01-JUN-2022

Author Barry O'Neill

Project ref 22_0322

Purpose UTILITY ASSESSMENT

Version P.00.02

BBSC
Building Services
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UTILITY IMPACT ASSESSMENT REPORT

RESIDENTIAL DEVELOPMENT
CLONBURRIS K1
CLONDALKIN
CO. DUBLIN

Architect Davey Smith Architects

Services Engineers BBSC Consulting Engineers

Planning Consultant Armstrong Fenton Associates

On Behalf of Kelland Homes Ltd.

Revision	Date of Issue	Reason For Issue	By	Chk'd
P.00.02	01 Jun 2022	PLANNING	BON	BON

CLONBURRIS PLANNING APPLICATION DEVELOPMENT DESCRIPTION MAY 2022

Kelland Homes Ltd seeks permission for development on a site area of 6.3Ha, on lands within the townland of Cappagh, Dublin 22. The proposed development is located west of the Ninth Lock Road, south of the Dublin-Cork railway line, north of Cappaghmore housing estate and Whitton Avenue, and east of an existing carpark / park & ride facility at the Clondalkin Fonthill train station and the R113 (Fonthill Road). The proposed development is located within the Clonburris Strategic Development Zone (SDZ), within part of the development areas of Clonburris Urban Centre (i.e. CUC-S4) and Clonburris South East (i.e. CSE-S1 & CSE-S2), as identified in the Clonburris SDZ Planning Scheme 2019.

The proposed development consists of the construction of 294 no. dwellings, crèche and retail / commercial unit, comprised of:

- 118 no. 2, 3 & 4 bed, 2 storey semi-detached and terraced houses;
- 104 no. 2 & 3 bed duplex units accommodated in 10 no. 3 storey buildings;
- 72 no. 1 & 2 bedroom apartments in 2 no. 4 & 6 storey buildings;
- 2 storey creche (c.500m^2);
- 1 no. retail /commercial unit (c.150m^2).

Access to the development will by via the permitted road network (under Ref. SDZ20A/0021) which provides access from the Ninth Lock Road to the east and the R113 (Fonthill Road) to the west. The proposed development will connect into the permitted infrastructural works as approved under the Clonburris Strategic Development Zone Planning Scheme (2019) and permitted under Ref. SDZ20A/0021, with the proposed development connecting into the permitted surface water drainage attenuation systems i.e. 1 no. pond, 3 no. modular underground storage systems and 1 no. detention basin combined with modular underground storage systems. The proposed wastewater infrastructure will connect into a permitted foul pumping station and pipe network within proposed road corridors to facilitate drainage connections to future wastewater drainage infrastructure within the adjoining SDZ lands (including future Irish Water pumping station granted under SDZ21A/0006).

The proposed development also provides for all associated site development works above and below ground, public & communal open spaces, hard & soft landscaping and boundary treatments, surface car parking, bicycle parking, bin & bicycle storage, public lighting, plant (M&E), utility services & 4 no. ESB sub-stations.

This application is being made in accordance with the Clonburris Strategic Development Zone Planning Scheme 2019 and relates to a proposed development within the Clonburris Strategic Development Planning Scheme Area, as defined by Statutory Instrument No. 604 of 2015.2

Contents

1 PURPOSE OF REPORT

Kelland Homes Ltd appointed BBSC, March 2022, to study the impact on the Existing Utility in the local area of the development.

The development will be over multiple phases.

It shall comprise Apartments, landlord areas, civic amenity, creche as outlined in Section 1 above

2 POTABLE WATER

The requirements for potable drinking water shall be EN806 all parts, Irish Water Standards.

Refer to the Civil and Structural Engineers for details of the site water distribution and expected water usage.

However, in order to comply with Irish Waters Terms and Conditions, each unit or dwelling will require 227 litres of potable water to EN806 all parts per unit, 45lts/person shall be allowed for commercial units, Creche will be provided with 36lts/person.

Irish Waters forms for applications shall be processed and application applied for as part of the planning conditions and as a notified body all aspects of their requirements for early utility planning shall be complied with the form being submitted on or shortly after the lodgement of the planning permission process. (https://www.water.ie/connections/get-connected/housing-development.xml)

The daily storage rate is determined at 68.628m³ and an expected average hourly demand of 11.252 l/s

In addition to the above figures allowance for fire hydrant flow rates shall also be included as per the Local Fire Fighting Requirements and as per Part B requirements, in the order of 25 to 35l/s (86 to 126m³/hr) range to Irish Water network modelling requirements.

The Incoming connection is expected to handle up to 37.16 l/s of water.

The development will be supplied with 2 or more connections to each phase and tie in with the existing Irish Water network grid, each connection to be metered.

Multiple connections will be required for fire fighting and daily demand requirements.

Water pipes, valves, meters shall all be to EN806 with plastic MDPE for in ground distribution and PEX-AL-PEX above ground distribution so.

Refer to Appendix 1 for details of calculations related to potable water requirements

3 FOUL AND WASTE WATER

Refer to the Civil and Structural Engineers for details of the site foul and waste water distribution and expected flow rates and usage.

Irish Waters forms for applications shall be processed and application applied for as part of the planning conditions and as a notified body all aspects of their requirements for early utility planning shall be complied with the form being submitted on or shortly after the lodgement of the planning permission process. (https://www.water.ie/connections/get-connected/housing-development.xml)

4 NATURAL GAS

The development is expected to be supplied with Natural Gas for cooking requirements.

Gas shall enter the site at several locations to Bord Gais requirements.

The gas may require an Area Gas step down facility and is subject to Bord Gais Network analysis, which is beyond scope of this study.

Gas shall be in road, to IS 813, IS 820 requirements as per Bord Gais requirements.

5 TELECOMS

Telecoms shall be routed in ground from a road side cabinets, secure, to each unit within the development.

It is expected to provide Fibre to each unit or apartment and run from the nodes to dwelling in dedicated ducts or cable trays. The design is vendor neutral.

Manholes, cabinets shall be provided as required to allow for a one-to-one connection with both radial ring and spurs to the dwellings being provided.

Refer to the Telecommunication Assessment Report.

6 ELECTRICITY

The entire electrical installation, within buildings, street furniture etc. will be to IS10101 National rules of

The ESB network rules regarding housing estates shall be adhered to.

Power shall enter on a ring basis from 2 or more locations to ESB final design.

The Power shall be stepped down using substations or substation kiosks to suit.

From the substation power shall be feed via 125 wavin ducts to mini pillars and then feed to each dwelling. Apartments shall be feed from the sub stations to a meter cabinet with CT cut outs to suit and then feed via cable trays to each dwelling.

6.1 DWELLING LOADINGS

Each unit shall be allowed 16 KVA as per ESB recommendations to allow for heat pumps used for space heating and Electrical Vehicle charging.

For load estimation purposes each block of houses shall be feed from localised mini pillars, providing power up to 12 houses.

Refer to Appendix 2 for details of block loadings

In summary Load of between 1.8MVA and 2.1MVA is expected subject to ESB standard load estimation internal modelling

6.2 ELECTRICAL CHARGING

In additional a fast electrical charger for suitable vehicles shall be provided on 1 per 10 remaining car parking spaces to be located at suitable locations (to ESB or others agreements).

Ducting in paving shall be allowed for running to manholes to facilitate the future install of same.

The following will be provided to meet Building Regulations Part L, 2021 and Current County County Development Plan

- Each House with own parking to be provided with EV Charging up to 3.7kw due to limitations on electrical domestic installations as per IS10101 and ESB Conditions of connection.
- For Maisonettes and Apartments 1 in 10 of car parking spaces shall be provided with car chargers, 3.7kw.
- In Large Car Parking areas over 10 car spaces and subject to analysis by ESB Networks will be provided with or provision for future fast charging.
- These chargers are commercial in nature and exceed ESB guidelines for domestic levels of connection
- Note that latest generation of chargers require 350kw to be supplied as fast as the vehicle can accept
- Ducting will be provided for all site car parking in accordance with Part L 2021 section 1.4.6.

All Part M parking bays will be provided with EV Car Charging.

6.3 SUB STATIONS

Based on the loads above some 4 or more sub stations of between 350KVA and 750KVA will be required to be supplied subject to ESB calculations, diversity, geography, routing, redundancy etc.

Refer to Appendix 3 for proposed location of Sub Stations.

6.4 METERING

All dwellings and other units, streetlights shall be metered in accordance with ESB metering requirements

Apartments, Maisonette common areas will be metered on a block by block basis with each block having a dedicated meter room.

6.5 EXISTING OVERHEAD LINES

Existing overhead lines to be diverted to in ground ducts with access via standard arrangements being provided, wayleaves etc. to ESBN requirements for same in accordance with

South Dublin County Development Plan 2016-2022 IE4 Objective 2: To co-operate with the relevant agencies to facilitate the undergrounding of all electricity, telephone and television cables in urban areas wherever possible, in the interests of visual amenity and public health.

7 STREET LIGHTING

Street lighting shall be suppled in accordance with local County Councils Street lighting requirements, namely the South Dublin County Councils SDCC Public Lighting Specification.

The final level of lighting shall be agreed prior to commencement of works with the Public Lighting section of SDCC.

Power shall be run generally in paving and under road crossings to suit design.

Power shall be feed in accordance with ESB requirements for unmetered street lighting, however meters shall be provided to suit requirements.

Street Lighting will by means of poles and LED lights.

Zebra crossings, traffic lights shall be supplied with power and laid out to NRA rules and standards for same, to Civil Engineers details.

8 WAY LEAVES

Where any way leave is existing, following grant of planning permission, discussions and agreement with the relevant utility shall be entered into to ensure the safety and security of supply.

9 PRINCIPLE STANDARDS

Building Regulations

- Technical Guidance Documents as A through M as published and set out in Law, Department of the Environment, relevant edition relates to date of publication and date of building.

Potable Water

- Irish Water Publication, Guide to connect Water and wastewater Business, housing and mixed use developments
- BS EN 806-1:2000. Specifications for installations inside buildings conveying water for human consumption. General.
- BS EN 806-2:2005. Specifications for installations inside buildings conveying water for human consumption. Design
- BS EN 806-3:2006. Specifications for installations inside buildings conveying water for human consumption. Pipe sizing. Simplified method
- BS EN 806-4:2010. Specifications for installations inside buildings conveying water for human consumption. Installation
- BS EN 806-5:2012. Specifications for installations inside buildings conveying water for human consumption. Operation and maintenance

Foul And Waste Water (M&E only, above ground)

- Part F and G of the building Regulations.

Natural Gas

- RGII - Registered gas installers technical guidance document 2017
- IS 813:2014 Domestic gas installations
- IS 820:2010 Non-domestic gas installations

- Gas Network Ireland publication - Guidelines for Designers and Builders – Domestic Sites

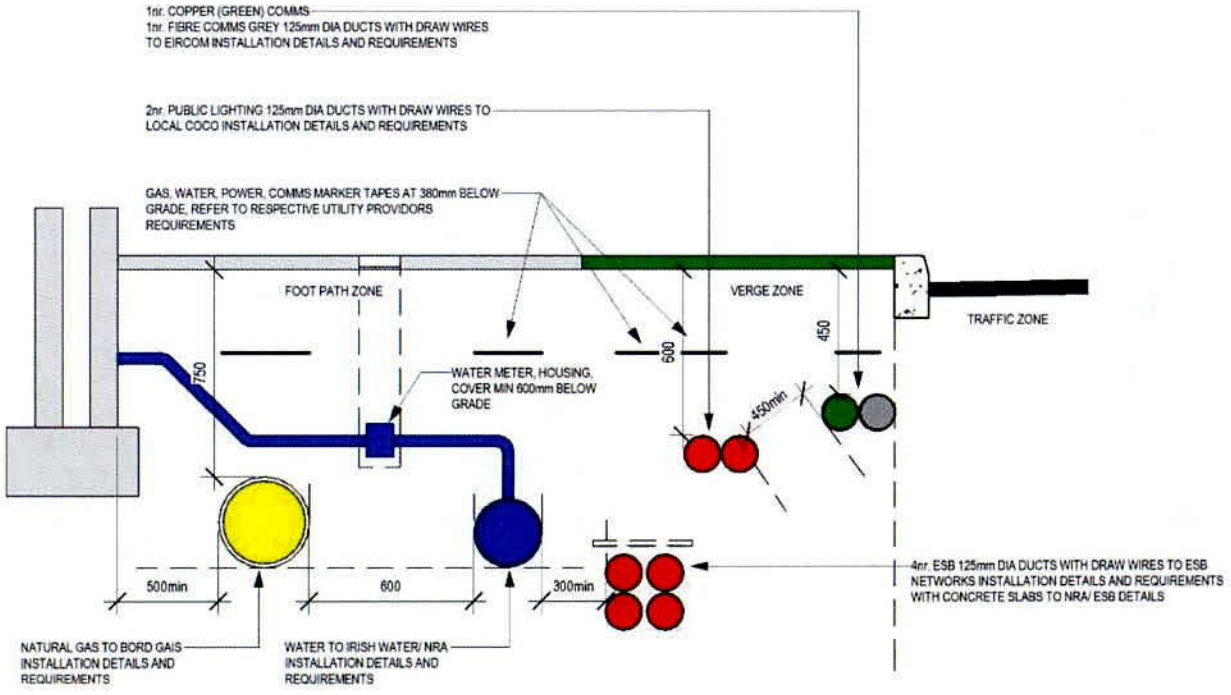
General Electrical Standards

- IS10101 National Rules for Electrical Installation
- ESB Publication, Housing Schemes: Guidebook for ESB Networks Standards for Electrical Services

Street Lighting

- SI 291 of 2013
- IS EN 13201-2:2015 Road Lighting – Part 2
- BS 5489-1:2013 Code of Practice for the Design of Road Lighting Part 1
- ESB Publication, Housing Schemes: Guidebook for ESB Networks Standards for Electrical Services

10 SITE SERVICES CO-ORDINATION DRAWINGS (TYPICAL)



NOTES
1. BUILDER, MECHANICAL, ELECTRICAL CONTRACTORS TO CONFIRM ALL SPACING WITH UTILITY PROVIDORS PRIOR TO INSTALLATION
2. SUBMIT ALL DETAILS TO DESIGN TEAM FOR APPROVALS
3. REFER TO NRA DOCUMENTS, ESB, IRISH WATER, TELCOMS PROVIDORS SPECIFICATIONS, DRAWINGS, VENDORS DETAILS PRIOR TO INSTALLATION WORKS
4. ALL DUCTS BELOW GROUND TO CONFORM TO IS 370:2007
5. ALL CONTRACTORS, PRIOR TO DIGGING CONTACT ALL PROVIDORS
6. ALL CONTRACTORS TO COMPLETE THE REQUIREMENTS OF Code of Practice For Avoiding Danger From Underground Services, Health and Safety Authority (by virtue of Section 60 of the Safety, Health and Welfare at Work Act 2005) SITE SAFETY STATMENTS, METHODS OF WORKS ETC. TO ENSURE NO LEAKS OR BREAKS OF SERVICES

Sample of Service Co-ordination in ground

APPENDIX 1

Above Ground Potable Water calculations

EN806, SR50-3:2021 Water Flow Calculations Above Ground **Loading units per Dwelling**

Unit Description	Qty.	Beds	Water Storage (lts)	Fill Time (hrs)	Showers	Bath/ shower	Sinks	WC	WHB	LU	Flowrate (l/s)	Flow rate LU+ Fill
A1 3 Bedroom, Gable End Unit	42	3 Bed	227	2	1	1	1	3	3	24	0.75	0.782
A2 3 Bedroom, Mid terrace	39	3 Bed	227	2	1	1	1	3	3	24	0.75	0.782
A3 3 Bedroom, Gable End Unit	6	3 Bed	227	2	1	1	1	3	3	24	0.75	0.782
B 3 Bedroom, Mid terrace	19	3 Bed	227	2	1	1	1	3	3	24	0.75	0.782
C 4 Bedroom, Semi Detached	12	3 Bed	227	2	1	1	1	3	3	24	0.75	0.782
Block A												
One Bed Apartment	14	1 Bed	227	2	1	1	1	3	3	24	0.75	0.782
2 Bedroom Apartment	36	2 Bed	227	2	1	1	1	3	3	24	0.75	0.782
Block B												
One Bed Apartment	6	1 Bed	227	2	1	1	1	3	3	24	0.75	0.782
2 Bedroom Apartment	16	2 Bed	227	2	1	1	1	3	3	24	0.75	0.782
Duplex	104	2 Bed	227	2	1	1	1	3	3	24	0.75	0.782
Creche	1	40 people	1440	2	0	0	2	4	4	14	0.75	0.950
Retail	1	10 people	450	2	0	0	1	1	1	5	0.75	0.813
			68.988	**m³**			**297**					**9.578**

Notes

EN806 loading units applied

EN806 flow rates applied

Irish Water Storage requirements applied

Main Incomer Requirement Calculation (EN806)

Kitchen Sinks	297	nr.	Loading Units	1	297	LU
			From EN806 requires		1.720	l/s

Tank fill requirement

Total storage	294	nr. dwellings x	227	lts	66,738	lts
			Commercial Units		1,890	lts
		Fill time	2	hrs	9.532	l/s
		Total			11.252	l/s

Flow rate required for tanks & sinks	11.252	l/s
Fire Hydrants	25.000	l/s
Total Flow	36.252	l/s
Plus Allowance for other uses	37.158	l/s

The development is expected to have a loading of up to 37.16 l/s subject to diversity

Calculation is based on ISEN806 and SR50-3:2021 requirements

APPENDIX 2

Electrical Block Loading Calculations

<ESTIMATED ESB MINIPILLAR>							
A	B	C	D	E	F	G	H
Neigbourhood	Mark	DwellingsN	Family	Dwelling/ Unit	Electric Car Charging	Public Lighting	Mini Pillar KVA
A	MP01	9	ESB_MINI_Pillar	44.0 kVA	10.2 kVA	0.1 kVA	54.3 kVA
A	MP02	9	ESB_MINI_Pillar	44.0 kVA	10.2 kVA	0.1 kVA	54.3 kVA
A	MP03	7	ESB_MINI_Pillar	37.0 kVA	10.2 kVA	0.1 kVA	47.3 kVA
A	MP04	9	ESB_MINI_Pillar	44.0 kVA	10.2 kVA	0.1 kVA	54.3 kVA
A	MP05	6	ESB_MINI_Pillar	33.5 kVA	10.2 kVA	0.1 kVA	43.8 kVA
A	MP06	8	ESB_MINI_Pillar	40.5 kVA	10.2 kVA	0.1 kVA	50.8 kVA
A	MP07	6	ESB_MINI_Pillar	33.5 kVA	10.2 kVA	0.1 kVA	43.8 kVA
A	MP08	9	ESB_MINI_Pillar	44.0 kVA	10.2 kVA	0.1 kVA	54.3 kVA
A	MP09	8	ESB_MINI_Pillar	40.5 kVA	14.3 kVA	0.1 kVA	54.9 kVA
A	MP10	8	ESB_MINI_Pillar	40.5 kVA	14.3 kVA	0.1 kVA	54.9 kVA
A	MP11	8	ESB_MINI_Pillar	40.5 kVA	14.3 kVA	0.1 kVA	54.9 kVA
A	MP12	8	ESB_MINI_Pillar	40.5 kVA	14.3 kVA	0.1 kVA	54.9 kVA
A	MP30	1	ESB_MINI_Pillar_COM	80.0 kVA	0.0 kVA	0.1 kVA	80.1 kVA
A	MP31	1	ESB_MINI_Pillar_COM	49.0 kVA	0.0 kVA	0.0 kVA	49.0 kVA
A: 14		97		611.5 kVA	138.7 kVA	1.6 kVA	751.8 kVA
B	MP13	18	ESB_MINI_Pillar	88.0 kVA	24.5 kVA	0.3 kVA	112.7 kVA
B	MP14	17	ESB_MINI_Pillar	84.5 kVA	14.3 kVA	0.3 kVA	99.0 kVA
B	MP15	11	ESB_MINI_Pillar	51.0 kVA	10.2 kVA	0.1 kVA	61.3 kVA
B	MP16	10	ESB_MINI_Pillar	47.5 kVA	0.0 kVA	0.1 kVA	47.6 kVA
B: 6		56		271.0 kVA	48.9 kVA	0.8 kVA	320.7 kVA
C	MP17	50	ESB_MINI_Pillar	187.5 kVA	14.3 kVA	0.1 kVA	222.9 kVA
C: 1		50		187.5 kVA	14.3 kVA	0.1 kVA	222.9 kVA
D	MP18	8	ESB_MINI_Pillar	40.5 kVA	14.3 kVA	0.1 kVA	54.9 kVA
D	MP19	8	ESB_MINI_Pillar	40.5 kVA	0.0 kVA	0.1 kVA	40.6 kVA
D	MP20	8	ESB_MINI_Pillar	40.5 kVA	10.2 kVA	0.1 kVA	50.8 kVA
D	MP21	8	ESB_MINI_Pillar	40.5 kVA	14.3 kVA	0.1 kVA	54.9 kVA
D	MP22	2	ESB_MINI_Pillar	19.5 kVA	10.2 kVA	0.1 kVA	29.8 kVA
D	MP23	6	ESB_MINI_Pillar	33.5 kVA	13.7 kVA	0.1 kVA	47.3 kVA
D	MP24	6	ESB_MINI_Pillar	33.5 kVA	13.7 kVA	0.1 kVA	47.3 kVA
D	MP25	6	ESB_MINI_Pillar	33.5 kVA	13.7 kVA	0.1 kVA	47.3 kVA
D	MP26	7	ESB_MINI_Pillar	37.0 kVA	0.0 kVA	0.1 kVA	37.1 kVA
D	MP27	6	ESB_MINI_Pillar	33.5 kVA	0.0 kVA	0.1 kVA	33.6 kVA
D	MP28	22	ESB_MINI_Pillar	89.5 kVA	14.7 kVA	0.1 kVA	124.3 kVA
D	MP29	6	ESB_MINI_Pillar	33.5 kVA	13.7 kVA	0.1 kVA	47.3 kVA
D: 12		93		475.5 kVA	118.2 kVA	1.5 kVA	615.2 kVA
Grand total: 33		296		1545.5 kVA	320.2 kVA	4.0 kVA	1910.6 kVA

Notes

All sub station locations are subject to final engineering design by ESB Networks

Landlord loads for the Apartments is included above

An additional connection for the landlords requirements will be required per Apartment block.

The total number of connections is therefore 298nr.

Final Quantity of sub stations shall be agreed at time of application based on the National Loading Calculations as determined by ESB Networks as per National Code of Practice for the Customer Interface and governed by Commission for Regulation of Utilities

Diversity applied on a mini pillar basis.

Public lighting load is provisional pending planning permission

PV Calculations, subject to Final BER Calculations **SEAI PV CALCULATION METHOD** **Kelland Homes: Clonburris**

Unit Description	Qty.	Beds	Average Orientation	Watts per Panel	Nr of Panels	kWp	S (KW/yr)	Zpv	Result (KW/yr)	Total Panels	Total for Units (KW/yr)
A1 3 Bedroom, Gable End Unit	42	3 Bed	E/W	320	6	1.92	929	1	1427	252	59,932
A2 3 Bedroom, Mid terrace	39	3 Bed	E/W	320	6	1.92	929	1	1427	234	55,651
A3 3 Bedroom, Gable End Unit	6	3 Bed	E/W	320	6	1.92	929	1	1427	36	8,562
B 3 Bedroom, Mid terrace	19	3 Bed	E/W	350	6	2.1	929	1	1561	114	29,654
C 4 Bedroom, Semi Detached	12	3 Bed	South	350	8	2.8	1036	1	2321	96	27,848
Block A											
One Bed Apartment	14	1 Bed	South	350	4	1.4	1036	1	1160	56	16,244
2 Bedroom Apartment	36	2 Bed	South	350	5	1.75	1036	1	1450	180	52,214
Block B											
One Bed Apartment	6	1 Bed	South	350	4	1.4	1036	1	1160	24	6,962
2 Bedroom Apartment	16	2 Bed	South	350	5	1.75	1036	1	1450	80	23,206
Duplex	104	2 Bed	South	350	5	1.75	1036	1	1450	520	150,842
Creche	1	500sqm	South	350	60	21	1036	1	17405	60	17,405
Retail	1	150sqm	South	350	40	14	1036	1	11603	40	11,603
Total	**294**				**55**					**1,692**	**460,122**

Notes

All PV Calculations are based on most likely PV panels at Final BER stage

Most Average Orientation has been applied

Total results are plus or minus 15% of presented figure

All PV Calculations are based on SEAI formulas

APPENDIX 3

Proposed ESB Substation Locations subject to application and agreement of ESB
Proposed Water Services and Electric Vehicle Charging

This is a performance drawing and issued for pricing guidance. The Installation Contractor shall produce all working drawings including coordination drawings with other Trades and the Builder. This drawing shall be read inconjunction with the specification, schedules that are associated with this project. This is an A1 drawing.

REVISION HISTORY

Rev	Description	Date	By

Client: KELLAND HOMES LTD
Architect: DAVEY-SMITH
Structural:
Planning: ARMSTRONG FENTON
Fire Consultant:

BBSC
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Appr'd	Approver	Chk'd	Checker	Eng'r	Designer	Drawn	Author

Site: CLONBORRIS K1 DEVELOPMENT DUBLIN

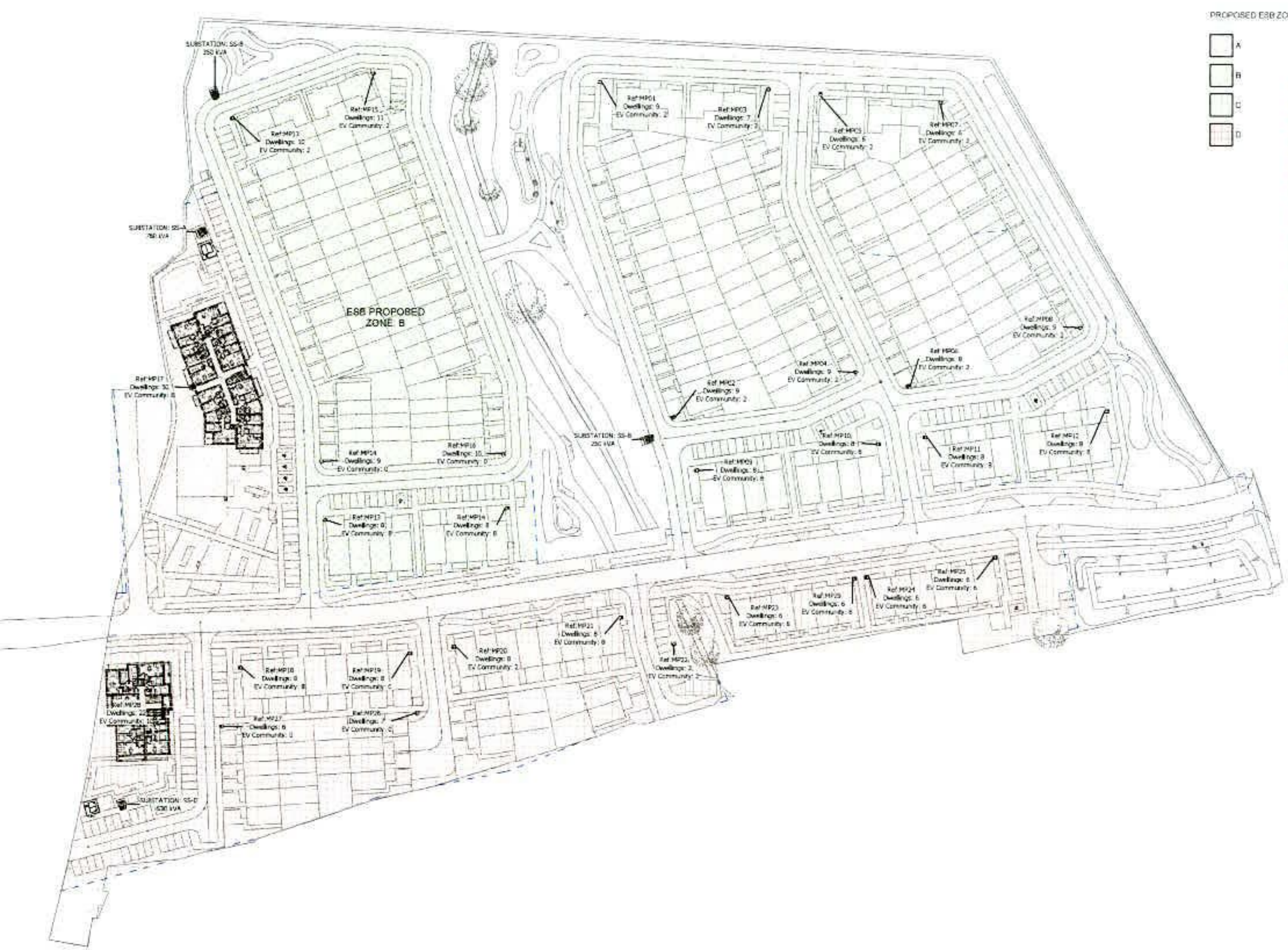
Drawing Title: SITE MAPS

Project No.	Scale	Date	Sheet Size
22_0322	1 : 750		A1

ISO file Reference: CLB-BBSC-X-0-DR-ME-6000

Project Status: PLANNING

01/05/2022 12:12:11



PROPOSED ESB ZONES:

- A
- B
- C
- D

This is a performance drawing and issued for pricing guidance. The installation Contractor shall produce all working drawings, including coordination drawings with other Trades and the Builder. This drawing shall be read inconjuntion with the specification, schedules that are associated with this project. This is an A1 drawing. This drawing is copyright of Barry O'Neill Ltd trading as BBSC

REVISION HISTORY

Rev	Description	Date	By

ESTIMATED ESB SUBSTATION

Neighbourhood	Kiosk Sub Station KVA
A	760.0 kVA
B	350.0 kVA
C	250.0 kVA
D	630.0 kVA
Grand total: 4	1990.0 kVA

NOTES:

ESB LOADINGS FOR DWELLINGS APPLIED
LIMITED COMMERCIAL LOADINGS APPLIED
PUBLIC LIGHTING LOAD ESTIMATE ALLOWED
EV CHARGERS ALLOWED FOR
OTHER MISC LOADS ALLOWED FOR

SUBJECT TO FINAL ENGINEERING CALCULATIONS BY ESB NETWORKS

ESTIMATED ESB MINIPILLAR

Neighbourhood	Mark	Dwellings	Family	Dwelling Unit	Electric Car Charging	Public Lighting	Mini Pillar KVA
A	MP01	9	ESB_MINI_Pillar	44.0 kVA	10.2 kVA	0.1 kVA	54.3 kVA
A	MP02	9	ESB_MINI_Pillar	44.0 kVA	10.2 kVA	0.1 kVA	54.3 kVA
A	MP03	7	ESB_MINI_Pillar	37.0 kVA	10.2 kVA	0.1 kVA	47.3 kVA
A	MP04	9	ESB_MINI_Pillar	44.0 kVA	10.2 kVA	0.1 kVA	54.3 kVA
A	MP05	6	ESB_MINI_Pillar	33.5 kVA	10.2 kVA	0.1 kVA	43.8 kVA
A	MP06	8	ESB_MINI_Pillar	40.5 kVA	10.2 kVA	0.1 kVA	50.8 kVA
A	MP07	6	ESB_MINI_Pillar	33.5 kVA	10.2 kVA	0.1 kVA	43.8 kVA
A	MP08	9	ESB_MINI_Pillar	44.0 kVA	10.2 kVA	0.1 kVA	54.3 kVA
A	MP09	8	ESB_MINI_Pillar	40.5 kVA	14.3 kVA	0.1 kVA	54.9 kVA
A	MP10	8	ESB_MINI_Pillar	40.5 kVA	14.3 kVA	0.1 kVA	54.9 kVA
A	MP11	8	ESB_MINI_Pillar	40.5 kVA	14.3 kVA	0.1 kVA	54.9 kVA
A	MP12	8	ESB_MINI_Pillar	40.5 kVA	14.3 kVA	0.1 kVA	54.9 kVA
A	MP30	1	ESB_MINI_Pillar_COMMERCIAL	80.0 kVA	0.0 kVA	0.1 kVA	80.1 kVA
A	MP31	1	ESB_MINI_Pillar_COMMERCIAL	49.0 kVA	0.0 kVA	0.0 kVA	49.0 kVA
A: 14		97		611.5 kVA	138.7 kVA	1.6 kVA	751.8 kVA
B	MP13	18	ESB_MINI_Pillar	89.0 kVA	24.5 kVA	0.2 kVA	113.7 kVA
B	MP14	17	ESB_MINI_Pillar	84.5 kVA	14.3 kVA	0.1 kVA	99.0 kVA
B	MP15	11	ESB_MINI_Pillar	51.0 kVA	10.2 kVA	0.1 kVA	61.3 kVA
B	MP16	10	ESB_MINI_Pillar	47.5 kVA	0.0 kVA	0.1 kVA	47.6 kVA
B: 4		56		271.0 kVA	48.9 kVA	0.8 kVA	318.7 kVA
C	MP17	50	ESB_MINI_Pillar	187.5 kVA	35.3 kVA	0.1 kVA	222.9 kVA
C: 1		50		187.5 kVA	35.3 kVA	0.1 kVA	222.9 kVA
D	MP18	8	ESB_MINI_Pillar	40.5 kVA	14.3 kVA	0.1 kVA	54.9 kVA
D	MP19	8	ESB_MINI_Pillar	40.5 kVA	0.0 kVA	0.1 kVA	40.6 kVA
D	MP20	8	ESB_MINI_Pillar	40.5 kVA	10.2 kVA	0.1 kVA	50.8 kVA
D	MP21	8	ESB_MINI_Pillar	40.5 kVA	14.3 kVA	0.1 kVA	54.9 kVA
D	MP22	2	ESB_MINI_Pillar	19.5 kVA	10.2 kVA	0.1 kVA	29.8 kVA
D	MP23	6	ESB_MINI_Pillar	33.5 kVA	13.7 kVA	0.1 kVA	47.3 kVA
D	MP24	6	ESB_MINI_Pillar	33.5 kVA	13.7 kVA	0.1 kVA	47.3 kVA
D	MP25	6	ESB_MINI_Pillar	33.5 kVA	13.7 kVA	0.1 kVA	47.3 kVA
D	MP26	7	ESB_MINI_Pillar	37.0 kVA	0.0 kVA	0.1 kVA	37.1 kVA
D	MP27	6	ESB_MINI_Pillar	33.5 kVA	0.0 kVA	0.1 kVA	33.6 kVA
D	MP28	22	ESB_MINI_Pillar	86.5 kVA	27.7 kVA	0.1 kVA	114.3 kVA
D	MP29	6	ESB_MINI_Pillar	33.5 kVA	13.7 kVA	0.1 kVA	47.3 kVA
D: 12		93		475.5 kVA	138.2 kVA	1.5 kVA	615.2 kVA
Grand total: 33		296		1545.5 kVA	318.2 kVA	4.3 kVA	1910.8 kVA

Client: KELLAND HOMES LTD
Architect: DAVEY-SMITH
Structural
Planning: ARMSTRONG FENTON
Fire Consultant

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Appd	Approver	Chk'd	Checker	Eng	Designer	Drawn	Author

Site: CLONBORRIS K1 DEVELOPMENT
DUBLIN

Drawing Title: PROPOSED ESB KIOSK SUBSTATIONS

Project Nr.	Scale	Date	Sheet Size
22_0322	1 : 750		A1

Rev - Rev date -

ISO file Reference: CBR-BBSC-X-X-DR-E-6001

Project Status: PLANNING

REVISION HISTORY

No	Description	Date	By

Client	KELLAND HOMES LTD
Architect	DAVEY-SMITH
Structural	
Planning	ARMSTRONG FENTON
Fire Consultant	

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Appd	Approver	Chkd	Checker	Engr	Designer	Drawn	Author

Site
CLONBORRIS K1 DEVELOPMENT
DUBLIN

Drawing Title
EV CHARGERS & APARTMENT WATER REQUIREMENTS

Project N°	Scale	Date	Sheet Size
22_0322	1 : 750		A1

rev: - rev date: -

ISO file Reference: CLB-BBSC-X-0-DR-ME-6002

Project Status: PLANNING

01/06/2023 12:31:20

APPENDIX 4

ESB Drawing

ESB Networks

TITLE: 20220512-047_A3

COLOUR CODE

- BLACK - 38KV & HIGHER VOLTAGE OVERHEAD LINES
- GREEN - MV(10KV/20KV) OVERHEAD LINES
- BLUE - LV (400V/230V) OVERHEAD LINES
- CYAN - 38KV & HIGHER VOLTAGE UNDERGROUND CABLE ROUTES
- RED - MV/LV (10KV/20KV/400V/230V) UNDERGROUND CABLE ROUTES

DATE: 12-May-2022

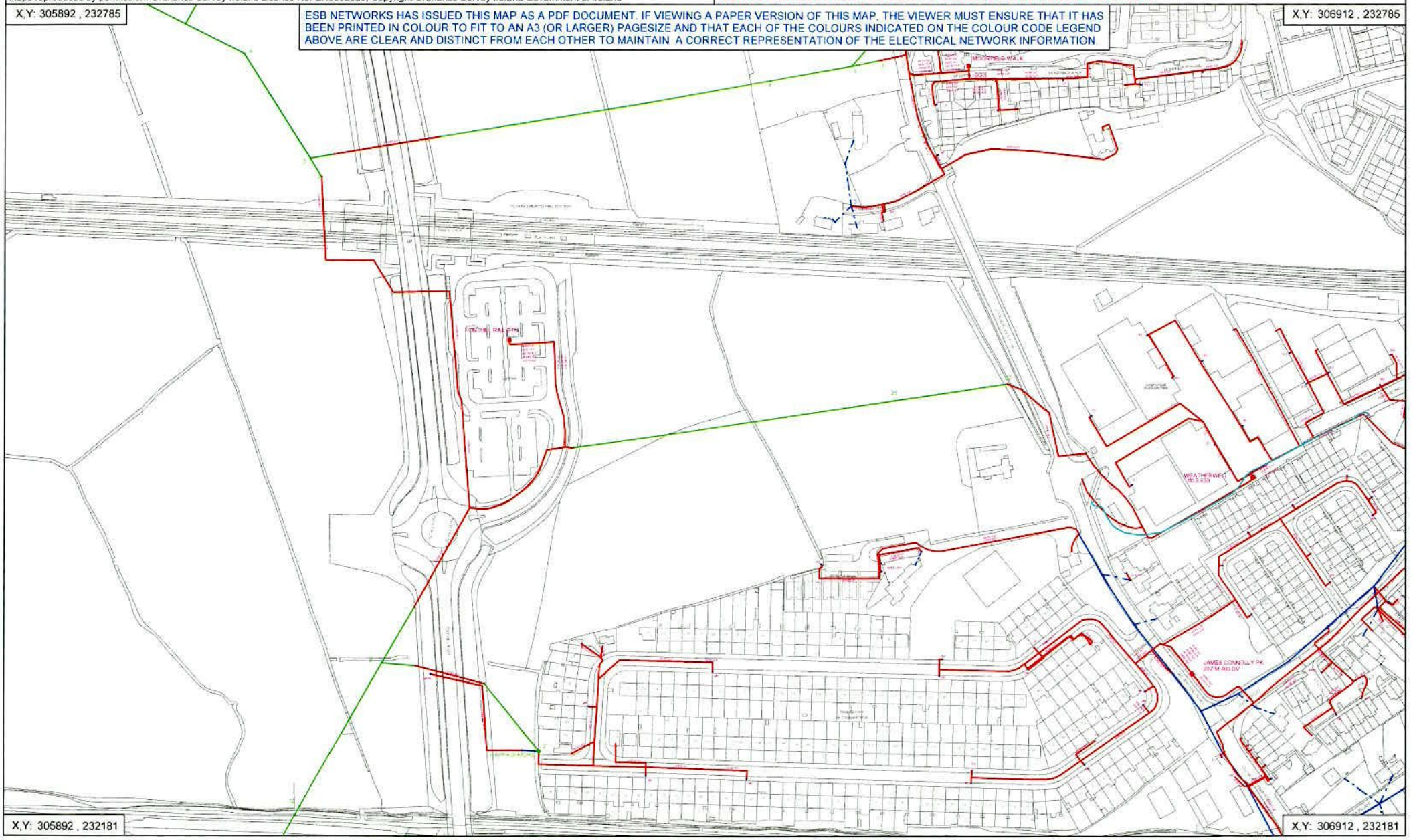
** SCALE: 1:2500

** SCALE WHEN PRINTED ON AN A3 PAGE
XY COORDINATES DISPLAYED IN IRISH GRID COORDINATE SYSTEM

WARNING

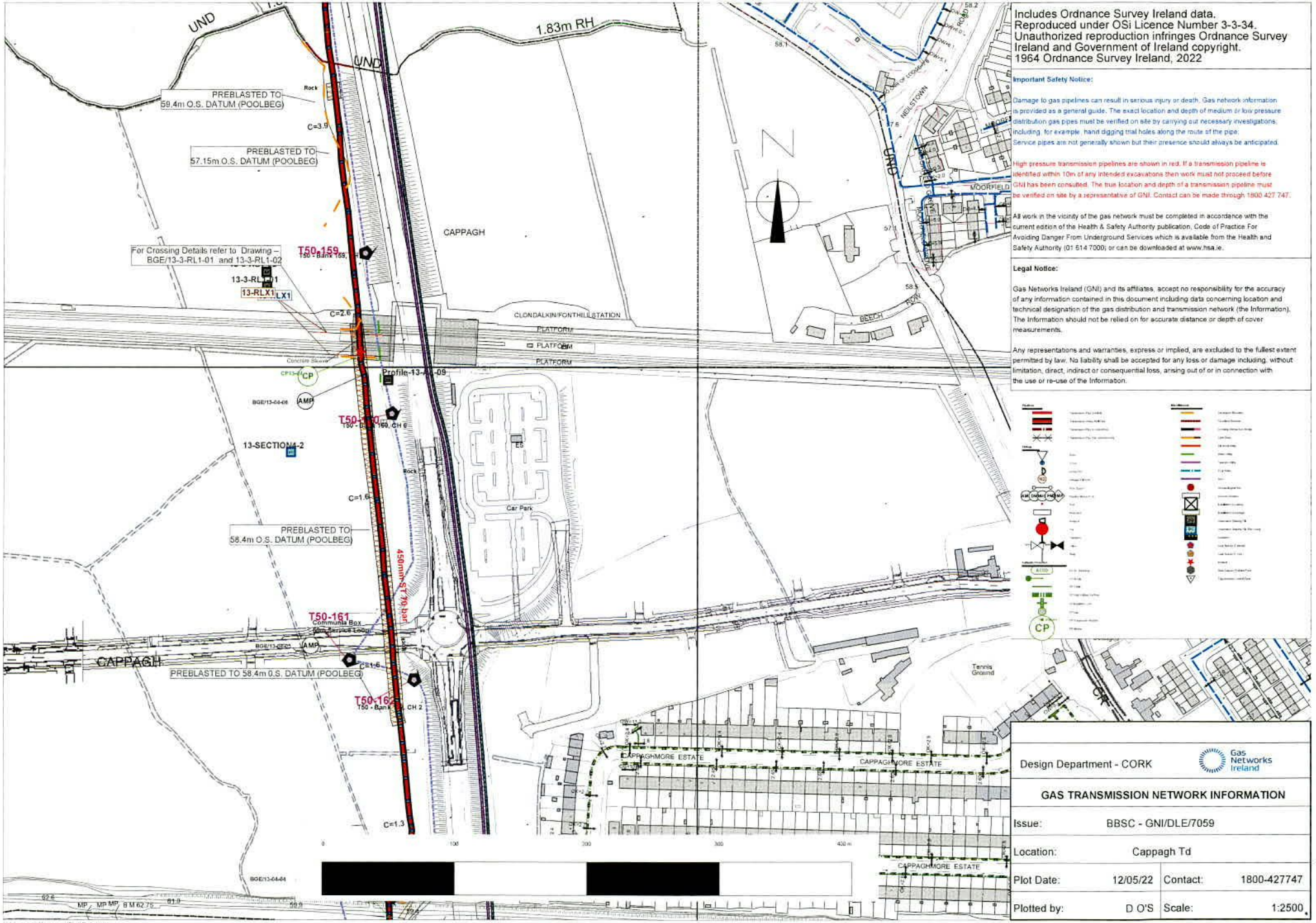
THIS MAP INDICATES THE APPROXIMATE LOCATION OF ESB TRANSMISSION (400KV, 220KV, 110KV, 38KV) AND DISTRIBUTION (20KV, 10KV, 230V/400V) UNDERGROUND CABLES AND OVERHEAD LINES IN THE GENERAL AREA OF THE PROPOSED WORKS. ESB NETWORKS TAKES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE MAP. IT IS THE USER'S RESPONSIBILITY TO INDEPENDENTLY VERIFY THE INFORMATION AND THE LOCATION OF UNDERGROUND CABLES AND OVERHEAD LINES. LOW VOLTAGE (230V/400V) SERVICE CABLES (E.G. HOUSE SERVICES, FACTORY/SHOP SERVICES, PUBLIC LIGHTING LAMP SERVICES, ETC) ARE NOT INCLUDED BUT THEIR PRESENCE SHOULD BE ANTICIPATED. THE DEPTHS OF UNDERGROUND CABLES MUST NEVER BE ASSUMED. ADDITIONAL MORE DETAILED INFORMATION IS AVAILABLE FOR HIGH VOLTAGE TRANSMISSION UNDERGROUND CABLES (38KV, 110KV, 220KV, 400KV) FROM THE LOCAL ESB NETWORKS TRANSMISSION REPRESENTATIVE - SEE ATTACHED LIST FOR CONTACT DETAILS OR CALL 1800 372 757. NO WORK SHOULD BE CARRIED OUT IN THE VICINITY OF 38KV OR HIGHER VOLTAGE UNDERGROUND CABLES WITHOUT PRIOR CONSULTATION WITH ESB NETWORKS. BEFORE ANY MECHANICAL EXCAVATION IS UNDERTAKEN, THE ACTUAL LOCATION OF ALL UNDERGROUND ELECTRICITY CABLES MUST BE ESTABLISHED AND VERIFIED ON THE SITE USING (A) UP-TO-DATE MAP RECORDS; (B) CABLE LOCATER EQUIPMENT OPERATED IN BOTH POWER AND RADIO MODES; (C) CAREFUL HAND DIGGING OF TRIAL HOLES USING 'SAFE DIGGING PRACTICE'. REFER ALSO TO 'HSA CODE OF PRACTICE FOR AVOIDING DANGER FROM UNDERGROUND SERVICES'. ESB TAKES NO RESPONSIBILITY FOR AND SHALL BEAR NO LIABILITY, HOWSOEVER ARISING, IN RELATION TO ANY DAMAGE, INJURY/DEATH OR LOSS OF SUPPLY AS A RESULT OF DAMAGE OR INTERFERENCE WITH ITS NETWORKS

ESB NETWORKS HAS ISSUED THIS MAP AS A PDF DOCUMENT. IF VIEWING A PAPER VERSION OF THIS MAP, THE VIEWER MUST ENSURE THAT IT HAS BEEN PRINTED IN COLOUR TO FIT TO AN A3 (OR LARGER) PAGESIZE AND THAT EACH OF THE COLOURS INDICATED ON THE COLOUR CODE LEGEND ABOVE ARE CLEAR AND DISTINCT FROM EACH OTHER TO MAINTAIN A CORRECT REPRESENTATION OF THE ELECTRICAL NETWORK INFORMATION.



APPENDIX 5

Bord Gais Drawing


UND
1.83m RH
PREBLASTED TO 59.4m O.S. DATUM (POOLBEG)
PREBLASTED TO 57.15m O.S. DATUM (POOLBEG)
CAPPAGH
For Crossing Details refer to Drawing – BGE/13-3-RL1-01 and 13-3-RL1-02
T50-159
13-RLX1
LX1
CLONDALKIN/FONTHILLSTATION
PLATFORM
Profile-13-RL1-09
CP
AMP
13-SECTION4-2
Car Park
PREBLASTED TO 58.4m O.S. DATUM (POOLBEG)
450mm ST 70 bar
T50-161
Communa Box
50m Service Loop
T50-162
PREBLASTED TO 58.4m O.S. DATUM (POOLBEG)
CAPPAGHMORE ESTATE
Tennis Ground
NEILSTOWN
MOORFIELD
BEECH
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High pressure transmission pipelines are shown in red. If a transmission pipeline is identified within 10m of any intended excavations then work must not proceed before GNI has been consulted. The true location and depth of a transmission pipeline must be verified on site by a representative of GNI. Contact can be made through 1800 427 747.
All work in the vicinity of the gas network must be completed in accordance with the current edition of the Health & Safety Authority publication, Code of Practice For Avoiding Danger From Underground Services which is available from the Health and Safety Authority (01 614 7000) or can be downloaded at www.hsa.ie.
Legal Notice:
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Design Department - CORK
Gas Networks Ireland
GAS TRANSMISSION NETWORK INFORMATION
Issue: BBSC - GNI/DLE/7059
Location: Cappagh Td
Plot Date: 12/05/22
Contact: 1800-427747
Plotted by: D O'S
Scale: 1:2500