

**PROPOSED HYDROGEN PRODUCTION FACILITY
LONGLAND LANE, MARGAM, PORT TALBOT**

Transport Statement Rev A

August 2024

Proposed Hydrogen Production Facility
Longland Lane, Margam, Port Talbot

Document Control Sheet

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1.0 INTRODUCTION

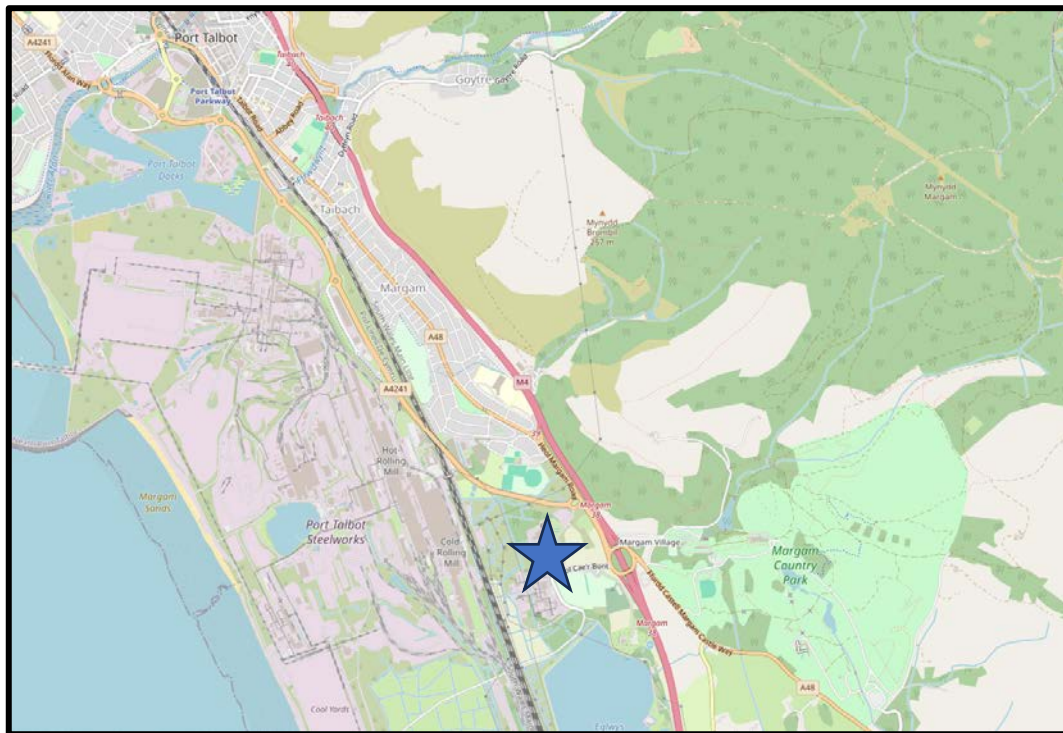
1.1 Appointment of Connect Consultants

- 1.1.1 Connect Consultants Limited is a firm of transport planning and highway design consultants that have been instructed by Sirius Planning Limited on behalf of Western Bio Energy Limited (WBE) as the Applicant and Protium Green Supply Limited (PGS Ltd.) as the Agent to prepare a Transport Statement in support of the planning application for a Hydrogen Production Facility at Longland Lane, Margam, Port Talbot.
- 1.1.2 This Transport Statement (Report) has been prepared in response to a request for additional information requested by the Highways Department of Neath and Port Talbot Borough Council (The Council).

1.2 Site Location

- 1.2.1 The proposal site (herein referred to as 'the Site') is located within the Western Bio-Energy Plant (Biomass Plant Site) operated by WBE, located off Longland Lane Margam, Port Talbot, SA13 2NR.
- 1.2.2 The location of the Site is shown at Figure 1.1 below.
- 1.2.3 The Hydrogen Production Facility (Proposed Development) will be located along the northern border of the wider Biomass Plant site, on an area that predominately comprises an existing flat hardstanding used for open storage but also incorporates a small area of unutilised bare ground.
- 1.2.4 The Site currently generates renewable energy through the process of combustion of waste / reclaimed wood and wood chips. All elements of the existing Biomass Plant Site will be retained as part of the proposals, with the Proposed Development as an additional element.
- 1.2.5 The Site is bound to the north by woodland and Margam Green Energy Plant, to the east by Longland Lane, to the south by Heol cae'r-Bont and to the west by undeveloped land.
- 1.2.6 Heol cae'r-Bont connects to the A48 and the M4 at Junction 38 (Margam Interchange), c300m to the east of the Site.

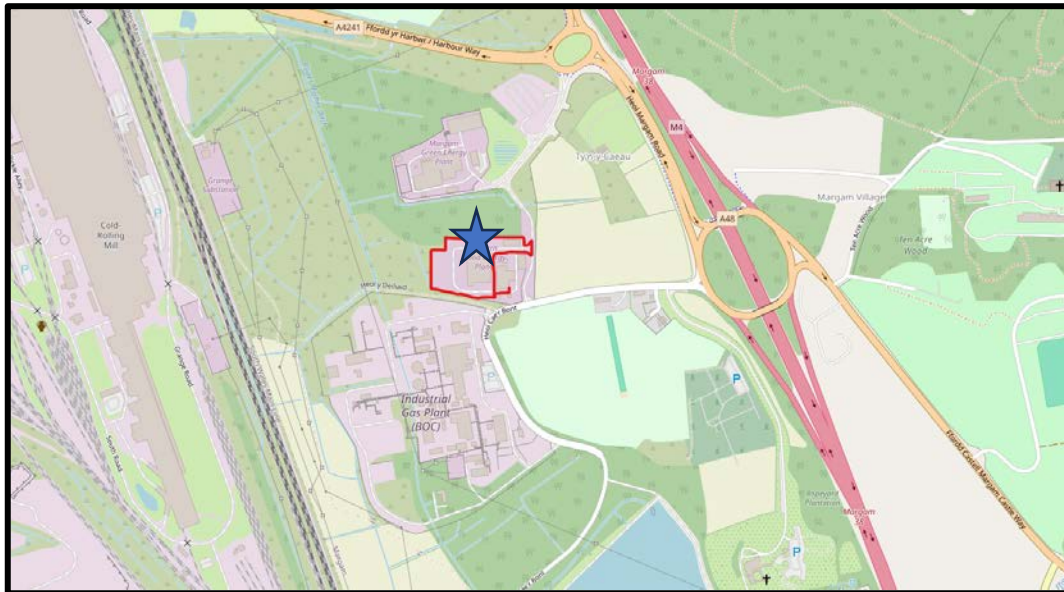
Figure 1.1 – Site Location Plan



Source: Openstreetmap.org

- 1.2.7 The Site is located to the east of Port Talbot Steel Works with Margam Country Park and Edlwyns Nunydd Reservoir located 1km and 575m from the Site respectively.
- 1.2.8 Margam Green Energy Plant is located c120m north of the site and the BOC Gas and Gear site is located to the immediate southwest of the Site.
- 1.2.9 Figure 1.2 below identifies the context of the Site in relation to the local area. The red line details the application red line boundary, whilst the blue star shows where the Proposed Development would be located.

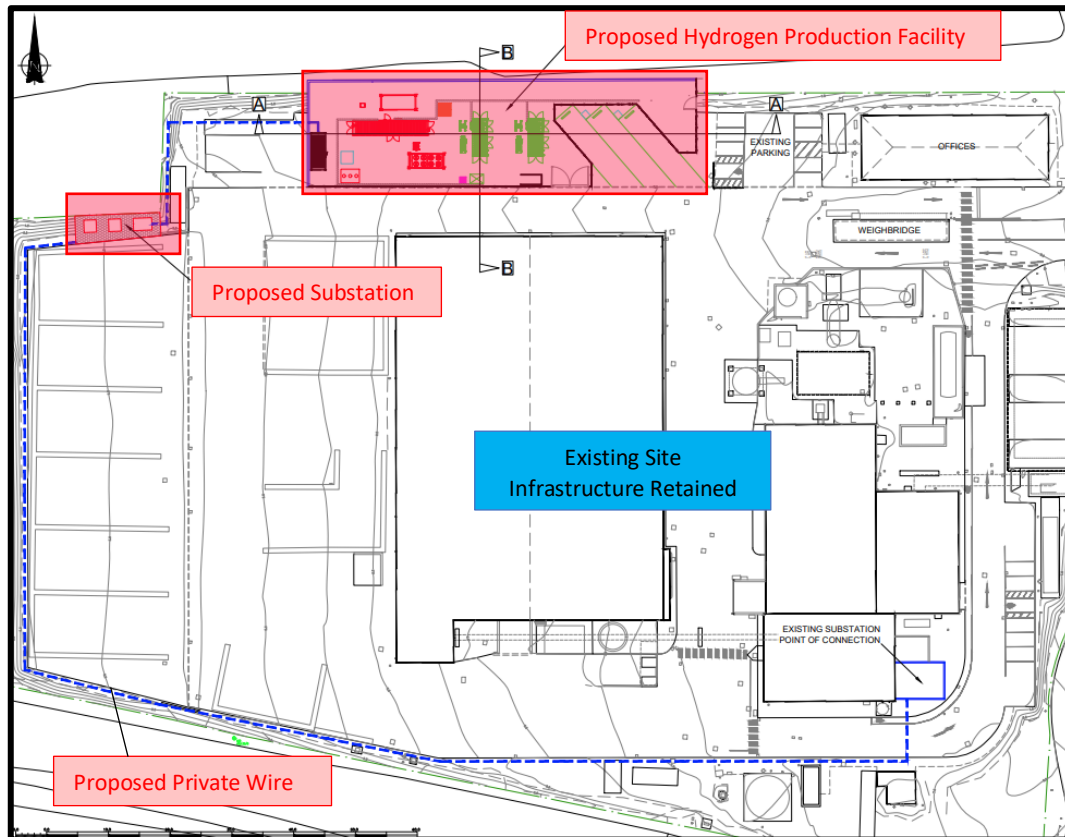
Figure 1.2 – Site in its Local Context



Source: Open Street Map Development Proposals

- 1.2.10 The Proposed Development is shown on the plan provided at Appendix 1.
- 1.2.11 All elements of the existing Biomass Plant Site will be retained as part of the proposals, with the Proposed Development an additional element located on an area that comprises an existing flat hardstanding to the north of the Biomass Plant Site.
- 1.2.12 This is shown at Figure 1.3 below.

Figure 1.3 – Development Proposals



Source: Sirus

1.2.13 The Proposed Development will consist of: -

- An Electrolytic Hydrogen Production Facility and associated compression and storage
- A Hydrogen Tube-Trailer Filling Station.
- Renewable electricity provided from the Biomass Plant via a private wire (connected to the Biomass Plant Site Sub Station).

1.2.14 The Proposed Development will produce up to 960 kgs of green hydrogen per day, which will be trailered offsite to regional customers. It is estimated that the system will abate approximately 3,000 tonnes of CO₂ per year whilst also reducing tail-pipe emissions from conventional vehicles.

1.2.15 The Proposed Development will be accessed via the existing access from Longland Lane (private) and Heol cae'r-Bont.

1.2.16 The Local Planning Authority and Highway Authority is Neath Port Talbot County Borough Council (NPTCBC).

1.2.17 The Applicant has engaged in informal and formal pre-application consultation with the Council via a pre-app request submitted on 22nd February 2024. Connect have also engaged with the NPTCBC highways team.

1.3 Planning History

1.3.1 A planning application (local planning authority reference P2024/0296) was submitted to NPTCBC for the Proposed Development in May 2024.

1.3.2 Comments were received from NPTCBC highway team dated 13th June 2024. A copy of the comments is provided below: -

"1. Additional parking should be provided in accordance with our parking standards or a comprehensive parking management plan should be submitted outlining how the existing provision will be suitable for both the existing and proposed use.

2. A Transport Statement is required.

3. There is confusion as to which access road needs to be used for vehicles servicing the existing development. The PDR spur that the original consent references was never built and the existing road linking from the 'Biomass 2' access road is unsuitable (and currently blocked off). It would therefore be prudent if a meeting between Highways and Planning could be arranged to discuss access arrangements to this site.

4. The maximum size of the vehicles servicing the facility shall be restricted to the vehicle size shown on the swept path analysis drawing.

5. Unless otherwise agreed in writing by the Local Planning Authority, No development shall take place until a Construction Method Statement has been submitted to and approved in writing by the Local Planning Authority. The approved Statement shall be adhered to throughout the construction period."

1.3.3 This Report has regard of the above comments.

1.4 The Vision

1.4.1 The following vision statement has been provided by the client.

"Climate change is generally considered to be the greatest existential threat to the environment, our way of living and humanity in general. Addressing this huge challenge requires a sea change in how we live our lives in the future and the decisions we make.

In order to address this challenge, the UK Government have set a target to decarbonise the power grid thus moving away from fossil fuels and replacing this capacity with renewable energy.

In addition to this, the past few years has brought into stark focus the need for the UK to improve its energy security to ensure both continuity of supply, reduced costs to the consumer and avoid future price spikes caused by geo-political events.

In response to this additional challenge, the UK Government has published The British Energy Security Strategy which commits to strengthening Britain's energy needs, moving from fossil fuels to home-grown, clean energy to eliminate emissions and tackle climate change.

This transition is predicted to result in an increase in electricity demand by 40-60%, all of which must be met from renewable and low carbon energy sources.

The Proposed Development will produce up to 960 kgs of green hydrogen per day, which will be trailed offsite to regional customers. It is estimated that the system will abate approximately 3,000 tonnes of CO2 per year whilst also reducing tail-pipe emissions from conventional vehicles.

The Proposed Development supports both Neath Port Talbot County Borough Council's and the Welsh Government's net zero targets."

1.5 National and Local Transport Planning Policy

Planning Policy Wales, Edition 12, February 2024

1.5.1 Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy for Wales.

1.5.2 The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015, the Well-being of Future Generations (Wales) Act 2015 and other key legislation and resultant duties such as the Socio-economic Duty.

1.5.3 Chapter 4 of the PPW *Active and Social Plans* sets out at paragraph 4.1.8 that,

"The Welsh Government is committed to reducing reliance on the private car and supporting a modal shift to walking, cycling and public transport. Delivering this objective will make an important contribution to decarbonisation, improving air quality, increasing physical activity, improving the health of the nation and realising the goals of the Well-being of Future Generations Act."

1.5.4 Paragraph 4.1.53 states: -

"Local authorities will need to ensure that their parking standards reflect local transport provision, are adopted by individual authorities as supplementary planning guidance, and are kept under review. Parking standards should be applied flexibly and allow for the provision of lower levels of parking and the creation of high-quality places."

1.5.5 Paragraph 4.1.56 relates to the production of Transport Assessments: -

"Transport Assessments are an important mechanism for setting out the scale of anticipated impacts a Proposed Development, or redevelopment, is likely to have. They assist in helping to anticipate the impacts of development so that they can be understood and catered for appropriately."

Planning applications for developments, including changes of use, falling into the categories identified in TAN 18: Transport²⁹ must be accompanied by a Transport Assessment. In addition, in areas where the transport network is particularly sensitive, planning authorities should consider requiring Transport Assessments for developments which fall outside of the thresholds set out in TAN 18.

Transport Assessments can be required for any Proposed Development if the planning authority considers that there is a justification or specific need. Transport Assessments provide the basis for negotiation on scheme details, including the level of parking, and measures to improve walking, cycling, and public transport access, as well as measures to limit or reduce levels of air and noise pollution. They should cover the transport impacts during the construction phase of the development, as well as when built and in use.

Transport Assessments also provide an important basis for the preparation of Travel Plans. Further guidance on Transport Assessments and Travel Plans is contained in TAN 18."

- 1.5.6 In relation to the Proposed Development Chapter 5 *Energy* sets out the following at paragraph 5.7.1: -

"The Welsh Government's highest priority is to reduce demand wherever possible and affordable. Low carbon electricity must become the main source of energy in Wales. Renewable electricity will be used to provide both heating and transport in addition to power. The future energy supply mix will depend on a range of established and emerging low carbon technologies, including biomethane and green hydrogen."

Planning Policy Wales, Technical Advice Note (TAN) 18: Transport, March 2007

- 1.5.7 TAN18 states the following in relation to traffic management at Paragraph 5.15 (this is relevant to the Construction Traffic Management Plan): -

"Well designed and implemented traffic management measures can help to secure planning objectives in a number of ways, including:

- reducing community severance, noise, local air pollution and traffic accidents;*
- promoting safe walking, cycling and public transport;*
- improving the attractiveness of urban areas by helping to avoid or manage congestion;*
- controlling on street parking (including resident parking schemes) in areas of high parking demand;*
- promoting safer road conditions leading to improved opportunity for children's safety and play; and*
- promoting safer road conditions in rural areas and reducing the impact of roads on the environment whilst maintaining access for rural businesses."*

Neath Port Talbot Local Development Plan 2011 to 2026 (January 2016)

- 1.5.8 Section 38(6) of the Planning and Compulsory Purchase Act 2004 requires that planning applications are determined in accordance with the provisions of the adopted Development Plan unless material considerations indicate otherwise. The Site falls within the administrative boundary of Neath Port Talbot County Borough Council.
- 1.5.9 The adopted Development Plan is the Neath Port Talbot Local Development Plan which covers the period 2011 to 2026 and was adopted in January 2016. The plan provides the basis for decisions on land use planning in the County Borough, up to 2026.
- 1.5.10 Under the adopted proposals map the Site is designated as within a safeguarded Coal Resource Minerals Area and within a Coastal Corridor Strategy Area. The eastern section of the Biomass Plant Site is designated as within a Settlement Protection Zone.
- 1.5.11 Policy SP20 and TR2 relate to highways. A copy is provided below: -

Policy SP20

"Transport Network

The transport system and infrastructure will be developed in a safe, efficient and sustainable manner through the following measures:

- 1. Implementing key transport projects and supporting schemes identified in the Joint Transport Plan;*
- 2. Promoting connectivity and access to public transport through improving bus and rail facilities;*
- 3. Supporting enhancements to the walking and cycling network;*
- 4. Promoting Park and share schemes along key highway routes;*
- 5. Promoting efficient use and links to the transport network through the identification of a road hierarchy;*
- 6. Restricting development which would have an unacceptable impact on highway safety;*
- 7. Requiring development proposals to be designed to provide safe and efficient access and promote sustainable transport;*
- 8. Requiring appropriate parking provision;*
- 9. Facilitating movement of freight by means other than road."*

Policy TR 2

"Design and Access of New Development

Development proposals will only be permitted where all of the following criteria, where relevant, are satisfied:

- 1. The development does not compromise the safe, effective and efficient use of the highway network and does not have an adverse impact on highway safety or create unacceptable levels of traffic generation;*
- 2. Appropriate levels of parking and cycling facilities are provided and the access arrangements for the site allow for the safe manoeuvring of any service vehicles associated with the planned use;*

3. The development is accessible by a range of travel means, including public transport and safe cycle and pedestrian routes;

4. Transport Assessments and Travel Plans are provided for developments that are likely to create significant traffic generation."

Joint Transport Plan for South West Wales

- 1.5.12 The Regional Transport Plan is the result of joint working between the four local authorities (Carmarthenshire, Neath Port Talbot, Swansea and Pembrokeshire) in south west Wales. It replaces the individual local transport plans previously adopted by the 4 councils. As well as acting as a bidding document for major transport schemes, it will shape transport policy in the region for the period 2015 -2020 and beyond.
- 1.5.13 The following is identified within the plan and will include the Site due to its proximity to the M4 J38.

Scheme Name	Description of Scheme	Priority	Local, regional or national significance
The Hydrogen Highway	Provision and development of hydrogen fuelling stations along the M4 corridor to complement the ongoing development of hydrogen transport technology associated with research and development in the local Universities	9	National
Bus corridor improvements at: - Port Talbot to Swansea - Margam to Port Talbot - Port Talbot to Neath - Neath to Swansea via Fabian Way	Improvements to facilities, bus priorities and information on strategic bus corridors to provide improved connectivity between communities, amenities and strategic employment sites.	2	Regional
Park & Share site on A48 near M4 junction 38	Provision of Park and Share site on A48 in Margam for commuters on the M4	8	Regional

1.6 Car Parking Policy

- 1.6.1 The parking standards applicable to the Proposed Development are set out in the NPTCBC Local Development Plan 2011-2026 Parking Standards Supplementary Planning Guidance adopted in October 2016.

1.7 Report Overview

1.7.1 The remainder of this Report is divided into five further sections, which are as follows: -

Section 2.0 Site Transport Context

1.7.2 This section of the Report provides details of the Site context, including its accessibility by all relevant transport modes.

Section 3.0 Proposed Development

1.7.3 The various components of the Proposed Development proposal, including the Site access arrangements and parking provision, are described within this section of the Report.

Section 4.0 Traffic Assessment

1.7.4 This Report section provides an assessment of the vehicular attraction of the Proposed Development and its traffic effects.

Section 5.0 Junction Capacity Assessment

1.7.5 The results of the traffic assessment have been used to inform junction capacity assessment, and the methodology and results are outlined in this section of the Report.

Section 6.0 Summary and Conclusions

1.7.6 A summary and the conclusions of the Report are provided in this section.

2.0 SITE TRANSPORT AND ACCESS CONTEXT

2.1 Introduction

- 2.1.1 This section of the Report considers the accessibility of the Site in terms of a range of transport modes.

2.2 Pedestrian Access

- 2.2.1 The Department for Transport's (DfT) document titled 'Manual for Streets' dated 2007 provides guidance in relation to walk distances. Section 4.4 gives the following advice: -

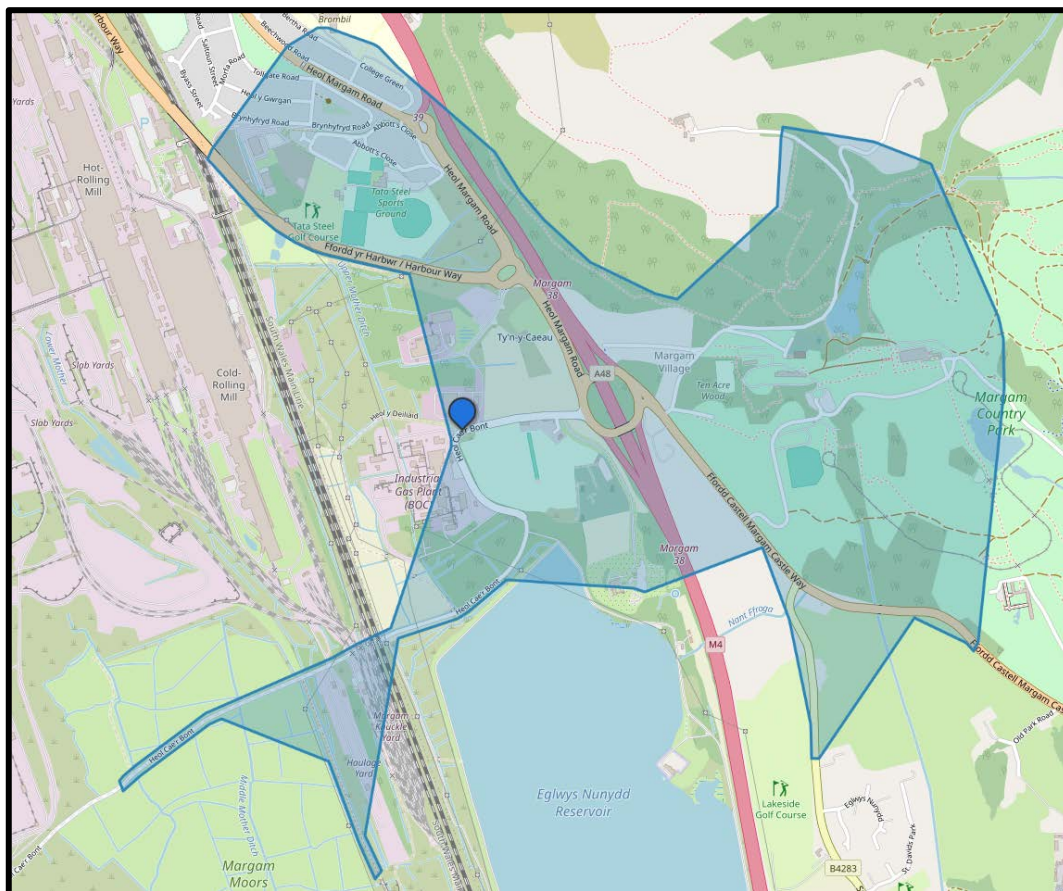
"Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (up to about 800 m) walking distance of residential areas which residents may access comfortably on foot".

- 2.2.2 The Chartered Institution of Highways & Transportation (CIHT) document 'Planning for Walking' (April 2015) reiterates the advice presented in 'Manual for Streets', Section 6.4 of 'Planning for Walking' states the following:

"Walking neighbourhoods are typically characterised as having a range of facilities within 10 minutes' walking distance (around 800 metres). However, the propensity to walk or cycle is not only influenced by distance but also the quality of the experience; people may be willing to walk or cycle further where their surroundings are more attractive, safe and stimulating. Developers should consider the safety of the routes (adequacy of surveillance, sight lines and appropriate lighting) as well as landscaping factors (indigenous planting, habitat creation) in their design."

- 2.2.3 Furthermore, 'Planning for Walking' indicates that approximately 80% of journeys shorter than 1 mile (1.6km) are made wholly on foot.
- 2.2.4 Table 3.2 of The Institute of Highways and Transportation (IHT) guidance document titled 'Providing for Journeys on Foot' identifies a maximum walk distance of 2.0km for commuter, school and sightseeing walk trips, 800m for town centre walk trips and 1.2km for trips elsewhere.
- 2.2.5 The actual distance that people will be prepared to walk will vary depending on the trip purpose and other factors such as the presence of road crossings, terrain, and the attractiveness of the environment.
- 2.2.6 Based on the walking distance of 2km, the indicative walking catchment of the Site is shown at Figure 2.1 below.

Figure 2.1 – Indicative 2km Walk Catchment



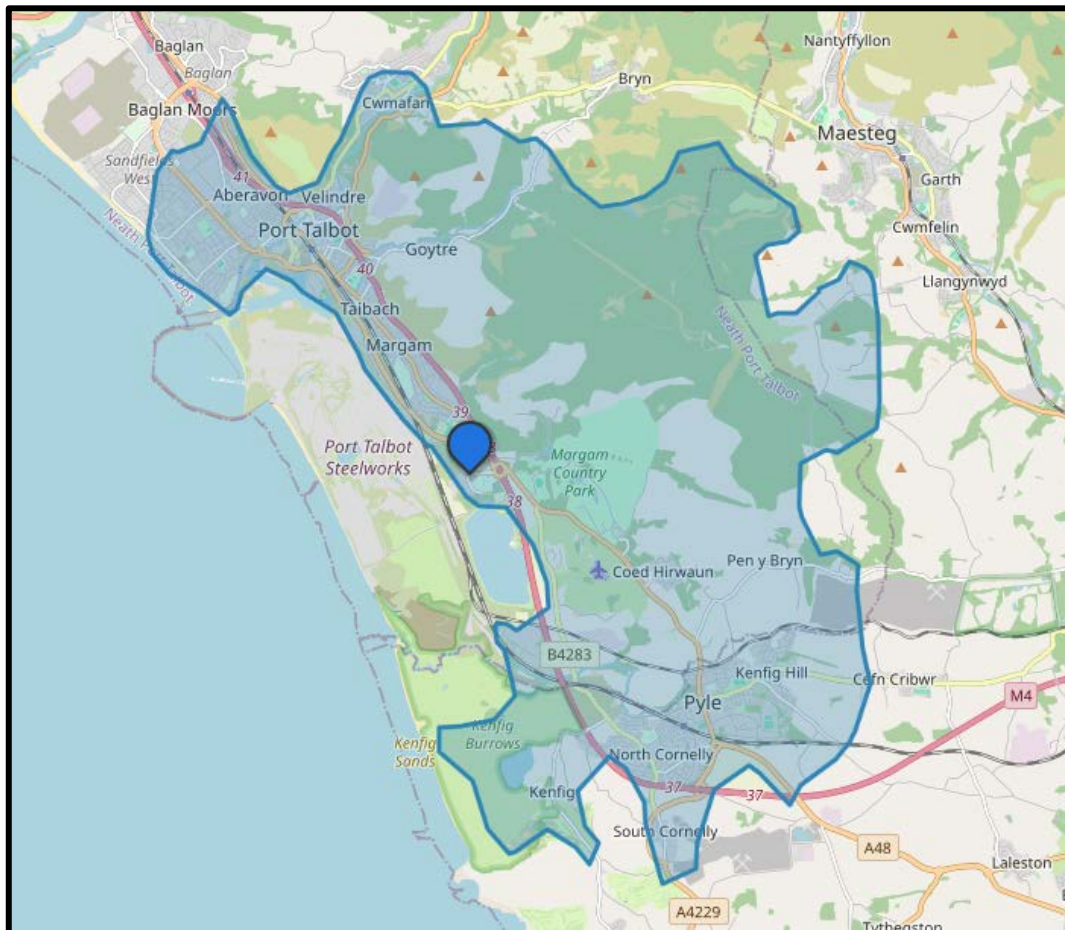
Source: Openrouteservice

- 2.2.7 The walk catchments above indicate that there are limited residential dwellings (a population of 593) within the 2km walk catchment.
- 2.2.8 The catchment includes a large proportion of Margam Country Park.
- 2.2.9 Within the Biomass Plant Site there are marked internal walkways and zebra crossing facilities provided for pedestrian access and routing.
- 2.2.10 Longland Lane provides a footway on the eastern side of the road (as far as the Site), connecting the Site to the local pedestrian network.
- 2.2.11 Heol cae'r-Bont also benefits from a footway on the northern side of the road which connects to a footway / cycleway on the western side of the A48.
- 2.2.12 The A48 / A4241 roundabout junction, c400m northeast of the Site, provides refuge island crossings with dropped kerbs and tactile paving. The roundabout provides pedestrian routes to Margam.
- 2.2.13 In light of the local pedestrian facilities, the Site is connected to the local pedestrian network with opportunities for the residents of Margam to walk to work at the Site. Walking also provides an opportunity for trips to the Site as part of a combined journey.

2.3 Access by Cycling

- 2.3.1 The CIHT document titled 'Planning for Cycling' (October 2014) indicates that 80% of cycling trips are up to five miles (8km) and 40% are less than two miles (3.2km). This suggests that cycling can offer an alternative to car travel particularly for trips of less than 8km.
- 2.3.2 An indicative 8km cycle catchment is shown at Figure 2.2 below.

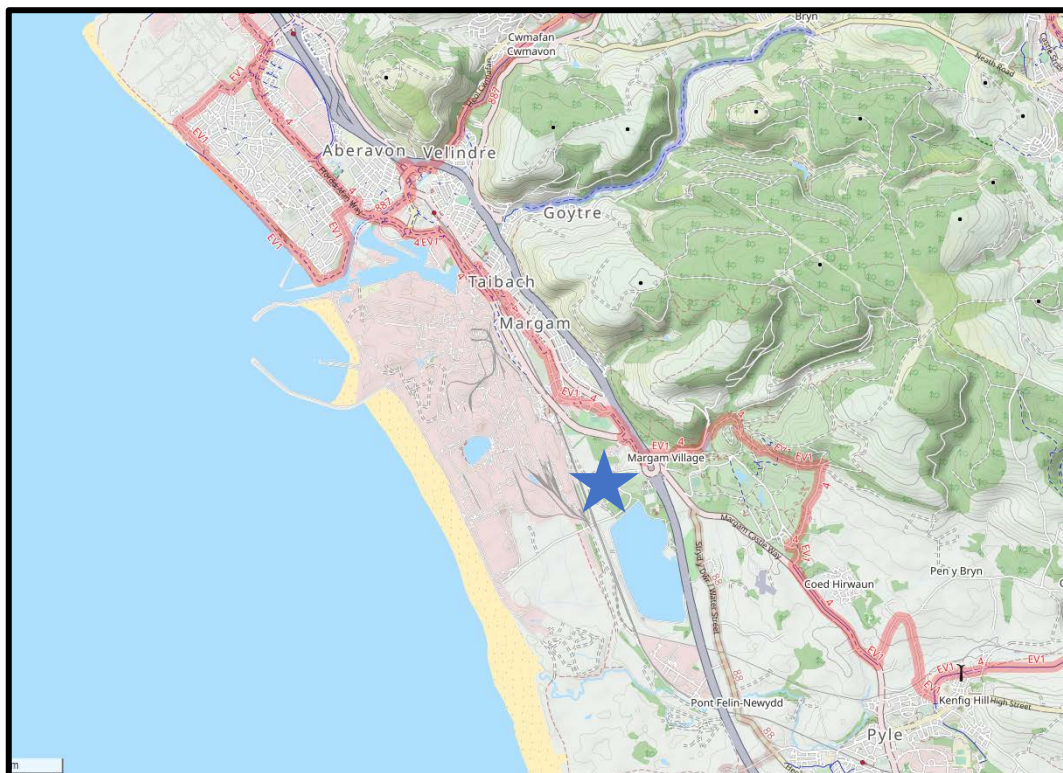
Figure 2.2 – Cycle Catchment Area



Source: Openrouteservice

- 2.3.3 The 8km cycle catchment includes all of Margam, Pyle, Taibach and the majority of Port Talbot. There is therefore a significant local population within cycling distance of the Site.
- 2.3.4 Figure 2.3 below, shows a cycle map for Margam and the surrounding areas taken from OpenStreetMap, showing local and national cycle ways in the area.

Figure 2.3 – Local Cycle Map



Source: OpenStreetMap. N.B. The proposal site is indicated by a blue star.

- 2.3.5 As detailed above a footway / cycleway is present on the western side of the A48 Heol Margam Road.
- 2.3.6 National Cycle Route EV1 4 runs along the A48, providing a cycle route to Margam and Port Talbot to the north and Pyle and Bridgend to the south. The majority of the 8km cycle catchment is therefore accessible to National Cycle Network Route EV1 4.
- 2.3.7 Considering that the roads local to the Site are urban in character, and that the local topography is generally gentle, and the presence of cycle infrastructure, there are realistic and viable opportunities for employees to make trips by cycle.

2.4 Access by Bus

- 2.4.1 The publication 'Planning for Public Transport in Developments' produced by the Institution of Highways and Transportation (IHT) specifies that new developments should be located within 400m of the nearest bus stop.
- 2.4.2 The nearest bus stops to the Site are located within Margam Cemetery to the south of Heol cae'r-Bont. The stops are 600m walking distance from the Site, and are served by the No.7. The No. 7 provides a single (return) service on a Thursday only.
- 2.4.3 The next nearest bus stops are located on the A48 to the east of the Margam Interchange (Motorway junction 38). These stops are 850m and 1km walk distance from the Site, and served by the X1 Cymru Clipper, that runs between Bridgend and Swansea, every hour from 06:30 to 19:40.

- 2.4.4 Having regard to the proximity of the bus stops, the frequency of buses and the areas that the existing local buses serve, the Site is accessible by public transport for people who are willing to walk up to 1km to the bus stops.

2.5 Access by Rail

- 2.5.1 Port Talbot Station is operated by both Great Western Railway main line services between London Paddington and Swansea (hourly each way with peak extras) and Transport for Wales regional trains between Milford Haven/Carmarthen and Manchester Piccadilly via Cardiff Central, Newport and Shrewsbury (also hourly), plus two-hourly Swansea to Cardiff stopping trains.
- 2.5.2 The station is approximately 5km from the Site, via the A48. It is therefore feasible that some longer journeys to/from the Proposed Development can be made by train, with the connection between the station and the Site being made by bike, taxi, bus, or car-share.

2.6 Vehicular Access

- 2.6.1 Initially the Proposed Development will be accessed via the existing access from Longland Lane (private) and Heol cae'r-Bont.
- 2.6.2 Once the Port Talbot Distributor Road (PDR) has been adopted (timescales are currently unknown) traffic will only access the Site via the PDR as is required pursuant to the Planning Permission for the wider Biomass Plant. Hydrogen Tube Trailers (HTT) will export hydrogen from the Site and return on a 24-hour basis.
- 2.6.3 The PDR will link Junction 38, Margam Interchange via Afan Way to Junction 41 of the M4. Functioning as a local distributor route to remove local traffic from the motorway.
- 2.6.4 Longland Lane connects to Heol cae'r-Bont to the south of the site, which goes on to connect to the A48 and the M4 at Motorway Junction 38 (Margam Interchange), c300m to the east of the Site.
- 2.6.5 The A48 connects to the A4241 at a roundabout junction, c400m northeast of the site. Both the A48 and A4241 provide routes to Margam and Port Talbot to the north, and to Pyle and Bridgend to the south.
- 2.6.6 The M4 provides routes to Cardiff to the east and Swansea and Carmarthen to the west.
- 2.6.7 Figure 1.1 and 1.2 above show the Site in its local highway context.
- 2.6.8 Overall, the Site has a prominent location in relation to the local road network from which it is readily accessible.

2.7 Road Safety Review

- 2.7.1 Publicly available official collision records include collisions which resulted in a personal injury and which were reported to the police. The data does not include details of damage-only collisions or those which were not reported to the police.
- 2.7.2 Personal-injury collisions are classified by the police as one of either 'Slight', 'Serious' or 'Fatal'. Where more than one personal injury occurs, the classification is determined by the most serious. A description of each classification is provided in the DfT publication Instructions for the Completion of Road Accident Reports dated October 2004, summarised below:

Slight:

- Sprains, not necessarily requiring medical treatment

- Neck whiplash injury
- Bruises
- Slight cuts
- Slight shock requiring roadside attention.
- (Persons who are merely shaken and who have no other injury should not be included unless they receive or appear to need medical treatment).

Serious:

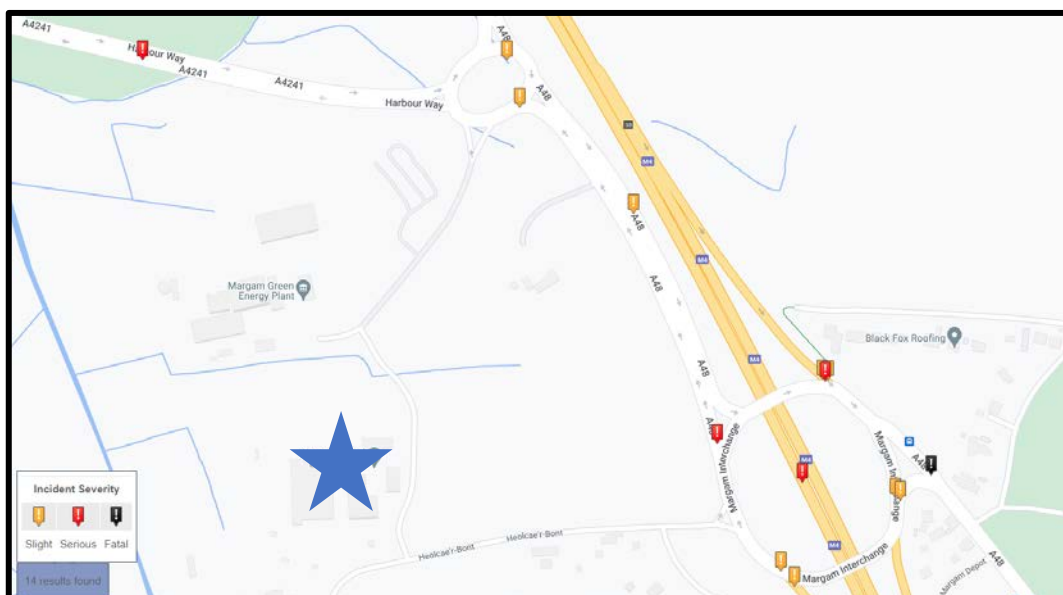
- Fracture
- Internal injury
- Severe cuts
- Crushing
- Burns (excluding friction burns)
- Concussion
- Severe general shock requiring hospital treatment
- Detention in hospital as an in-patient, either immediately or later
- Injuries to casualties who die 30 or more days after the accident from injuries sustained in that accident.

Fatal:

- 'Fatal' injury includes only those cases where death occurs in less than 30 days as a result of the accident. 'Fatal' does not include death from natural causes or suicide.

2.7.3 Personal injury collision data has been obtained from Crashmap for the area local to the Site for the most recent five-year period between 2018-2022 (the Study Period). The locations and levels of severity of the recorded collisions are shown at Figure 2.4 below. This provides the study area junctions local to the site.

Figure 2.4 – Local Collision Map



Source: Crashmap. N.B. the proposal site is denoted by a blue star.

- 2.7.4 The collision data indicates no collisions have been recorded at the Site access or on Heol cae'r-Bont in the past five years.
- 2.7.5 9 collisions have occurred at the Margam Interchange motorway junction, 6 'slight', 2 'serious' and 1 'fatal'. They have occurred on different arms or approaches to the junction (maximum of 3 on southbound off-slip. None have occurred where Heol cae'r-Bont connects to the A48.
- 2.7.6 Given that the incidents have been recorded at different locations within the Study Period, this does not imply a pattern which can be attributed to road layout deficiency, nor one which would be worsened by the Proposed Development.

2.8 Section Conclusion

- 2.8.1 The Site is surrounded by a pedestrian network that includes pedestrian facilities (e.g. footways), however there is a limited residential catchment within walking distance of the Site.
- 2.8.2 The area local to the Site is conducive to cycling with good opportunities for staff to make their journeys by bike.
- 2.8.3 The bus stops local to the Site provide access to / from a variety of destinations, albeit with a longer than desirable walk distance to bus stops, and timings that may not fit with shift patterns.
- 2.8.4 Port Talbot Station is within cycling distance of the Site; some longer journeys to/from the Proposed Development could be made by train, with the connection between the station and the Site being made by bike, taxi, bus, or car-share.
- 2.8.5 The Site also has a prominent location relative to the local highway network, and the recent local collision records indicate that there is no existing road safety problem in the vicinity of the Site.
- 2.8.6 Overall, the Site has a good level of accessibility by all relevant transport modes, thereby complying with national and local transport planning policy.

3.0 PROPOSED DEVELOPMENT

3.1 Development Proposals

3.1.1 The Proposed Development is shown on the plan provided at Appendix 1.

3.1.2 All elements of the existing Western Bio-Energy Plant will be retained as part of the proposals, with the proposed hydrogen production facility an additional entity located on an area that comprises an existing flat hardstanding to the north of the Biomass Plant Site.

3.1.3 The proposed hydrogen production facility will consist of: -

- An Electrolytic Hydrogen Production Facility and associated compression and storage.
- A Hydrogen Tube-Trailer Filling Station.
- Renewable electricity provided from a co-located biomass power plant via private wire (connected to the Biomass Plant Site Sub Station).

3.1.4 The physical construction / site alterations include: -

- Utilisation of approximately 758 sq.m of existing hardstanding to the north of the site.
- Construction of concrete hardstanding extension (the Extension Area) measuring 340 sq.m north of the existing hardstanding area, but within Biomass Plant Site ownership boundary.
- Concrete Firewall measuring 2.5m in height along the northern and western boundaries.
- Electricity Switchgear Container.
- Electrolyser including an electrolyser container, power supply container and cooler container.
- 2 x Compressors including compressor container, chiller and buffer.
- 4 x Multi-Cylinder Pallets.
- Water filter / container and Water tank.
- Air Supply Unit.
- Substation and Transformer.
- 3no. Tube Trailer Bays.
- Private Wire connecting the Biomass Plant Substation to the Site.
- Underground cables and piping.

3.1.5 The Proposed Development will produce up to 960 kgs of green hydrogen per day, which will be trailered offsite to regional customers. It is estimated that the system will abate approximately 3,000 tonnes of CO₂ per year whilst also reducing tail-pipe emissions from conventional vehicles.

3.2 Proposed Site Access Arrangements

3.2.1 The Site will be accessed (during construction and operational phases) via the existing priority access junction from Longland Lane. Longland Lane is WBE's private access road.

- 3.2.2 Initially HGV's accessing the Site will approach from the M4, taking exit 38 (the Margam Interchange) and proceeding in a westerly direction along Heol cae'r Bont, to the Biomass Plant Site access road. Vehicles will turn right onto the WBE private access road (Longland Lane) before proceeding for approximately 100m and turning left into the Biomass Plant Site. Vehicles will exit the site taking the route in reverse.
- 3.2.3 Once the Port Talbot Distributor Road (PDR) has been adopted (timescales are currently unknown) traffic will only access the Site via the PDR as is required pursuant to the Planning Permission for the wider Biomass Plant. Hydrogen Tube Trailers (HTT) will export hydrogen from the Site and return on a 24-hour basis.
- 3.2.4 The PDR will link Junction 38, Margam Interchange via Afan Way to Junction 41 of the M4. Functioning as a local distributor route to remove local traffic from the motorway.
- 3.2.5 The WBE private access road continues in a northerly direction and joins the access road to Margam Green Energy Plant, however this road link has never been used and contains physical barriers to prevent vehicles using it. The junction from Heol cae'r Bont onto the WBE private access road has established signing directing vehicles to the Biomass Plant Site entrance.
- 3.2.6 Once on the Biomass Plant, there is an existing internal one-way system in place. The arrival route (purple) and departures route (orange) is shown below.

Figure 3.1 – HGV Routing



3.3 Deliveries / Servicing

- 3.3.1 The maximum vehicle size servicing the Site will be articulated vehicles of 15.5m in length.
- 3.3.2 HTT will arrive and depart the Site via the Longland Lane access junction.
- 3.3.3 All raw materials including the water for electrolysis, is already provided on-site via a mains connection.

- 3.3.4 HTTs will circulate the Site in a clockwise direction, following the internal one-way system and reverse into the hydrogen refuelling bays to be refilled.
- 3.3.5 Once filled, the Hydrogen Tube Trailers will leave in a forward gear to the Biomass Plant Site entry/exit gates which open inwards.
- 3.3.6 Swept Path Analysis of a 15.5m articulated vehicle, illustrating internal traffic movements to / from the refuelling bays is presented on Sirius Drawing No. PRO1000/02/05 (Appendix 2).

3.4 Construction Programme

- 3.4.1 The main construction element for the Proposed Development is the concrete Extension Area covering of 342 sq.m. and an associated retaining wall along the northern boundary.
- 3.4.2 The main components of the Proposed Development comprise of an electrolyser, a compressor and cooling system which are shipped either as containers or assembled skids, and designed for ease of integration.
- 3.4.3 The plant and equipment will be delivered to the Site in a range of vehicle types, primarily flatbed lorries. The containers will be lifted onto the extended concrete pad by crane and secured.
- 3.4.4 The construction period is expected to last between three to six months with commissioning taking place concurrently during the last three months.
- 3.4.5 A Construction Method Statement is being prepared and will be submitted to the Highways Authority together with this Report.

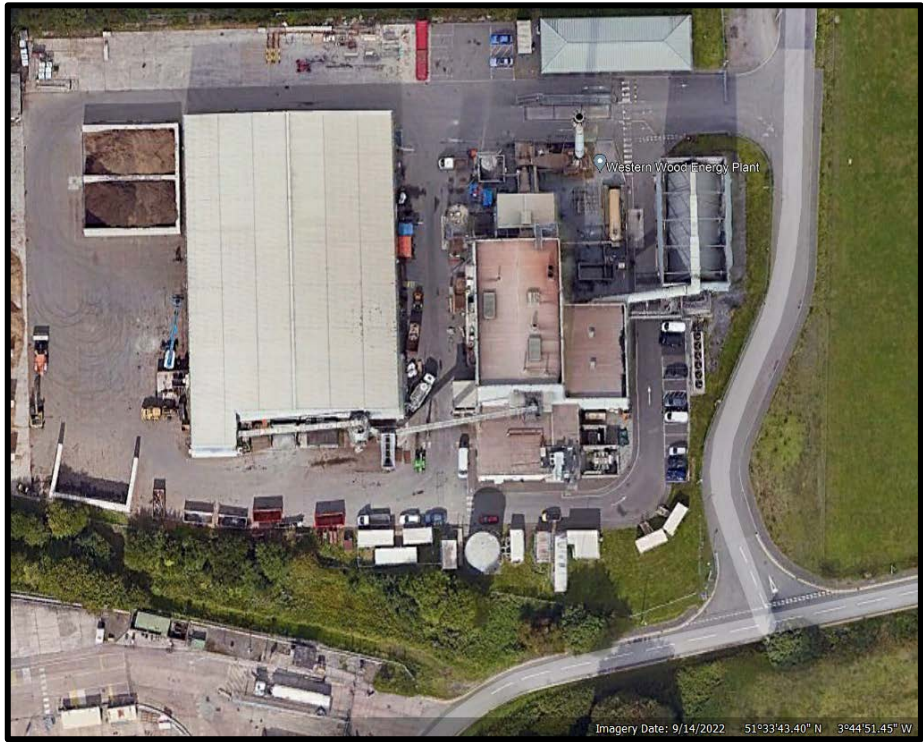
3.5 Car and Cycle Parking

- 3.5.1 The wider Biomass Plant site has a number of existing staff / visitor parking areas including:
 - 7 marked parking spaces (including one disabled) adjacent to Longland Lane.
 - 6 un-marked parking spaces adjacent to Longland Lane.
 - 8 marked parking spaces (including one disabled) adjacent to the office at the north of the site.
 - Approximately 10 un-marked parking spaces along the southern site boundary.
 - A total of 31 spaces.
- 3.5.2 The above parking is ample for the existing and Proposed Development based on the Applicants knowledge and as demonstrated by the expected staffing numbers which are set out later in this Report. The existing parking operates well within capacity as shown by Google Earth images below: -

7/7/2023 – 10 cars parked; 10 marked spaces free



14/9/2022 – 15 cars parked; 10 marked spaces free



23/4/2021 – 9 cars parked; 11 marked spaces free



24/06/2020 – 2 cars parked; 16 marked spaces free



27/06/2018 – 14 cars parked; 6 marked spaces free



- 3.5.3 Based on the above five google earth images, a minimum of 6 marked parking spaces remain free. Between 2 and 15 cars are parked on-site at any one time, based on the images.
- 3.5.4 No additional staff / visitor parking spaces are proposed as part of this planning application. Three Tube Trailer Refilling bays are proposed as shown on the plan at Appendix 1.

Car Parking Standards

- 3.5.5 The parking standards applicable to the Proposed Development are set out in the NPTCBC Local Development Plan 2011-2026 Parking Standards Supplementary Planning Guidance adopted in October 2016.
- 3.5.6 Given the site's rural location the Zone 5 /6 standards apply. There are no specific standards for hydrogen production facilities, however, the following industrial standards are provided.

Figure 3.2 – Parking Standards

Zones 5 & 6		
Type of Development	Operational	Non-Operational
Small Industry (< 100m ²)	1 van space	1 space
Small Industry (< 235m ²)	1 van space	2 spaces
Industry	See Note 5	1 space per 80 m ²
Highly Technical Industry	See Note 5	1 space per 20 m ²

- 3.5.7 Section 3.3.5 of the standards states that they relate to GROSS floor areas (i.e. including external walls), and therefore allude they apply to buildings only (oppose to containers as proposed).

- 3.5.8 Given the proposals do not result in any additional physical buildings, no additional floor space will be provided on-site. Therefore, the Proposed Development will not require any additional parking spaces. No additional spaces are proposed as part of the planning application.
- 3.5.9 During construction 5 staff vehicles are envisaged per day. Based on the google earth images above, the staff vehicles will be accommodated on-site, within marked parking bays.
- 3.5.10 Once fully operational, two technicians and one supervisor will operate and maintain the hydrogen production facility over three rotating shifts a day. Parking for the 3 staff members can be accommodated on-site, within marked parking bays. This is supported by on-site knowledge and the Google Earth images above.

Disabled Parking

- 3.5.11 Section B.9 of the parking standards states that *"For car parks associated with existing employment premises - 2% of the total car park capacity, with a minimum of one space"* should be provided.
- 3.5.12 This equates to one space based on the marked number of spaces. Two disabled spaces are already provided on-site.

Cycle Parking

- 3.5.13 Given no additional building floor space is proposed, no change to the on-site cycle parking is proposed.

3.6 Section Conclusion

- 3.6.1 The Proposed Development will be accessed via the existing access from Longland Lane (private) and Heol cae'r-Bont.
- 3.6.2 Pedestrian movements are accommodated within the existing internal site layout.
- 3.6.3 Swept path analysis shows that the access arrangements and layout of the Proposed Development are suitable for the largest vehicles that are expected to use the Site, HGV.
- 3.6.4 The proposed on-site parking is provided in accordance with the local parking standards, given no additional floor space is proposed, and will meet operation demand.

4.0 TRAFFIC ASSESSMENT

4.1 Introduction

4.1.1 This section of this Report reviews the construction and operational trip attraction of the Proposed Development.

4.2 Proposed Development Construction Trip Attraction

4.2.1 Table 4.1 below illustrates the anticipated maximum vehicle attraction per day during the construction phase of the Proposed Development. The numbers account for construction worker movements and deliveries to the Site over a six-month construction period. This includes cranes for the site construction.

4.2.2 The numbers have been supplied by Sirus within their Planning Statement and are based on 5 staff vehicle trips per day, 2 van trips per day and 2 HGV trips (for deliveries) per day during the construction period.

Table 4.1 – Construction Vehicle Movements

	Cars			Vans / LGV's			HGVs			Total		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Vehicles per day	5	5	10	2	2	4	2	2	4	9	9	18

4.2.3 The daily traffic attraction during construction is therefore negligible. Trips will be aimed to avoid peak hours wherever possible.

4.3 Proposed Development Operational Trip Attraction

4.3.1 Table 4.2 below illustrates the anticipated maximum vehicle attraction per day during the operational phase of the Proposed Development. The numbers account for site operatives, deliveries and any required material removal from site.

4.3.2 The numbers have been supplied by Sirus within their Planning Statement and are based on 2 staff vehicle trips per day, 2 van trips per day and 2 HGV trips (for Hydrogen collection) per day.

4.3.3 It should be noted, that the largest tank volumes for gaseous hydrogen transport are currently 26 cubic meters. Taking account of the low hydrogen density factor at 500 bars, this results in a load of up to 1,100 kg hydrogen per HTT. Given the Site will produce up to 960kgs of green hydrogen per day this equates to the load capacity of between one and two HTTs.

Table 4.2 – Operational Vehicle Movements

	Cars			Vans / LGV's			HGVs			Total		
	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures	Total
Vehicles per day	2	2	4	2	2	4	2	2	4	6	6	12

4.3.4 The daily traffic attraction during operation is therefore also negligible. Trips will be aimed to avoid peak hours wherever possible.

4.3.5 The PDR will also increase local road capacity once complete.

4.4 Section Conclusions

4.4.1 The assessment shows that the potential increase to traffic as a result of the Proposed Development will be negligible during the operational and construction phases.

4.4.2 The proposal therefore accords with adopted local policy.

5.0 JUNCTION CAPACITY ASSESSMENT

5.1 Introduction

- 5.1.1 The assessment in Section 4.0 identifies that the traffic effect of the Proposed Development is negligible during the operational and construction phases.
- 5.1.2 No junction capacity testing has therefore been undertaken.

6.0 SUMMARY AND CONCLUSIONS

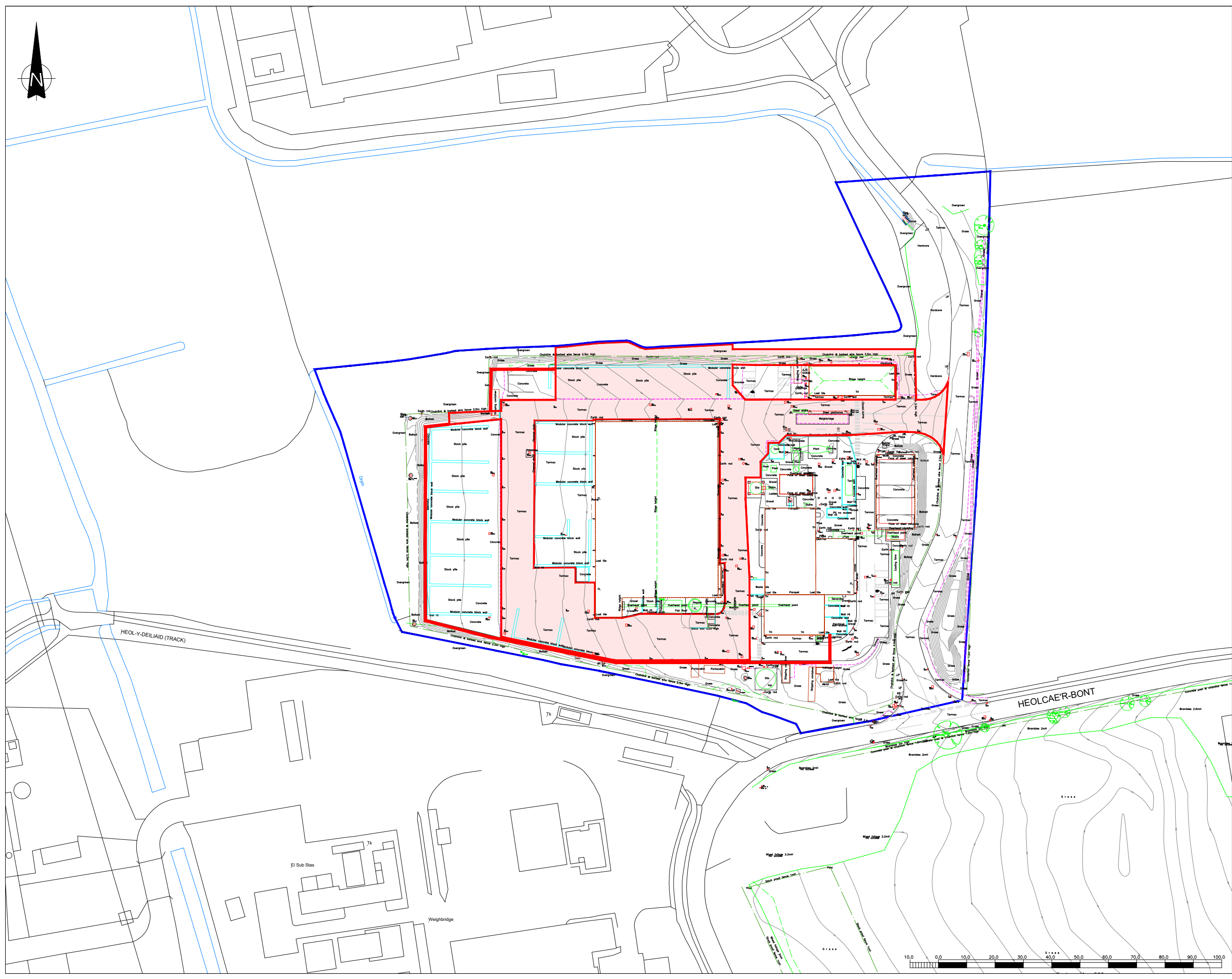
6.1 Summary

- 6.1.1 Connect Consultants Limited is a firm of transport planning and highway design consultants that have been instructed by Sirius Planning Limited on behalf of Western Bio Energy Limited (WBE) as the Applicant and Protium Green Supply Limited (PGS Ltd.) as the Agent, in relation to a proposed hydrogen production facility at Longland Lane, Margam, Port Talbot.
- 6.1.2 All elements of the existing Western Bio Energy Plant will be retained as part of the proposals, with the proposed hydrogen production facility an additional entity located on an area that comprises an existing flat hardstanding to the north of the site.
- 6.1.3 The proposal is for a hydrogen production facility consisting of: -
- An Electrolytic Hydrogen Production Facility and associated compression and storage
 - A Hydrogen Tube-Trailer Filling Station (3 bays).
 - Renewable electricity provided from a co-located biomass power plant via private wire (connected to the Biomass Plant Site Sub Station).
- 6.1.4 The Proposed Development will produce up to 960 kgs of green hydrogen per day, which will be trailered offsite to regional customers. It is estimated that the system will abate approximately 3,000 tonnes of CO₂ per year whilst also reducing tail-pipe emissions from conventional vehicles.
- 6.1.5 The Site is surrounded by a pedestrian network that includes facilities, but there is a limited residential catchment within walking distance.
- 6.1.6 The area local to the Site is conducive to cycling, with good opportunities for staff to make their journeys by bike.
- 6.1.7 The bus stops local to the Site provide access to / from a variety of destinations, albeit with a longer than desirable walk distance to bus stops.
- 6.1.8 Port Talbot Station is also within cycling distance of the site; some longer journeys to/from the Proposed Development can be made by train, with the connection between the station and the Site being made by bike, taxi, bus, or car-share.
- 6.1.9 The proposal site has a prominent location relative to the local highway network, and the recent local collision records indicate that there is no existing road safety problem in the vicinity of the Site.
- 6.1.10 Overall, the site has a good level of accessibility by all relevant transport modes.
- 6.1.11 The Proposed Development will be accessed via the existing access from Longland Lane (private) and Heol cae'r-Bont.
- 6.1.12 Pedestrian access and routing are accommodated within the internal layout of the Biomass Plant Site.
- 6.1.13 Swept path analysis shows that the access arrangements and layout of the Proposed Development are suitable for the largest vehicles that are expected to use the Site, an HTT.
- 6.1.14 The proposed on-site parking is sufficient to meet the anticipated demand.
- 6.1.15 The assessment shows that the potential increase to traffic will be negligible during construction and operational phases.

6.2 Conclusions

- 6.2.1 Overall, the scale of residual impact cannot be considered to be severe.
- 6.2.2 The Proposed Development is shown to satisfy local policy and there are therefore no highways and transport reasons to refuse this planning application.
- 6.2.3 The PDR will also increase local road capacity once complete providing an estate type road for the future 24-hour access once adopted.

APPENDIX 1 – SITE LAYOUT



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KEY

- OWNERSHIP BOUNDARY
- PLANNING APPLICATION BOUNDARY (6,575m²)

REV	DESCRIPTION	DATE	BY

CLIENT

PROTIUM

4245 Park Approach, Thorpe Park, Leeds. LS15 9GB. 0113 264 9960

JOB TITLE

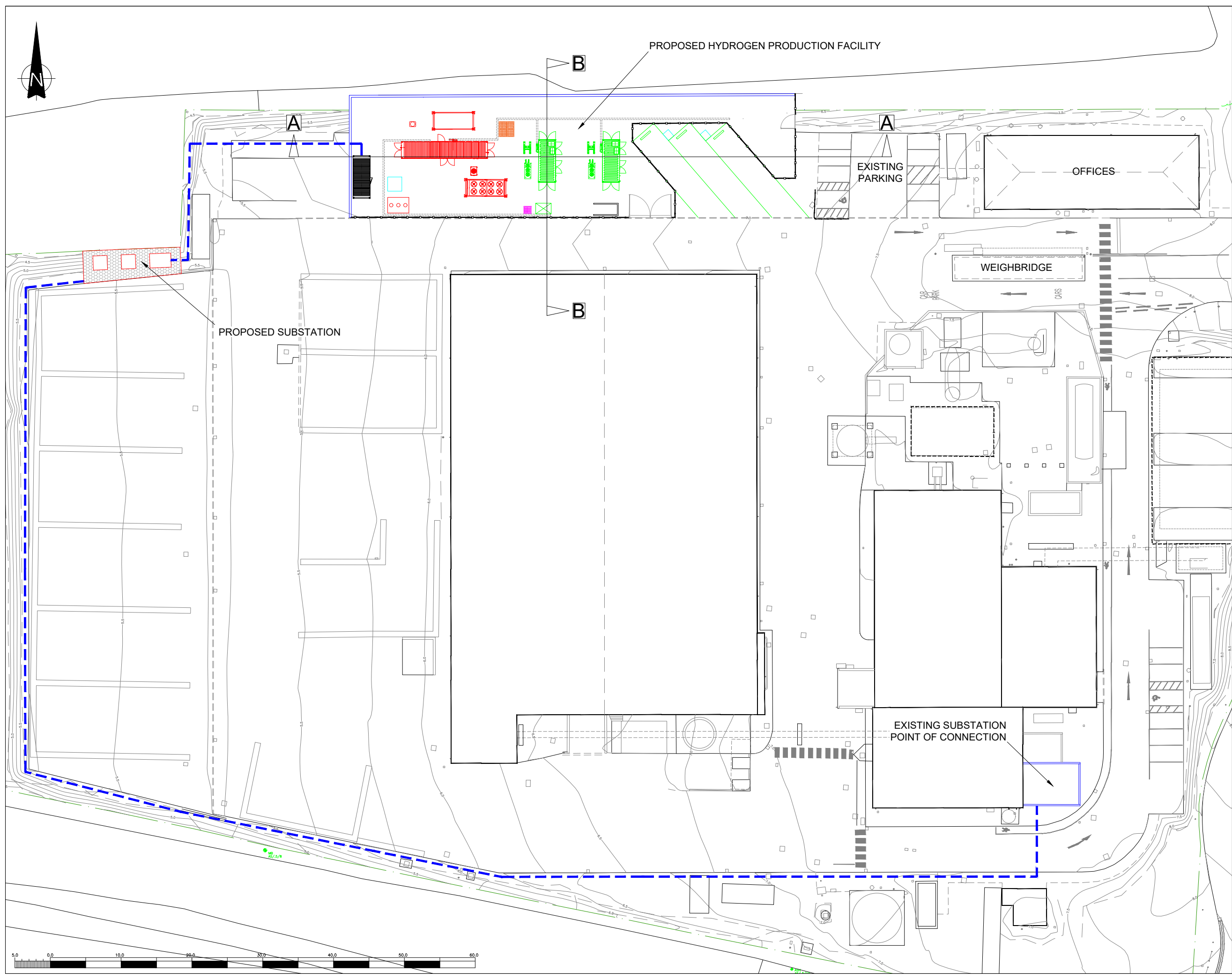
MARGAM HYDROGEN PRODUCTION FACILITY

DRAWING TITLE

PLANNING APPLICATION BOUNDARY AND TOPOGRAPHICAL SURVEY

DRAWN	DATE	APPROVED	DATE
S.T	26/4/2024	F.W	26/4/2024

SCALE	SHEET	DRAWING NUMBER	REVISION
1:1250	A3L	PRO1000/02/02	0



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NOTES

1. SEE DRAWING NUMBER PRO1000/02/06 FOR SECTIONS

KEY

----- PROPOSED CABLE ROUTE

REV	DESCRIPTION	DATE	BY

CLIENT

PROTIUM

4245 Park Approach, Thorpe Park, Leeds. LS15 8GB. 0113 264 9960

JOB TITLE

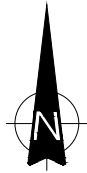
MARGAM HYDROGEN PRODUCTION FACILITY

DRAWING TITLE

SITE LAYOUT

DRAWN	DATE	APPROVED	DATE
S.T	26/4/2024	F.W	26/4/2024
SCALE	SHEET	DRAWING NUMBER	REVISION
1:500	A3L	PRO1000/02/03	0

APPENDIX 2 – SWEPT PATH ANALYSIS



PROPOSED HYDROGEN PRODUCTION FACILITY

TUBE TRAILER BAYS

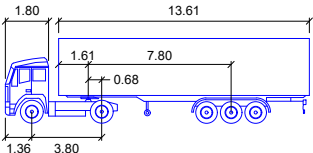
EXISTING PARKING

OFFICES

WEIGHBRIDGE

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KEY



Artic
meters
Tractor Width : 2.55
Trailer Width : 2.55
Tractor Track : 2.55
Trailer Track : 2.55
Lock to Lock Time : 6.0
Steering Angle : 42.7
Articulating Angle : 70.0

REV	DESCRIPTION	DATE	BY

CLIENT

PROTIUM



4245 Park Approach, Thorpe Park, Leeds. LS15 9GB. 0113 264 9960

JOB TITLE
MARGAM HYDROGEN
PRODUCTION FACILITY

DRAWING TITLE
SWEPT PATH ANALYSIS

DRAWN	DATE	APPROVED	DATE
S.T	26/4/2024	F.W	26/4/2024
SCALE	SHEET	DRAWING NUMBER	REVISION
1:500	A3L	PRO1000/02/05	0

