

Fastned Response to Queries - 29.06.2022

Taking a step back, I thought it would be useful to first further explain our mission and the factors which have led to our current design and location principles.

Fastned's mission is to give freedom to electric drivers and accelerate the transition to sustainable mobility. A core aim is to provide the best user experience for fast charging (300kW+) for all electric vehicles on primary routes, to create a network of stations which will unlock cross-country, regional, and local journeys. We envisage 1000 fast charging stations at prime locations across the UK and Europe, where EVs can charge with 100% renewable energy. For us, freedom incorporates the best possible customer experience for EV drivers - an experience that is safe, intuitive and consistently reliable - and one that we have developed through several iterations over the previous 10 years. In Europe, particularly in the Netherlands, where 80 percent of our 200+ stations are located, the Fastned name and wings motif have come to represent industry-leading and effortless charging.

Location Choice

The planning policy context summarised in section 3 of the Planning, Design and Access Statement that accompanies this application details the policy background as to why it is essential to rapidly develop renewable energy and EV charging infrastructure if we are to deliver on the Government objective for almost every car to be a zero-emission vehicle by 2050. Indeed, The Automated and Electric Vehicles Act 2018 (as amended) seeks to improve the network of EV charging points to this aim and has geared the national and local planning policy towards the provision of this network.

A key aspect currently inhibiting the mass adoption of EVs in the UK is the availability of reliable charging infrastructure. The phrase of 'range anxiety' has long been used, caused by the possibility of not completing a journey due to lack of charge, but this is now coupling with 'charger anxiety' due to not knowing when or where a charger will be found. To enable longer journeys with batteries of limited (but growing) capacity it will be important to have a network of facilities along major routes. Fast-charging facilities on main routes with high traffic numbers require minimal dwell time and increased utilisation of chargers providing users with short mid-journey stops.

This site is an ideal location to serve Barnsley and beyond due to :

- Close proximity to junction 37 of the M1 and also the A628
- Use of existing access point to the land
- Good visual presence on the dual carriageway
- Existing amenity access to complement charging (pub, hotel, and future cafe)
- Availability of electrical supply / grid connection

Design & Space Requirements

The proposals incorporate stylised sustainably sourced timber 'tree' structures with a natural finish and lightweight glazed canopies which allow light transmission and shelter from the elements whilst charging. The concept of the tree-like structure has been designed with sensitivity to balance a natural aesthetic with the Fastned branding, causing drivers to associate the yellow-trimmed canopies with fast charging. The structures themselves are modular units and have flexibility to be deployed on multiple topographies and in different contexts. The canopies are prefabricated at set dimensions which enable efficient engineering, manufacturing, and installation processes. This is important to achieve our mission quickly enough for charging infrastructure not to become a bottleneck for the mass uptake of electric vehicles - a race against the clock! The canopy silhouette has become uniquely distinguishable as Fastned fast charging.

The technical area includes open topped plant enclosures for the transformer and low voltage switchgear. There is no accompanying habitable space or payment kiosk due to the electronic nature of payment directly at chargers. This has made possible a lean, design-focussed on delivering the essentials of high power charging in a safe and inclusive environment.

Fastned's internal space standards have been developed over the previous decade of building similar stations in 6 countries including the UK (where we opened the UK's first high-power drive-through hub in Sunderland in 2019) and cater for all cars and users - rather than, for instance, Tesla chargers which are optimised for consistent charging port position on their own cars. To cater for all types of cars and users, our charging bays are 3m wide - wider than the 2.4 or 2.5m bays commonly used within car parks. For this reason, our space-take can often be larger than competitors - but for good reason.

Customer security and comfort are integral design parameters. We believe EV drivers are just as important as petrol/diesel drivers, and so should have shelter from the elements and lighting to provide a visibly safe space to operate in, rather than be tucked away in an exposed corner of a car park with inadequate lighting as is so often the case. A perceived lack of security and safety at existing UK charge points has recently led to the creation of an independent rating and certification body that, with the backing of the head of the AA, aims to drive a sea-change in the quality of charging provision. It will score facilities on a number of metrics, in particular whether a site has lighting, CCTV, a canopy, maintenance, and 24/7 customer support.

Visual Impact & Positioning of canopies

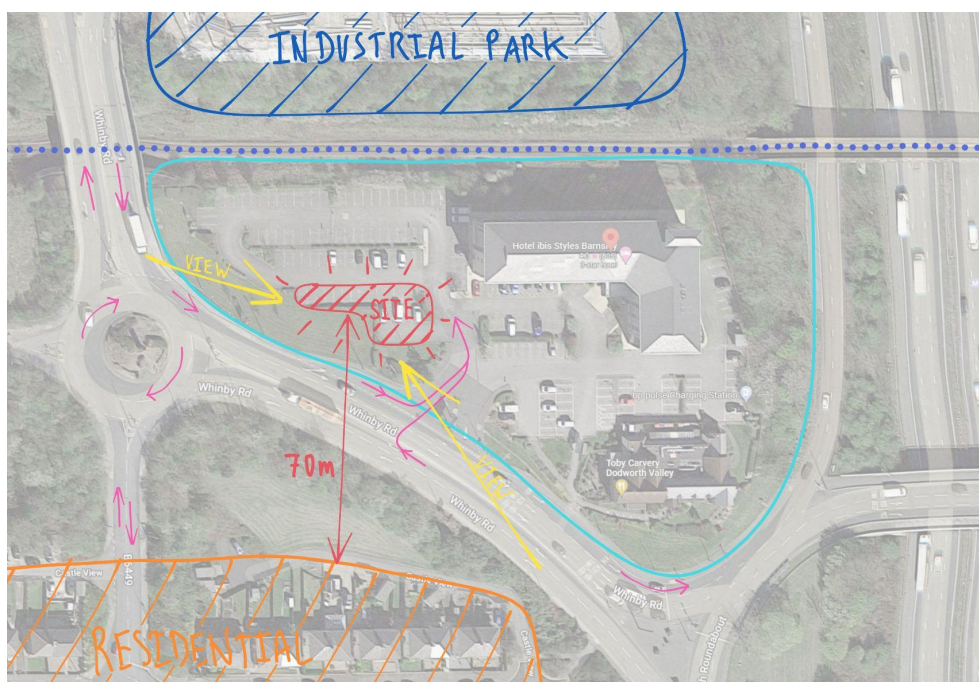
Visual identification from afar is extremely important to help to diminish the feeling of 'range anxiety', where drivers need to charge but do not know when or where they might see the next charging point. On major roads signage and identification from afar becomes even more important as vehicle speeds are higher and more planning is required to navigate to the charging points - a very different

experience to driving in slower speed residential areas.

For efficient wayfinding as well as safety, having a visual sight-line to the charging station itself is beneficial. In-car navigation systems and apps are ultimately no match for physical wayfinding once users are in close proximity to the destination - who has not been frustrated by Google maps looking for a door number or shop-front once they have reached the correct road? Indeed, only higher-end EV's such as the Tesla have intelligent in-car route planners incorporating where to stop and charge along a route. For the newer crop of more affordable cars entering the market, drivers may still have to rely on their phones and visual identification. Furthermore, on the safety aspect of close-range navigation, driving towards a visual target leaves less room for driver error than when following digital instructions, and means EV drivers looking for the charging station do not risk clogging up car parks as they visually scan the vicinity for invisible chargers.

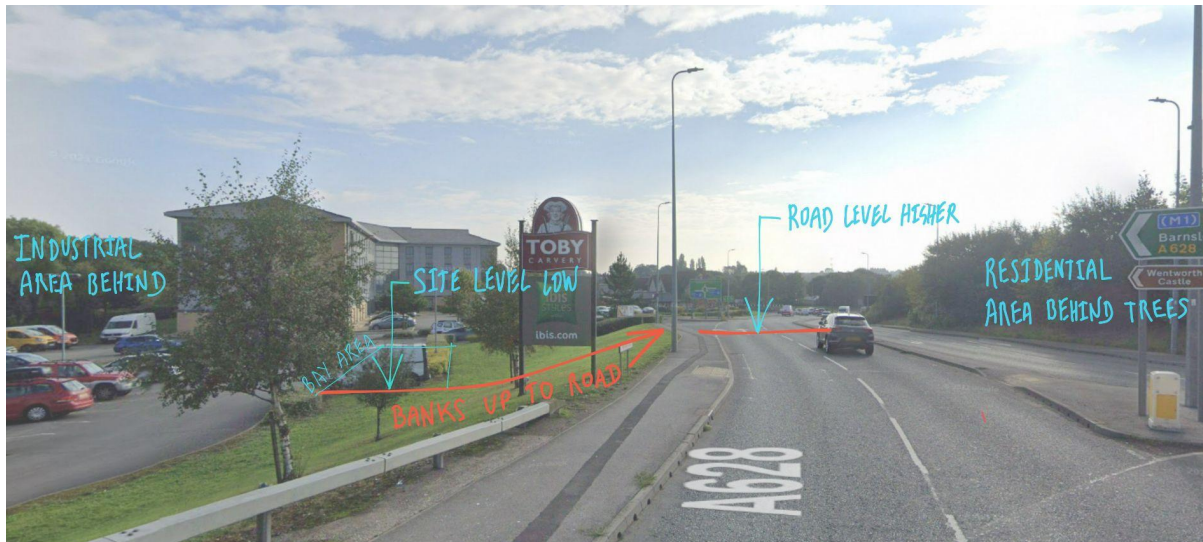
In light of the above, the row of parking bays closest to Whinby Road and the site entrance was chosen to be replaced with charging bays and canopies - this area is hatched red on Figure 1 below. As indicated by the yellow arrows, the area is clearly visible from the road, both directions, and close to the site access point. Being close to the access point enables charging customers to enter, charge and leave, without travelling too far into the hotel car park and enabling efficient circulation for both uses. Were the charging bays at the back of the site bounding the railway line (dotted blue line), then the canopies would be less visible particularly just after passing over the railway bridge looking left towards the site. This would also mean that charging customers need to navigate to the back of the site thus mixing further with regular parking bays. Another factor that comes into play when positioning along non-active boundaries/frontages such as the railway line, is that these areas feel less safe due to there being little passive surveillance - something which detracts from user experience.

Figure 1. Site overlay diagram



The wider plot is effectively an island surrounded by a motorway, dual carriageways and a railway line shown outlined light blue in Figure 1. Due to the nature of this major infrastructure we feel that the site location and canopies work well within the context. To the north on the other side of the railway are industrial warehouses. To the south is a residential area; the distance from the back of the gardens to the site is approx. 70m measured in a straight line. This together with the mature trees bounding the residential area and the fact that the site is lower than Whinby Rd, will mean that there is no visual impact towards the residential area. Figure 2 below shows the site banking up to the road and also the trees to the right.

Figure 2. Google view from Whinby Rd



Similar Fastned charging station: Ramac Way, Greenwich, London

Photograph 1 of 3:

- View from entrance
- 6 charging bays with 3 canopies
- Substation, LV switchboard cabinet and totum can be seen to the left of the image



Photograph 2 of 3:

- View from street



Photograph 3 of 3:

- Canopies seen on a sunny day
- Light filters through the glazed canopies and photovoltaic cells within the glass to create a dappled effect inspired by light filtering through tree canopies



Similar style of canopy located in carpark in Europe::



Objections

Having looked at the extreme events in the linked video and articles, we view safety as a primary concern and realise our duty of care to our customers and the general public. Fastned stations conform to all relevant safety regulations and have been tried and tested in the field over the previous decade - we have recently completed our 12th station here in the UK on the Oxford ring road. All infrastructure on site adheres to rigorous standards, rules and regulations. For example, the Distribution Network Operators (DNO) have stringent regulations for substation design and adopt the substation once satisfactorily constructed. The electrical wiring and ducting is carried out by certified electrical professionals and the chargers that we use are manufactured by Alpitroic in Italy - they are leaders in their field and are used by many other leading EV charging companies around the world. There are no large lithium batteries on site other than those that arrive on wheels to be charged. We believe that our station design is in fact safer than a petrol filling station as there are no readily flammable liquids in the vicinity.

On a wider point, the EV industry is a young but rapidly evolving industry and battery technology is improving every day, much like the early days of the internal combustion engine. EVs are set to play a major part to meet the Government's emissions targets and are exponentially increasing in number. The industry is seeing heavy investment by both private and public bodies, which is driving the rapid development into a mature and safe technology much like the computer processor industry in the early days. Had we not proposed an 8-bay charging station in this particular location, there would ultimately be a number of EV's parked in the car park belonging to customers of the hotel. Indeed, in just a few years the majority of cars parked here will be fully electric.

Although it is not within our power to directly affect the battery industry, we have considered such extreme events and the effect they may have on our canopy structures. The canopy structures have been engineered for worst case scenarios with respect to wind and snow loading as well as hypothetical collision and fire. The glulam timber structure meets relevant fire regulations. In fact, counter intuitively, third party research has shown that mass timber holds up to fire longer than traditional steel structure. This is because timber chars predictably at a constant rate and charring seals off oxygen to the structure beneath causing it to burn more slowly whereas steel heats to a certain temperature and then tends to fail quickly and unpredictably. A good example of modern mass timber construction is no. 74 Rivington Street in London by Waugh Thistleton Architects (renowned for tall timber construction). They have completed a full glulam timber frame for a 6 storey office building.

The glazing in our canopy structure is laminated so will not shatter when thermally or mechanically shocked. The chargers are connected back to Fastned in-house 24-7 operations department where electrical behaviour out of the ordinary is tracked in real-time, and our CCTV can enable our Operations team to spot and report a fire if it was to occur. Beyond this, we have previously engaged with local fire departments on the opening of our stations to ensure they are aware of the particular infrastructure installed. Ironically, fire officers attended the opening of our first station in the UK in Sunderland, thinking it was a petrol station; once they realised our chargers were electrical, they

confirmed they had no further interest.

Notwithstanding the above, we also note that, so far, evidence is confirming that EVs are actually far more fire-safe than traditional combustion engine vehicles. The [linked report](#), while based on (NTSB and BTS) data from the USA up to June 2022, shows that EVs are at least 62 times less likely to catch fire (per 100,000 sales) than petrol cars. In our current news environment it appears that the relatively small number of EV fires that do occur are far more “click-worthy” than thousands of petrol engine fires, and so receive disproportionate coverage (potentially polarising opinion unfairly).