PUNCH
consulting engineers

Cork City Council Modular Housing - Westside

Engineering Planning Report

April 2022

Document Control

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PR0	Draft	30-03-2022	M O'Connor	D O'Donovan	C Murphy
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1 Introduction

This report was prepared to accompany a planning application for the proposed development on a site located on Model Farm Road, Cork. The site location is shown in Figure 1-1 below.

1.1 Existing Site

The site of the proposed development is a brownfield site which was formerly owned by Blackwater Motors and is approximately 0.244 hectares in area. The site was developed for use as a sales showroom and garage in the 1990s and has been in use for this purpose since then. It is intended that the existing building will be demolished as part of the development and that all existing utilities within the site footprint will be decommissioned and grubbed out. The site is relatively flat and is bounded by the Model Farm Road to the north, Parchment Square apartments to the south, a filling station to the west and the Parchment Square access road to the east.

Figure 1-1: Site Location/Aerial Photograph of the Proposed Development

1.2 Historical Land Use

Historical 6" maps dating from the period 1837 to 1842 indicate that the site was in agricultural use at that time. The later 25" maps dating from the period 1888 to 1913 also show that the site remained in

agricultural use with no notable features identified. Extracts from these historical maps with the site identified are contained in Figures 1-2 and 1-3 below.

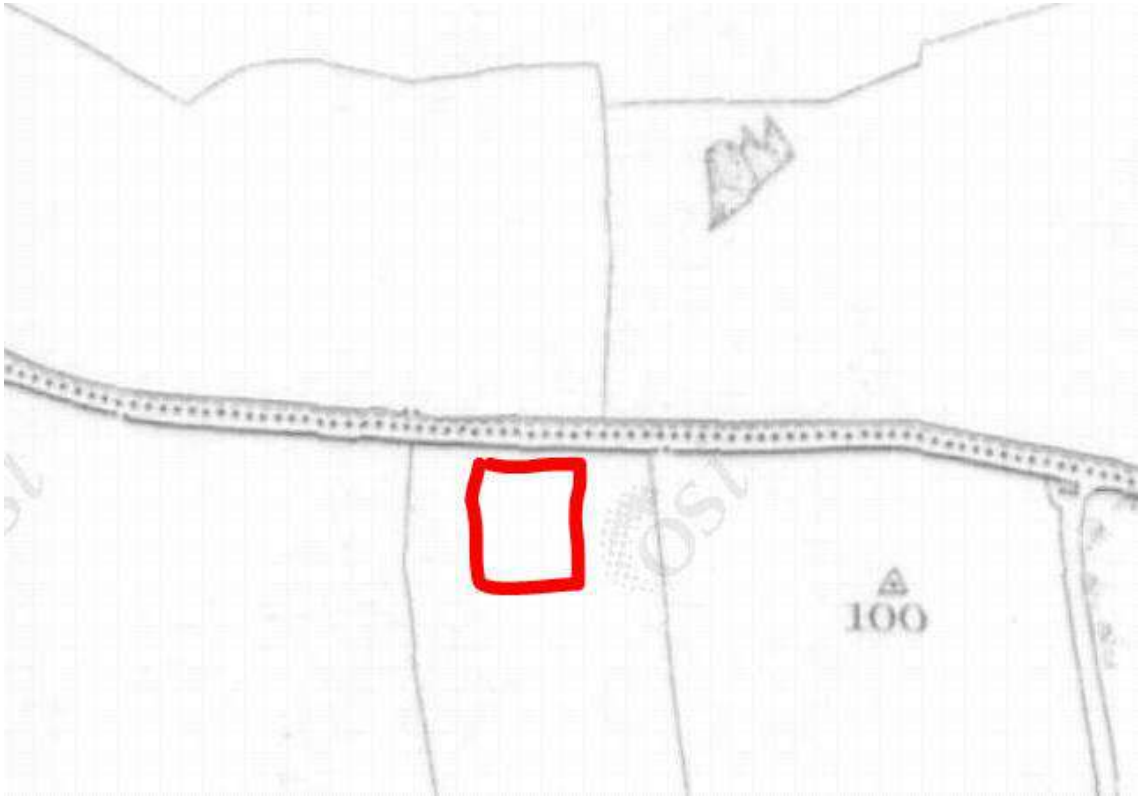


Figure 1-2 Historic Map 6 inch (1837-1842) – site boundary is approximate

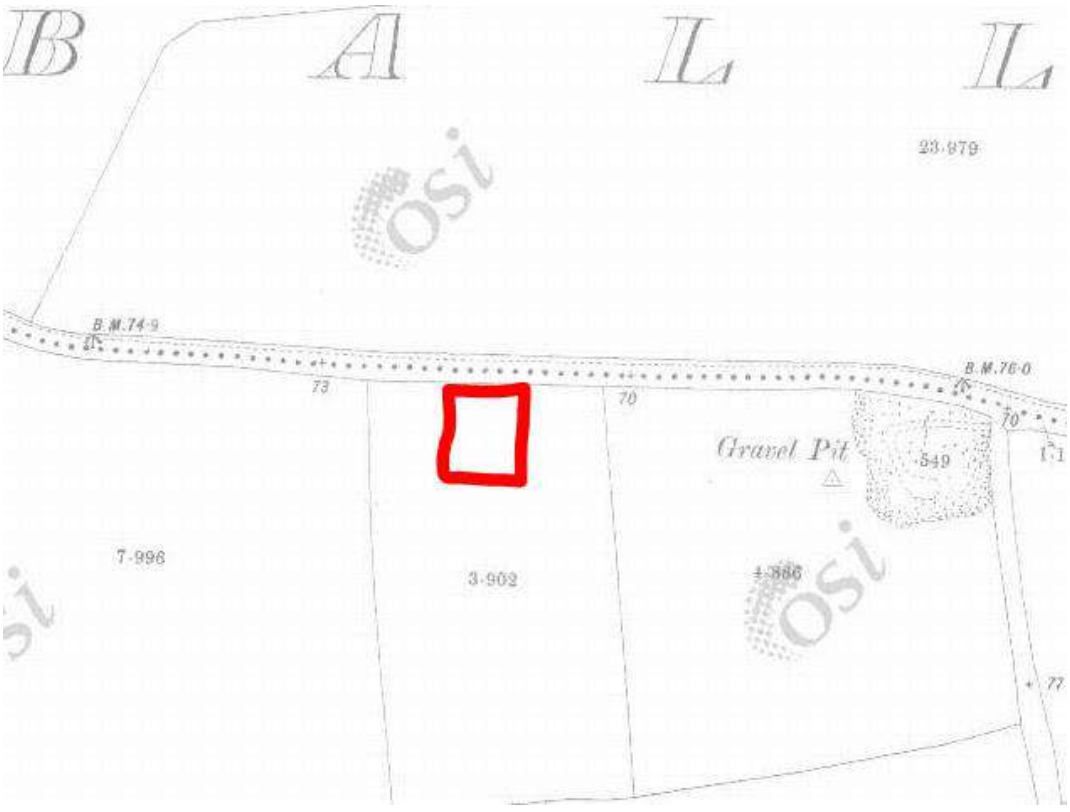


Figure 1-3 Historic Map 25 Inch (1888-1913) – site boundary is approximate

1.3 Proposed Development

The proposed works are outlined in a series of architectural drawings prepared by O'Mahony Pike Architects and engineering drawings prepared by PUNCH Consulting Engineers and supplied as part of the planning documentation.

The proposed development will consist of 43 No Apartments, landscaping and ancillary works. This report outlines the surface water drainage design, foul drainage design and watermain design for the proposed development. Roads design issues and Flood Risk are also addressed.

2 Stormwater Drainage Design

2.1 Existing Stormwater Drainage

On-site inspections, utilities surveys and discussions with Cork City Council Engineers indicate that the site currently does not discharge to the public sewer network. It is assumed from site records that runoff from the site currently discharges to ground via a Petrol Interceptor/Silt Trap in the south western corner of the site, however this needs to be confirmed through CCTV Surveys. There are existing storm sewers on the Model Farm Road, however these are extremely shallow (<1m deep) and as such are unsuitable to tie in to as to do so would require a pumped solution for surface water runoff. Re-routing these sewers at lower levels is not a viable option as they traverse private property to the north of the Model Farm Road. Please refer to Appendix E for details of the existing storm sewer network in the vicinity.

2.2 Proposed Stormwater Drainage

The proposed surface water drainage system has been designed using Causeway Flow software in accordance with the Department of Environment and Local Government's guidance document "Recommendations for Site Development Works for Housing Areas", with guidance taken from the "Greater Dublin Strategic Drainage Study" (GDSDS) and the Cork City Development Plan.

A new surface water sewer network shall be provided for the proposed development which will be entirely separated from the foul water sewer network. All surface water run-off from hardstanding areas is designed to be collected by a gravity pipe network and will discharge to a new storm sewer which is required to run down Model Farm Road and turn north to run along the eastern boundary of the Melbourne Court estate before tying in to dedicated storm sewer network which serves Melbourne Court.

Notwithstanding that this is a brownfield site, in line with best practice the storm flows from the development will be restricted by means of a hydrobrake to the equivalent peak greenfield runoff rate (QBAR), which has been calculated as 1.51 litres per second in accordance with the IH124 report published by the Institute of Hydrology. As a consequence of this flow limitation, an attenuation tank will be required to store surface waters in extreme events. A system suitable for shallow cover depth installations will be required as outfall level constraints dictate that the attenuation tank cannot be installed at significant depth.

The proposed stormwater sewers have been designed using Causeway Flow software. Table 2-1 describes the stormwater drainage design parameters used and detailed calculations are enclosed in Appendix A. The drainage model results confirm that all proposed finished floor levels are 500mm above drainage water levels for a 100-year return period, in accordance with the requirements of the GDSDS.

Levels and drainage have been designed to ensure that no surface water generated by the development site outfalls to the Model Farm Road. Please refer to PUNCH Drawing WES-PUNCH-XX-XX-DR-C-0100 & WES-PUNCH-XX-XX-DR-C-0101 for details of proposed drainage.

Table 2-1: Stormwater Drainage Design Parameters

Description	Value
Total Impervious Site area contributing to main drainage network	0.244 ha
Return period target	Pipe Design 1 in 5 year. Network Design 1 in 30 year + CC. Check 1 in 100 year + CC for flooding.
Climate Change	20%
M5-60	17
Ratio R	0.2
SOIL type	3 (silty)
Soil value	0.40
SAAR	1158mm
Flow reduction parameter	Qbar
Controlled Outflow	1.51 l/s
Flow restriction method	Hydrobrake

2.2.1 Petrol Interceptor

It is proposed that all surface water run-off from car parking areas and internal roads will outfall via a Class 1 Bypass Separator located within the access road to the site. This device will remove hydrocarbons and fine sediment particles from the site runoff and lower the risk of downstream contamination following an oil spillage on site.

Bypass separators fully treat all flows generated by rainfall rates of up to 6.5mm/hr. This covers over 99% of all rainfall events. Flows above this rate are allowed to bypass the separator. These separators are used when it is considered an acceptable risk not to provide full treatment for high flows, for example where the risk of a large spillage and heavy rainfall occurring at the same time is small.

Class 1 devices are designed to achieve a concentration of less than 5mg/l of oil under standard test conditions. Please refer to Appendix B for calculations regarding the proposed Petrol Interceptor Nominal size in accordance with EN 858-2. The Petrol Interceptor installed at the site will have a nominal size in excess of 8.75 l/sec as calculated.

3 Foul Water Drainage Design

3.1 Existing Foul Water Drainage

Irish Water record drawings and on-site inspections indicate that there is no existing gravity foul sewer discharging from the site to the public drainage network. The existing building is served by a septic tank located in the southwestern corner of the site which will be removed as part of the development.

Irish Water and Cork City Council records and Utility Surveys have been reviewed and there is no evidence of an existing foul sewer network on the Model Farm Road outside the site. The closest public sewer is located within Melbourne Court, however the invert of the header manhole in this network is too high to facilitate a gravity connection from Westside, and the existing sewers are not large enough to cater for the anticipated flows from the proposed development. There are existing larger diameter sewers located further away from the site and the proposed foul sewer will discharge to these, as described in section 3.2 below.

Please refer to Appendix E for details of the existing foul sewer network within the site and Figure 3-1 for sewers in the surrounding areas.

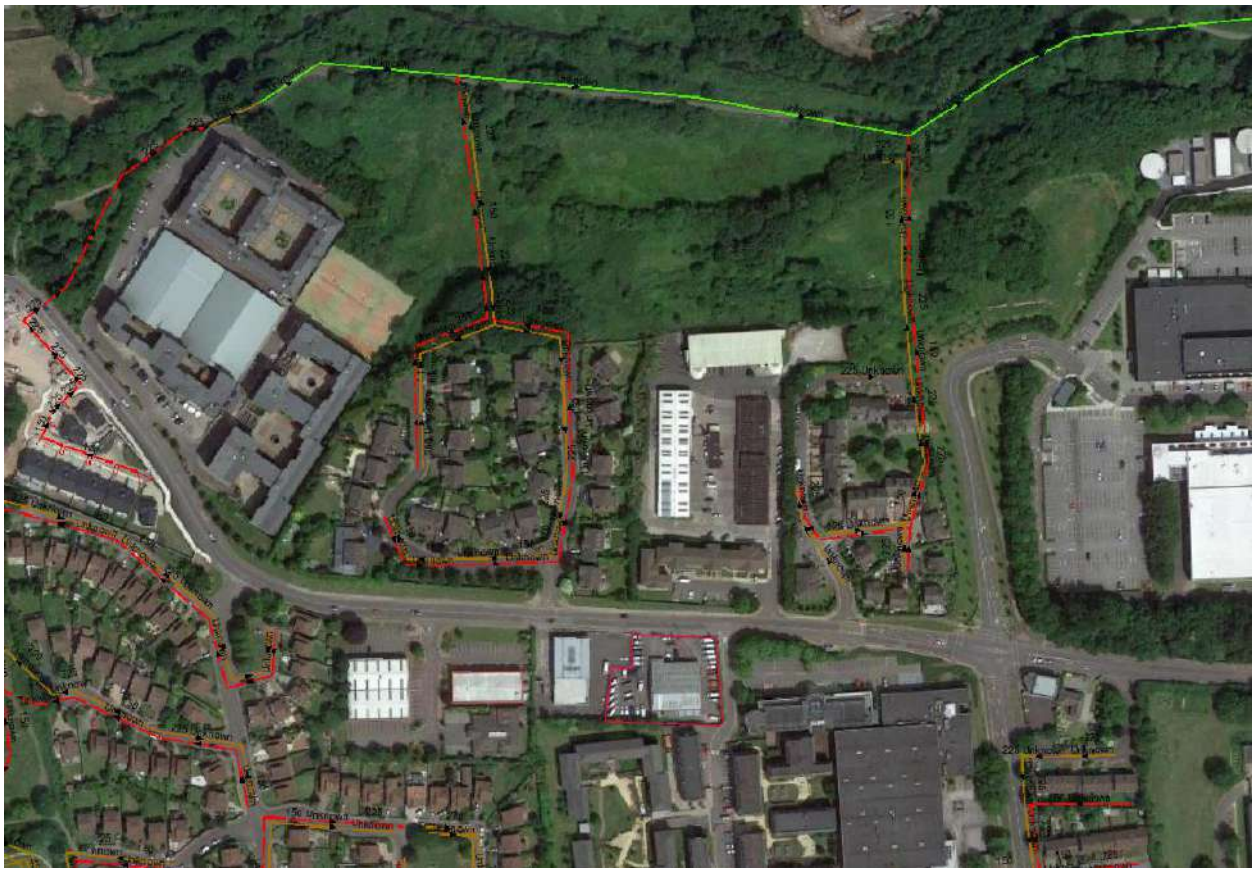


Figure 3-1 Existing wastwater networks (site outlined in red)

3.2 Proposed Foul Water Drainage

The proposed foul water sewers have been designed using Causeway Flow software in accordance with the DOE's "*Recommendations for Site Development Works for Housing Areas*". The foul loading has been calculated in accordance with "Code of Practice for Wastewater Infrastructure" published by Irish Water.

The initial pre connection enquiry made for the site by Cork City Council received a confirmation of feasibility letter (Appendix F) which requested that the proposed development discharge at Eden Hall to the west of the site, however construction of a gravity sewer running east to west along Model Farm

Road would necessitate excavation depths of up to 6m due to the topography of the area. Subsequently a proposal was made to Irish Water to discharge to the existing foul sewer network to the northeast of the site, thereby reducing excavation depths and requiring most of the substantial construction to be undertaken in green areas. This approach was agreed in principle with Irish Water and a design submission was made on this basis. Irish Water subsequently issued a Statement of Design Acceptance which is included in Appendix G. It will be necessary to construct approximately 300m of additional foul sewer in parallel to the new storm sewer referenced in Section 2.2.

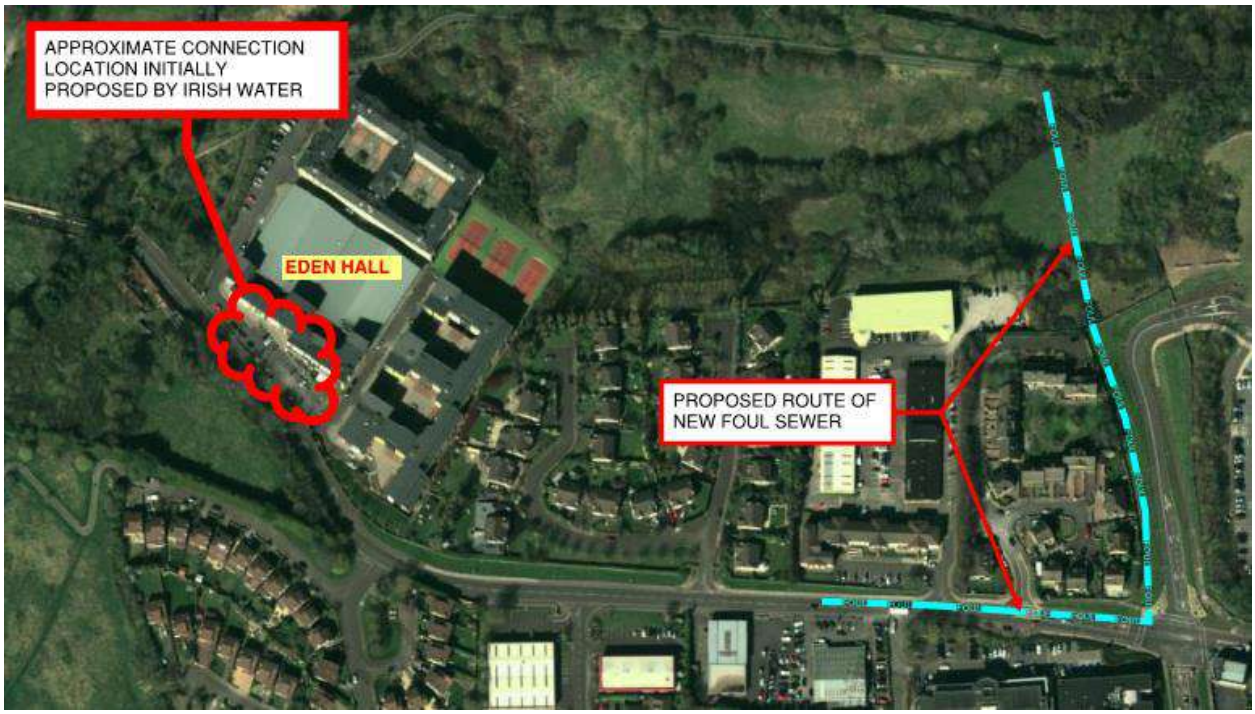


Figure 3-2 Foul Sewer

Table 3-1 describes the foul water drainage design parameters used and detailed calculations are enclosed in Appendix C.

Table 3-1: Foul Water Drainage Design Parameters

Description	Value
Residential Flow Rate	150 l/per/day
Persons per Dwelling	2.7
Additional Flow	10%
Peaking Factor	6 DWF (Residential)
Minimum Self Cleansing Velocity	0.75m/s
Minimum Pipe Diameter	150mm

Table 3-2: Foul Water Drainage Design Calculations

Category	Quantity	Flow Rate	Daily Flow (l/day)	DWF (l/s)	Design Peak Flow (6DWF) (l/s)
Residential	43 units => 116 persons	150 l/person/day + 10%	19,157	0.2217	1.3303

3.3 Conclusion

The calculations presented in Appendix C confirm that the proposed sewer network will be sufficient to cater for foul flows generated by the proposed development.

4 Watermain Design

4.1 Existing Watermain

Cork City Council records indicate that there is an existing 200mm watermain on the Model Farm Road at the opposite side of the road to the site, and a 150mm watermain on the near side of the road. There is an existing connection to the site, however the size and condition of this connection is unknown at this point

4.2 Proposed Watermain

It is generally accepted that the design loading for foul drainage can be used to evaluate an approximation of the water demand on the site. With reference to Irish Water's Code of Practice for Water Infrastructure, the average daily flow is calculated as the number of persons multiplied by the flow rate per person. The average day peak week flow is taken to be 1.25 x the average flow, and the peak demand is taken to be the average day peak week flow multiplied by a peaking factor of 5.

Table 4-1 describes the watermain design parameters used.

Table 4-2: Watermain Design Parameters

Description	Value
Residential Flow Rate	150 l/per/day
Persons per Dwelling	2.7
Average Demand	1.25 DWF
Peak Demand	5 DWF

Table 4-2: Watermain Design Calculation

Category	Quantity	Flow Rate	Daily Flow (l/day)	DWF (l/s)	Average Demand (1.25DWF) (l/s)	Peak Demand (5DWF) (l/s)
Residential	43 units => 116 persons	150 l/person/day + 10%	19,157	0.2217	0.2771	1.3857

On the basis of the above tables, the development will have an increase in average water demand of 0.2771 l/s and a peak water demand of 1.3857l/s.

It is proposed to construct a new 100mm diameter watermain to serve the proposed development based on the above calculated demand and hydrant requirements for the development. The proposed watermain will connect to the existing 150mm watermain on the south side of Model Farm Road.

This feed will provide potable and firefighting water to the proposed development. A bulk water meter shall be provided at the site boundary at the location of the proposed connection to the existing watermain. The watermain layout has been designed in accordance with "Irish Water Code of Practice

for Water Infrastructure". All watermains are to be constructed in accordance with Irish Water Code of Practice and the Local Authority's requirements.

To reduce the water demand on Local Authority water supplies and to reduce the foul discharge from the development, water conservation measures will be incorporated throughout the development.

A Pre-Connection Enquiry Form was issued to Irish Water in relation to the proposed development and confirmation of feasibility was confirmed without the requirement for any infrastructure upgrades.

5 Flooding

The proposed development is located within Flood Zone C. This zone defines areas with a low probability of flooding. For river flooding it is defined as less than 0.1% probability or between less than 1 in 1,000 years, also for coastal flooding less than 0.1% probability or less than 1 in 1,000 years.

Planning guidelines on flood risk and development have been published by the OPW and Department of Environment, Heritage and Local Government (DoEHLG). The below sections summarise how the development's design will be assessed in accordance with the main principles of these guidelines.

5.1 Sequential Approach

The sequential approach makes use of flood zones for river and coastal flooding, as described below:

Zone A – High probability. This zone defines areas with the highest risk of flooding. For river flooding it is defined as more than 1% probability or more than 1 in 100 year, and for coastal flooding it is defined as 0.5% probability or more than 1 in 200 year.

Zone B – Moderate probability. This zone defines areas with a moderate risk of flooding. For river flooding it is defined as 0.1% to 1% probability or between 1 in 100 and 1 in 1,000 years, and for coastal flooding 0.1% and 0.5% probability or between 1 in 200 and 1 in 1,000 years.

Zone C – Low probability. This zone defines areas with a low risk of flooding less than 0.1% probability or less than 1 in 1,000 years.

The flood zones are then to be looked at with the vulnerability of the building proposed;

Highly Vulnerable	– Hospitals, Garda stations, homes, motorways etc.
Less Vulnerable	– Commercial, retail, offices etc.
Water Compatible	– Marina's, green areas

A sequential approach is then taken to assess the most favourable location for the development based on its vulnerability.

Zone A - Water Compatible or Justification Test

Zone B - Less Vulnerable if no other lands are available or highly vulnerable with Justification Test

Zone C - Any development

5.2 Development Sequential Test

5.2.1 Coastal Flood Risk

Coastal flooding results from sea levels which are higher than normal and result in sea water overflowing onto the land. Coastal flooding is influenced by the following three factors which often work in combination: high tide level, storm surges and wave action.

There is no risk associated with coastal flooding for this site as general ground levels for the site are much higher than expected extreme coastal flood levels.

5.2.2 Fluvial Flood Risk

Fluvial flooding is the result of a river exceeding its capacity and excess water spilling out onto the adjacent floodplain.

CFRAMS Maps for the general area surrounding the development indicate no fluvial flood risk to the proposed dwellings. As Model Farm Road to the front of the site is also in Flood Zone C, access/egress from the development for emergency services during a flood event will not be compromised. (refer to Appendix D for the full CFRAMS map).

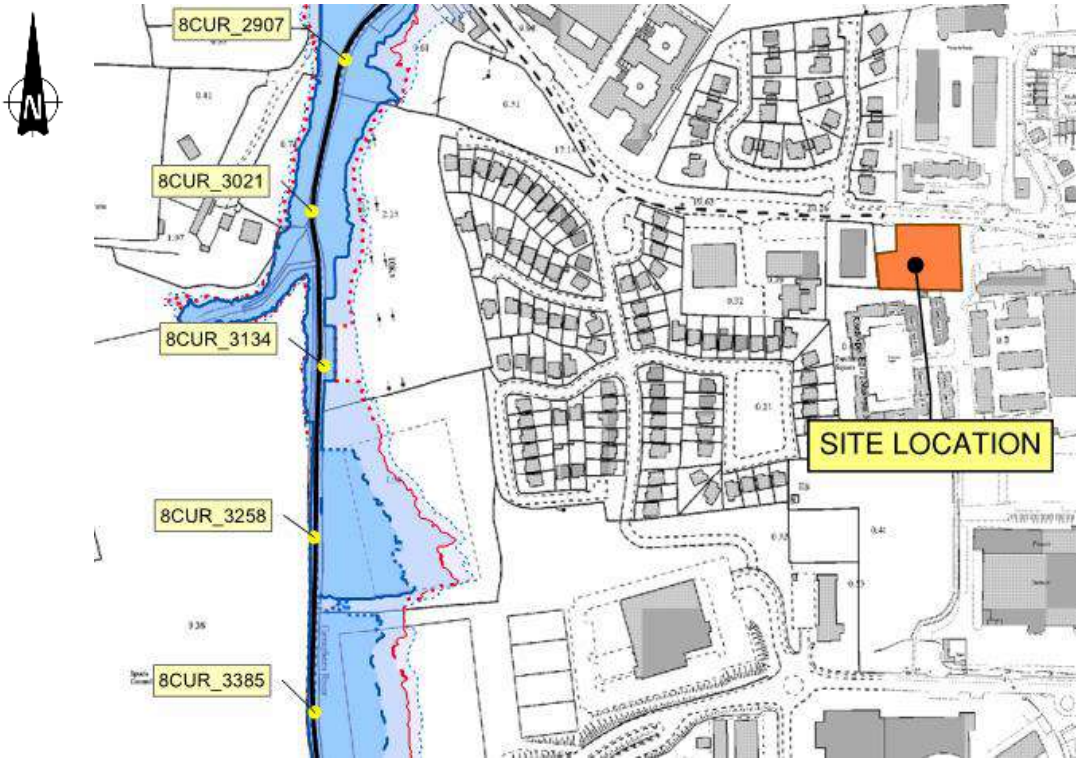


Figure 5-1 Fluvial Flood Map (image taken from CFRAM)

5.2.3 Pluvial Flood Risk

Pluvial flooding is the result of rainfall-generated overland flows which arise before run-off can enter any watercourse or sewer. It is usually associated with high intensity rainfall and typically occurs in the summer months. Pluvial flood risk has not been identified by the Preliminary Flood Risk Assessment (PFRA) mapping as being a risk to this site.

Additionally, the proposed drainage network will alleviate any concerns of pluvial flooding.

5.2.4 OPW Flood Maps

The OPW Flood Hazard Mapping Website is a record of historic flood events. This database indicates that there is no record of flooding incidents in the area of the proposed development.

5.3 Flood Risk Assessment Conclusions

The site has been assessed in accordance with the "The Planning System and Flood Risk Management" Guidelines. As part of the sequential test, the OPW flood hazard maps have been consulted, as have the Catchment Flood Risk Assessment Maps produced by the OPW.

In all cases it was found that there is a low risk of flooding at the development (less than 1 in 1000 probability in any given year) and that the development is deemed appropriate within the proposed site location.

6 Roads and Access

6.1 Proposed Roads & Access

Access to the site will be via a new entrance on Model Farm Road. A 5.5m wide shared surface entrance will be provided to access parking to the rear of the site.

The proposed access has been designed in accordance with the Design Manual for Urban Roads and Streets (DMURS) and the Recommendations for Site Development Works. DMURS aims to aid the design of safer, more attractive, and vibrant streets which will generate and sustain communities and neighbourhoods. As well as cars and other vehicles this encompasses pedestrians, cyclists and those using public transport.

Sight lines at the entrance to the site were designed in accordance with DMURS based on existing speed limits. The proposed turning area within the development has been designed in compliance with the Recommendations for Site Developments Works in Housing Areas document and a vehicle tracking analysis has been undertaken to verify the adequacy of this area for turning refuse vehicles.

Appendix A Causeway Stormwater Drainage Design Calculations

Mean Annual Flood Flow Rate Equation for Greenfield Catchments IH124

(Based on Institute of Hydrology report No. 124)

Project title: **Housing at Westside, Bishopstown**

Project no.: **194191**

Designed: **MOC** Date: **30/03/2022**

(Complete figures in **blue** only)

$Q\ Bar = 0.00108 \times Area^{0.89} \times SAAR^{1.17} \times Soil^{2.17}$

Where			Units
Q Bar	=	Mean Annual Peak Flow	m^3/s
Area	=	Catchment area	km^2
SARR	=	Standard Annual Average Rainfall	mm
Soil	=	Soil Index	-

Area description:

Soil characteristics: Soil type (See Table 1) **3** (Intermediate soils - Silty)

=> Soil index = 0.40

Table 1

Soil	WRAP	Runoff	Soil value	Soil Characteristics
1	Very high	Very low	0.15	Sandy, well drained
2	High	Low	0.3	Intermediate soils (sandy)
3	Moderate	Moderate	0.4	Intermediate soils (silty)
4	Low	High	0.45	Clayey, poorly drained
5	Very low	Very high	0.5	Steep, rocky areas

Where developments are smaller than 50 ha, the analysis for determining the peak greenfield discharge rate should use 50 ha in the formula and linearly interpolate the flow rate value based on the ratio of the development to 50 ha.(Ref: Interim Code of Practice for Sustainable Drainage Systems)

Area = 0.5 km^2 (**2466** m^2)

SAAR = 1158 mm

Q Bar = 0.3066 m^3/s

= 306.56 l/s

or

= 1243.15 l/s/ha

Linear Interpolation of Q Bar based on ratio of development to 50 ha

Peak greenfield discharge rate, Q_{Bar} = 1.51 l/s

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	5	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	0.70
FSR Region	Scotland and Ireland	Connection Type	Level Inverts
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.600
Ratio-R	0.200	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1-0	0.145	5.00	18.630	1200	163210.187	70804.290	1.525
S1-1 (PI)			18.600	1200	163210.373	70808.142	1.514
S1-2			18.600	1200	163210.453	70812.435	1.535
S1-3	0.100	5.00	18.400	1200	163210.671	70834.269	1.444
S1-4 (HB)			18.320	1200	163210.796	70836.434	1.375
S1-5			18.150	1200	163212.749	70847.481	1.242
S1-6			19.550	1200	163301.388	70843.263	2.938
S1-7			19.650	1200	163376.599	70838.533	3.289
S1-8			19.680	1200	163381.665	70859.497	3.391
S1-9			19.440	1200	163379.583	70888.150	3.247
S1-10			19.440	1200	163372.261	70919.957	3.356
S1-11			19.870	1200	163355.851	70973.535	3.973

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)
S1.000	S1-0	S1-1 (PI)	3.856	0.600	17.105	17.086	0.019	200.0	225	5.07	50.0
S1.001	S1-1 (PI)	S1-2	4.294	0.600	17.086	17.065	0.021	200.0	225	5.15	50.0
S1.002	S1-2	S1-3	21.835	0.600	17.065	16.956	0.109	200.0	225	5.54	50.0
S1.003	S1-3	S1-4 (HB)	2.169	0.600	16.956	16.945	0.011	200.0	225	5.58	50.0
S1.004	S1-4 (HB)	S1-5	11.218	0.600	16.945	16.908	0.037	300.0	300	5.79	50.0
S1.005	S1-5	S1-6	88.739	0.600	16.908	16.612	0.296	300.0	300	7.43	47.1
S1.006	S1-6	S1-7	75.360	0.600	16.612	16.361	0.251	300.0	300	8.82	44.1
S1.009	S1-9	S1-10	32.639	0.600	16.193	16.084	0.109	300.0	300	10.35	41.3
S1.010	S1-10	S1-11	56.035	0.600	16.084	15.897	0.187	300.0	300	11.39	39.7
S1.007	S1-7	S1-8	21.567	0.600	16.361	16.289	0.072	300.0	300	9.22	43.3

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)
S1.000	0.921	36.6	19.7	1.300	1.289	0.145	0.0	117	0.936
S1.001	0.921	36.6	19.7	1.289	1.310	0.145	0.0	117	0.936
S1.002	0.921	36.6	19.7	1.310	1.219	0.145	0.0	117	0.936
S1.003	0.921	36.6	33.2	1.219	1.150	0.245	0.0	168	1.039
S1.004	0.902	63.8	33.2	1.075	0.942	0.245	0.0	154	0.911
S1.005	0.902	63.8	31.2	0.942	2.638	0.245	0.0	148	0.897
S1.006	0.902	63.8	29.3	2.638	2.989	0.245	0.0	143	0.884
S1.009	0.902	63.8	27.5	2.947	3.056	0.245	0.0	137	0.869
S1.010	0.902	63.8	26.4	3.056	3.673	0.245	0.0	134	0.861
S1.007	0.902	63.8	28.8	2.989	3.091	0.245	0.0	141	0.879

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)
S1.008	S1-8	S1-9	28.729	0.600	16.289	16.193	0.096	300.0	300	9.75	42.4

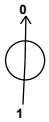
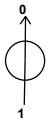
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
S1.008	0.902	63.8	28.1	3.091	2.947	0.245	0.0	139	0.874

Pipeline Schedule

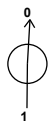
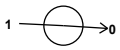
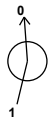
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
S1.000	3.856	200.0	225	Circular	18.630	17.105	1.300	18.600	17.086	1.289
S1.001	4.294	200.0	225	Circular	18.600	17.086	1.289	18.600	17.065	1.310
S1.002	21.835	200.0	225	Circular	18.600	17.065	1.310	18.400	16.956	1.219
S1.003	2.169	200.0	225	Circular	18.400	16.956	1.219	18.320	16.945	1.150
S1.004	11.218	300.0	300	Circular	18.320	16.945	1.075	18.150	16.908	0.942
S1.005	88.739	300.0	300	Circular	18.150	16.908	0.942	19.550	16.612	2.638
S1.006	75.360	300.0	300	Circular	19.550	16.612	2.638	19.650	16.361	2.989
S1.009	32.639	300.0	300	Circular	19.440	16.193	2.947	19.440	16.084	3.056
S1.010	56.035	300.0	300	Circular	19.440	16.084	3.056	19.870	15.897	3.673
S1.007	21.567	300.0	300	Circular	19.650	16.361	2.989	19.680	16.289	3.091
S1.008	28.729	300.0	300	Circular	19.680	16.289	3.091	19.440	16.193	2.947

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
S1.000	S1-0	1200	Manhole	Adoptable	S1-1 (PI)	1200	Manhole	Adoptable
S1.001	S1-1 (PI)	1200	Manhole	Adoptable	S1-2	1200	Manhole	Adoptable
S1.002	S1-2	1200	Manhole	Adoptable	S1-3	1200	Manhole	Adoptable
S1.003	S1-3	1200	Manhole	Adoptable	S1-4 (HB)	1200	Manhole	Adoptable
S1.004	S1-4 (HB)	1200	Manhole	Adoptable	S1-5	1200	Manhole	Adoptable
S1.005	S1-5	1200	Manhole	Adoptable	S1-6	1200	Manhole	Adoptable
S1.006	S1-6	1200	Manhole	Adoptable	S1-7	1200	Manhole	Adoptable
S1.009	S1-9	1200	Manhole	Adoptable	S1-10	1200	Manhole	Adoptable
S1.010	S1-10	1200	Manhole	Adoptable	S1-11	1200	Manhole	Adoptable
S1.007	S1-7	1200	Manhole	Adoptable	S1-8	1200	Manhole	Adoptable
S1.008	S1-8	1200	Manhole	Adoptable	S1-9	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
S1-0	163210.187	70804.290	18.630	1.525	1200		0	S1.000	17.105	225
S1-1 (PI)	163210.373	70808.142	18.600	1.514	1200		1	S1.000	17.086	225
							0	S1.001	17.086	225
S1-2	163210.453	70812.435	18.600	1.535	1200		1	S1.001	17.065	225
							0	S1.002	17.065	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
S1-3	163210.671	70834.269	18.400	1.444	1200		1	S1.002	16.956	225
							0	S1.003	16.956	225
S1-4 (HB)	163210.796	70836.434	18.320	1.375	1200		1	S1.003	16.945	225
							0	S1.004	16.945	300
S1-5	163212.749	70847.481	18.150	1.242	1200		1	S1.004	16.908	300
							0	S1.005	16.908	300
S1-6	163301.388	70843.263	19.550	2.938	1200		1	S1.005	16.612	300
							0	S1.006	16.612	300
S1-7	163376.599	70838.533	19.650	3.289	1200		1	S1.006	16.361	300
							0	S1.007	16.361	300
S1-8	163381.665	70859.497	19.680	3.391	1200		1	S1.007	16.289	300
							0	S1.008	16.289	300
S1-9	163379.583	70888.150	19.440	3.247	1200		1	S1.008	16.193	300
							0	S1.009	16.193	300
S1-10	163372.261	70919.957	19.440	3.356	1200		1	S1.009	16.084	300
							0	S1.010	16.084	300
S1-11	163355.851	70973.535	19.870	3.973	1200		1	S1.010	15.897	300

Appendix B Petrol Interceptor Sizing Calculation

Petrol Interceptor Sizing

Project title: **Westside, Model Farm Road**

Project no.: **194191**

Designed: **MOC** Date: **30/03/2022**

(Complete figures in **blue** only)

Ref.

Calculation of Mean Annual Peak Flow

EN 858-2 4.3.5

$$Q_r = CiA$$

Where			Units
Q_r	=	Mean Annual Peak Flow	l/sec
A	=	Catchment area	ha
i	=	Rainfall Intensity	l/sec/ha
C	=	Runoff Coefficient	-

C = 1

Area = **0.0473** ha

PUNCH Calc (Appendix 1)

i = 123.358 l/sec/ha

Q_r **= 5.83 l/s**

Calculation of Petrol Interceptor Nominal Size

EN 858-2 4.3.1

$$NS = (Q_r + f_x Q_s) f_d$$

Where:

$NS = Nominal\ Size\ of\ Separator$

$Q_r = \max flow\ rate\ of\ rainwater$

$Q_s = \max flow\ rate\ of\ wastewater*$

$f_d = density\ factor\ of\ relevant\ light\ liquid$

$f_x = impediment\ factor\ depending\ on\ nature\ of\ discharge$

***No wastewater discharging in this case, Q_s = 0**

EN 858-2 Annex A Table A1

f_d = 1.5

Q_r = 5.83 l/s

Nominal Size: 8.75 litres/second (peak flow rate)

Klargestor Bypass NSBP003 or equivalent product

Appendix C Causeway Foul Water Drainage Design Calculations

Design Settings

Frequency of use (kDU)	0.00	Minimum Velocity (m/s)	0.75
Flow per dwelling per day (l/day)	2676	Connection Type	Level Inverts
Domestic Flow (l/s/ha)	0.0	Minimum Backdrop Height (m)	0.600
Industrial Flow (l/s/ha)	0.0	Preferred Cover Depth (m)	1.200
Additional Flow (%)	10	Include Intermediate Ground	✓

Nodes

Name	Dwellings	Cover Level (m)	Manhole Type	Easting (m)	Northing (m)	Depth (m)
F1-0	43	18.630	Adoptable	163232.570	70792.463	1.098
F1-1		18.630	Adoptable	163230.667	70812.278	1.231
F1-2		18.630	Adoptable	163211.778	70812.774	1.325
F1-3		18.630	Adoptable	163212.687	70836.775	1.445
F1-4		18.510	Adoptable	163251.133	70835.082	1.517
F1-5		18.500	Adoptable	163251.288	70844.477	1.554
F1-6		18.000	Adoptable	163297.299	70842.083	1.284
F1-7		18.700	Adoptable	163383.582	70836.324	2.416
F1-8		18.600	Adoptable	163385.352	70853.517	2.402
F1-9		19.280	Adoptable	163379.530	70899.882	3.316
F1-10		19.200	Adoptable	163376.835	70912.312	3.300
F1-11		19.600	Adoptable	163359.429	70967.185	3.988
F1-12		15.910	Adoptable	163350.292	71028.916	2.510
F1-13		14.026	Adoptable	163350.363	71042.089	2.468
F1-14		12.162	Adoptable	163350.419	71055.207	2.479
F1-15		10.288	Adoptable	163350.475	71068.316	1.979
F1-16		8.910	Adoptable	163350.530	71081.434	2.340
F1-17		7.180	Adoptable	163350.586	71094.560	4.073
F1-18		5.180	Adoptable	163350.525	71100.235	2.300

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	F1-0	F1-1	19.906	1.500	17.532	17.399	0.133	150.0	150
F1.001	F1-1	F1-2	18.896	1.500	17.399	17.305	0.094	200.0	225
F1.002	F1-2	F1-3	24.018	1.500	17.305	17.185	0.120	200.0	225
F1.003	F1-3	F1-4	38.483	1.500	17.185	16.993	0.192	200.0	225
F1.004	F1-4	F1-5	9.396	1.500	16.993	16.946	0.047	200.0	225
F1.005	F1-5	F1-6	46.073	1.500	16.946	16.716	0.230	200.0	225
F1.006	F1-6	F1-7	86.475	1.500	16.716	16.284	0.432	200.0	225
F1.007	F1-7	F1-8	17.284	1.500	16.284	16.198	0.086	200.0	225

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	0.335	0.714	12.6	1.5	0.948	1.081	0.000	43	0.0	0.0	35	0.475
F1.001	0.290	0.810	32.2	1.5	1.006	1.100	0.000	43	0.0	0.0	33	0.408
F1.002	0.290	0.810	32.2	1.5	1.100	1.220	0.000	43	0.0	0.0	33	0.408
F1.003	0.290	0.810	32.2	1.5	1.220	1.292	0.000	43	0.0	0.0	33	0.408
F1.004	0.290	0.810	32.2	1.5	1.292	1.329	0.000	43	0.0	0.0	33	0.408
F1.005	0.290	0.810	32.2	1.5	1.329	1.059	0.000	43	0.0	0.0	33	0.408
F1.006	0.290	0.810	32.2	1.5	1.059	2.191	0.000	43	0.0	0.0	33	0.408
F1.007	0.290	0.810	32.2	1.5	2.191	2.177	0.000	43	0.0	0.0	33	0.408

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)
F1.008	F1-8	F1-9	46.729	1.500	16.198	15.964	0.234	200.0	225
F1.009	F1-9	F1-10	12.719	1.500	15.964	15.900	0.064	200.0	225
F1.010	F1-10	F1-11	57.567	1.500	15.900	15.612	0.288	200.0	225
F1.011	F1-11	F1-12	62.404	1.500	15.612	14.572	1.040	60.0	225
F1.012	F1-12	F1-13	13.173	1.500	13.400	12.873	0.527	25.0	225
F1.013	F1-13	F1-14	13.118	1.500	11.558	11.033	0.525	25.0	225
F1.014	F1-14	F1-15	13.109	1.500	9.683	9.159	0.524	25.0	225
F1.015	F1-15	F1-16	13.118	1.500	8.309	7.784	0.525	25.0	225
F1.016	F1-16	F1-17	13.126	1.500	6.570	6.045	0.525	25.0	225
F1.017	F1-17	F1-18	5.675	1.500	3.107	2.880	0.227	25.0	225

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)
F1.008	0.290	0.810	32.2	1.5	2.177	3.091	0.000	43	0.0	0.0	33	0.408
F1.009	0.290	0.810	32.2	1.5	3.091	3.075	0.000	43	0.0	0.0	33	0.408
F1.010	0.290	0.810	32.2	1.5	3.075	3.763	0.000	43	0.0	0.0	33	0.408
F1.011	0.430	1.483	59.0	1.5	3.763	1.113	0.000	43	0.0	0.0	25	0.626
F1.012	0.580	2.301	91.5	1.5	2.285	0.928	0.000	43	0.0	0.0	20	0.829
F1.013	0.580	2.301	91.5	1.5	2.243	0.904	0.000	43	0.0	0.0	20	0.829
F1.014	0.580	2.301	91.5	1.5	2.254	0.904	0.000	43	0.0	0.0	20	0.829
F1.015	0.580	2.301	91.5	1.5	1.754	0.901	0.000	43	0.0	0.0	20	0.829
F1.016	0.580	2.301	91.5	1.5	2.115	0.910	0.000	43	0.0	0.0	20	0.829
F1.017	0.580	2.301	91.5	1.5	3.848	2.075	0.000	43	0.0	0.0	20	0.829

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	19.906	150.0	150	Circular	18.630	17.532	0.948	18.630	17.399	1.081
F1.001	18.896	200.0	225	Circular	18.630	17.399	1.006	18.630	17.305	1.100
F1.002	24.018	200.0	225	Circular	18.630	17.305	1.100	18.630	17.185	1.220
F1.003	38.483	200.0	225	Circular	18.630	17.185	1.220	18.510	16.993	1.292
F1.004	9.396	200.0	225	Circular	18.510	16.993	1.292	18.500	16.946	1.329
F1.005	46.073	200.0	225	Circular	18.500	16.946	1.329	18.000	16.716	1.059
F1.006	86.475	200.0	225	Circular	18.000	16.716	1.059	18.700	16.284	2.191
F1.007	17.284	200.0	225	Circular	18.700	16.284	2.191	18.600	16.198	2.177
F1.008	46.729	200.0	225	Circular	18.600	16.198	2.177	19.280	15.964	3.091
F1.009	12.719	200.0	225	Circular	19.280	15.964	3.091	19.200	15.900	3.075

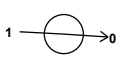
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
F1.000	F1-0	1200	Manhole	Adoptable	F1-1	1200	Manhole	Adoptable
F1.001	F1-1	1200	Manhole	Adoptable	F1-2	1200	Manhole	Adoptable
F1.002	F1-2	1200	Manhole	Adoptable	F1-3	1200	Manhole	Adoptable
F1.003	F1-3	1200	Manhole	Adoptable	F1-4	1200	Manhole	Adoptable
F1.004	F1-4	1200	Manhole	Adoptable	F1-5	1200	Manhole	Adoptable
F1.005	F1-5	1200	Manhole	Adoptable	F1-6	1200	Manhole	Adoptable
F1.006	F1-6	1200	Manhole	Adoptable	F1-7	1200	Manhole	Adoptable
F1.007	F1-7	1200	Manhole	Adoptable	F1-8	1200	Manhole	Adoptable
F1.008	F1-8	1200	Manhole	Adoptable	F1-9	1200	Manhole	Adoptable
F1.009	F1-9	1200	Manhole	Adoptable	F1-10	1200	Manhole	Adoptable

Pipeline Schedule

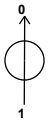
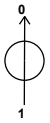
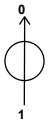
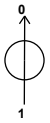
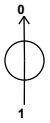
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
F1.010	57.567	200.0	225	Circular	19.200	15.900	3.075	19.600	15.612	3.763
F1.011	62.404	60.0	225	Circular	19.600	15.612	3.763	15.910	14.572	1.113
F1.012	13.173	25.0	225	Circular	15.910	13.400	2.285	14.026	12.873	0.928
F1.013	13.118	25.0	225	Circular	14.026	11.558	2.243	12.162	11.033	0.904
F1.014	13.109	25.0	225	Circular	12.162	9.683	2.254	10.288	9.159	0.904
F1.015	13.118	25.0	225	Circular	10.288	8.309	1.754	8.910	7.784	0.901
F1.016	13.126	25.0	225	Circular	8.910	6.570	2.115	7.180	6.045	0.910
F1.017	5.675	25.0	225	Circular	7.180	3.107	3.848	5.180	2.880	2.075

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
F1.010	F1-10	1200	Manhole	Adoptable	F1-11	1200	Manhole	Adoptable
F1.011	F1-11	1200	Manhole	Adoptable	F1-12	1200	Manhole	Adoptable
F1.012	F1-12	1200	Manhole	Adoptable	F1-13	1200	Manhole	Adoptable
F1.013	F1-13	1200	Manhole	Adoptable	F1-14	1200	Manhole	Adoptable
F1.014	F1-14	1200	Manhole	Adoptable	F1-15	1200	Manhole	Adoptable
F1.015	F1-15	1200	Manhole	Adoptable	F1-16	1200	Manhole	Adoptable
F1.016	F1-16	1200	Manhole	Adoptable	F1-17	1200	Manhole	Adoptable
F1.017	F1-17	1200	Manhole	Adoptable	F1-18	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
F1-0	163232.570	70792.463	18.630	1.098	1200				
						0	F1.000	17.532	150
F1-1	163230.667	70812.278	18.630	1.231	1200	1	F1.000	17.399	150
									
						0	F1.001	17.399	225
F1-2	163211.778	70812.774	18.630	1.325	1200	1	F1.001	17.305	225
									
						0	F1.002	17.305	225
F1-3	163212.687	70836.775	18.630	1.445	1200	1	F1.002	17.185	225
									
						0	F1.003	17.185	225
F1-4	163251.133	70835.082	18.510	1.517	1200	1	F1.003	16.993	225
									
						0	F1.004	16.993	225
F1-5	163251.288	70844.477	18.500	1.554	1200	1	F1.004	16.946	225
									
						0	F1.005	16.946	225
F1-6	163297.299	70842.083	18.000	1.284	1200	1	F1.005	16.716	225
									
						0	F1.006	16.716	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections		Link	IL (m)	Dia (mm)
F1-7	163383.582	70836.324	18.700	2.416	1200		1	F1.006	16.284	225
							0	F1.007	16.284	225
F1-8	163385.352	70853.517	18.600	2.402	1200		1	F1.007	16.198	225
							0	F1.008	16.198	225
F1-9	163379.530	70899.882	19.280	3.316	1200		1	F1.008	15.964	225
							0	F1.009	15.964	225
F1-10	163376.835	70912.312	19.200	3.300	1200		1	F1.009	15.900	225
							0	F1.010	15.900	225
F1-11	163359.429	70967.185	19.600	3.988	1200		1	F1.010	15.612	225
							0	F1.011	15.612	225
F1-12	163350.292	71028.916	15.910	2.510	1200		1	F1.011	14.572	225
							0	F1.012	13.400	225
F1-13	163350.363	71042.089	14.026	2.468	1200		1	F1.012	12.873	225
							0	F1.013	11.558	225
F1-14	163350.419	71055.207	12.162	2.479	1200		1	F1.013	11.033	225
							0	F1.014	9.683	225
F1-15	163350.475	71068.316	10.288	1.979	1200		1	F1.014	9.159	225
							0	F1.015	8.309	225
F1-16	163350.530	71081.434	8.910	2.340	1200		1	F1.015	7.784	225
							0	F1.016	6.570	225
F1-17	163350.586	71094.560	7.180	4.073	1200		1	F1.016	6.045	225
							0	F1.017	3.107	225
F1-18	163350.525	71100.235	5.180	2.300	1200		1	F1.017	2.880	225

Appendix D CFRAM Flood Map

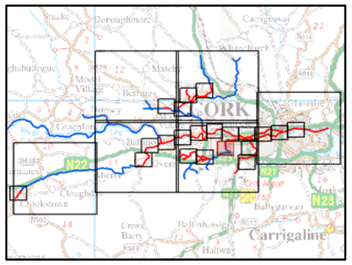
N

8CUR_2907
8CUR_3021
8CUR_3134
8CUR_3258
8CUR_3385
8CUR_3540
8CUR_4748
8CUR_4306u
8CUR_5274

Node Label	Water Level (mOD) per AEP		
	WL 10%	WL 1%	WL 0.1%
8CUR_2907	6.27	6.70	7.01
8CUR_3021	6.35	6.75	7.02
8CUR_3134	6.44	6.81	7.03
8CUR_3258	6.61	6.95	7.09
8CUR_3385	6.78	7.16	7.31
8CUR_3540	7.16	7.45	7.63
8CUR_4306u	9.01	9.07	9.11
8CUR_4748	9.95	10.06	10.13
8CUR_5274	11.09	11.13	11.14

0.1 0.05 0 0.1 0.2 0.3 0.4 Kilometres

Location Plan :



EXTENT MAP

Legend:

- 10 % AEP Flood Extent (1 in 10 chance in any given year)
- 1 % AEP Flood Extent (1 in 100 chance in any given year)
- 0.1 % AEP Flood Extent (1 in 1000 chance in any given year)
- Defended area
- High Confidence (<20m) (10% AEP)
- Medium Confidence (<40m) (10% AEP)
- Low Confidence (>40m) (10% and 0.1% AEP)
- High Confidence (<20m) (1% AEP)
- Medium Confidence (<40m) (1% AEP)
- Low Confidence (>40m) (1% AEP)
- River Centreline
- Node Point
- 8OWG_376 Node Label (refer to table)

USER NOTE :

USERS OF THESE MAPS SHOULD REFER TO THE DETAILED DESCRIPTION OF THEIR DERIVATION, LIMITATIONS IN ACCURACY AND GUIDANCE AND CONDITIONS OF USE PROVIDED AT THE FRONT OF THIS BOUND VOLUME. IF THIS MAP DOES NOT FORM PART OF A BOUND VOLUME, IT SHOULD NOT BE USED FOR ANY PURPOSE.

Halcrow
www.halcrow.com
Halcrow Group Ireland
3A Eastgate Road
Eastgate
Little Island
Cork
Ireland

OPW
Office of Public Works
17-19 Lower Hatch Street
Dublin 2
Ireland

Project :
LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

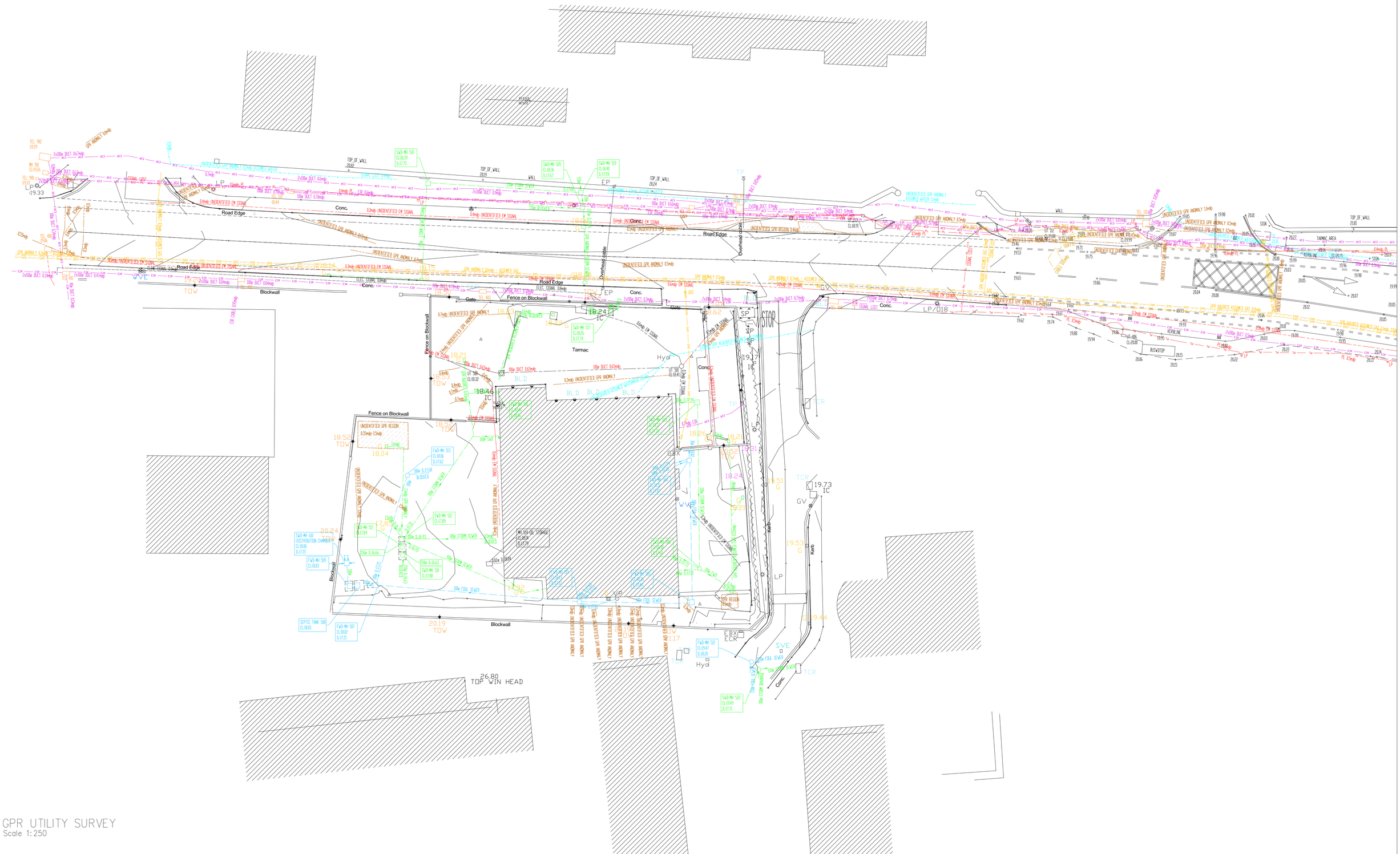
Map :
CORK CITY

Map Type :	FLOOD EXTENT		
Source :	FLUVIAL FLOODING		
Map area :	URBAN AREA		
Scenario :	CURRENT		
Figure By :	Valeria Medina	Date :	10 March 2014
Checked By :	Ricardo Santaella	Date :	10 March 2014
Approved By :	Clare Dewar	Date :	10 March 2014

Figure No. : M8/UA/EXT/CURS/015
Revision : 2

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

Appendix E Utility Survey



GPR UTILITY SURVEY
Scale 1:250

ITM GRID

SURVEY NOTES
1. ALL LEVELS ARE RELATED TO LOCAL SITE DATUM
2. THE INFORMATION ON THIS DRAWING IS A GENERAL GUIDE AND THE ACCURACY THEREOF CANNOT BE GUARANTEED. NO LIABILITY IS ACCEPTED FOR ANY DISCREPENCY, OMMISION OR DEVIATION FROM THE ACTUAL POSITION OF MAINS AND SERVICES.
ALL SERVICES SHOULD BE VERIFIED ON SITE BY SUT TRENCH

0 4m 8m 12m 16m
1:250

SYMBOLS

+0.00	SPOT LEVEL	G	GULLY	AV	AIR VALVE	AJ	ARMSTRONG JUNCTION		GATE	O/H ESB	OVERHEAD ESB LINE	SIGN	SIGN	UB	SOFFIT BEAM	+RIDGE	RIDGE LEVEL		FOUL SEWER		UNIDENTIFIED EM SIGNAL		TRAFFIC		GPR REGION LICENCE SERVICE IN THIS AREA)
	CONTROL SURVEY STATION	WM	WATER METER		FIRE HYDRANT	oLP	LAMP POST	SW 0.00	SURFACE WATER LEVEL	O/H TEL	OVERHEAD TEL LINE	00A + 00m	TREE ACTUAL SPREAD	⊠ CL	SOFFIT CEILING	+EAVES	SOFFIT LEVEL		STORM SEWER		ELECTRICAL CABLE		TRENCH		
MH CL	MANHOLE COVER	SV	SLUICE VALVE	TI	TEL INSP CHAMBER	oTP	TELECOM POLE	+BL0.00	BCD LEVEL WATERCOURSE	o TL	TELECOM POLE	000	TREE TAG NO.	HEAD	HEAD TO FFL	FFL0.00	FINISH FLOOR LEVEL		COMBINED SEWER		PUBLIC LIGHTING		COMBINED SEWER		
UI	UTILITY INSP CHAMBER	SC	STOP COCK	MP	MINI PILLAR	oEP	ESB POLE	+IL	INVERT LEVEL	+TOP	TOP TAG	BL	BOLLARD	WB	WINDOW BOARD TO FFL	+200	PEG REF NUMBER	ESB	ESB BOX		UNIDENTIFIED GPR	ESB	ESB BOX		

COORDINATE SYSTEM
LOCAL GRID

KEY PLAN

REVISION	DATE	DESCRIPTION	DRN BY	CKD BY
01	18-12-20	GPR UTILITY SURVEY	SZ	KDB

Geodata
Chartered Land Surveyors
47 Oliver Plunkett Street Bandon, Co Cork. P72 A443
Phone: (+353) (0)23 8852798 Fax: (+353) (0)23 8852799
Email: info@geodatasurveying.ie Website: www.geodatasurveying.ie

Client:	CORK CITY COUNCIL
Project:	WESTSIDE, CORK CITY
Title:	GPR SURVEY
Scale:	1-250
Dwg. No:	20682-400
Date:	18-12-20
Sheet:	A1

Appendix F Irish Water Confirmation of Feasibility

Michael Lordan
Cork City Council
Cork City Hall
Cork, Cork

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

15 August 2019

Dear Michael Lordan,

Re: Connection Reference No CDS19003600 pre-connection enquiry - Subject to contract | Contract denied

Connection for Housing Development of 32 unit(s) at Model Farm Road, Cork, Cork.

Irish Water has reviewed your pre-connection enquiry in relation to a water connection at Model Farm Road, Cork, Cork.

Based upon the details that you have provided with your pre-connection enquiry and on the capacity currently available in the network(s), as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water network(s) can be facilitated.

In order to complete the proposed connection at the Premises, the Irish Water sewer network will have to be extended by approximately 300m, to the nearest 225mm diameter sewer near the entrance of Eden Hall. Irish Water currently does not have any plans to extend its network in this area. Should you wish to consider to extending the public network to your site please make contact with Irish Water. These works will be carried out by Irish Water and funded by you.

All infrastructure should be designed and installed in accordance with the Irish Water Codes of Practice and Standard Details. A design proposal for the water and/or wastewater infrastructure should be submitted to Irish Water for assessment. Prior to submitting your planning application, you are required to submit these detailed design proposals to Irish Water for review.

You are advised that this correspondence does not constitute an offer in whole or in part to provide a connection to any Irish Water infrastructure and is provided subject to a connection agreement being signed at a later date.

A connection agreement can be applied for by completing the connection application form available at **www.water.ie/connections**. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities.

If you have any further questions, please contact Brian O'Mahony from the design team on 022 52205 or email bomahony@water.ie. For further information, visit **www.water.ie/connections.**

Yours sincerely,

Maria O'Dwyer

Connections and Developer Services

Appendix G Irish Water Statement of Design Acceptance

Michael Lordan
Cork City Council
Cork City Hall
Innishmore
Ballincollig, Cork

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

9 April 2021

Re: Design Submission for Model Farm Road, Cork, Cork (the "Development") (the "Design Submission") / Connection Reference No: CDS19003600

Dear Michael Lordan,

Many thanks for your recent Design Submission.

We have reviewed your proposal for the connection(s) at the Development. Based on the information provided, which included the documents outlined in Appendix A to this letter, Irish Water has no objection to your proposals.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water infrastructure. Before you can connect to our network you must sign a connection agreement with Irish Water. This can be applied for by completing the connection application form at www.water.ie/connections. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities (CRU)(https://www.cru.ie/document_group/irish-waters-water-charges-plan-2018/).

You the Customer (including any designers/contractors or other related parties appointed by you) is entirely responsible for the design and construction of all water and/or wastewater infrastructure within the Development which is necessary to facilitate connection(s) from the boundary of the Development to Irish Water's network(s) (the "**Self-Lay Works**"), as reflected in your Design Submission. Acceptance of the Design Submission by Irish Water does not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.

If you have any further questions, please contact your Irish Water representative:
Name: Alvaro Garcia
Email: agarcia@water.ie

Yours sincerely,

Yvonne Harris

Yvonne Harris
Head of Customer Operations

Appendix A

Document Title & Revision

WES-PUNCH-XX-XX-DR-C-0175-S3-P02
WES-PUNCH-XX-XX-M2-C-0100-S3-P02
WES-PUNCH-XX-XX-M2-C-0101-S3-P02
WES-PUNCH-XX-XX-M2-C-0300-S3-P01

*For further information, visit **www.water.ie/connections***

Notwithstanding any matters listed above, the Customer (including any appointed designers/contractors, etc.) is entirely responsible for the design and construction of the Self-Lay Works. Acceptance of the Design Submission by Irish Water will not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.

NOTE FROM PUNCH CONSULTING ENGINEERS
DRAWINGS REFERENCED ABOVE ARE EARLIER REVISIONS OF THE DRAWINGS INCLUDED WITH THIS PLANNING APPLICATION AND ARE AVAILABLE FROM PUNCH CONSULTING ENGINEERS ON REQUEST.

NOTE DRAINAGE AND WATERMAIN LAYOUTS AND SECTIONS HAVE NOT CHANGED SINCE PREVIOUS REVISIONS, HOWEVER RED LINE BOUNDARY AND INTERNAL SITE LAYOUT HAS BEEN AMENDED.

PUNCH consulting engineers

Dublin | Limerick | Cork | Galway
Carnegie House, Library Road, Dun Laoghaire, Co Dublin, A96 C7W7
t +353 1 271 2200 | e dublin@punchconsulting.com
97 Henry Street, Limerick, V94 YC2H
t +353 61 221 200 | e limerick@punchconsulting.com
Copley Hall, Cotters Street, Cork, T12 XF59
t +353 21 462 4000 | e cork@punchconsulting.com
Carleycon House, Main Street, Oranmore, Co.Galway,H91 DVX4
t +353 91 703 500 | e galway@punchconsulting.com

Document Register & Issue Slip

Our Ref:	MOC		
Job No.	**194191**		
WES-PUNCH-XX-XX-RG-C-001			
File Type	DR	**Role**	C
Sheet No.	PG-1 (1)		

Job title:	INSERT PROJECT TITLE

Document No.	Status Code	Rev	Document Title	Size	Revision History							
WES-PUNCH-XX-XX-DR-C-0100	A0	C02	PROPOSED DRAINAGE LAYOUT - SHEET 1	A1	P01	P02	C01	C02				
WES-PUNCH-XX-XX-DR-C-0101	A0	C02	PROPOSED DRAINAGE LAYOUT - SHEET 2	A1	P01	P02	C01	C02				
WES-PUNCH-XX-XX-DR-C-0175	A0	C01	FOUL LONG SECTIONS	A1	P01	P02	C01	C01				
WES-PUNCH-XX-XX-DR-C-0300	A0	C02	PROPOSED WATERMAIN LAYOUT	A1		P01	C01	C02				
WES-PUNCH-XX-XX-DR-C-0500	A0	C01	PROPOSED CONSTRUCTION DETAILS - SHEET 1	A1			C01	C01				
WES-PUNCH-XX-XX-DR-C-0501	A0	C01	PROPOSED CONSTRUCTION DETAILS - SHEET 2	A1			C01	C01				
WES-PUNCH-XX-XX-DR-C-0502	A0	C01	PROPOSED CONSTRUCTION DETAILS - SHEET 3	A1			C01	C01				
WES-PUNCH-XX-XX-DR-C-0525	A0	C01	PROPOSED CONSTRUCTION DETAILS - SHEET 4	A1			C01	C01				
WES-PUNCH-XX-XX-DR-C-0526	A0	C01	PROPOSED CONSTRUCTION DETAILS - SHEET 5	A1			C01	C01				
WES-PUNCH-XX-XX-DR-C-0527	A0	C01	PROPOSED CONSTRUCTION DETAILS - SHEET 6	A1			C01	C01				
WES-PUNCH-XX-XX-DR-C-0550	A0	C02	PROPOSED CONSTRUCTION DETAILS - SHEET 7	A1			C01	C02				
WES-PUNCH-XX-XX-DR-C-0600	A0	C02	SWEPT PATH ANALYSIS - FIRE APPLIANCE	A1			C01	C02				
WES-PUNCH-XX-XX-DR-C-0601	A0	C02	SWEPT PATH ANALYSIS - REFUSE VEHICLE	A1			C01	C02				

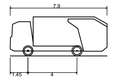
Status Code (Suitability Code):		S3	S3	A0	
S0 WIP, S1 Coordination, S2 Information, S3 Review & comment, S4 Work stage approval, S6 PIM Authorisation, S7 AIM Authorisation, A0 Planning, A1 Pre-Tender, A2 Tender, A3 Contract, A4 Construction, A5 Legal, A0/A1/A2/A3… Approved & accepted as stage completed, CR As constructed.					
Medium: P=Paper E=Electronic PE=Both Paper & Electronic		E	E	E	E
Alternative Issue print size:					
Schedule: S = Relevant Bending Schedule:					
File type M2=2D AutoCAD Drawing Issued:					
Date of Issue	D	11	09	30	11
	M	03	04	03	04
	Y	2021	2021	2022	2022
Issued By:		MOC	MOC	MOC	MOC
Distribution: D=Dublin L=Limerick C=Cork G=Galway Issued From :		C	C	C	
IRISH WATER		X	X		
CORK CITY COUNCIL					X
O'MAHONY PIKE ARCHITECTS				X	X

N

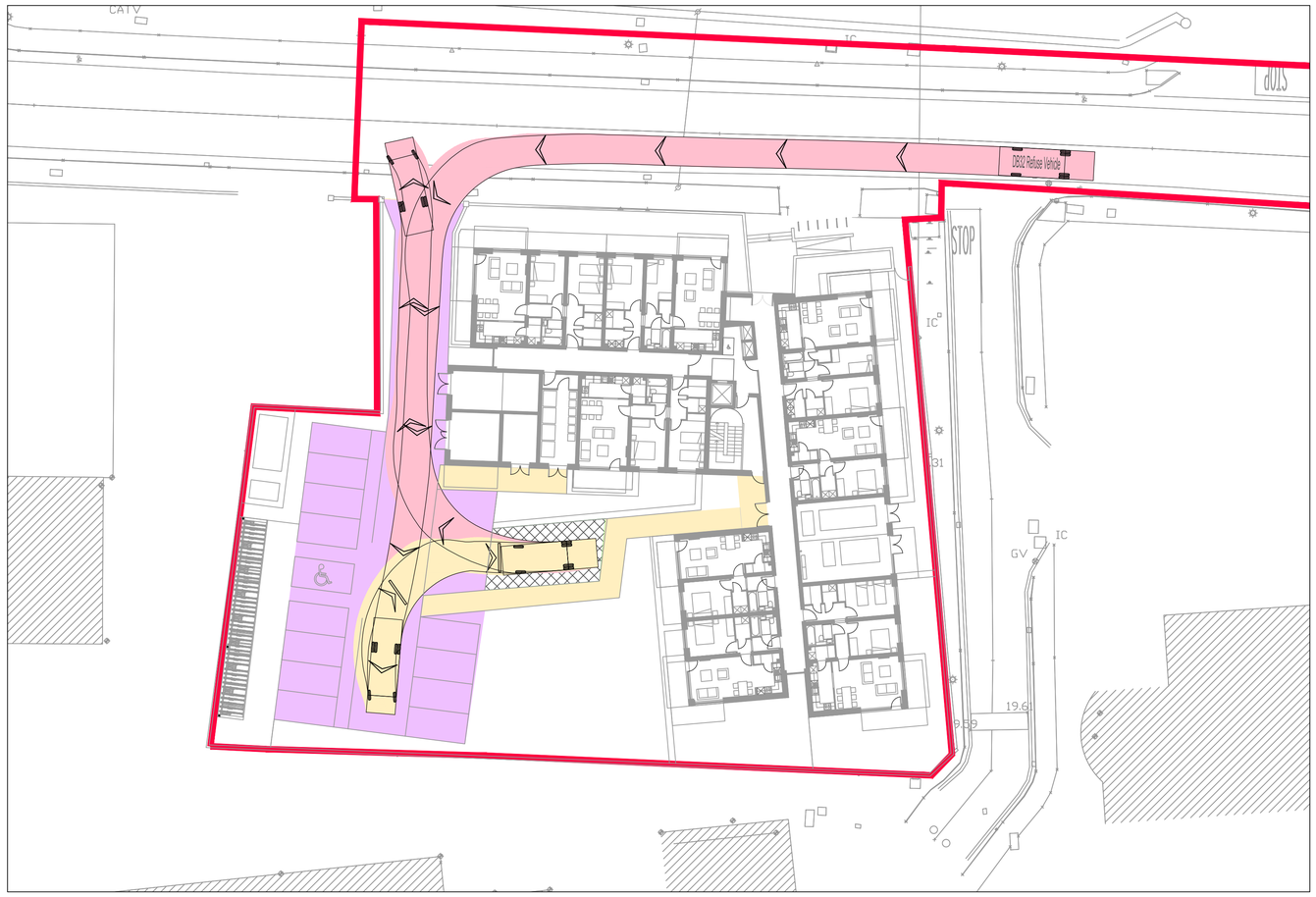
AUTOTRACK LEGEND

VEHICLE MOVING FORWARD

VEHICLE IN REVERSE



DB32 Refuse Vehicle	
Overall Length	7.900m
Overall Width	2.400m
Overall Body Height	3.183m
Min Body Ground Clearance	0.388m
Max Track Width	2.400m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	9.625m



Date Drawn: 2021-01-07

Drawn By: Colin O'Sullivan

Colour Drawing: ☒

Rev	Amendment	By	Date
C01	ISSUED FOR PLANNING	MOC	30/03/2022
C02	RED LINE BOUNDARY UPDATED	MOC	11/04/2022

Client: Comhairle Cathrach Chorcaí Cork City Council

Job Title: WESTSIDE SOCIAL HOUSING DEVELOPMENT
Dwg Title: SWEPTH PATH ANALYSIS - REFUSE VEHICLE
Job No: 194191 | Model Ref: WES-PUNCH-XX-XX-M2-C-0601 | Drawing Status: A0

PUNCH consulting engineers
Dublin | Limerick | Cork | Galway | Glasgow
Copley Hall, Cotters Street, Cork, T12 XF59
IRL: +353 21 462 4000 www.punchconsulting.com

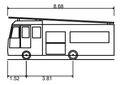
Scale @ A1: 1:250
Technician Check: Colin O'Sullivan
Engineer Check: Mike O'Connor
Approved: David O'Donovan
Document No: WES-PUNCH-00-XX-DR-C-0601
Revision No: C02

N

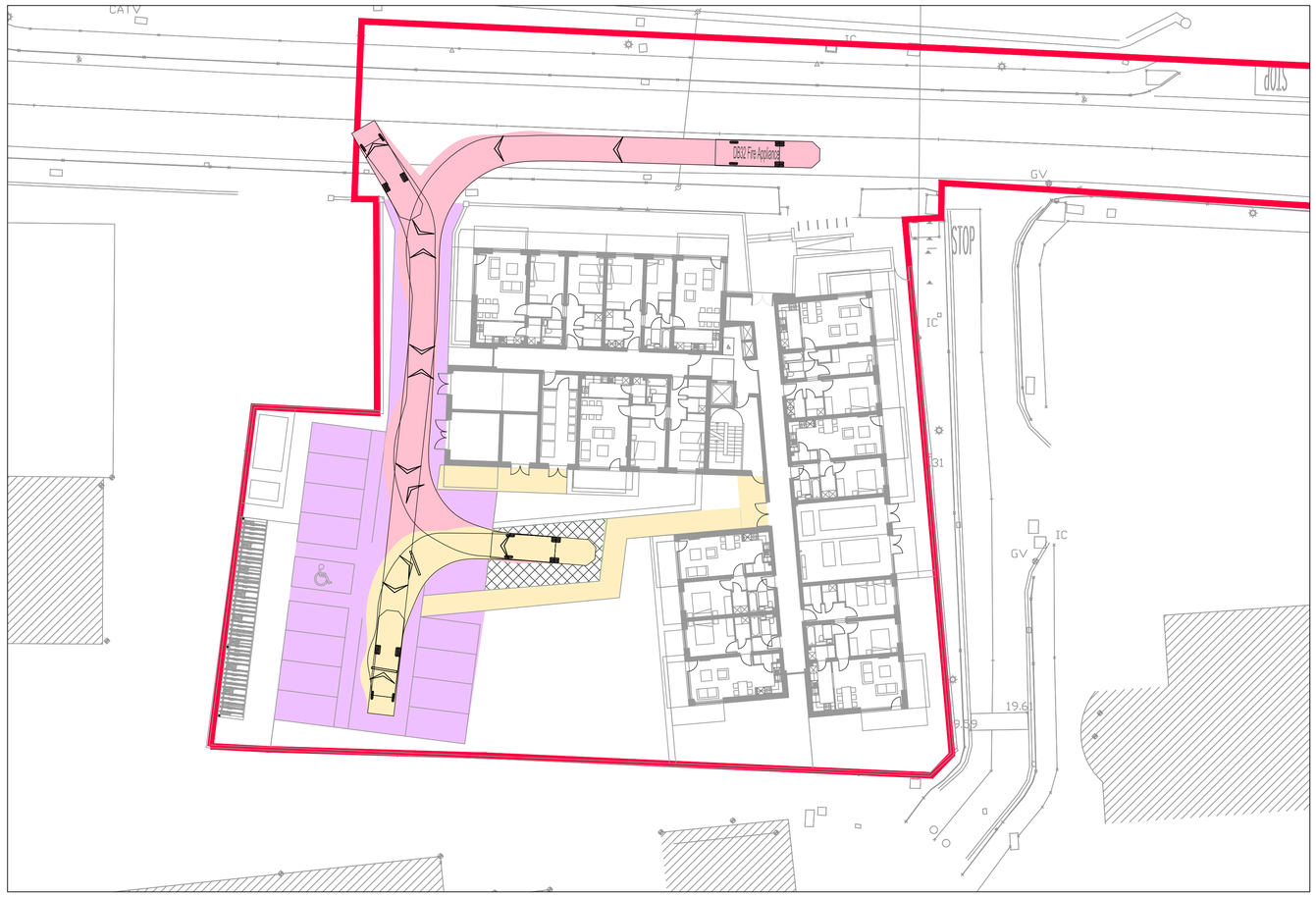
AUTOTRACK LEGEND

VEHICLE MOVING FORWARD

VEHICLE IN REVERSE



DB32 Fire Appliance	
Overall Length	8.680m
Overall Width	2.180m
Overall Body Height	3.452m
Min Body Ground Clearance	0.337m
Max Track Width	2.121m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	7.910m



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Date Drawn: 2021-01-07

Drawn By: Colin O'Sullivan

Colour Drawing:

BUILDING INFORMATION MODELLING (BIM) IS EN ISO 19650-2:2018
NSAI Certified

Rev	Amendment	By	Date
C01	ISSUED FOR PLANNING	MOC	30/03/2022
C02	RED LINE BOUNDARY UPDATED	MOC	11/04/2022

Client: Comhairle Cathrach Chorcaí Cork City Council

Job Title: WESTSIDE SOCIAL HOUSING DEVELOPMENT
Dwg Title: SWEPTH PATH ANALYSIS - FIRE APPLIANCE
Job No: 194191 | Model Ref: WES-PUNCH-XX-XX-M2-C-0600 | Drawing Status: A0

PUNCH consulting engineers
Dublin | Limerick | Cork | Galway | Glasgow
Copley Hall, Cotters Street, Cork, T12 XF59
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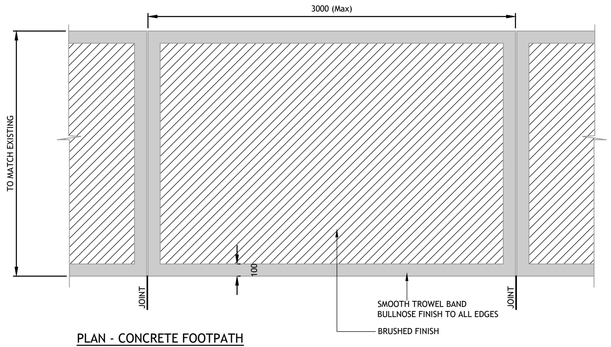
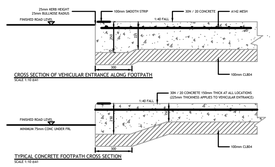
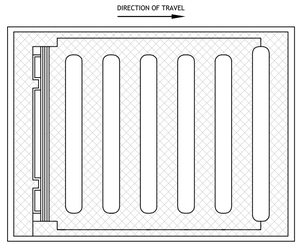
Scale @ A1: 1:250
Technician Check: Colin O'Sullivan
Engineer Check: Mike O'Connor
Approved: David O'Donovan
Document No: WES-PUNCH-XX-XX-DR-C-0600
Revision No: C02



PLAN - CONCRETE FOOTPATH
SCALE 1:25





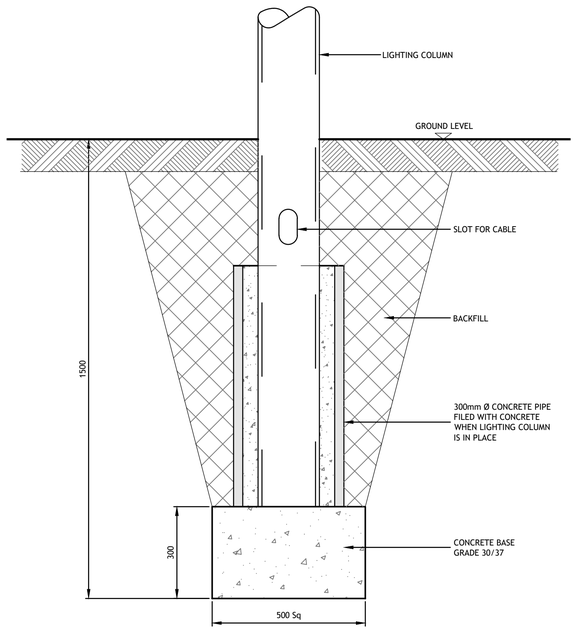
GULLY GRATING DETAIL RCD 500/16
NOT TO SCALE

NOTES:

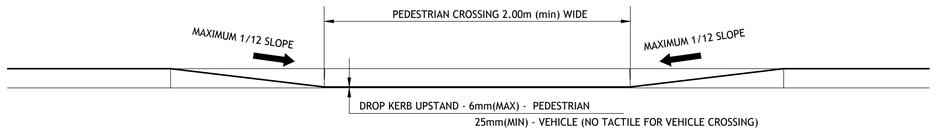
ALL DIMENSIONS IN mm UNLESS OTHERWISE STATED

GULLY GRATING TO COMPLY WITH IS EN 124

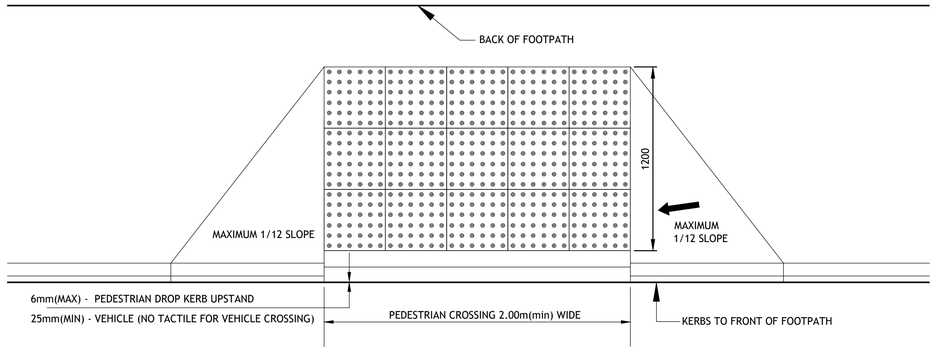
GULLY GRATING TO BE PROVIDED WITH A LOCKING DEVICE



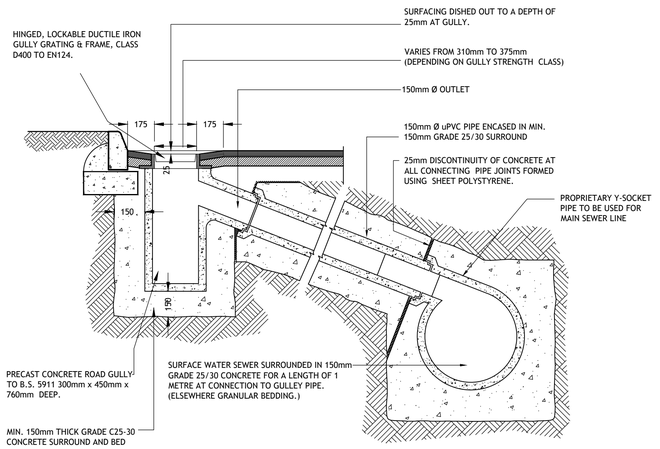
LIGHTING/BEACON/CCTV COLUMN BASE DETAIL
SCALE 1:10



TYPICAL ELEVATION OF DROPPED KERB (DK)
N.T.S



TYPICAL PLAN OF DROP KERB (DK)
N.T.S

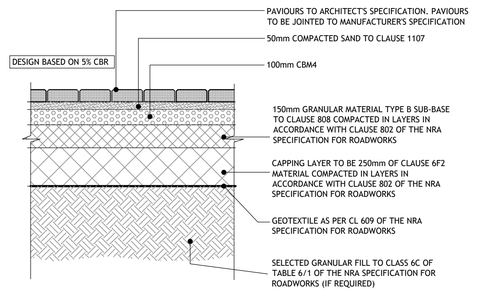


FOR STRENGTH CLASS OF GULLY REFER TO EN 124 : 2015, CLAUSE 5

NOTE 1 : PLACE OF INSTALLATION & FIGURES 9A AND 9B PROPRIETARY FITTINGS TO BE USED ON ALL PIPEWORK CONNECTIONS

NOTE 2 :
GROUP 1 - MIN. CLASS A15 GROUP 4 - MIN. CLASS D400
GROUP 2 - MIN. CLASS B125 GROUP 5 - MIN. CLASS E600
GROUP 3 - MIN. CLASS C250 GROUP 6 - MIN. CLASS F900

PRECAST CONCRETE GULLY IN MACADAM AREA
SCALE 1:20



TYPICAL BRICK PAVING BUILD UP DETAIL
SCALE 1:20

Date Drawn: 2021-01-07
Drawn By: Colin O'Sullivan
Colour Drawing:

BUILDING INFORMATION MODELLING (BIM) I.S. EN ISO 19650-2:2018 NSAI Certified

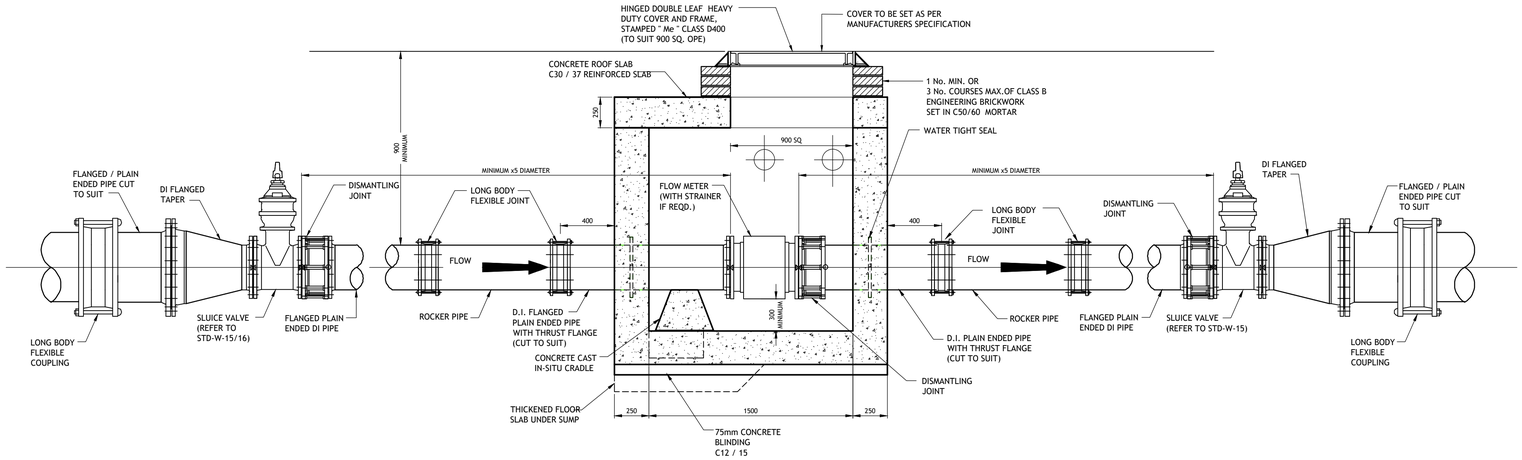
Rev	Amendment	By	Date
C01	ISSUED FOR PLANNING	MOC	30/03/2022
C02	ASPHALT DETAILS REMOVED AS NO LONGER RELEVANT TO SCHEME	MOC	11/04/2022

Client: Comhairle Cathrach Chorcaí Cork City Council

Job Title: WESTSIDE SOCIAL HOUSING DEVELOPMENT
Dwg Title: PROPOSED CONSTRUCTION DETAILS SHEET 7
Job No: 194191 Model Ref: WES-PUNCH-XX-XX-M2-0550 Drawing Status: A0

PUNCH consulting engineers
Dublin | Limerick | Cork | Galway | Glasgow
Copley Hall, Cotters Street, Cork, T12 XF59
IRL: +353 21 462 4000 www.punchconsulting.com

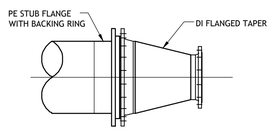
Scale @ A1: AS SHOWN
Technician Check: Colin O'Sullivan
Engineer Check: Mike O'Connor
Approved: David O'Donovan
Document No: WES-PUNCH-XX-XX-DR-0550
Revision No: C02



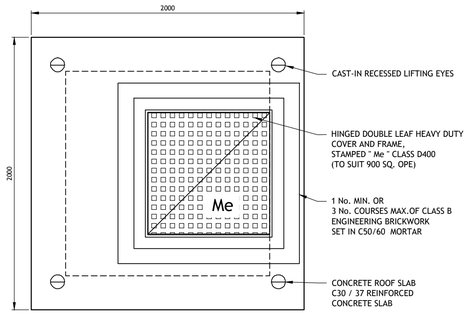
SECTION

NOTES:

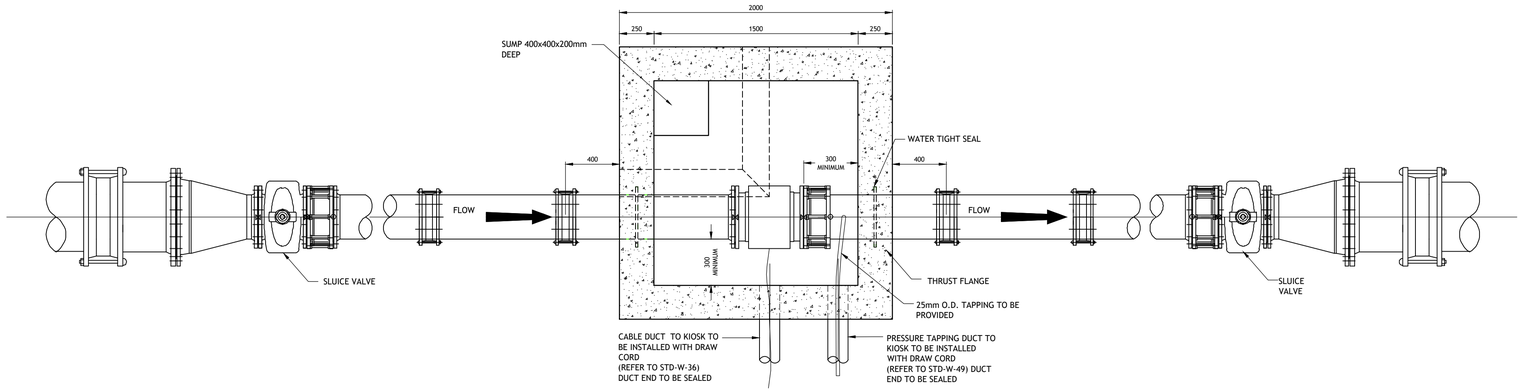
1. ALL DIMENSIONS ARE IN MILLIMETERS (mm) UNLESS NOTED OTHERWISE.
2. STRUCTURAL DESIGN AND REINFORCEMENT DETAIL TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW .
3. CONCRETE FOR FLOW METER CHAMBER TO BE C30 / 37.
4. PRECAST METER CHAMBER (WITH CONCRETE SURROUND) MAY BE USED SUBJECT TO APPROVAL FROM IRISH WATER.
5. METER CHAMBER SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS EN 124: 1994 RATING D400. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO THE APPROVAL OF IRISH WATER.
6. 200mm ALL ROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVER IN GRASS AREAS.
7. ANTI CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
8. DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 545. PE PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 12201:2011.
9. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO APPROVAL FROM IRISH WATER.
10. PIPEWORK TO BE DOWNSIZED TO ACCOMMODATE THE REQUIRED RANGE OF THE FLOW METER. STRAIGHT PIPE LENGTHS UPSTREAM AND DOWNSTREAM OF THE METER TO BE PROVIDED. IF THE METER IS NOT CAPABLE OF ACCURATE NIGHT FLOW MEASUREMENTS, A BY-PASS FLOW METER SHALL BE PROVIDED WITH APPROPRIATE VALVES, FITTINGS AND PIPEWORK.
11. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.



PE TO DI DETAIL



ROOF PLAN



FLOOR PLAN

METER CHAMBER (<=300mm DIA.)

Date Drawn: 2021-01-07
Drawn By: Colin O'Sullivan
Colour Drawing:

BUILDING INFORMATION MODELLING (BIM) I.S. EN ISO 19650-2:2018 NSAI Certified

Rev	Amendment	By	Date
C01	ISSUED FOR PLANNING	MOC	30/03/2022

Client: Comhairle Cathrach Chorcaí Cork City Council

Job Title: WESTSIDE SOCIAL HOUSING DEVELOPMENT
Dwg Title: PROPOSED CONSTRUCTION DETAILS SHEET 6
Job No: 194191 Model Ref: WES-PUNCH-XX-XX-M2-0527 Drawing Status: A0

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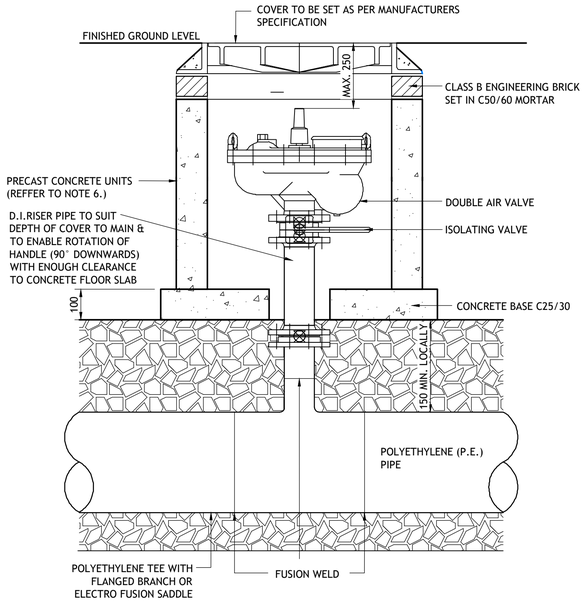
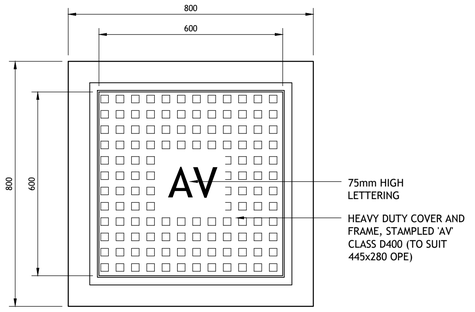
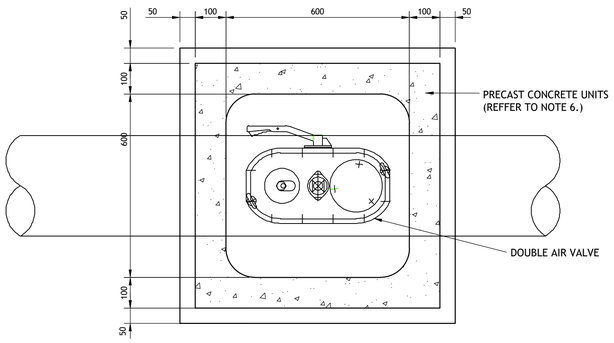
Technician Check: Colin O'Sullivan
Engineer Check: Mike O'Connor
Approved: David O'Donovan
Document No: WES-PUNCH-XX-XX-DR-0527
Revision No: C01



SECTION



ROOF PLAN



FLOOR PLAN

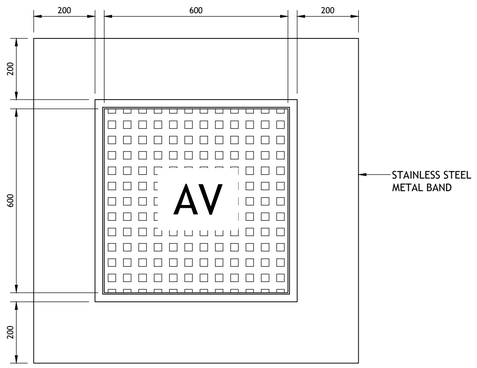
DOUBLE AIR VALVE (PRECAST CONCRETE CONSTRUCITON)

SCALE 1:10

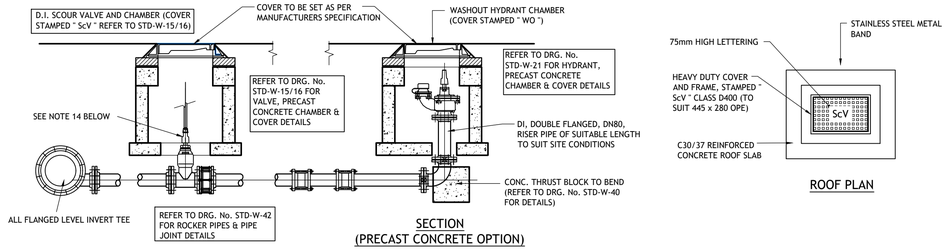
NOTES:

1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. AIR VALVE CHAMBERS SHALL BE COVERED WITH APPROVED VENTILATED HEAVY DUTY METAL COVERS TO IS EN 124: 1994 RATING D400. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO THE APPROVAL OF IRISH WATER.
3. AIR VALVES SHALL BE DOUBLE AIR VALVE TYPE WITH ISOLATING VALVE IN ACCORDANCE WITH THE REQUIREMENTS OF IS EN 1074. THE ISOLATING VALVE SHALL BE A RESILIENT SEATED GATE VALVE TO IS EN 1074 AND SHALL BE OF A BOLTLESS BONNET DESIGN.
4. THE AIR VALVES SHALL HAVE BODIES AND COVERS OF CAST IRON TO BS 1561 WITH FLANGES DRILLED TO PN 16 IN ACCORDANCE WITH BS EN 1092-1. EACH VALVE SHALL HAVE A LARGE AND A SMALL AIR ESCAPE ORIFICE WITH AN ISOLATING VALVE.
5. SERVICE CONNECTIONS SHALL NOT BE PROVIDED WITHIN 2m OF THE AIR VALVE LOCATION.
6. AIR VALVE CHAMBERS TO BE OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVE PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO APPROVAL FROM IRISH WATER.
7. PRECAST CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 804 MATERIAL AS PER STD-W-14.
8. DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 545.
9. 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
10. THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING STD-W-40 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
11. ANTI CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
12. THE LOCATION OF THE AIR VALVE SHALL BE THE SUBJECT OF PARTICULAR AGREEMENT WITH IRISH WATER TO ENSURE THAT THE RISK OF CONTAMINATION THROUGH THE VALVE IS ELIMINATED.
13. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.

DIAMETER OF MAIN	UP TO 250 (mm)	250 TO 350 (mm)
DIAMETER OF BRANCH	80mm	100mm
BORE OF VALVE INLET	80mm	100mm

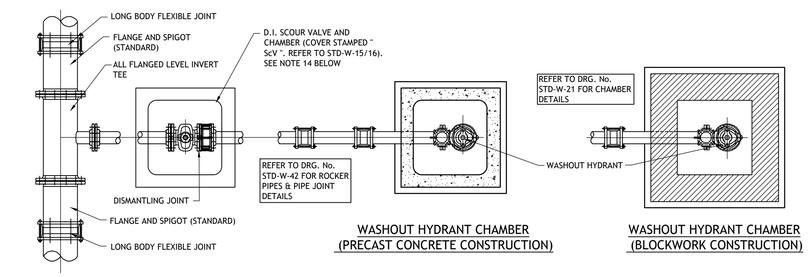


PLINTH DETAIL IN GRASS AREA



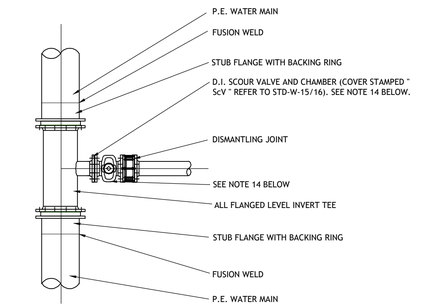
SECTION
(PRECAST CONCRETE OPTION)

ROOF PLAN



WASHOUT HYDRANT CHAMBER
(PRECAST CONCRETE CONSTRUCTION)

WASHOUT HYDRANT CHAMBER
(BLOCKWORK CONSTRUCTION)



PLAN (PE WATERMAIN)

SCALE 1:25

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. STRUCTURAL REINFORCEMENT AND DESIGN DETAIL TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
3. HYDRANT CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 261 AND BS 5834 COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO THE APPROVAL OF IRISH WATER.
4. HYDRANTS SHALL BE DOUBLE FLANGED DRILLED TO PN 16. THEY SHALL COMPLY WITH BS 750: 2012. THE HYDRANT SHALL INCORPORATE A SCREW DOWN GATE VALVE, UNDERGROUND "GUIDE TO HEAD" TYPE WITH SCREW DOWN CONNECTION OUTLET AND FALSE SPINDLE CAP AND IRON CHAIN.
5. ALL HYDRANTS SHALL BE CLOCKWISE CLOSING.
6. HYDRANT CHAMBER & SCOUR VALVE CHAMBER TO BE CONSTRUCTED OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVELY PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO APPROVAL FROM IRISH WATER.
7. CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 804 MATERIAL AS PER STD-W-13.
8. 200mm ALL ROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GRASS AREAS.
9. THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING STD-W-40 AT ALL TEES, BENDS, TAPERS, DEAD ENDSD PIPES AT STEEP SLOPES.
10. ANTI CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
11. ALL PIPEWORK AND FITTINGS FOR WASHOUT HYDRANT CHAMBER CONNECTION SHALL BE DUCTILE IRON. PIPES AND FITTINGS ON MAIN LINE SHALL BE: PE PIPES & FITTINGS IN ACCORDANCE WITH IS EN 12201:2011, OR DUCTILE IRON PIPES AND FITTINGS IN ACCORDANCE WITH IS EN 545.
12. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO AGREEMENT WITH IRISH WATER.
13. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
14. WHERE HYDRANTS ARE INSTALLED ON TRUNK MAINS OR PRINCIPAL MAINS, A SEPARATE SCOUR VALVE IS REQUIRED. THE PURPOSE OF THE SCOUR VALVE IS TO ISOLATE THE WASHOUT HYDRANT FOR MAINTENANCE PURPOSES & ALSO TO REDUCE THE VELOCITY OF THE DISCHARGE FLOW WHERE HIGH HEAD VALUES ARE CONCERNED. A "SANDWICH" OR "SPADE" VALVE MAY BE USED IN LIEU OF A SEPARATE SCOUR VALVE, SUBJECT TO PRIOR APPROVAL BY IRISH WATER.

Date Drawn: 2021-01-07
Drawn By: Colin O'Sullivan
Colour Drawing:

BUILDING INFORMATION MODELLING (BIM) I.S. EN ISO 19650-2:2018 NSAI Certified

Rev	Amendment	By	Date
C01	ISSUED FOR PLANNING	MOC	30/03/2022

Client: Comhairle Cathrach Chorcaí Cork City Council

Job Title: WESTSIDE SOCIAL HOUSING DEVELOPMENT
Dwg Title: PROPOSED CONSTRUCTION DETAILS SHEET 5
Job No: 194191 Model Ref: WES-PUNCH-XX-XX-M2-0526 Drawing Status: A0

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Technician Check: Colin O'Sullivan
Engineer Check: Mike O'Connor
Approved: David O'Donovan
Document No: WES-PUNCH-XX-XX-DR-0526
Revision No: C01