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Alanna Homes,
4 The Mall,
Main Street,
Lucan,
Co. Dublin

21st June 2022

Re: Proposed Development at Barnhill Garden Village, Barnhill, Dublin 15.

GOcharge operate a reliable and convenient car charging network throughout Ireland for EV Drivers. GOcharge work with all types of property owners to offer a turnkey car charging solutions from installation to operation, payment management and maintenance. We have experience providing charging solutions to a wide range of development types including, but not limited to, apartments, houses, retail and commercial.

1. Introduction

This report outlines the design criteria and considerations taken into account with regard to the provision of charging of electrical vehicles within the proposed residential development at Barnhill Garden Village. The proposed development comprises construction of 1,243 residential units, a creche, village centre, railway plaza providing access to Hansfield railway station; land set aside for a primary school, a public park, a series of pocket parks throughout the development, plus all ancillary site development works. A full description of the development is provided in the Planning and Design Statement which accompanies the planning application.

Electric vehicles chargers (EVC) today range from 3 kW to 350 kW and the charging time depends on type of the electric car charger, the model of vehicle and how full the car battery is when it is plugged in.

The following standards currently apply to EVSE (Electric Vehicle Supply Equipment);

- IEC 62196 – Vehicle Connector and Inlets
- IEC 61851 – Electric Vehicle Conductive Charging System
- IEC 15118 – Road Vehicles V2G

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- ETCI ET101/CRU/Safe Electric
- OCPP (Open Charge Point Protocol) /OCA (Open Charge Alliance)
- EMi3 Ertico

2. Design

There are in total 1,593 parking spaces in the development located. This includes 142 visitor parking spaces, 46 spaces associated with commercial & creche uses and 48 spaces located in the school/public open space car park.

The proposed parking spaces are gathered around blocks of houses/apartments. For purpose of this report, a block of houses/apartments is defined as an area of houses /apartments surrounded by secondary roads.

2.1 Installation of 10% EV Charge Points.

To comply with the EPBD it is proposed that a minimum of 10% of all houses will be provided with an EV charging point and all proposed units have been designed to accommodate the provision EV charging points in the future.

The final installation of which manufacturer is yet to be decided. Space numbers and positions shall be submitted, and agreed in writing, with the planning authority prior to commencement of development.

All EV chargers are proposed to be operated by a specialist Charge Point Operator (CPO). Their remit will be the on-going management of the charge points, including access through RFID/mobile app, collection of fees and park time controls.

The EV chargers are designed to charge 2 no. vehicles from the one EVC unit. It is proposed to install a twin unit 2 x 7.5 kW in locations to be agreed.

The units are fitted with a meter in order to meter the electricity used for charging in accordance with calibration law.

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Images of proposed EVC units.

Pedestal Unit

Wall Mounted Unit

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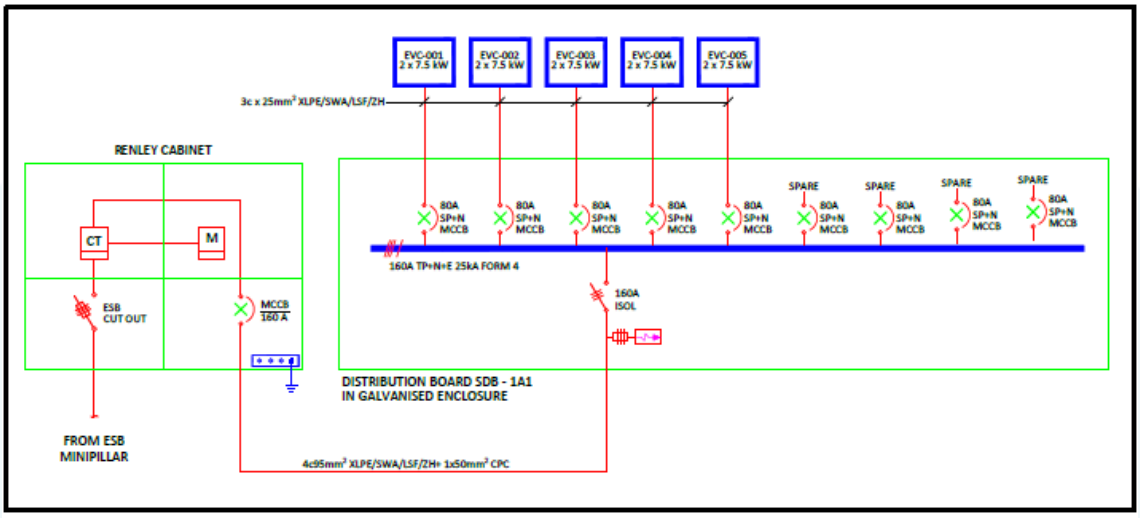
Pedestal Charging – Surface Spaces

Power supply for the EV chargers will be taken from an ESB mini pillar. The ESB mini pillar will in turn feed a Renley cabinet that will house ESB cut-out fuses, ESB meter and the customer breaker. The Renley cab will in turn feed a sub-distribution board (SDB) which in turn can power up to 9 no. double EV charging units (18 parking spaces). Refer below for in depth schematic:



TYPICAL ELV SCHEMATIC
SCALE N.T.S.

To optimise energy usage and vehicle charging time a Dynamic Load Balancing (DLB) system can be installed within each group of EVCs (units fed from same ESB supply).

Dynamic Load Balancing allows for the optimising of available power to EV charging infrastructure. All EV's receive maximum power until the number of charging sessions reaches the available power supply. As additional EV's are added the available power is equally distributed amongst all EV's within the group. As charging sessions end spare capacity is redistributed among remaining EV's.

The final installation may use different software for DLB aiming to achieve the same result.

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Wall Mounted Charging – Undercroft Spaces

Power supply for the EV chargers will be taken from an ESB mini pillar. The ESB mini pillar will in turn feed a sub distribution board (SDB) that will house ESB cut-out fuses, ESB meter and the customer breaker. The SDB can in turn can power a number of circuits of up to 12 no. single EV charging units.

To optimise energy usage and vehicle charging time a Dynamic Load Balancing (DLB) system can be installed within each group of EVCs (units fed from same ESB supply).

Dynamic Load Balancing allows for the optimising of available power to EV charging infrastructure. All EV's receive maximum power until the number of charging sessions reaches the available power supply. As additional EV's are added the available power is equally distributed amongst all EV's within the group. As charging sessions end spare capacity is redistributed among remaining EV's.

The final installation may use different software for DLB aiming to achieve the same result.

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2.2 Provision for future 100% EV Charges.

Power supply to the development will be provided by 5 no. ESB substations which will have available capacity for 100% car charging points

Underground ducts will be installed to all external car parking spaces allowing for future installation of EV charging stations.

All future EV charging stations will be powered by ESB mini pillars. Additional power distribution system in form of sub-distribution boards and meter cabinets as described above will be required to feed full 100% EVC load.

It is the intention to roll out the above strategy for the initial phase of the development and as the subsequent phases commence, replicate this process.

All wiring will be designed in accordance with ETCI National Rules for Electrical Installations ET101:2008.

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3. Electric Bike Charging

All houses in the proposed development will have capacity to provide charging points for electric bikes.

For apartment/duplex units communal public facing e-bike charge points will be installed. These will be operated by a specialist Charge Point Operator (CPO). Their remit will be the on-going management of the charge points, including access through RFID/mobile app, collection of fees and park time controls.

The e-bike chargers are designed to charge 4no. bikes from the one EVC unit.

Typical E-Bike Charger