



Scaling on Street Charging Infrastructure

D3.2 Report on design of 1st cohort pilot sites

Acronym:	SOSCI
Full Title:	Scaling on Street Charging Infrastructure
Coordinator:	Cybermoor
Project Duration:	11/2019 - 03/2021
Website:	www.sosci.co.uk
Partner:	Bay Camera & Communications
Contact:	Steven Briggs
Email address:	steven@baycamcomms.co.uk
Website:	www.baycamcomms.co.uk
Work Package:	WP3
Deliverable:	D3.2 Report on design of 1 st cohort pilot sites
Lead:	BAY
Authors:	Ady Powell, CmS
Contributors:	Steve Briggs, BAY
Internal review:	Daniel Heery, CYB

Report Written: 13.05.2020

Contents

1. Executive Summary	2
2. Introduction	2
3. Completed Activity	3
Standard Install Using Building Power	3
Standard Install Using DNO Power	4
Integration of local renewables and installing battery storage	6
Green Space Parking	7
4. Lessons Learned	8
5. Conclusions/Next Steps	9

1. Executive Summary

It was clear from the outset that there would be no such thing as a standard install, given the huge range of locations that the project is looking at. However, a certain degree of standardisation was necessary, in terms of cost control, simplification of the install process, and with regard to future integration with Miralis' software solutions. Steve Briggs at Bay Camera & Communications has designed a bespoke Master Circuit Board (MCB) that will be used across all of the West of Pennine sites, with a set of specified ancillary equipment depending on the type of electricity connection (DNO or building), and type of data connection (ethernet or 4G). A standard feeder pillar cabinet has been specified, along with the groundworks on which it will be mounted, allowing site costs to be more predictable. The remaining variable is the groundworks costs for the electricity connection.

While there have been no installs to date, initially due to difficulties identifying suitable sites, then resolving legal issues and LA procurement requirements, and now with COVID-19 restrictions, we are confident that we now have a robust process once installs begin in earnest.

2. Introduction

It was planned that a number of chargepoint installations would be completed by the end of Q2, but there have been significant delays due to difficulties identifying suitable sites, resolving legal issues and LA procurement requirements and COVID-19 restrictions. However, there has been much time and effort spent on surveying sites, getting ENWL DNO connection quotes, and designing the hardware to be used so that at each site the installation engineers and groundworks contractors will find nothing unfamiliar. Using BAY's expertise and leverage in the electrical wholesale market has led the project to have a robust, high-quality and affordable solution across the West sites.

There have been lengthy discussions with a local contractor, Briscoe Construction, about the required groundworks and their costs, which have enabled us to have a predictable set of costs for each type of install. Briscoe were chosen for the scale and reputation of their operation, and they are already a preferred contractor of SLDC. It was hoped that this could lead to a single groundworks contractor for the project across the North West, but unfortunately Local Authority procurement rules appear to require that each area goes out to tender, causing severe delays. Similarly, it was hoped that very specific component requirements for the Master Circuit Board (MCB), along with BAY's buying power, would also satisfy procurement requirements, but at this moment in time it is unclear whether that is the case.

For these reasons, the design cases described below are proposed Charge My Street funded installations, as we can be sure what equipment and groundworks are involved.

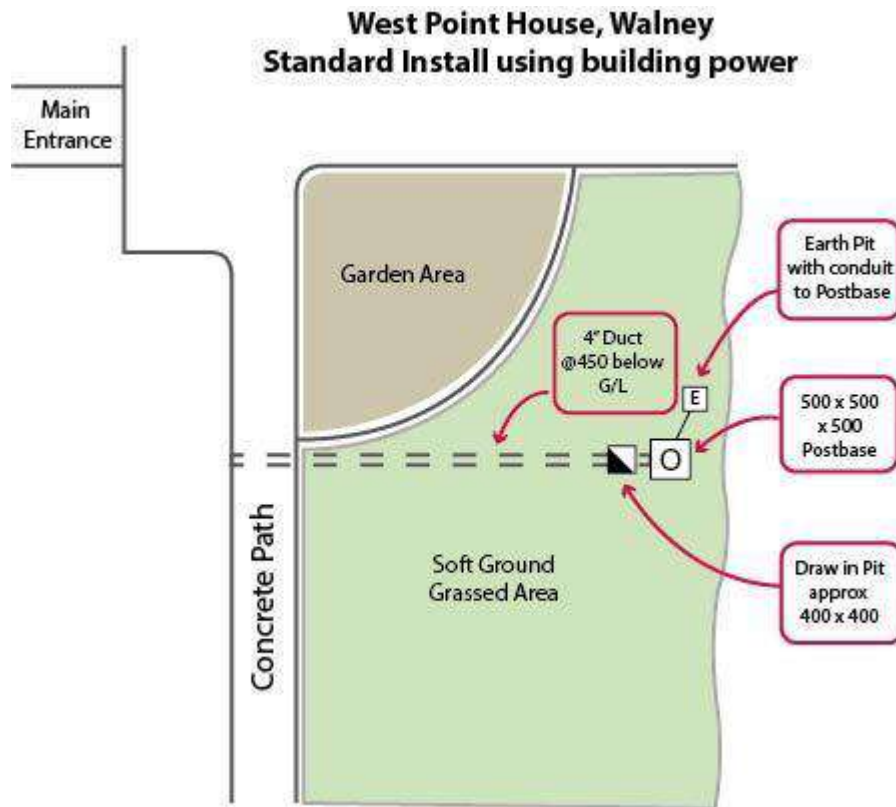
3. Completed Activity

Standard Install Using Building Power

West Point House, Walney, is a multi-roomed residence housing contract workers for periods of between 3 months and 3 years while they are working in the many industries in Barrow. Many of the contract workers have enquired about EV charging availability. The building has a robust 3 Phase power supply which, in conjunction with our chargepoints' load management system, is easily able to cope with the extra demand. The owners of the business also own the freehold.

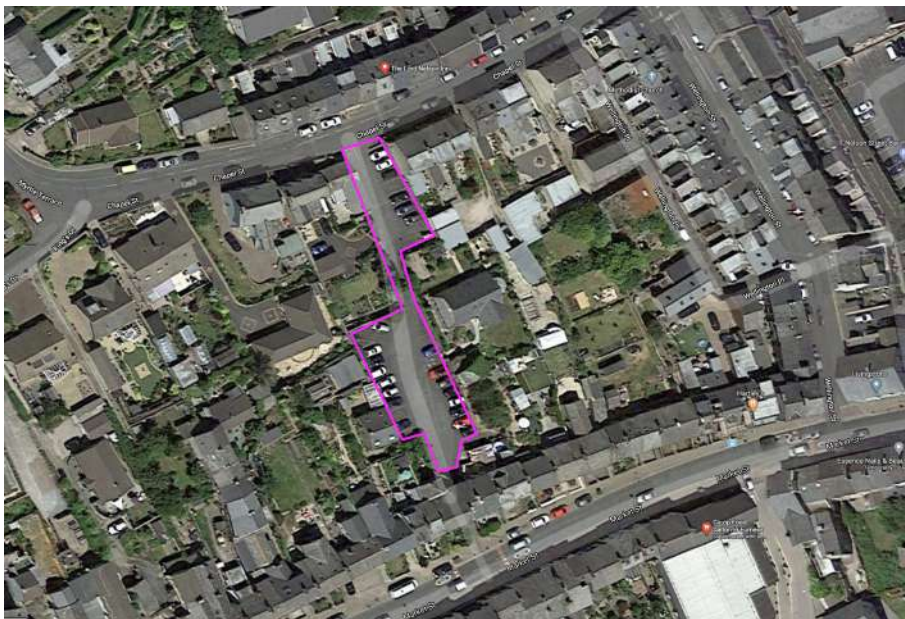
The building's distribution board and data room are close to the car park, requiring limited extra groundworks. EV bays are to go to the left of the disabled bay pictured.





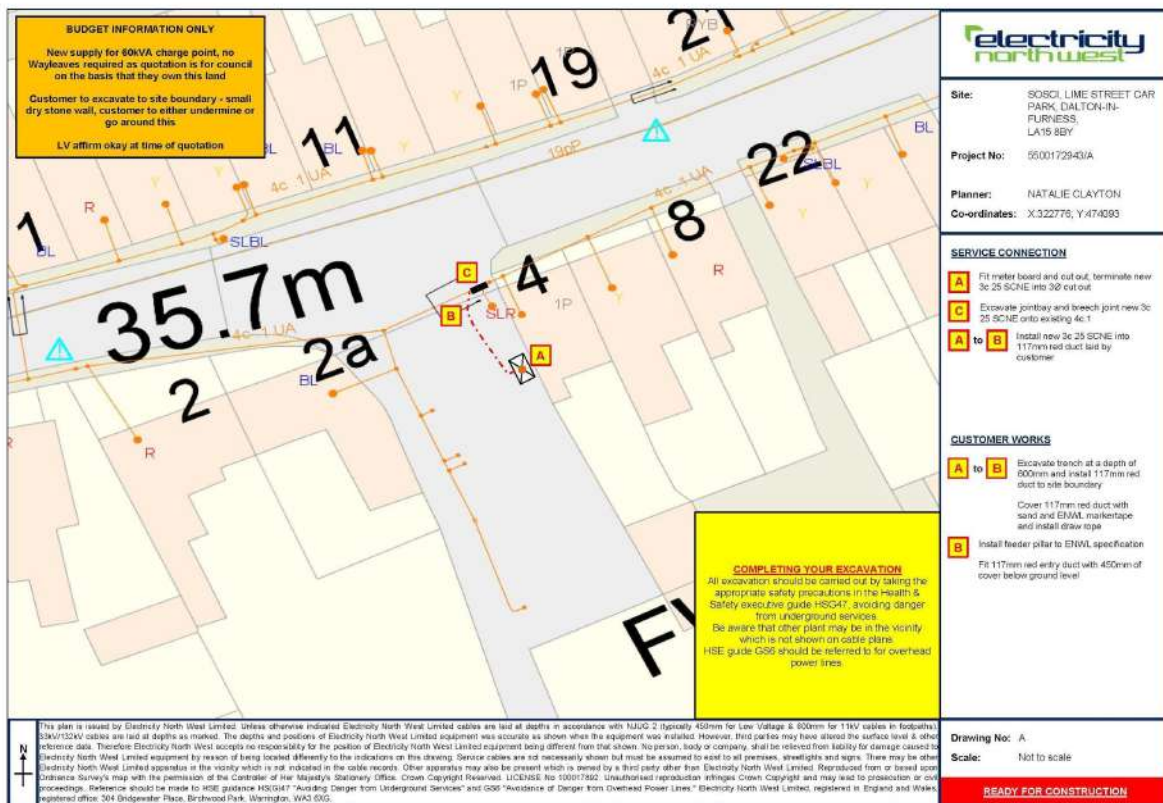
Standard Install Using DNO Power

Lime Street car park in Barrow-in-Furness is owned and operated by Barrow Borough Council. It is intended to be a pilot site with a view to working further with the council. The project has a dedicated team at ENWL and with their advice, the optimum location was found at the Chapel Street entrance.





ENWL provided a budget quote for this location of £2,585.80 + VAT with construction drawing



For all future installs we propose line painting along the lines of this design.



Integration of local renewables and installing battery storage

West Point House also has its own PV array, and given the nature of the freehold and the engagement of the owners, it was decided to explore how to use the array with the new chargepoints, and how to install battery storage to capture the excess electricity that is regularly produced.

While it was hoped that this would be a straightforward process, it was soon discovered after lengthy email discussions that this was far from the case.

To summarise, in this case integration with the existing array will require a fair degree of adaptation. In an ideal world the installation of a new, fully-integrated system is much simpler, but as was highlighted in the [report in SOSCI phase one](#), the commercial figures don't stand up, with the break-even point far in the future (>60 months). There is also the tricky question of type and capacity of battery storage and how it will be used.

Green Space Parking

In many areas of Co Durham there is no easily identifiable N2P2 parking area, and some properties don't even abut the road – as shown below.



However, there is ample green space available, often in tiny patches – which could prove suitable for the installation of EVCPs. We requested estimated costs from a groundwork contractor, based on the options below.

The figures produced have provided an estimate that can be included when reviewing the options for appropriate sites.



Site 1 – hard standing, possibly with hardcore already in place

Site 2 – on grass but with ready access to existing road – no need for dropped kerb

Site 3 – as site 2, but accessed from road and need to cross pavement – so dropped kerb required.

The amount of space should be for 4 parking spots – see photo



Community Charge Hubs - Power resilience for emergencies/Flexible services

This use case involves an EV providing back up power from its battery to a community centre, during a power cut which is affecting a village. Resilience planning in communities has come to the fore as extreme weather events such as Storm Desmond have made community groups aware that they need to be more self reliant. This has also been highlighted during the COVID-19 crisis as parish councils have developed resilience plans to cope with expected failures of critical services.

The current state of the art is a community centre using a diesel generator for backup power and acting as a refuge for local residents who need a warm drink and to charge a phone.

Discussions have taken place with Indra that have developed the V2G chargepoint for the Ovo trial. They are working on a specification for the device which will require some customisation. A handful of sites have been identified to host the chargepoint and discussions are underway with the hosts.

4. Lessons Learned

The primary lesson learnt across the whole project has been with the challenges of the local authority procurement processes and the delays this has caused. The situation in the East, where there is one unitary authority (DCC), is simpler, but has still been a long process. In the West it was initially thought that the due diligence carried out on all project partners would satisfy many procurement requirements, along with using recognised contractors, but it is now feared that both groundworks and equipment will have to go out to tender, further delaying the project. We are currently exploring options to speed this up.

With novel use cases such as battery storage and renewable integration, delivering a solution which integrates with legacy systems appears to be the greatest challenge. The plethora of technical and commercial choices slow down decision making, hampered by a variety of equipment, suppliers, sub contractors and warranties.

5. Conclusions/Next Steps

Private sector partners had underestimated how long things can take in the public sector, and the knock on effect this has on the critical path of the project. However, we are now confident in our designs and processes for standard installs, such that when restrictions are lifted and more surveys are possible, the lead time between approval and a site going live will be reduced.

There are two next steps planned:

Initial groundworks for West Point House's CP are planned for Tuesday 5th May, with completion of the installation the following week.

Plans to commission a survey (when allowed) and design from GlowSolar (see email thread) to arrive at the optimum PV integration and battery storage solution. While an unforeseen expense, we feel this will definitely save time and money in the long term, not only with this one site.