
Planning Report

Property:

Innovate Limerick,
Engine, Cecil Street,
Limerick.

Client:

Innovate Limerick

Date of Report:

21/05/2020

Project Ref. No.:

20040

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R. Power	21/05/2020	A. Dennany	21/05/2020	J. Reidy	21/05/2020	1st

1.0 Introduction & Proposed Development

The following report outlines the Civil Engineering design elements for the proposed extension to the Innovate Limerick property on Cecil Street, Limerick. The proposed development comprises the construction of a 3-storey extension to the existing Innovate Limerick Building at the corner of Cecil & Dominic Street in Limerick City. The new built will front onto Dominic Street and will consist of office space (both fixed & hot desk office space) along with conference and hosting facilities.

This report has been prepared to form part of the proposed Planning Application and should be read in conjunction with the Civil Engineering Drawing.

2.0 Surveys & Existing Services Information

The following surveys have been undertaken as part of the development of the water services:

- Topographical Survey by Control Surveys

We have also received existing water services records from Irish Water.

3.0 Civil Engineering Services

3.1 Overview:

The following section outlines the civil engineering services to the proposed Building.

3.2 Existing Water Services:

Sewers:

There are a number of existing combined sewers located on Cecil Street, Dominic Street and Griffith Row. These existing combined sewers range in diameter from 100mm to 300mm. The existing Innovate Limerick building discharges both its foul and surface water directly to the existing combined sewers on Cecil Street & Dominic Street.

We note that the existing surface water discharge to the combined network is uncontrolled and unattenuated. 78% (1180m²) of the existing impermeable area discharge to the rear of the Innovate Building into the combined sewer on Dominic Street. The remaining 22% (335m²) discharges to the combined sewer on Cecil Street.

Watermain:

There is an existing 150mm watermain located on Cecil Street and Dominic Street. The existing watermain connection for the existing Innovate Limerick building is located on Dominic Street and is a metered connection.

Please refer to 20040-100 for existing water services details.

3.3 Proposed Alterations to Existing Combined Sewers

The existing combined sewers that are located within the footprint of the proposed extension will be diverted. The diversion of the existing combined within the footprint of the site will be done by providing separate foul and surface water connection to the existing public combined network.

Please refer to 20040-120 for proposed alterations to existing combined sewers.

3.4 Proposed Foul Sewerage

Foul effluent from the proposed extension will discharge to an Irish Water compliant Inspection Chamber located within the site boundary along Griffith Row. The inspection will discharge to an existing combined sewer located along Griffith Row.

Please refer to 20040-120 for proposed alterations to existing combined sewers.

3.5 Proposed Storm Water:

As previously noted, the buildings storm water currently discharges into the existing combined network in an uncontrolled and unattenuated manner. 22% (315m²) of the sites impermeable area discharges to the combined sewer on Cecil Street. This surface water discharging to the combined sewer cannot be improved upon as the Cecil Street elevation the building fronts directly onto the public path, leaving no space for the provision of an attenuation tank or flow control device.

The remaining 78% (1180m²) of the site discharges to the rear of the property, where the proposed extension will be located and where the existing carparking will not be altered. The peak flow from this portion of the overall site is approximately 70 l/s during a 1 in 100 year storm event. Given the shallow level of the existing combined sewer on Griffith Row we are limited in terms of the attenuation volume that can be provided. With this in mind we proposed to provide a 33m³ storage volume which will reduce the peak 1 in 100 year discharge from 70 l/s down to 7.5 l/s, which is an 89% reduction in the peak site discharge during a 1 in 100 year storm event. Please refer to Appendix A of the report for attenuation calculations.

We also proposed to provide a class 1 petrol interceptor.

Please refer to drawing 20040-120 for details of the proposed surface water sewers.

3.6 Proposed Water Supply:

The proposed extension will be serviced from the existing metered water supply located on Dominic Street. There will be no additional connection required.

There are existing fire hydrants located on Cecil Street and Dominic Street, both of which are within 46.0m of the proposed development, as such we do not propose to provide any additional hydrants for the development.

Please refer to drawing 20040-120 for details of the proposed watermain.

3.7 Proposed Water Services Construction Details:

All proposed water services and connections to the existing water services are to be constructed in accordance with:

- Irish Water Document IW-CDS-5020-01 – *Water Infrastructure Standard Details – Connection and Developer Services – Construction Requirements for Self-Lay Developments.*

- Irish Water Document IW-CDS-5020-03 – *Code of Practice for Water Infrastructure – Connection and Developer Services – Construction Requirements for Self-Lay Developments.*
- Irish Water Document IW-CDS-5030-01 – *Wastewater Infrastructure Standard Details – Connection and Developer Services – Construction Requirements for Self-Lay Developments.*
- Irish Water Document IW-CDS-5030-03 – *Code of Practice for Wastewater Infrastructure – Connection and Developer Services – Construction Requirements for Self-Lay Developments.*

4.0 Assessment of Flood Risk:

The proposed development is located on Dominic Street in Limerick City and as such the closest receptor is the River Shannon. We have reviewed the relevant CFRAM (Catchment Flood Risk Assessment and Management) maps have identified the following potential flood event top water levels:

- Fluvial 1 in 10 year event = 3.60mOD.
- Fluvial 1 in 100 year event = 3.60mOD.
- Fluvial 1 in 1000 year event = 3.60mOD.

- Coastal 1 in 10 year event = 3.99mOD.
- Coastal 1 in 200 year event = 4.72mOD.
- Coastal 1 in 1000 year event = 5.16mOD.

The proposed finished floor level of the Innovate Limerick extension is 14.0mOD, which is significantly higher than the estimated top water level of a 1 in 1000 year flood event. As the proposed site location is outside the extent of the 1 in 1000 year flood events and there is a freeboard in excess of 8.5m for a 1 in 1000 year flood event we are of the opinion that the risk of flooding to the site is extremely low and as such a Stage 1 Flood Risk Assessment for the proposed Building is not required.

The relevant CFRAM mapping can be found in Appendix B of this report.

We trust you find the above to be of use however, should you have any queries or require any further information, please don't hesitate to contact us.

End of Report

Signed: 
Robert Power BEng BSc CEng MIEI
Associate Director, Chartered Engineer

Date: 18-05-2020

Appendix A – Storm Water Calculations

Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 157654, Northing: 156768,

DURATION	Interval		Years														
	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,	
5 mins	2.7,	3.9,	4.6,	5.6,	6.4,	6.9,	8.8,	10.9,	12.4,	14.5,	16.3,	17.8,	20.0,	21.8,	23.3,	N/A,	
10 mins	3.7,	5.5,	6.4,	7.9,	8.9,	9.6,	12.2,	15.2,	17.3,	20.1,	22.7,	24.8,	27.9,	30.4,	32.5,	N/A,	
15 mins	4.4,	6.4,	7.6,	9.3,	10.4,	11.3,	14.4,	17.9,	20.3,	23.7,	26.7,	29.1,	32.8,	35.8,	38.2,	N/A,	
30 mins	5.7,	8.2,	9.5,	11.5,	12.9,	14.0,	17.5,	21.5,	24.2,	28.0,	31.4,	34.0,	38.1,	41.3,	44.0,	N/A,	
1 hours	7.4,	10.3,	11.9,	14.3,	15.9,	17.2,	21.2,	25.8,	28.8,	33.1,	36.8,	39.7,	44.2,	47.7,	50.6,	N/A,	
2 hours	9.6,	13.1,	15.0,	17.8,	19.7,	21.1,	25.8,	30.9,	34.3,	39.1,	43.2,	46.4,	51.3,	55.1,	58.3,	N/A,	
3 hours	11.1,	15.1,	17.2,	20.2,	22.2,	23.8,	28.8,	34.4,	38.0,	43.1,	47.5,	50.9,	56.0,	60.0,	63.3,	N/A,	
4 hours	12.4,	16.6,	18.9,	22.1,	24.3,	25.9,	31.3,	37.1,	40.9,	46.1,	50.7,	54.2,	59.6,	63.7,	67.1,	N/A,	
6 hours	14.4,	19.1,	21.6,	25.1,	27.5,	29.3,	35.0,	41.3,	45.3,	50.9,	55.7,	59.4,	65.0,	69.3,	72.8,	N/A,	
9 hours	16.7,	22.0,	24.6,	28.5,	31.1,	33.0,	39.2,	45.9,	50.2,	56.1,	61.2,	65.1,	70.9,	75.4,	79.1,	N/A,	
12 hours	18.6,	24.2,	27.1,	31.2,	33.9,	36.0,	42.5,	49.5,	54.0,	60.1,	65.4,	69.4,	75.5,	80.1,	83.8,	N/A,	
18 hours	21.7,	27.9,	31.0,	35.5,	38.4,	40.6,	47.6,	55.1,	59.8,	66.3,	71.8,	76.0,	82.3,	87.1,	91.0,	N/A,	
24 hours	24.1,	30.7,	34.1,	38.8,	41.9,	44.3,	51.6,	59.4,	64.3,	71.0,	76.7,	81.1,	87.6,	92.5,	96.5,	110.0,	
2 days	30.9,	38.4,	42.0,	47.2,	50.5,	53.0,	60.7,	68.7,	73.8,	80.5,	86.3,	90.6,	97.0,	101.8,	105.7,	118.7,	
3 days	36.9,	45.0,	49.0,	54.5,	58.0,	60.7,	68.8,	77.2,	82.4,	89.3,	95.2,	99.6,	106.1,	110.9,	114.8,	127.9,	
4 days	42.4,	51.1,	55.3,	61.2,	64.9,	67.7,	76.2,	84.9,	90.3,	97.5,	103.5,	108.0,	114.6,	119.5,	123.5,	136.6,	
6 days	52.5,	62.3,	66.9,	73.4,	77.5,	80.5,	89.7,	99.0,	104.8,	112.3,	118.7,	123.3,	130.2,	135.3,	139.4,	152.9,	
8 days	61.9,	72.6,	77.7,	84.7,	89.0,	92.3,	102.0,	111.9,	118.0,	125.9,	132.5,	137.4,	144.5,	149.8,	154.0,	167.9,	
10 days	70.9,	82.5,	87.9,	95.3,	100.0,	103.4,	113.7,	124.1,	130.4,	138.6,	145.5,	150.5,	157.9,	163.3,	167.7,	181.9,	
12 days	79.7,	91.9,	97.7,	105.5,	110.4,	114.0,	124.8,	135.6,	142.2,	150.7,	157.8,	163.0,	170.6,	176.2,	180.6,	195.2,	
16 days	96.6,	110.2,	116.5,	125.1,	130.4,	134.3,	145.9,	157.5,	164.5,	173.6,	181.0,	186.5,	194.5,	200.3,	205.0,	220.1,	
20 days	113.0,	127.7,	134.6,	143.8,	149.4,	153.6,	166.0,	178.2,	185.6,	195.1,	203.0,	208.7,	217.0,	223.1,	227.9,	243.5,	
25 days	133.0,	149.1,	156.5,	166.4,	172.5,	176.9,	190.1,	203.1,	210.8,	220.9,	229.1,	235.1,	243.7,	250.1,	255.1,	271.3,	

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



Project: Innovate Building	Job No.: 20040	 
Section: Proposed Surface Water	Date: 05/11/20	
Client: Innovate Limerick	Revision: 1st	
	Designer: RP	
	Checked: AD	
	Approved: JR	

TABLE 1 - Areas (Existing & Proposed Development):				Site Area: 1515 m ² 0.1515 ha 0.001515 km ² SAAR: 995 mm Soil Index: 0.3 per GSDSDS
	Area m ²	Permbly Co-eff	Net non Permeable Area m ²	Mean Annual Peak Flow (Permissible Outflow Rate) Mean Annual Flow (MAF) $0.00108 \times (\text{AREA})^{0.89} (\text{SAAR})^{1.17} (\text{SOIL})^{2.17}$ m ³ /s Interpolated for a 50ha site Qbar = 7.5 l/s MAF = 7.50000 l/s QBAR = 7.50000 l/s MAF = 0.00750 m ³ /s QBAR = 0.00750 m ³ /s
Roads	1190	1.0	1190.0	
Main Bldg	0	1.0	0.0	
TOTAL	1190	-	1190.0	

TABLE 2 - Maximum Rainfall (mm) over indicated duration (expected in the indicated return period)											
Duration			Return Period (Years)								
Seconds			0.5	1.0	2.0	5.0	10.0	20.0	30.0	50.0	100.0
1	min	60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	min	120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	min	300	2.70	3.90	4.60	6.90	8.80	10.90	12.40	14.50	17.80
10	min	600	3.70	5.50	6.40	9.60	12.20	15.20	17.30	20.10	24.80
15	min	900	4.40	6.40	7.60	11.30	14.40	17.90	20.30	23.70	29.10
30	min	1800	5.70	8.20	9.50	14.00	17.50	21.50	24.20	28.00	34.00
60	min	3600	7.40	10.30	11.90	17.20	21.20	25.80	28.80	33.10	39.70
2	hours	7200	9.60	13.10	15.00	21.10	25.80	30.90	34.30	39.10	46.40
4	hours	14400	12.40	16.60	18.90	25.90	31.30	37.10	40.90	46.10	54.20
6	hours	21600	14.40	19.10	21.60	29.30	35.00	41.30	45.30	50.90	59.40
12	hours	43200	18.60	24.20	27.10	36.00	42.50	49.50	54.00	60.10	69.40
24	hours	86400	24.10	30.70	34.10	44.30	51.60	59.40	64.30	71.00	81.10
48	hours	172800	30.90	38.40	42.00	53.00	60.70	68.70	73.80	80.50	90.60

TABLE 3 - Total volume of water on site (expected in the indicated return period)											
Duration			Return Period (Years)								
Seconds			0.5	1	2	5	10	20	30	50	100
1	min	60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	min	120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	min	300	3.2	4.6	5.5	8.2	10.5	13.0	14.8	17.3	21.2
10	min	600	4.4	6.5	7.6	11.4	14.5	18.1	20.6	23.9	29.5
15	min	900	5.2	7.6	9.0	13.4	17.1	21.3	24.2	28.2	34.6
30	min	1800	6.8	9.8	11.3	16.7	20.8	25.6	28.8	33.3	40.5
60	min	3600	8.8	12.3	14.2	20.5	25.2	30.7	34.3	39.4	47.2
2	hours	7200	11.4	15.6	17.9	25.1	30.7	36.8	40.8	46.5	55.2
4	hours	14400	14.8	19.8	22.5	30.8	37.2	44.1	48.7	54.9	64.5
6	hours	21600	17.1	22.7	25.7	34.9	41.7	49.1	53.9	60.6	70.7
12	hours	43200	22.1	28.8	32.2	42.8	50.6	58.9	64.3	71.5	82.6
24	hours	86400	28.7	36.5	40.6	52.7	61.4	70.7	76.5	84.5	96.5
48	hours	172800	36.8	45.7	50.0	63.1	72.2	81.8	87.8	95.8	107.8

TABLE 4 - Allowable run-off volume (m3) over given period of time											
Duration			Return Period (Years)								
Seconds			0.5	1	2	5	10	20	30	50	100
1	min	60	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
2	min	120	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
5	min	300	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
10	min	600	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
15	min	900	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
30	min	1800	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
60	min	3600	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
2	hours	7200	54.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0
4	hours	14400	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0	108.0
6	hours	21600	162.0	162.0	162.0	162.0	162.0	162.0	162.0	162.0	162.0
12	hours	43200	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0	324.0
24	hours	86400	648.0	648.0	648.0	648.0	648.0	648.0	648.0	648.0	648.0
48	hours	172800	1296.0	1296.0	1296.0	1296.0	1296.0	1296.0	1296.0	1296.0	1296.0

TABLE 5 - Storage volume required (m3)											
Duration			Return Period (Years)								
Seconds			0.5	1	2	5	10	20	30	50	100
1	min	60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	min	120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	min	300	1.0	2.4	3.2	6.0	8.2	10.7	12.5	15.0	18.9
10	min	600	0.0	2.0	3.1	6.9	10.0	13.6	16.1	19.4	25.0
15	min	900	0.0	0.9	2.3	6.7	10.4	14.6	17.4	21.5	27.9
30	min	1800	0.0	0.0	0.0	3.2	7.3	12.1	15.3	19.8	27.0
60	min	3600	0.0	0.0	0.0	0.0	0.0	3.7	7.3	12.4	20.2
2	hours	7200	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
4	hours	14400	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	hours	21600	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	hours	43200	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	hours	86400	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48	hours	172800	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MAX STORAGE REQUIRED (m³) = 27.9

MAX STORAGE REQUIRED (m3) WITH 20% CLIMATE CHANGE ALLOWNACE 33.4548

Appendix B – CFRAM Mapping

