

# **ESB INFRASTRUCTURE REPORT**

for the

# THE STRATEGIC HOUSING DEVELOPMENT

at

## GREAT CONNELL, NEWBRIDGE, CO. KILDARE.

for

## **ASTON LIMITED**

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				approvals		
issue no.	issue date	pages	issued for	by	checked	approved
01	31/01/2022	10	Planning	EP	DL	KM



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### Introduction

This Report was compiled by METEC Consulting Engineers in March 2022 on behalf of our client, Aston Limited, as part of the proposed strategic housing development at Great Connell, Newbridge, Co. Kildare. The report summarises the existing Engineering Services Infrastructure to the proposed development and the proposed rediversion of existing overhead lines subject to final approval by ESB.

### **1.0 Executive Summary**

The development will consist of the demolition of existing site structures (2,622.3 sqm) and the construction of 569 no. residential units, a neighbourhood centre with 11 no. units (commercial floor area 2,141 sqm) and a childcare facility (886 sqm), a circa 350 metre section of distributor road, and all ancillary and associated works on a site of 27.64 ha. The proposed development comprises:

- Demolition of existing site structures (total 2,622.3 sqm) comprising; 'Great Connell' a two-storey dwelling of 331.9 sqm with detached single storey garage and outhouses of 48 sqm; 'Valencia Lodge' a single storey dwelling of 135.6 sqm with a single storey garage of 17.8 sqm; two no. single storey sheds of 1,440 sqm and 595 sqm, and a three-sided shed of 54 sqm.
- 2. Construction of 569 no. new residential dwellings (325 no. houses and 244 no. apartments) comprising:
- 64 no. two-bed houses; 173 no. three-bed houses; and 88 no. four-bed houses (ranging in height from 2 to 3 storeys).
- Apartment Block A (Part 3 and 4 Storeys): 5 no. one-bed apartments; 14 no. two-bed apartments; and 3 no. three-bed apartments. These proposed units have private balconies or terraces, and access to a community roof terrace of 112.4 sqm.
- Apartment Block B (Part 3 and 4 Storeys): 5 no. one-bed apartments; 14 no. two-bed apartments; and 3 no. three-bed apartments. These proposed units have private balconies or terraces, and access to a community roof terrace of 112.4 sqm.
- Apartment Block C (Part 3 and 4 Storeys): 4 no. one-bed apartments; 19 no. two-bed apartments and 4 no. three-bed apartments. These proposed units have private balconies or terraces, and access to a community roof terrace of 87 sqm.
- 13 no. apartments above the proposed Neighbourhood Centre comprising; 4 no. owndoor two-bed apartments; 3 no. shared-access one-bed apartments; and 6 no. sharedaccess two-bed apartments. These proposed units have private balconies or terraces.
- 160 no. own-door apartments in 2- and 3- storey buildings comprising; 16 no. one-bed apartments; 78 no. two-bed apartments, 66 no. three-bed duplex apartments. These



units will have private amenity areas in the form of terraces, balconies and/or rear gardens.

- 3. Provision of Neighbourhood Centre (ranging in height between 2 and 4 storeys) with 11 no. commercial units comprising: a convenience shop of 909 sqm (unit 1); 3 no. doctor/dentist/physio units of 120 sqm, 120 sqm and 90 sqm (units 6, 7, and 8, respectively); a café of 125 sqm (unit 4); a restaurant of 213 sqm (unit 9); and 5 no. shop/convenience services units of 112 sqm, 49 sqm, 171 sqm, 100sqm and 100 sqm (units 2, 3, 5,10 and 11, respectively). The proposed Neighbourhood Centre includes an external roof terrace of 176 sqm.
- 4. Provision of a childcare facility (886 sqm) within the Neighbourhood Centre with capacity for in the order of 154 no. children.
- 5. Provision of 1,008 no. car parking spaces comprising 650 no. spaces for the proposed houses; 312 no. spaces for the proposed apartments; and 46 no. spaces to serve the Neighbourhood Centre.
- 6. Provision of 732 bicycle parking spaces comprising 536 no. secure residential spaces, 134 no. residential visitor spaces, and 62 no. spaces to serve the Neighbourhood Centre.
- 7. A series of 18 no. public open spaces and pocket parks are proposed throughout the residential development (2.613 ha net area).
- 8. Provision of a 8.31 ha amenity area adjoining the River Liffey.
- 9. Vehicular access to the proposed development from Great Connell road via a circa 350 metre section of the Newbridge South Orbital Relief Road (NSOOR), including footpaths and cycle paths. It is proposed to upgrade the existing Great Connell Roundabout to a signalised junction, and provide footpaths and cycle paths within the subject site along the Great Connell Road.
- 10. Proposed development facilitates future potential pedestrian, cycle and vehicular links to adjoining residential development and undeveloped lands.
- 11. All enabling and site development works, landscaping, boundary treatments, lighting, services and connections, including connection to permitted wastewater pumping station, waste management, ESB substations, compensatory flood storage and all other ancillary works above and below ground on a site of 27.64 ha.
- 12. A 7 year permission is sought.



The site location plan layout is shown in *Figures 1.1* below.



Figure 1.1 Site Location Plan



#### 2.0 ESB Infrastructure

The existing infrastructure connections have been identified. These connections will each be isolated and removed/altered prior to the commencement of site construction. New infrastructure connections have been considered in the design of the proposed development and there are no known issues with local infrastructure to supply the new development at this time. A new ESB sub-station and Unit sub-stations are proposed within the footprint of the development. Talks have commenced with the ESB in this regard. The ESB will process the proposal and will be the final arbiters of the electrical configuration within the site.

The ESB Networks drawing in *figure 2.1* below indicates the existing network distribution around the proposed development.



Figure 2.1 ESB Networks Map of surrounding area



The drawing in *figure 3.1* below indicates the optimal underground route of the diverted ESB MV(10KV) overhead lines through the proposed site.



Figure 3.1 Optimal underground cable route

The existing ESB network maps indicate an existing 10 kV Medium Voltage overhead electricity line traversing the proposed site which drops to underground for a section of its run. The ESB Utility maps do not indicate any other underground or overhead cables traversing the site. This overhead line needs to be rediverted for the development. The ESB planners will review the capacity of the existing electrical infrastructure and advise the extent of upgrade works to comply with their infrastructural requirements.

Main cable ducting shall comply with the requirements of the ESB Networks Housing Schemes Guidebook for ESB Networks Standards for Electrical Services. ESB Networks will specify the route, size and purpose of all ducts on the site layout plan. For all ducting which lies within the housing scheme/development, the trench cross-section and ducting requirements set out in the guidebook shall apply.



A prospective load of 3 MVA has been calculated for the development based on ESB electrical loading guidelines for Houses and Apartments. We are proposing that a Freestanding MV/LV Substation with adjoining Switch room is built in the location indicated below within the Open Space 11 area. The Freestanding MV/LV Substation will provide the MV ring main to the 630kVA Unit sub-stations subject to ESB approval.

The 3 No. Apartment Blocks, Creche & neighbourhood centre/apartments shall be fed from the Freestanding MV/LV Substation. The 630kVA Unit Substations (8No.) will be dispersed throughout the site in locations that are optimal for efficient cable distribution.

The drawing in *figure 4.1* below indicates the proposed ESB Sub-station locations.



Figure 4.1 Proposed ESB Sub-station Layout (indicative site boundary)



The drawing in *figure 5.1* below indicates the proposed ESB MV Sub-station Layout.



Figure 5.1 MV Substation Building Floor & Foundation Detail

The drawing in *figure 6.1* below indicates the proposed ESB Sub-station Kiosk Plinth details.



Figure 6.1 Substation Kiosk Floor & Foundation Detail