in order to enter into a build over agreement with Irish Water.

If you have any further questions, please contact Denise Desmond from the diversions team at ddesmond@water.ie. For further information, visit **www.water.ie/connections.**

Yours sincerely,

Yvonne Harris

Yvonne Harris
Head of Customer Operations

Seosamh O'Coileir | PUNCH

From: Denise Desmond (C) <ddesmond@water.ie>
Sent: Wednesday 26 May 2021 11:33
To: Mark Richardson | PUNCH
Cc: Seosamh O'Coileir | PUNCH
Subject: DIV21114_Confirmation of Feasibility
Attachments: DIV21114_Greenhills, Tallaght_Confirmation of Feasibility (COF).pdf

Hi Mark,

Please see attached Confirmation of Feasibility letter in relation to the proposal to build near an IW watermain at Greenhills Road, Tallaght, Co. Dublin.

Thanks
Regards
Denise

From: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Sent: Tuesday 25 May 2021 16:31
To: Denise Desmond (C) <ddesmond@water.ie>
Cc: Seosamh O'Coileir | PUNCH <socoileir@punchconsulting.com>
Subject: RE: 202253 - Diversion Application Form - Site at Greenhills Tallaght : IW ref: DIV21114

Hi Denise

Following our discussion, please see below

Registered company title name and address

O'Mahony Holdings SPRL
Rue Du Congres 35
1000 Brussels Belgium

Irish address:

1 Shrewsbury
Ballsbridge
Dublin 4
D04 RE87

Thanks

Mark Richardson
BA BAI(Hons) CEng
Senior Engineer

Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
t+353 1 271 2200 | e mrichardson@punchconsulting.com
Dublin | Limerick | Cork | Galway | Glasgow

From: Denise Desmond (C) <ddesmond@water.ie>
Sent: Tuesday 25 May 2021 15:26
To: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Cc: Seosamh O'Coileir | PUNCH <socoileir@punchconsulting.com>
Subject: RE: 202253 - Diversion Application Form - Site at Greenhills Tallaght : IW ref: DIV21114

Hi Mark,

I left a message with your office to give me a call.

Would you be able to give me a call at your convenience to discuss this application.

Thanks
Regards
Denise
021 4665970

From: Denise Desmond (C)
Sent: Friday 21 May 2021 11:35
To: 'Mark Richardson | PUNCH' <mrichardson@punchconsulting.com>
Cc: Seosamh O'Coileir | PUNCH <socoileir@punchconsulting.com>
Subject: RE: 202253 - Diversion Application Form - Site at Greenhills Tallaght : IW ref: DIV21114

Hi Mark,

I am following up on with IW stakeholders in regards to this application and will hopefully be in contact with you in the next couple of days with an update.

Thanks
Regards
Denise

From: Mark Richardson | PUNCH
Sent: Wednesday 19 May 2021 12:08
To: Denise Desmond (C)
Cc: Seosamh O'Coileir | PUNCH
Subject: RE: 202253 - Diversion Application Form - Site at Greenhills Tallaght : IW ref: DIV21114

Hi Denise

Please advise status of this and expected timeline for response.

Thanks

Mark Richardson
BA BAI(Hons) CEng
Senior Engineer

Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
t+353 1 271 2200 | e mrichardson@punchconsulting.com
Dublin | Limerick | Cork | Galway | Glasgow

From: Denise Desmond (C) <ddesmond@water.ie>
Sent: Friday 14 May 2021 09:43
To: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Cc: Seosamh O'Coileir | PUNCH <socoileir@punchconsulting.com>
Subject: RE: 202253 - Diversion Application Form - Site at Greenhills Tallaght : IW ref: DIV21114

Hi Mark,

Your application has been referred to IW stakeholders and I will revert to you once I have an update.

Thanks
Regards
Denise

From: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Sent: Tuesday 11 May 2021 12:33
To: Diversions <Diversions@water.ie>
Cc: Seosamh O'Coileir | PUNCH <socoileir@punchconsulting.com>
Subject: RE: 202253 - Diversion Application Form - Site at Greenhills Tallaght : IW ref: DIV21114

Good Afternoon

Please advise the status of this application and respond to myself or my colleague Seosamh (Cc'd).

Thanks

Mark Richardson
BA BAI(Hons) CEng
Senior Engineer

Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7, Ireland
t+353 1 271 2200 | e mrichardson@punchconsulting.com
Dublin | Limerick | Cork | Galway | Glasgow

From: Seosamh O'Coileir | PUNCH <socoileir@punchconsulting.com>
Sent: Tuesday 4 May 2021 08:36
To: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Subject: FW: 202253 - Diversion Application Form - Site at Greenhills Tallaght

FYI

Regards
Seosamh

From: Diversions <Diversions@water.ie>
Sent: Saturday 1 May 2021 08:43
To: Seosamh O'Coileir | PUNCH <socoileir@punchconsulting.com>
Subject: RE: 202253 - Diversion Application Form - Site at Greenhills Tallaght

Hi Seosamh,

Thank you for contacting Irish Water.
Your query has been registered with the diversions team within the Connections and Developer Services department and assigned reference DIV21114. Please quote this in all future correspondence.

A design engineer will be in contact with you in order to progress query.

Kind regards,

Connections & Developer Services

Uisce Éireann
Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, Éire
Irish Water
Colvill House, 24-26 Talbot Street, Dublin 1, Ireland

From: Seosamh O'Coileir | PUNCH <socoileir@punchconsulting.com>
Sent: Thursday 29 April 2021 15:15
To: Diversions <Diversions@water.ie>
Cc: Mark Richardson | PUNCH <mrichardson@punchconsulting.com>
Subject: 202253 - Diversion Application Form - Site at Greenhills Tallaght

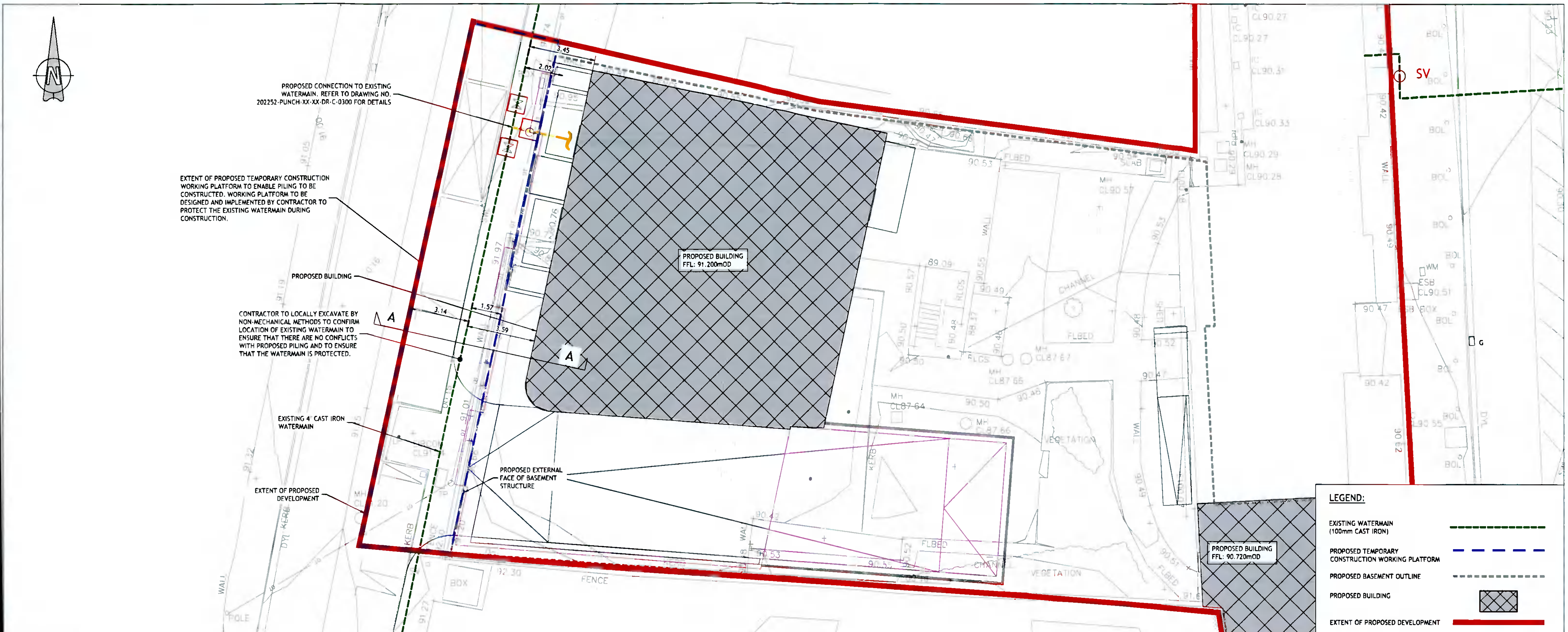
Good Afternoon,

Please see attached diversion application related to constructing a new basement adjacent to an existing water main. Please note that this is similar to the situation recently applied for the site directly to the south (IW reference: DIV20086). We do not currently intend to divert any IW infrastructure.

Please note the following:

1. As part of a new planning application we would like to obtain Irish Water endorsement for a new basement adjacent to an existing watermain as shown on the attached drawing.
2. The proposed basement excavation will not have any structural effect on the existing watermain. This is because the proposed piles will act as shoring to retain the ground while the basement is excavated.
3. There will be no structural impact on the watermain resulting from the basement structure being constructed.
4. The basement will not require excavations outside the developer's private ownership.
5. There will be significant space available on the other side of the watermain for maintenance.
6. The existing distance from the watermain to the proposed building at this site in Tallaght is similar to the dimension from the proposed foul sewer on the separate site in Stillorgan, where you have advised that no wayleave is required.
7. The watermain is a minor service (100mm diameter) and is recorded as being cast iron, constructed in 1912.
8. There is an existing footpath above the existing watermain. The footpath finish will be adjusted slightly as part of the planning application.
9. During piling, a temporary construction platform could be constructed to support relevant construction machinery. This would be designed to not damage the watermain below. Appropriate site survey checks would also be undertaken to confirm the location of the existing watermain prior to construction. This could include local excavation by hand to confirm the watermain location.

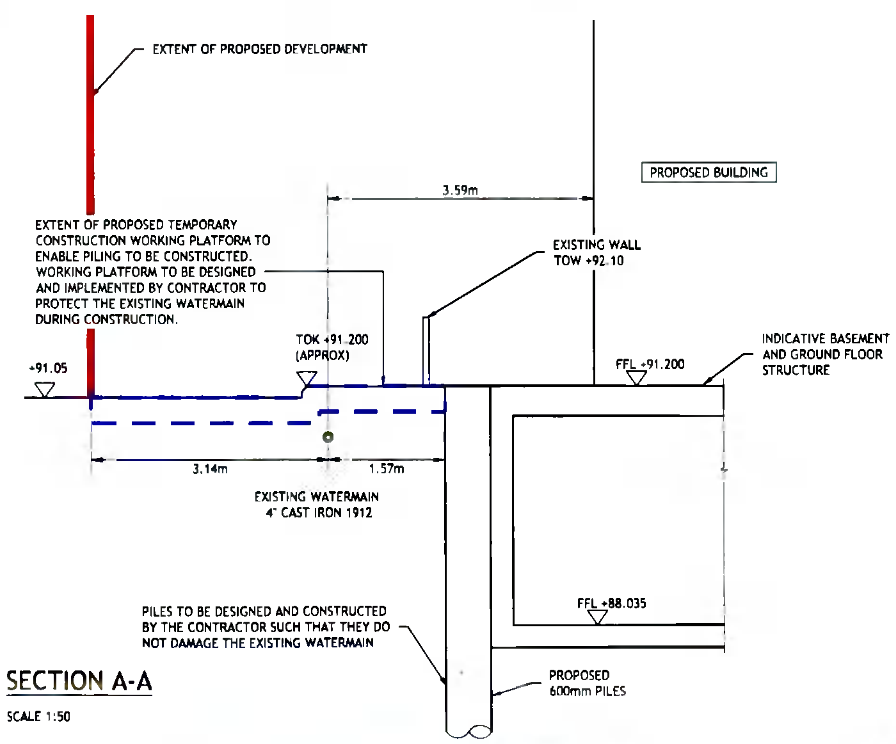
Regards,
Seosamh O'Coileir | PUNCH



PROPOSED CONNECTION TO EXISTING WATERMAIN. REFER TO DRAWING NO. 202252-PUNCH-XX-XX-DR-C-0300 FOR DETAILS
EXTENT OF PROPOSED TEMPORARY CONSTRUCTION WORKING PLATFORM TO ENABLE PILING TO BE CONSTRUCTED. WORKING PLATFORM TO BE DESIGNED AND IMPLEMENTED BY CONTRACTOR TO PROTECT THE EXISTING WATERMAIN DURING CONSTRUCTION.
PROPOSED BUILDING
CONTRACTOR TO LOCALLY EXCAVATE BY NON-MECHANICAL METHODS TO CONFIRM LOCATION OF EXISTING WATERMAIN TO ENSURE THAT THERE ARE NO CONFLICTS WITH PROPOSED PILING AND TO ENSURE THAT THE WATERMAIN IS PROTECTED.
EXISTING 4" CAST IRON WATERMAIN
EXTENT OF PROPOSED DEVELOPMENT
PROPOSED BUILDING FFL: 91.200mOD
PROPOSED EXTERNAL FACE OF BASEMENT STRUCTURE
PROPOSED BUILDING FFL: 90.720mOD
3.45
2.02
3.14
1.57
3.59
A
LEGEND:
EXISTING WATERMAIN (100mm CAST IRON)
PROPOSED TEMPORARY CONSTRUCTION WORKING PLATFORM
PROPOSED BASEMENT OUTLINE
PROPOSED BUILDING
EXTENT OF PROPOSED DEVELOPMENT

PLAN

SCALE 1:100



EXTENT OF PROPOSED DEVELOPMENT
EXTENT OF PROPOSED TEMPORARY CONSTRUCTION WORKING PLATFORM TO ENABLE PILING TO BE CONSTRUCTED. WORKING PLATFORM TO BE DESIGNED AND IMPLEMENTED BY CONTRACTOR TO PROTECT THE EXISTING WATERMAIN DURING CONSTRUCTION.
3.59m
PROPOSED BUILDING
EXISTING WALL TOW +92.10
+91.05
TOK +91.200 (APPROX)
FFL +91.200
INDICATIVE BASEMENT AND GROUND FLOOR STRUCTURE
3.14m
1.57m
EXISTING WATERMAIN 4" CAST IRON 1912
FFL +88.035
PILES TO BE DESIGNED AND CONSTRUCTED BY THE CONTRACTOR SUCH THAT THEY DO NOT DAMAGE THE EXISTING WATERMAIN
PROPOSED 600mm PILES

SECTION A-A

SCALE 1:50

KEY PLAN

NTS

Rev	Amendment	By	Date
C01	PLANNING ISSUE	IBS	29/04/2021

PUNCH consulting engineers

Dublin | Limerick | Cork | Galway | Glasgow

Carnegie House Library Road, Dun Laoghaire, Co. Dublin, A96 C7W7

GREENHILLS ROAD DEVELOPMENT, TALLAGHT, DUBLIN 24

PROPOSED WATERMAIN LAYOUT

Drawn	Date	Technical Check	Engineer Check	Approved
IBS	MARCH 2021	BS	MR	

Project No	Model Ref	Drawing Status
202253	202253 PUNCH XX XX M2 C-0301	A0 PLANNING

Scale	Drawing No	Revision
1:200	202253-PUNCH-XX-XX-DR-C-0300	C01