Plas Power Solar and Energy Storage Project

3.0.3 Transport Statement

June 2024

DNS Ref: DNS/3253253



Plas Power Solar and Battery Project

Transport Statement

On behalf of **Lightsource bp**



Project Ref: 330610724/001 | Rev: v3.1 | Date: May 2024

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For and on behalf of Stantec UK Limited				

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1 Introduction

1.1.1 Stantec has been commissioned by Lightsource bp (the Applicant) to produce a Transport Statement (TS) to support the Development of National Significance (DNS) application for the Plas Power Solar and Battery Project (herein referred to the 'Plas Power Project' or 'Proposed Development' to the west of Wrexham.

1.2 Project Description

1.2.1 The Proposed Development will consist of the construction of solar panels mounted on metal frames, new access tracks, underground cabling, perimeter fencing with CCTV cameras, switchgear substations, inverters, transformer stations, auxiliary transformers, permanent storage containers, monitoring houses, a battery energy storage system (BESS) and all ancillary grid infrastructure and associated works. The proposed Plas Power Solar Project will have an export capacity of circa 80MW of electricity.

1.2.2 The main components of a solar project are:

- Solar arrays comprising solar panels and frames;
- Inverters and Transformers;
- Cabling;
- Substations;
- BESS;
- Ancillary infrastructure, including storage;
- Internal access tracks; and
- Landscaping and ecological enhancement areas.

1.2.3 The Proposed Development includes a 33kV cable which will connect the solar project, BESS and associated infrastructure to the Legacy Substation located approximately 1.2km to the south-west of the Site.

1.2.4 Whilst the preference is to construct the BESS as part of the Proposed Development, there is potential that this part of the Proposed Development may not materialise as planned. If the construction of the BESS were not to take place, the land where the BESS is currently proposed would be used to place solar panels instead. This Transport Statement has been prepared in the context of the BESS being included in the design.

1.3 Overview and Structure of Transport Statement

1.3.1 The TS is divided into the following chapters:

- The remainder of **Chapter 1** summarises the site context, background and Proposed Development
- **Chapter 2** summarises the existing national, regional and local planning policy that informs the approach and methodology of this TS
- **Chapter 3** outlines baseline conditions on-site and existing accessibility by all modes of transport

- **Chapter 4** details the methodology and results of the trip generation and distribution for the construction, operational and decommissioning phases of the project
- **Chapter 5** provides details of the Traffic Impact Assessment
- **Chapter 6** details the approach to site access proposed in the construction, operational and decommissioning phases of development
- **Chapter 7** details the construction phase and an overview of the Construction Traffic Management Plan
- **Chapter 8** summarises and concludes the TS

1.3.2 A Construction Traffic Management Plan (CTMP) has been produced to accompany this TS should be read in conjunction with this document.

1.4 Site Context

1.4.1 The application site (hereby referred to as 'the Site') covers approximately 136 hectares (ha) and is located wholly within the administrative boundary of Wrexham County Borough Council (WCBC). The Site is located approximately 2.5km west of the centre of Wrexham, with the eastern portion of the Site bordered by A483.

1.4.2 The Site comprises two interconnected areas north and south of A525 Ruthin Road. The southern and larger portion of the Site is bound by A525 Ruthin Road to the north, to the east by A483, to the south by Plas Power Woods and its westernmost point by agricultural fields, beyond which lies Rhos Berse Road and Nant Road. The northern portion is bound by A525 Ruthin Road to the south and extends northwards towards Higher Berse Road.

1.4.3 The Proposed Development will include a 33kV cable that will connect the solar project, battery energy storage system (BESS) and associated infrastructure to the Legacy Substation located approximately 1.2km to the south-west of the Site, north of B5246 Bronwylfa Road.

1.5 Background

1.5.1 The proposed site previously formed part of an open cast mine in 1964 and subsequently a non-water fill in 1976. Currently, the Site is utilised as agricultural purposes, comprising agricultural fields primarily used for pasture grazing, bound by a mixture of mature woodland trees, hedgerows and fencing.

1.5.2 The current proposals have been under development for some time, with a version of the proposals presented through a request for EIA scoping advice (Ref: ENQ/2020/0077) which was made to Wrexham Council on 08 October 2020 and a response received on 11 December 2020. This scoping exercise identified some key points which are relevant to this document, which are explored further in the relevant chapters:

- The expected operational visits per annum is around 10-20 vehicles
- On this basis, no concern was raised regarding the operational phase
- HGV traffic is only expected during construction and decommissioning

1.5.3 In 2023, an additional transport scoping opinion was undertaken to update the 2020 scoping advice. The formal response is yet to be received, however it is anticipated that the conclusions and agreed approach will be similar in nature to that received previously and no specific issues relating to transport will be identified.

2 Policy

2.1 Introduction

2.1.1 This section has been prepared to consider policy relevant to transport matters for the Proposed Development of the Plas Power site as a solar project.

2.2 National Policy

2.2.1 Paragraphs 4.1.55 and 4.1.56 of Planning Policy Wales (Edition 11, February 2021) includes the following policy regarding 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: Transport 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."

2.2.2 This policy establishes the importance of assessing the impact of development traffic, and the need to consider construction traffic. To satisfy this policy the Applicant has committed to submitting a Transport Statement (TS) and outline CTMP including a framework Construction Workforce Travel Plan (CWTP).

2.3 Planning Policy Wales Technical Advice Note 18: Transport

2.3.1 Para D.4 identifies the categories of development for which a transport assessment would be required. The Proposed Development does not fall into the identified categories, and therefore as suggested in the 2020 scoping advice, a Transport Assessment is not required for this Proposed Development. However, a Transport Statement has been produced to accompany the DNS application.

2.4 National Transport Delivery Plan 2022 to 2027

2.4.1 The National Transport Delivery Plan 2022 to 2027 revised the mitigation proposals for Wrexham and the A483, as part of policy SRN 6 – Trunk Road Modal Shift Programme:

Wrexham A483 multi-modal corridor improvements and city centre connectivity. Work with Wrexham Council to develop multi-modal improvements. These will include feasibility/investigation of creating an exemplar multi-modal residential and employment development with lower levels of car use, aligned to tests set out in Welsh Government's response to the Roads Review.

2.4.2 Following enquiries on behalf of Lightsource bp the Welsh government advised on the 9th August 2023 that:

As you may have seen on the Welsh Government's website for the A483 Junctions 3 to 6, the preferred option for Junction 4 was announced in March 2021 and the route protected for planning purposes A483: junction 4 preferred route (TR111) (gov.wales)

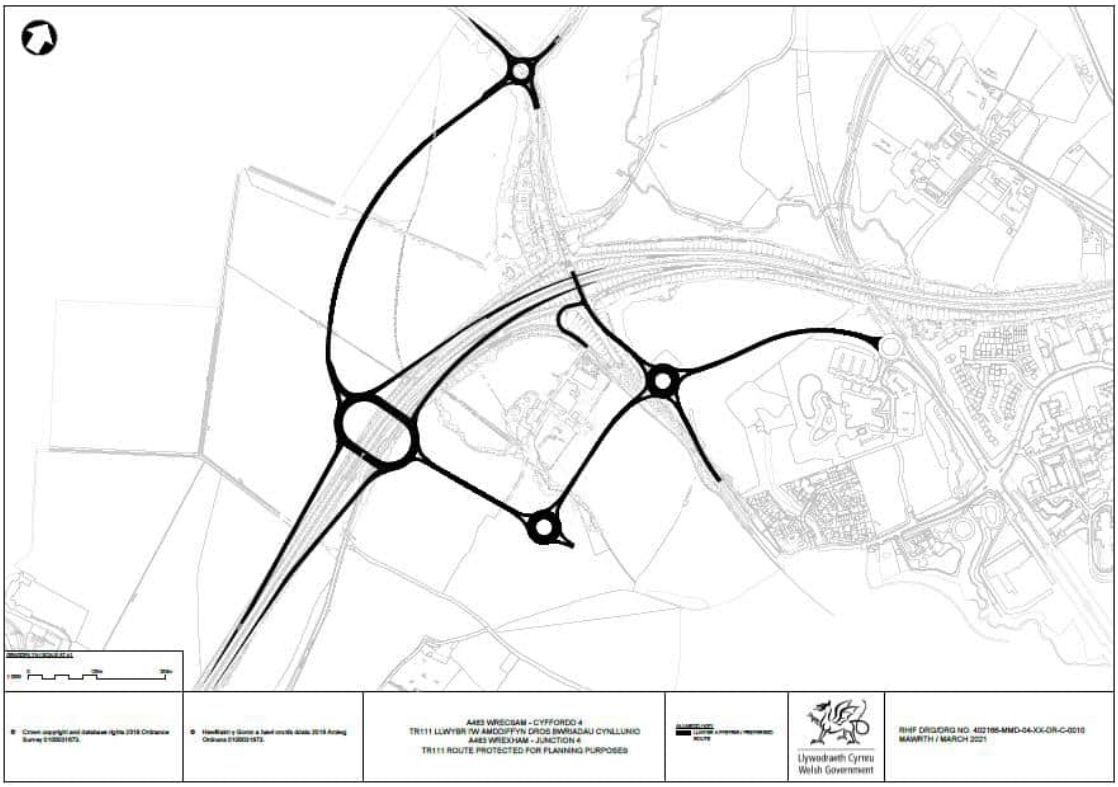
However, the Roads Review Panel recommended in February 2023 that this scheme should not be progressed as the case for change was not well aligned with the Welsh Government's aim to reduce car milage. An alternative scheme has however been included in the Welsh Government's National Transport Delivery Plan 2022 to 2027 which is the Wrexham A483 multi-modal corridor improvements and city centre connectivity.

The Junction 4 improvements are therefore not being progressed any further and we will need to review the TR111 route protection which currently remains in place.

2.4.3 As such, the A483 Junction 4 improvements are no longer being progressed. A copy of the correspondence is included in Appendix A.

2.4.4 For reference the planning protection would have covered the northeastern portion of the southern plot as shown in Figure 2-1:

Figure 2-1: Former A483 Junction 4 Scheme (source: Welsh Government)



Future Wales: The National Plan 2040

2.4.5 Future Wales: The National Plan 2040 was published on 24th February 2021 and is a national spatial strategy that sets out where and how development should take place in Wales to address key national priorities, such as sustaining and developing a vibrant economy, achieving decarbonisation and climate resilience, developing strong ecosystems and improving the health and wellbeing of communities.

2.4.6 Policy 18 of Future Wales 2040 (which relates to renewable and low carbon energy developments of national significance) states that:

"renewable energy projects… will be permitted subject to policy 17 and the following criteria…

9) there are no unacceptable adverse impacts on the transport network through the transportation of components or source fuels during its construction and/or ongoing operation;"

2.4.7 To satisfy this policy the Applicant has committed to submitting a Transport Statement (TS) and outline CTMP including a framework Construction Workforce Travel Plan (CWTP). As concluded in section 5, there are no unacceptable adverse impacts on the transport network as a result of the Project.

Local Policy

2.4.8 At the time of writing no specific local policy guidance was noted as relevant for the Proposed Development.

2.5 Consultation with Wrexham County Borough Council

2.5.1 Informal consultation with Wrexham County Borough Council (WCBC) was undertaken on 7th September 2023 to discuss transport scoping for the Proposed Development. During the meeting it was agreed that a Transport Statement (TS) is sufficient, given the scale of the Proposed Development, and that traffic modelling would not be required. It was additionally agreed by WCBC that the Construction Traffic Management Plan (CTMP) document will be the main control document for managing the construction traffic generated during the construction phase. It was also agreed that a Stage 1 Road Safety Audit (RSA) would also be carried out on the site access junctions prior to agreement. A copy of the minutes from the transport scoping meeting are provided in Appendix B.

3 Baseline Conditions

3.1 Introduction

3.1.1 This chapter provides a detailed review of the predominant transport conditions within the vicinity of the Site. This includes the existing use of the Site, the local and strategic networks providing access to the Site and accident data review.

3.1.2 The baseline review provides the context for the detailed assessment of the likely impact of the Proposed Development and of the potential enhancements that may be required in order to deliver a development that is sustainable in transport terms.

3.1.3 This chapter considers the following elements:

- Site location and current use;
- Site access arrangements;
- Existing conditions of local transport network;
- Local highway network performance; and
- Road safety.

3.2 Site Location and Current Use

3.2.1 The Site is situated approximately 2.5km west of the centre of Wrexham. The closest residential areas to the Site are:

- Coedpoeth – approximately 120m to the west;
- New Broughton – approximately 600m to the north-east;
- Southsea – approximately 600m to the north; and
- Other small residential dwellings and farmhouses, which are sparsely located around the surrounding area.

3.2.2 As shown in Figure 3-1 below, the Site comprises two interconnected areas north and south of A525 Ruthin Road. The southern and larger portion of the Site is bound by A525 Ruthin Road to the north, to the east by A483, to the south by Plas Power Woods and its westernmost point by agricultural fields. The northern portion is bound by A525 Ruthin Road to the south and extends northwards towards Higher Berse Road.

3.2.3 The Site's existing land use comprises several agricultural fields, primarily used for pasture grazing, bound by a mixture of mature woodland trees, hedgerows, fencing, agricultural tracks and roads. The Site formed part of an open cast mine in 1964 and subsequently a non-water fill in 1976.

3.2.4 Two indicative site layout plans (for the scenario with and without the inclusion of the BESS) is shown in Appendix C.

3.2.5 Figure 3-2 places the Site in a regional context and shows it in relation to locations including Wrexham, Chester, Crewe, Manchester, Liverpool and north and south Wales.

3.2.6 The main strategic routes to the area near the Site are:

- A483 towards Chester in the north and Oswestry and the A5 to the south. These routes provide the links to larger cities such as Cardiff and Swansea to the south, Liverpool and Manchester to the North.
- A534 towards Nantwich, linking to the A500 towards Stoke-on-Trent and the M6. This route links to Birmingham, Bristol, Derby and Nottingham.
- Junction 4 of the A483 provides access on to the A525 with access to both the southern and northern parcels of land being taken from the A525.



Figure 3-1: Regional Site Plan

3.3 Existing Conditions of Local Transport Network

Highway Network

3.3.1 The Site is bordered to the east by A483, which runs north to south between Chester to the north and Halton Roundabout to the south and is a key connecter between Wrexham and A55 North Wales Expressway. A483 is a dual carriageway between A55 Junction 38 to the north and Ruabon to the south.

3.3.2 A525, which bisects the north and south portions of the Site, is a single carriageway road with continuous road markings. Due to the curvature of the road at certain points, overtaking is not permitted along a large proportion of the road section near to the Site. Speed limits along A525 are 50mph on the section between Coedpoeth and A483, lowering to 30mph when entering the built up area of Coedpoeth to the west. The A525 connects to A483 at Junction 4.

3.3.3 Heritage Way and B5430 run to the northern and north-eastern peripheries of the Site. Both roads are single carriageway routes with continuous road markings and a 60mph speed limit. Heritage Way connects to A525 approximately 400m to the west of A483 Junction 4.

3.3.4 B5246 and B5097 run approximately 1.4km to the south of the Site, adjacent to the National Grid legacy substation (which the Proposed Development will connect to). B5246 and B5097

are single carriageway roads with intermittent road markings and 30mph speed limits along some stretches.

3.3.5 Other roads surrounding the Site consist of rural and agricultural roads with intermittent road markings. Many of these roads are bordered by hedgerows and fencing onto agricultural land.

Railway Access

3.3.6 The nearest railway station to the Site is Wrexham Central / Wrexham General, located in the centre of Wrexham and near to Wrexham Bus Station. From Wrexham Central, Transport for Wales (TfW) operates an hourly service to Bidston. From Wrexham General, TfW operates services to a number of destinations including Chester, Holyhead, Shrewsbury, Cardiff and Birmingham International.

Bus Access

3.3.7 The nearest bus stop to the Site is Coedpoeth New Road, located approximately 1km to the west of the Site on New Road. From here, the X51 service (operated by Arriva) operates a bi-hourly service between Wrexham Bus Station and Denbigh. The X51 operates from approximately 08:00 to 22:00 Monday to Saturday, with no service on a Sunday.

3.3.8 The next nearest bus stop to the Site is along Talwrn Road, approximately 1km to the north. From here, the 11 service (operated by Arriva) operates a twice-hourly service from Wrexham to Minera via Southsea. The 11 operates from approximately 06:00 to 18:00 Monday to Saturday, with no service on Sunday. Table 3-1 below summarises local bus services.

Table 3-1 Local Bus Services

Service No	Operator	Nearest Bus Stop	Destinations	Frequency	Operating Hours
X51	Arriva	Coedpoeth New Road	Wrexham / Denbigh	2 hrs	08:00 – 22:00 Mon - Sat
11	Arriva	Talwrn Road	Wrexham / Minera via Southsea	30 mins	06:00 – 18:00 Mon - Sat

Cycle and Pedestrian Network

3.3.9 There is an existing Public Right of Way (PRoW) which currently runs through the Site – the ‘Bersham Public Footpath 1’. The PRoW runs north / north-west through the southern portion of the Site before meeting A525. It continues approximately 650m to the west along A525 where it runs north through the northern portion of the Site.

3.3.10 There will be no extinguishment of this PRoW as a result of the Proposed Development, however some minor re-alignment will be required. The current Wrexham County Borough Council Definitive PRoW Map shows the alignment of this route in a different position to the path walked on the ground. As such, the re-alignment of the route will additionally realign the Definitive Map, resulting in an alignment which is more readily accessible, for example where the existing alignment is affected by steep topography on the north.

3.3.11 Where appropriate, landscaping will be incorporated along the PRoW to screen views of the Proposed Development. A width of 5m will be incorporated for all PRoWs to be retained through the Site.

3.3.12 There are no known designated or signed cycle paths within the vicinity of the Site. However, the local road network could feasibly be used for cycling, although the nature of the A525 in

the vicinity of the site may not be considered an attractive environment for cycling due to a lack of cycling infrastructure.

3.4 Local Highway Network Performance

3.4.1 Automatic Traffic Count (ATC) surveys were undertaken for roads within the study area of the Proposed Development and potential access junctions. The surveys were undertaken between 10 July 2023 and 19 July 2023. Counters remained in place for additional days due to damage, in order to capture a full seven day dataset. The two ATC survey locations were as follows:

- ATC Site 1 – A525 East (Wrexham); and
- ATC Site 2 – A525 West (Coedpoeth).

3.4.2 In addition to ATC surveys, Department for Transport (DfT) data has been reviewed for the trunk road network within the study area, including A483 north of A525 Junction 4 and A483 south of Junction 4. A map indicating the ATC locations and manual count locations are outlined in Figure 3-5 below.

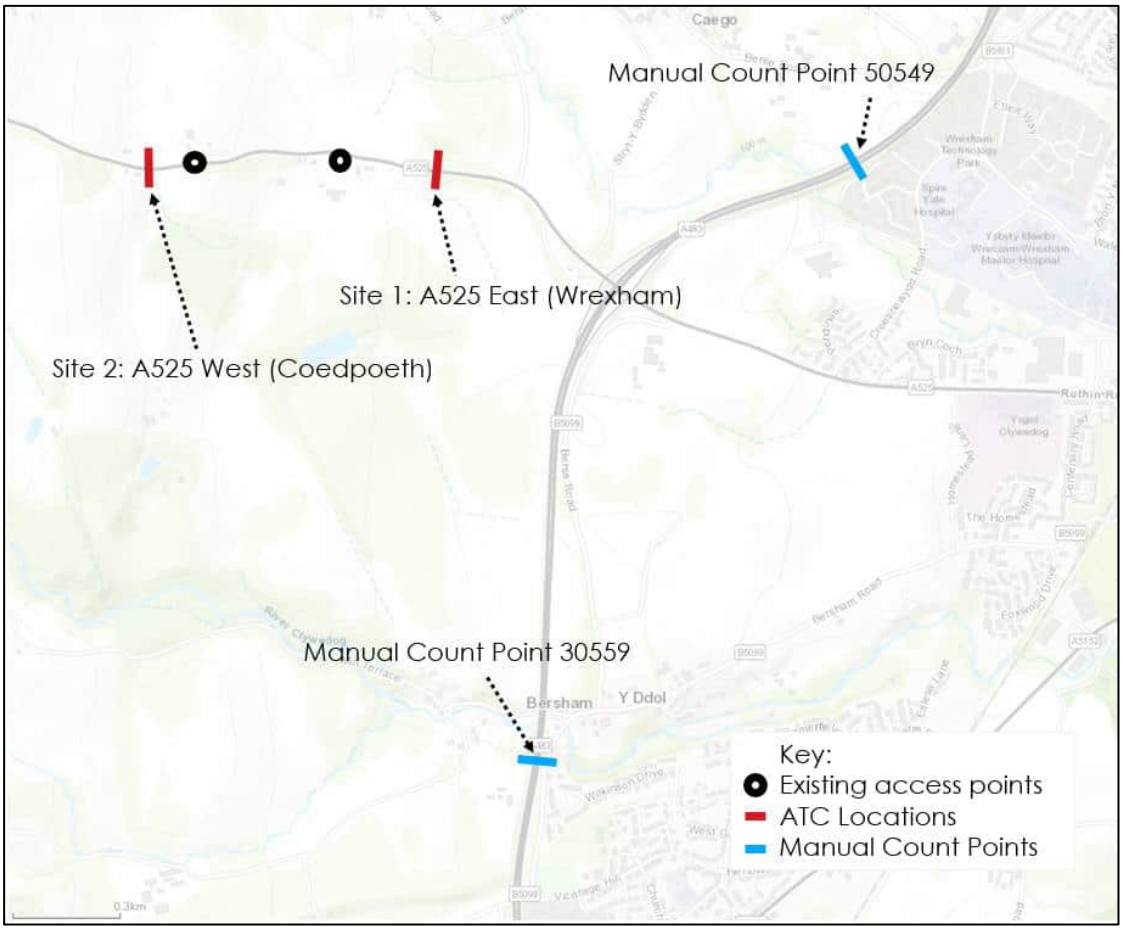


Figure 3-2: ATC Survey and Manual Count Locations (Approximate)

3.4.3 Where the ATC survey results represent the average weekday flow from a specific week, the DfT data for A483 north and south of Junction 4 represents the Annual Average Daily Flow (AADF). This is a result of the DfT data limitations for these sites. Additionally, manual count traffic data collection is only undertaken at these locations every two years. As such, the 2021

AADF represents manual count data collection, whereas the 2022 AADF represents an estimated number, which is based on the previous year.

3.4.4 The average weekday two-way traffic flows for local roads and DfT AADF for the A483 are set out in Table 3-2 below.

Table 3-2: Baseline Traffic Flows – Average Weekday (24hr), Two-Way

Survey Location	Road Section	Total Vehicles	% HGV
ATC Site 1	A525 East (Wrexham)	12,625	6%
ATC Site 2	A525 West (Coedpoeth)	13,023	6%
DfT Data*	A483 North of A525 Junction 4	47,367 (2021)	7% (2021)
		53,703 (2022)	6% (2022)
	A483 South of A525 Junction 4	49,014 (2021)	6% (2021)
		55,674 (2022)	5% (2022)

* *DfT data represents Average Annual Daily Flow (AADF)*

3.4.5 The baseline data shows the strategic and local road flows are relatively high, although this is to be expected as both A483 and A525 are major A roads. The data also shows vehicle numbers increasing between 2021 and 2022 due to the recovery from the pandemic. Compared to 2019 pre-pandemic AADF data north of J4 is slightly lower whereas south of J4 the AADF is higher than 2019.

3.4.6 Figure 3-6 below outlines the total vehicle numbers by time of day for A483 north and south of A525 Junction 4. Due to the limitations of DfT data for Wales, the data does not represent the average annual daily flow per hour, but the flow for a specific date. The date of data collection for this figure was 21 September 2021, the latest available at the time of preparing this report.

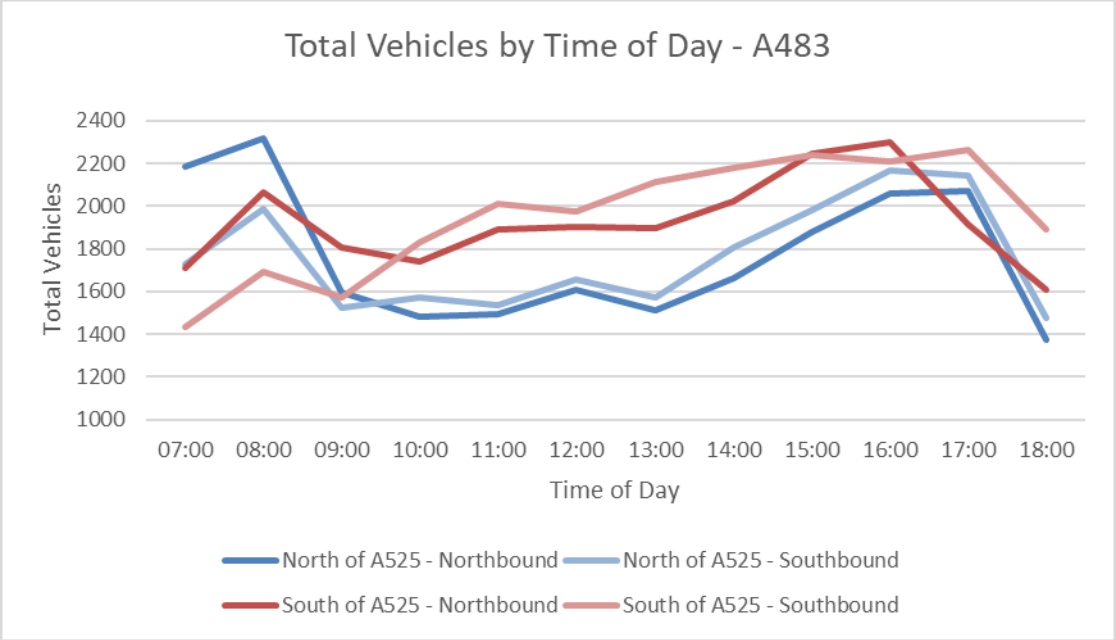


Figure 3-3: Total Vehicle Numbers by Time of Day – A483 North and South of A525 Junction 4 – Northbound / Southbound

3.4.7 As shown, there are clear peak periods in the AM and PM along A483. There is a slight tidal flow of vehicles travelling northbound in the morning, and southbound in the afternoon. This is likely due to the population and employment centres located further north, such as Chester and Liverpool, as well as access to A55 North Wales Expressway.

3.4.8 Figure 3-7 below outlines the average daily trips in the weekday, by time of day for ATC Site 1.

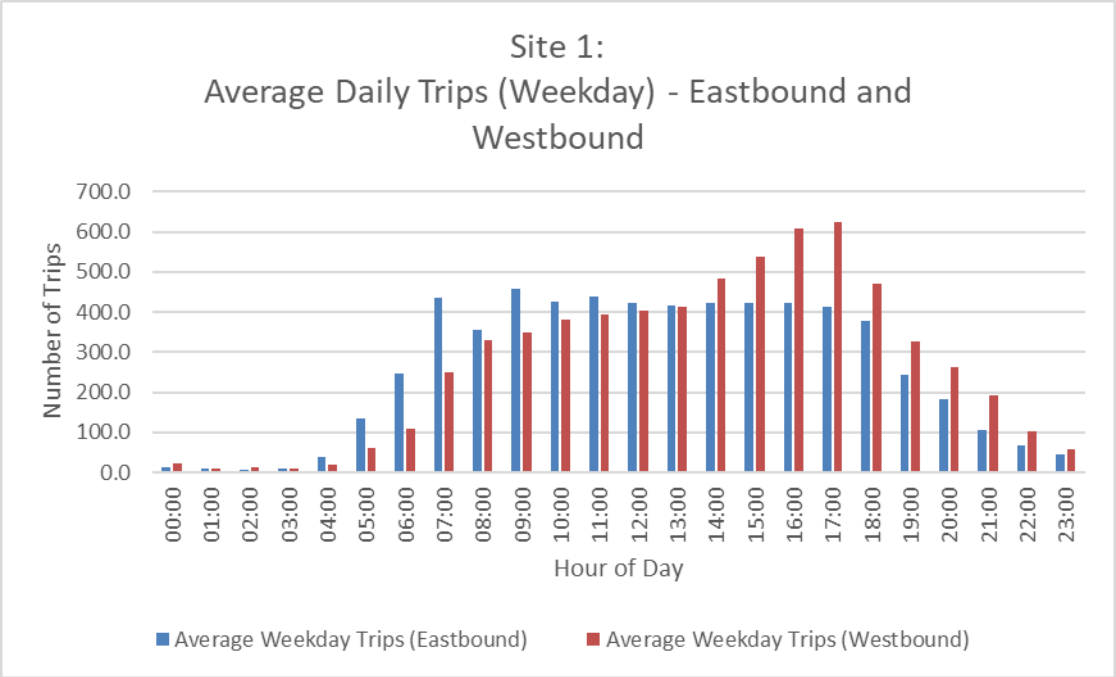


Figure 3-4: ATC Site 1 (A525) – Average Daily Trips (Weekday) – Eastbound and Westbound

3.4.9 Figure 3-8 below outlines the average daily trips in the weekday, by time of day for ATC Site 2.

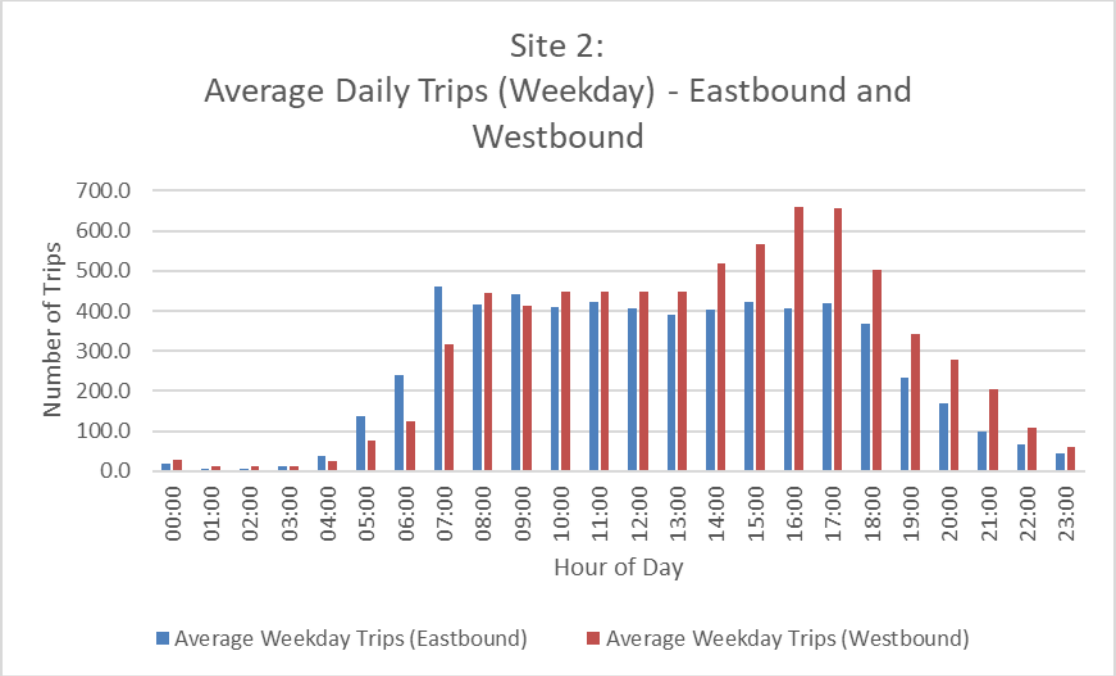


Figure 3-5: ATC Site 2 (A525) – Average Daily Trips (Weekday) – Eastbound and Westbound

3.4.10 There are clear tidal flows present along ATC Sites 1 and 2, with more vehicles travelling east in the morning and west in the afternoon. This is likely a result of commuting trips in and out of Wrexham and surrounding employment areas.

3.4.11 Figure 3-9 below combines the average daily trips (weekday) by time of day for ATC Sites 1 and 2.

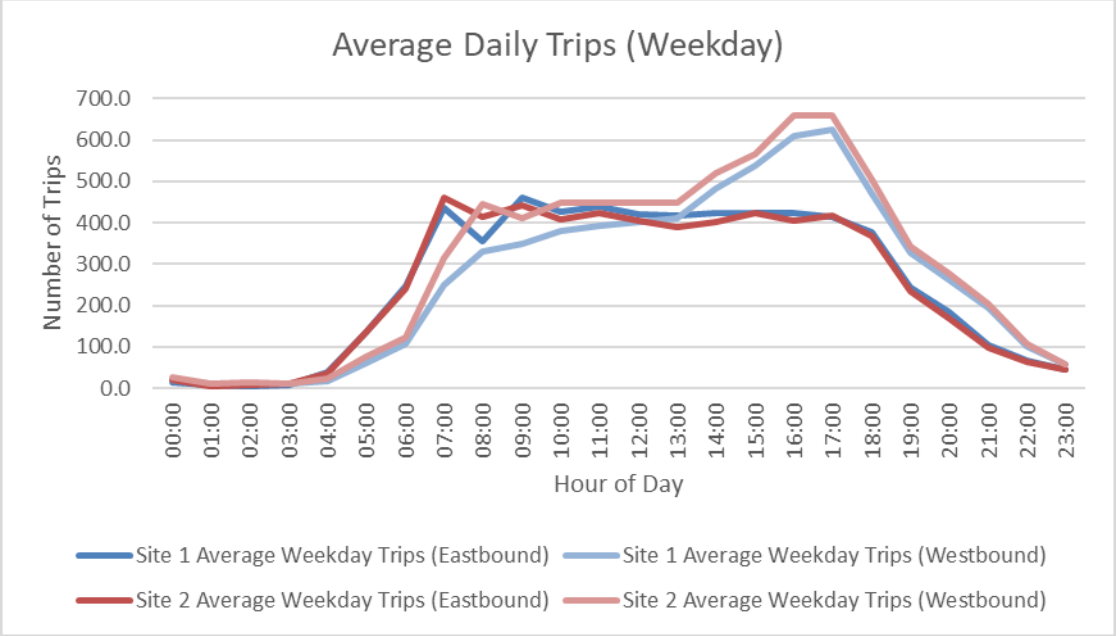


Figure 3-6: ATC Sites 1 and 2 (A525) – Average Daily Trips (Weekday)

3.4.12 As shown above, there is a noticeably higher afternoon peak for westbound journeys than there is for morning eastbound journeys. This may suggest that commuters utilise different routes in the morning due to congestion along A525. It is likely that some journeys may utilise the B5430 and Heritage Way in the morning as a means of avoiding congestion along A525. Vehicle speeds along A525 also suggest there is more congestion in the morning peak, this is discussed further below.

3.4.13 Figure 3-10 and 3-11 below outline the average number of daily trips (weekday) by vehicle class. As shown, the majority of journeys are made by cars or Light Goods Vehicles (LGVs).

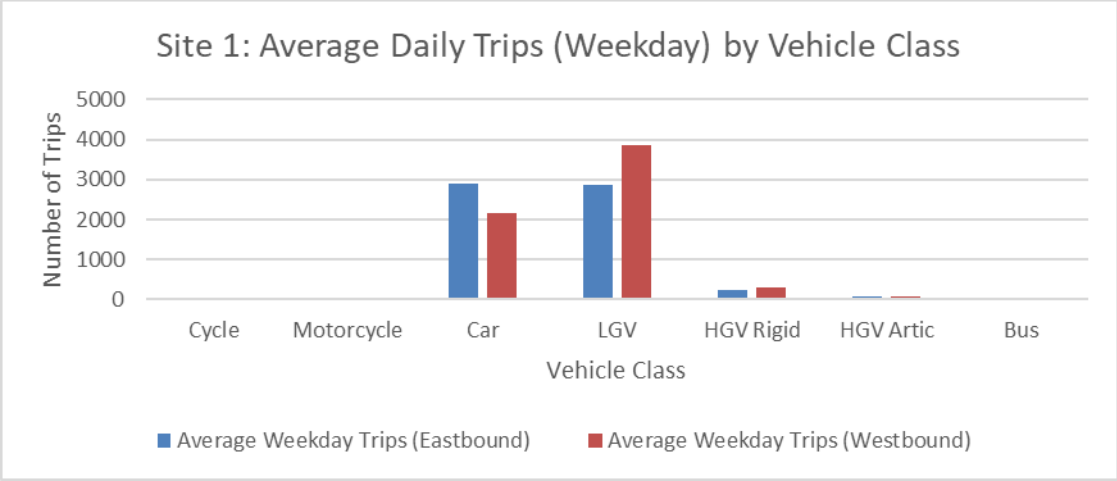


Figure 3-7: ATC Site 1 (A525) – Average Daily Trips (Weekday) by Vehicle Class

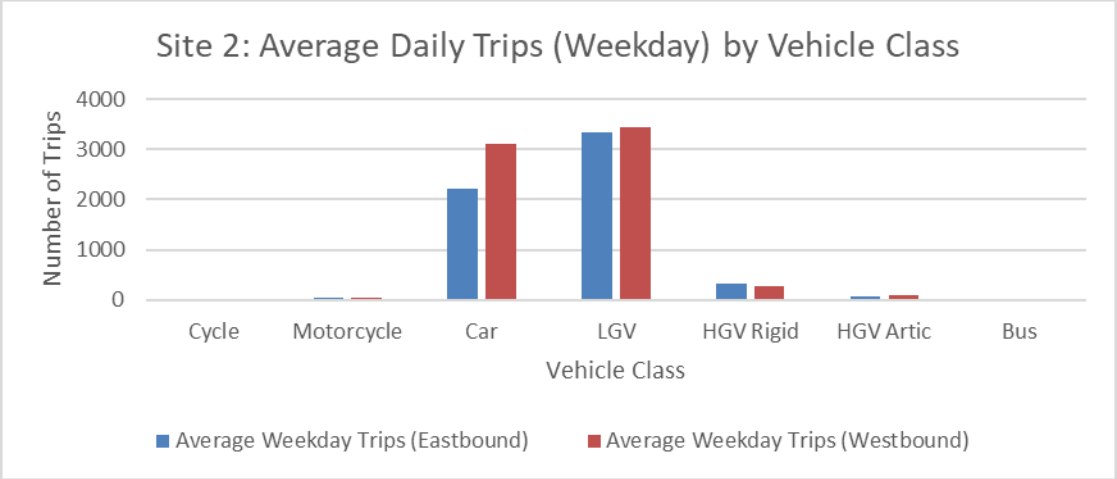


Figure 3-8: ATC Site 2 (A525) – Average Daily Trips (Weekday) by Vehicle Class

3.4.14 Figure 3-12 below outlines the average vehicle speeds on ATC Sites 1 and 2, by time of day (excluding weekends). There is a significant dip in vehicle speeds from Site 1 in the morning peak. This is likely due to congestion along the A525 as vehicles slow as a result of traffic merging from Heritage Way and head into Wrexham or joining the A483. This supports the earlier evidence that Heritage Way is utilised as an alternative route to A525 for journeys from the north and west.

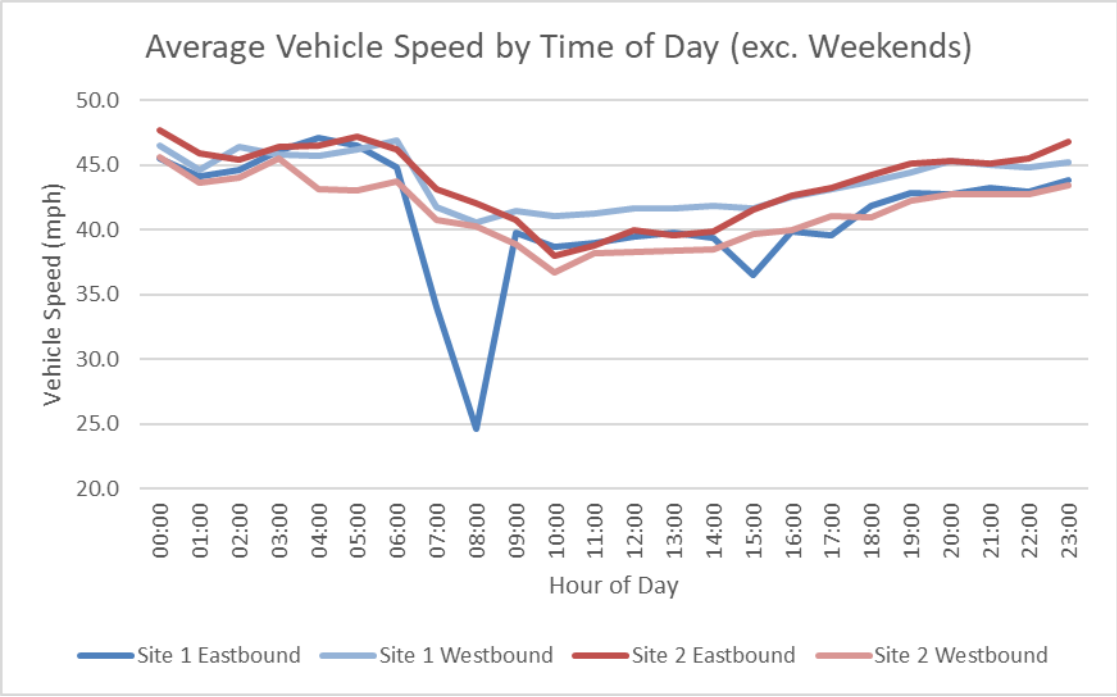


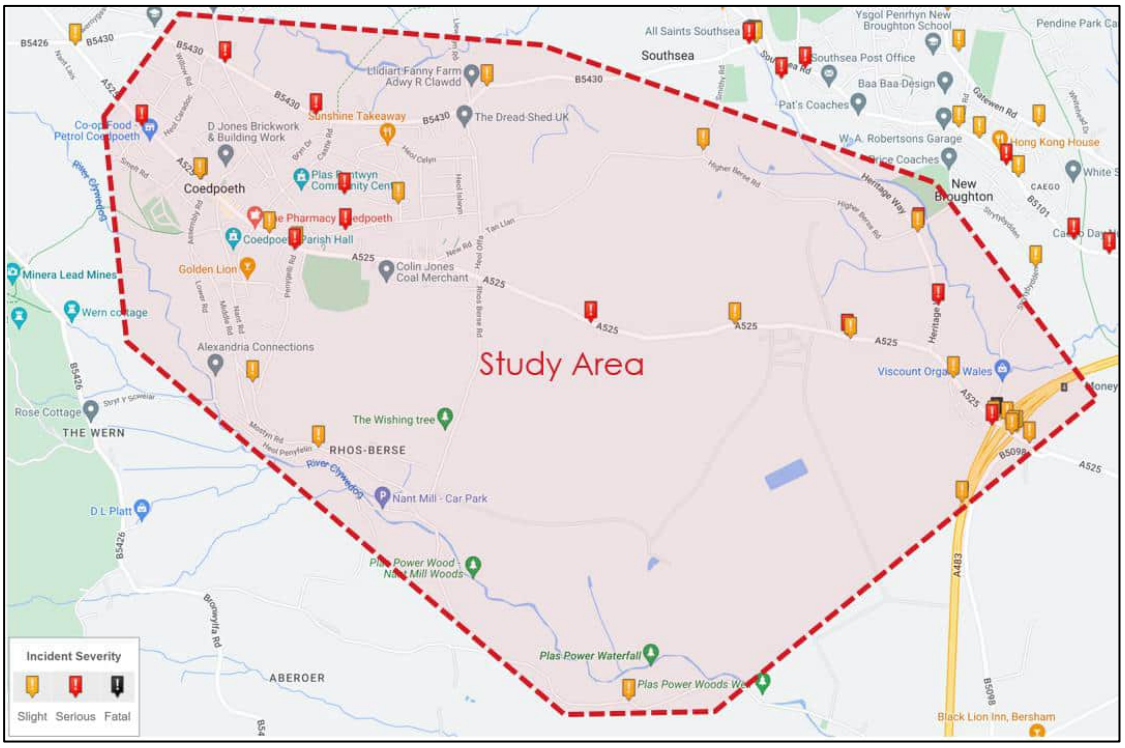
Figure 3-9: ATC Sites 1 and 2 (A525) – Average Vehicle Speed by Time of Day (Excluding Weekends)

3.4.15 As can be seen vehicle speeds are consistently below the 50mph speed limit for the road. This is considered good from a road safety point of view and helpful for turning movements to and from site access locations.

3.5 Road Safety

3.5.1 DfT Collision Data was analysed in the area surrounding the Site between 2017 and 2021. Figure 3-13 below outlines the study area.

Figure 3-10: DfT Collision Data Study Area



Source: www.crashmap.co.uk. Data Source: DfT Road Safety Data. Background map: Google

3.5.2 Table 3-4 below summarises the accident data within the study area. Along A525 between Heol Caradoc junction and A483 Junction 4, there was one collision reported as 'fatal', four collisions reported as 'serious' and 13 collisions reported as 'slight'.

Table 3-3: DfT Collision Data within Study Area and along A525

Area	Total Collisions	% Slight	% Serious	% Fatal
Study Area	33	63.6%	33.3%	3%
A525 (between Heol Caradoc junction and A483 Junction 4)	18	72.%	22.2%	5.6%

3.5.3 Based on the DfT collision data, there is no notable safety concern related to the study area, or along A525 between Heol Caradoc junction and A483 Junction 4. This was confirmed during the transport scoping meeting with WCBC when no specific road safety issues or areas of concern were identified in the study area. It was also agreed that a Stage 1 Road Safety Audit (RSA) would also be carried out on the site access junctions to inform their development and design prior to submitting the planning application. A copy of the minutes from the transport scoping meeting are provided in Appendix B.

4 Trip generation

4.1 Introduction

4.1.1 Trip generation for the Proposed Development cannot be undertaken using standard transport planning techniques, as insufficient examples of comparator sites are available in major sources such as the TRICs Database. On this basis, trip generation for construction and operation of the Proposed Development has been undertaken using a first principles approach based on information supplied by Lightsource bp and professional judgement regarding transport and logistics requirements for the site.

4.2 Operational Trip Generation

4.2.1 Once operational, the Proposed Development will be monitored remotely and will not require any permanent staff to be located on-site. Occasional maintenance activities will be required, typically for solar panel cleaning and occasional visits for substation and BESS upkeep. This would equate to approximately 1-2 visits per month.

4.2.2 Maintenance visits will typically be undertaken using a Light Goods Vehicle (LGV) or a four-wheel drive vehicle with 1-2 operational staff. Occasionally a larger vehicle such as a rigid HGV may be needed for maintenance when there is a need to swap out panels, inverters, and other equipment. These visits may potentially occur 3-4 times a year. To facilitate this, the permanent site access has been designed to accommodate a large HGV – site access design drawings including vehicle swept paths can be found in Appendix D.

4.3 Construction Trip Generation

4.3.1 Based on previous experience the Applicant has indicated that the construction works could require around 1,200 HGV movements across the course of the construction programmes for both the solar project and BESS. Based on a 12 month construction programme and 5.5 day working week this would equate to around 4-5 HGVs (8-10 movements) per day. However, it is recognised that a flat profile across the programme is unlikely and there will be peaks in activity associated with overlaps in the construction programme and more transport intensive activities taking place. Therefore, the following peaks in HGV and LGV movements have been identified:

- HGVs (Daily Peak): 15 (30 movements)
- LGVs (Daily Peak): 4-6 (8-12 movements)

4.3.2 The peak periods for the construction of the BESS will be lower, with a daily peak of 6 HGVs (12 movements) and 4 LGVs (8 movements).

4.3.3 There will be approximately 100 construction workers needed, but it is expected there will be a maximum of 75 staff on site at any one time. The number of staff on site will vary subject to the overall programme of works. The Applicant has indicated that based on experience from another solar project development they are estimating around 1/3 (33%) of construction workers car share. It is considered reasonable to apply this car share mode split to the Proposed Development. This would suggest around 50 staff will potentially drive to site. Trips associated with staff travel will likely occur outside of network peak periods and in the opposite direction of peak AM and PM traffic flows as identified in Section 3.

4.4 Decommissioning

4.4.1 A solar project is a temporary and fully reversible use with all equipment removed from site at the end of the installation's operational life (approximately 40 years). The methods used in construction (limited concrete) mean that remediation works following the removal of the panels and associated infrastructure are relatively minor and will return the site to its previous greenfield character.

4.4.2 In terms of vehicle trip generation it is anticipated that the decommissioning method would be similar to construction but in reverse. Therefore, similar vehicles numbers are anticipated subject to changes in technology and construction techniques.

5 Traffic Impact Assessment

5.1.1 This section considers the impact on the road network during the construction and operation of the Proposed Development.

Safety

5.1.2 The road safety data for years 2017-2021 has been obtained and analysed. As noted in Section 3.6, there are no notable safety concerns relating to A525 between Heol Caradoc junction and A483 Junction 4, or the surrounding area.

Operation

5.1.3 As noted in the previous section once operational the development will only require occasional maintenance activities. This would equate to approximately 1-2 visits per month. On this basis the vehicle movements associated with the maintenance visits to the site would have an imperceptible impact on the highway network and would be considerably less than daily variation in traffic flows. Maintenance visits would still be timed to avoid network peak hours.

Construction

5.1.4 The peak daily vehicle trips generated during the construction phase is anticipated to be approximately 15 HGV trips (30 movements) and 4-6 LGV trips (8-12 movements). As stated above it is estimated that a maximum of 75 staff will be on site at any one time. The Applicant has indicated that based on experience from another solar project development they are constructing around 1/3 (33%) of construction workers car share. It is considered reasonable to apply this car share mode split to the Proposed Development. This would suggest around 50 staff will drive to site.

5.1.5 The construction vehicle trips (HGVs and LGVs) will be spread across the day and through delivery scheduling seek to avoid the network peak hours wherever possible. The working hours for the construction phase will be 07:00 to 19:00 Monday to Friday, 07:00 to 13:00 hours on Saturday. Therefore, the workforce will arrive at Site prior to the AM network peak and will depart across the day depending on site activity and their scheduled working hours.

5.1.6 To help manage construction vehicle and staff movements an outline Construction Traffic Management Plan (CTMP) has been produced and includes a framework Construction Worker Travel Plan (CWTP). A summary of the key points of the CTMP is provided in Section 7.

5.1.7 Based on the trip generation figures presented for the construction phase and the management measures being proposed it is considered that the impact on the highway network will be negligible.

Decommissioning

5.1.8 The decommissioning phase is anticipated to be similar to the construction phase, but in reverse. As such, similar impacts are anticipated subject to changes in technology and construction techniques.

Local Developments

5.1.9 A residential development approximately 1km to the east of the Site, on the eastern side of A483, is proposed by Redrow Homes North West. The development comprises of up to 1,520 new dwellings. The planning application for the development (Ref: P/2023/0593) has been submitted and validated. Given the developments proximity to the Plas Power site the

Transport Assessment (TA) for the development has been reviewed and a summary of some of the key points is presented below.

5.1.10 Table 5-1 below outlines the determined maximum potential vehicular trip generation for the proposed development (based on 1,520 dwellings).

Table 5-1: Redrow Homes Proposed Development Trip Generation

Time Period	Arrivals	Departures
AM Peak Period	233	602
PM Peak Period	537	322

5.1.11 Development related traffic is to be distributed over a number of access points, including two principal accesses to Ruthin Road (A525) and further accesses to Bersham Road and Berse lane. The TA states that vehicle trips have been distributed in accordance with existing patterns of travel within Wrexham, including movements towards the town centre, Wrexham Industrial Estate, the hospital site, Ruthin, Chester and other destinations north and south along the A483.

5.1.12 It is acknowledged in the TA that A483 Junction 4 is known to be operating beyond its theoretical capacity in the future year scenario of 2028 without the development and queues and delays will be increased by the addition of all committed development within Wrexham, without any mitigation works. Noting the Welsh Government policy, following the roads review, that no additional highway capacity is to be created on the trunk road network to accommodate increases in traffic demand, an improvement scheme for the A483/A525 intersection is still proposed.

5.1.13 The proposed improvement scheme includes the following:

- Introduction of a left turn lane on the southbound slip road off the A483;
- Extension of left turn lane on the A525 west arm, which will be uncontrolled and allow traffic to access the A483 in free flow;
- Introduction of a left turn lane on the A525 east arm;
- Extension of the two ahead lanes on the A525 east arm to provide two full ahead lanes. This is achieved through the re-routing of Berse Lane traffic through the development site and removal of the existing ghost island right turn junction on the A525; and
- An additional A483 (westbound exit) arm.

5.1.14 The TA concludes that the results of the improvements show *'that the junction will still operate over its practical capacity in the future assessment year of 2028. However, when comparing the performance of the junction 'without development' scenario and the existing layout, the mitigation scheme shows that there is no significant change during the AM peak hour and a significant improvement during the PM peak hour.*

5.1.15 *On the basis of the assessments and with the improvement in place, the proposed development can be fully accommodated at Junction 4 of the A483 with no detriment to conditions that would otherwise exist.'*

5.1.16 Given the conclusion of the Redrow Homes TA and the likely buildout period of the Plas Power Solar Project it is considered unlikely that the two development programmes will

overlap and create any cumulative impact. As noted above the transport impact from Plas Power Project is considered to be negligible.

5.1.17 Other local developments surrounding the Site (which are within a radius of approximately 2-3km radius) have been identified to be of relevance to the Proposed Development, including:

- Land south of Berse Road, Caego, Wrexham, LL11 6TP (P/2023/0221) - erection of 47 dwellings and associated infrastructure (Pending Determination)
- Legacy National Grid Substation, Bronwylfa Road, Talwrn, Wrexham, LL14 4HY(P/2023/0175) – Installation and operation of battery storage facility and ancillary development (Approved)
- Legacy National Grid Substation, Bronwylfa Road, Talwrn, Wrexham, LL14 4HY – 1,025 MW Energy Storage System (Pre-Application Consultation)
- DNS/3237973 – Bersham Energy Plant (Pre-Application).

5.1.18 Based on the type, size and scale of the developments identified above and their associated delivery timescales it is considered highly unlikely that there would be any cumulative impact of note on the highway network in conjunction with the Proposed Development.

6 Access Strategy

6.1 Introduction

6.1.1 This section considers the approach to site access for the Proposed Development in the construction, operational and decommissioning phases of the development. Three access points will be used at different times during these periods.

6.2 Access Strategy

6.2.1 Figure 6-1 below outlines the various Site accesses, which are detailed further below.

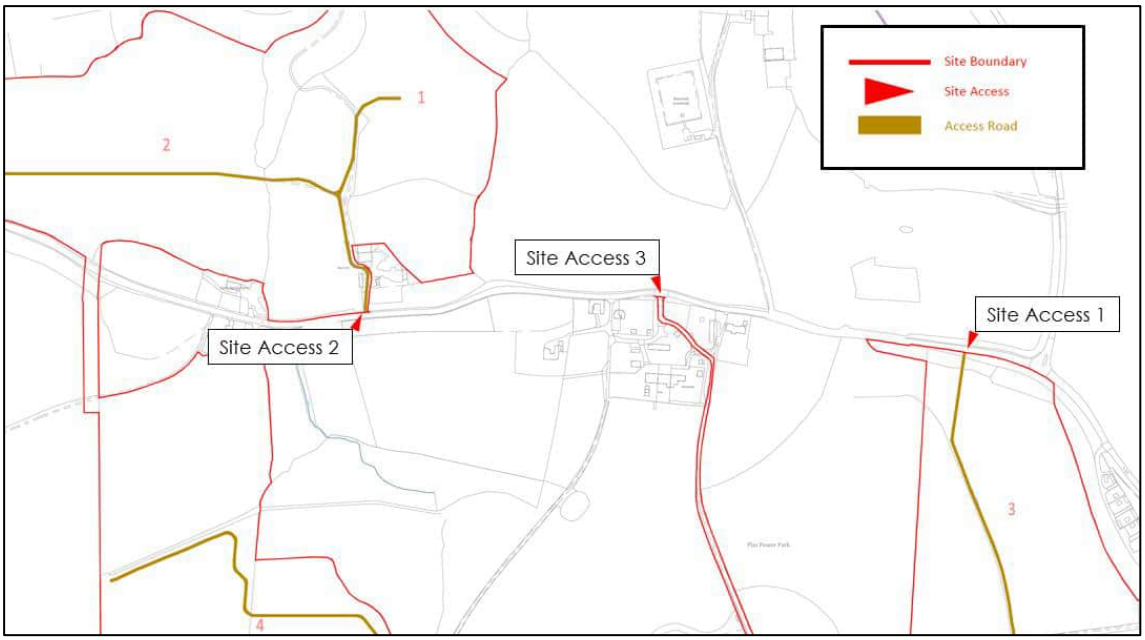


Figure 6-1: Site Accesses

Access 1

6.2.2 A new access (Access 1) will be constructed to the east along the A525 west of Heritage Way, which will serve as the main construction access point for the southern parcel of the site and will subsequently also be used as the main access for operation and site visits. Whilst Access 1 is being constructed, there will be a short-term temporary requirement to use Access 3 to access the site during construction set up and establishment. The existing Home Farm access (Access 3) will be used for maintenance when the Proposed Development is operational if required.

6.2.3 Access 1 will need to provide sufficient width to allow a large articulated vehicle to enter and exit the site safely. Up to approximately 25m of the existing wall and two trees will also need to be removed and the existing road sign will need to be relocated. It is proposed to retain the stonework from the affected section of wall and use it to create an entrance way to the site with the wall curving round with the radii of the entrance junction. This access would have the advantage that it would avoid properties situated around the Home Farm access and would minimise the distance between the A483 strategic route and the southern area of the site.

6.2.4 Concept design drawings including vehicle swept path analysis can found in Appendix C.

Access 2

6.2.5 The access to the northern parcel of the site (Access 2) will be via an existing farm access routeing north off the A525. The existing access is currently used by large agricultural vehicles and would be suitable for HGVs with some improvements. It will require advance signage to warn of the site access and construction vehicle movements and potential speed reduction via traffic management. Through detailed design and the road safety audit process the access safety will be examined, but at this stage the access is considered a safe and viable HGV access point with appropriate traffic management. This access point could be reconfigured in a number of ways and designed to accommodate the required movements, although as it is the sole point of access for adjacent dwellings, reconfiguration would require maintaining the access for residents. There will be no access to the northern part of the site from Tan Llan Lane to the north.

6.2.6 Abnormal Indivisible Loads (AILs) (if required) would be able to access the site via Access 2 using the identified strategic routes which are suitable for use by AILS. Should an AIL be needed a suitably qualified haulier would confirm the route from point of origin using the required notification process (see Section 4.4 for more detail on AILs).

6.2.7 Concept design drawings including vehicle swept path analysis to reconfigure the access to accommodate the required vehicle types and turning movements as well as maintaining the access for residents in adjacent dwellings can be found in Appendix C. The drawings indicate that the required visibility can be achieved with some vegetation removal. Turning movements will be restricted to right turn in and left turn out only.

Access 3

6.2.8 Site access 3 is the existing Home Farm access. This access will not be used for construction but will be used for maintenance access when the Proposed Development is operational. It is listed here for completeness.

Access 4

6.2.9 It is not proposed to use the access to the southern part of the site from the south along Rhos Berse Road (Access 4) during construction, operation or decommissioning, but may be needed in exceptional circumstances and will be limited to staff or emergency vehicular access sonly and would be limited to cars and LGVs.

Road Safety Audit

6.2.10 Following consultation with Wrexham Council, a Stage 1 Road Safety Audit (RSA) was undertaken for the proposed access arrangements, dated 01 December 2023. The site was visited by the Audit Team on Wednesday 29 November 2023 at 12:00. The weather was sunny and the road surface was damp. Traffic flows were moderate to high and there were no pedestrian or cycle flows. The RSA actions identified in response to the road safety audit problems have been discussed and agreed between the design organisation (Stantec) and Overseeing Organisation (Wrexham Council).

6.2.11 The Stage 1 RSA Response Report can be found in Appendix E for reference. Note that at the time of this report's preparation, the access labels were different to the ones noted within this TS. The table below outlines the changes:

Table 6-1: Site Access Label Changes

RSA Response Report	TS (this Document)
Site Access 1	Site Access 1
Site Access 2	Site Access 1
Site Access 3	Site Access 3

Internal Access

6.2.12 Existing farm tracks will be used for internal access within the site where possible. Where required, new access tracks will be formed, usually using a layer of permeable crushed stone. Geosynthetic reinforcement or soil stabilisation may be used to reduce the depth of track construction. The surface will be a compact granular material (crushed rock) up to an approximate thickness of 0.3m, dependent on the ground conditions. Width will increase at bends and at the entrance point. The tracks will measure between 3.5m and 4.5m wide.

6.2.13 The internal access tracks will also be utilised by emergency services to access the BESS compound to the south of the Site. Swept path analysis has been undertaken to show that a fire tender can enter the Site via site access 1, traverse the site to reach the BESS compound and can safely enter, circulate, and exit the BESS compound. The swept path analysis is provided in Appendix F.

7 Construction Traffic Management Plan

7.1.1 To help manage construction vehicle and staff movements an outline Construction Traffic Management Plan (CTMP) has been produced and includes a framework Construction Worker Travel Plan (CWTP). A summary of the headlines of the CTMP is provided below .

7.1.2 The construction of the Proposed Development will be in two phases – solar and BESS. The construction programme for the solar and associated infrastructure will be approximately 12-18 months and will consist of the following (but not limited to) principal activities:

- Site entrance creation, enabling works and security fencing / gates;
- Laying down and installation of temporary compounds and construction of access tracks;
- Delivery of solar PV, BESS and associated equipment;
- Installation of foundations and piling / installation of mounting frames, solar panels and other solar infrastructure;
- Cable trenching, ducting and backfilling, installation of inverters, transformers and substations;
- Laying of underground cable from the solar project to the existing Legacy Substation;
- Commissioning of the solar project and grid connection, landscaping and ecological enhancement works; and
- Demobilisation from the Site, including removal of the temporary construction compound.

7.1.3 Construction of the BESS will take approximately 6-9 months and will consist of the following principal activities:

- Delivery of the BESS and associated equipment;
- Installation of foundations for structures, cable trenching, ducting and backfilling;
- Installation of BESS containers and associated infrastructure; and
- Commissioning of the solar project, BESS and grid connection.

7.1.4 This outline CTMP provides a framework for management of construction vehicles associated with the development. It is anticipated that a detailed CTMP will be produced once a Principal Contractor has been appointed. The outline CTMP has been produced utilising best practice and guidance including the Transport for London (TfL), Construction Logistics Planning Guidance 2019 and includes the following sections:

- Context, considerations and challenges – providing an overview of the site, nature of development and parking, public transport and walking / cycling access
- Construction programme and methodology; providing information on the construction programme, stages and methods of construction
- Vehicle routeing and access – providing details on strategic and local vehicle routes for construction vehicle movements and site access / egress arrangements
- Strategies to reduce impacts – outlining the planned measures that will be used, and indicating how construction vehicles will be managed to / from and on-site
- Estimated vehicle movements – providing a construction vehicle trip generation profile for the duration of the construction programme
- Implementing, monitoring and updating – identifying how the implementation of the CTMP will be monitored and managed

8 Conclusion

8.1.1 Stantec has been commissioned by Lightsource bp to produce a Transport Statement (TS) to support the Development of National Significance application for the Plas Power Solar and Battery Project installation to the west of Wrexham.

8.1.2 The Proposed Development is considered to be well placed to take advantage of the surrounding transport network, including good connections to the A525 and wider trunk road network.

8.1.3 The vehicle trip generation associated with the Proposed Development will be limited, and as such, it is considered that the development proposals can be accommodated without detriment to the highway network at the construction, operational and decommissioning stages.

8.1.4 In line with Policy 18 of Future Wales: The National Plan 2040, there are no unacceptable adverse impacts on the transport network through the transportation of components or source fuels during the Proposed Development's construction and/or ongoing operation.

8.1.5 The outline CTMP produced demonstrates that sufficient measures can be put in place to minimise and manage the environmental and traffic impacts from the construction phase of the Proposed Development.

Appendix A Junction 4 Improvements Correspondence

Hapgood, Tim

From: WelshGovernment.Transport@gov.wales
Sent: 09 August 2023 16:33
To: Hapgood, Tim
Subject: Gohebiaeth Llywodraeth Cymru / Welsh Government Correspondence OC-00821-23

Adran yr Newid Hinsawdd

Department for Climate Change

Llywodraeth Cymru
Welsh Government

Our reference: OC-00821-23

Mr T Hapgood
Stantec

tim.hapgood@stantec.com

9 August 2023

Dear Mr Hapgood.

Thank you for your email enquiry of the 2 August to the Welsh Government Transport email box.

As you may have seen on the Welsh Government's website for the A483 Junctions 3 to 6, the preferred option for Junction 4 was announced in March 2021 and the route protected for planning purposes A483: junction 4 preferred route (TR111) (gov.wales)

However, the Roads Review Panel recommended in February 2023 that this scheme should not be progressed as the case for change was not well aligned with the Welsh Government's aim to reduce car milage. An alternative scheme has however been included in the Welsh Government's National Transport Delivery Plan 2022 to 2027 which is the Wrexham A483 multi-modal corridor improvements and city centre connectivity.

The Junction 4 improvements are therefore not being progressed any further and we will need to review the TR111 route protection which currently remains in place.

If you need any additional information or need to discuss further, please contact Peris Jones (peris.jones@gov.wales).

Yours sincerely

Is-adran y Rhwydwaith Ffyrdd Strategol / Strategic Road Network Division

Cysylltedd Trafnidiaeth a Digidol / Transport and Digital Connectivity
Y Grŵp Newid Hinsawdd a Materion Gwledig / Climate Change and Rural Affairs Group
Llywodraeth Cymru / Welsh Government

Original enquiry

From: Hapgood, Tim <tim.hapgood@stantec.com>
Sent: Wednesday, August 2, 2023 9:36 AM
To: Welsh Government Transport <WelshGovernment.Transport@gov.wales>
Subject: Query regarding road scheme - Wrexham A483

Hello,

I'm hoping you can help with a query regarding the status of the A483 J4 scheme. I'm currently working on behalf of Lightsource BP looking at some potential sites for solar power generation. We're looking at transport issues with construction and maintenance, so the announcement of transport schemes being put on hold/reappraised is significant to our client.

Regarding the A483 J4 scheme (A483: junctions 3 to 6 | GOV.WALES) near Wrexham, which are not in the national transport delivery plan 2022 to 2027. Is the current status of these schemes that they are withdrawn / cancelled, or that the final status of these schemes will be subject to further discussion and is not definitive at this stage?

Many thanks for your help.

Tim

Tim Hapgood
Associate

The Stills, 1st Floor, 80 Turnmill Street
London EC1M 5QU
Direct: 02038246640
Mobile: 07875514758
tim.hapgood@stantec.com

Sganiwyd y neges hon am bob feirws hysbys wrth iddi adael Llywodraeth Cymru. Mae Llywodraeth Cymru yn cymryd o ddifrif yr angen i ddiogelu eich data. Os cysylltwch â Llywodraeth Cymru, mae ein hysbysiad preifatrwydd yn esbonio sut rydym yn defnyddio eich gwybodaeth a sut rydym yn diogelu eich preifatrwydd. Rydym yn croesawu gohebiaeth yn Gymraeg. Byddwn yn anfon ateb yn Gymraeg i ohebiaeth a dderbynnir yn Gymraeg ac ni fydd gohebu yn Gymraeg yn arwain at oedi. On leaving the Welsh Government this email was scanned for all known viruses. The Welsh Government takes the protection of your data seriously. If you contact the Welsh Government then our Privacy Notice explains how we use your information and the ways in which we protect your privacy. We welcome receiving correspondence in Welsh. Any correspondence received in Welsh will be answered in Welsh and corresponding in Welsh will not lead to a delay in responding.

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A483 WRECSAM - CYFFORDD 4
TR111 LLWYBR I'W AMDDIFFYN DROS BWRIADAU CYNLLUNIO
A483 WREXHAM - JUNCTION 4
TR111 ROUTE PROTECTED FOR PLANNING PURPOSES

ALLWEDD / KEY
LLWYBR A FFEFRIR / PREFERRED ROUTE

Llywodraeth Cymru
Welsh Government

RHIF DRG/DRG NO. 402166-MMD-04-XX-DR-C-0010
MAWRTH / MARCH 2021

Appendix B Transport Scoping Meeting Minutes

Meeting Minutes

Meeting Title:	Plas Power Solar Farm – Transport Scoping Meeting
Required Invitees:	[redacted](DB) Wrexham County Borough Council (WCBC)
	[redacted](KM) Lightsource BP (LBP)
	[redacted](RV) Stantec (STN)
	[redacted](SG) Stantec (STN)
	[redacted](TH) Stantec (STN)
	[redacted] (KB) Mott Macdonald
Apologies:	[redacted] (CJ) and [redacted](WCBC)
Date of Meeting:	Thursday 07 September 2023 (10.30 – 11.30)
Location:	**Virtual meeting** (Microsoft Teams)
Job Number:	330610724

Item	Subject	Actions

1.	**Introduction:**
	
	The purpose of the meeting was to discuss with WCBC as the Local Highway Authority, the transport scoping of the Plas Power Solar Farm (PPSF) project. Topics discussed included:
	▪ Overview of the Project
	▪ Site Location & Study Area
	▪ Baseline conditions
	▪ Construction, operation, decommissioning
	▪ Vehicle routes, site access, cable routes
	▪ Approach to the DNS (Development of National Significance) & Transport Scoping
	  ▪ Environmental Statement
	  ▪ Transport Statement
	  ▪ Construction Traffic Management Plan
	
	TH provided a copy of the project information slides prior to the meeting for information.	

2.	**Overview of the Project** KM presented background on Lightsource BP. • Developing solar and battery project globally for 13 years – highly experienced and manage all phases of project. • Operational transport tends not to be a big issue due to the nature of project having minimal operational traffic impacts. • Key transport consideration is the construction phase and ensuring safe and efficient access to the site.	
3.	**Site Location & Study Area** KM presented the proposed site and study area. The site is situated on Plas Power estate, predominantly Grade 3b land with sheep	

Meeting Minutes

Item	Subject	Actions
	grazing. The majority of the site is south of the A525; a small portion of the site is located north of the A525. The off-site electricity cable will connect to the Legacy Substation approximately 1km from the site. There is existing site access from the A525 – through a small number of dwellings and therefore proposing not to use this to avoid impact on residents. Proposed temporary (potentially permanent) access be introduced on the A525, west of Heritage way for southern parcel. Existing farm access proposed for access to the northern parcel. KM commented that the southern parcel access is better and will therefore facilitate construction hub. KM identified existing PRoW in the southern and northern parcel. Both PRoW will need to be diverted during construction. BD suggested liaising with active travel officer at WCBC to confirm diversion routes. DB to provide contact details. KM confirmed cable connection between north and south parcels will utilise Horizontal Directional Drilling (HDD) to avoid works on the A525. Off-site cable connection routes to the substation are still under consideration and will seek to avoid works within the carriageway where possible.	DB to provide contact details. LBP to confirm preferred off-site cable connection route.
4.	**A484 J4 improvement** TH presented A483 J4 improvement scheme – communication with Welsh Govt confirmed the scheme will not be progressed. A483 multimodal corridor improvement confirmed as alternative scheme. DB confirmed that was also his understanding. RV confirmed the planning application for the Red Row housing scheme to the east A483 was submitted very recently. It was agreed that scheme progress would be monitored and the details would be taken into account in the Plas Power transport documents.	Stantec/LBP
5.	**Baseline Conditions** • **ATC – traffic flow and speed data** TH presented the traffic count and speed data from the ATC surveys undertaken in the vicinity of the PPSF site on the A525. ATC undertaken in July – before school holiday. TH identified Site 1 tidal flow (east in AM, west in PM), Site 2 data is similar to Site 1. TH commented that both the construction and operational vehicle trip generation produced by the development will likely be imperceptible and within the bounds of daily traffic variation. TH added that construction vehicles will travel in opposite direction to peak traffic (west in AM, east in PM). Traffic speeds were shown to be consistently below the 50mph limit which is considered good from a road safety point of view and	

Meeting Minutes

Item	Subject	Actions
	helpful for turning movements to and from site access locations. There is also a noticeable dip in speed in AM peak eastbound as traffic levels increase particularly in relation to vehicles joining the A525 from Heritage way and heading into Wrexham or joining the A483. KM added that during consultation in May/June residents supported solar project but were concerned for associated traffic in peak hours. • **Accident data** Accident data on the road network from Crash Map for the last available five years (2017 – 2021) was reviewed during the discussions. Several predominantly minor accidents around A483 J4 and a couple on A525 were identified. No specific issues or areas of concern were raised.	
6.	**Operational and Decommissioning Phase:** • **Programme, trip gen, staffing, working hours.** TH confirmed for the operational phase there will be 1 – 2 maintenance vehicles (LGVs) per month with 1 – 2 operational staff. And potential requirement for occasional HGV access. • **Construction, vehicle routes, site access, cable routes** TH confirmed the anticipated construction programme and construction vehicle trip generation figures for HGVs and LGVs (*see enclosed slides for details*). DB confirmed the presented HGV and LGV numbers were acceptable. TH confirmed Abnormal Indivisible Load (AIL) movements not anticipated but couldn't rule them out at this stage. TH commented that A483 and A525 are suitable routes for AILs. Anticipated construction staff numbers were also confirmed, and that a Construction Workforce Travel Plan (CWTP) will be produced as part of a Construction Traffic Management Plan (CTMP) – including using local staff where possible, car sharing and avoiding AM peak hour travel where practicable. TH presented the anticipated designated construction vehicle routes at both a regional and local level. DB confirmed the routes were acceptable. TH presented the proposed site accesses for the northern ad southern parcels from the A525 and confirmed junction design was ongoing. DB requested that a Road Safety Audit (RSA) is carried out of the site access junctions prior to agreement. KM confirmed the cable connection routes to the substation are still under consideration and will seek to avoid works within the	Stantec to produce CWTP and confirm worker trip generation profile. Stantec to commission RSA 1 of proposed site accesses.

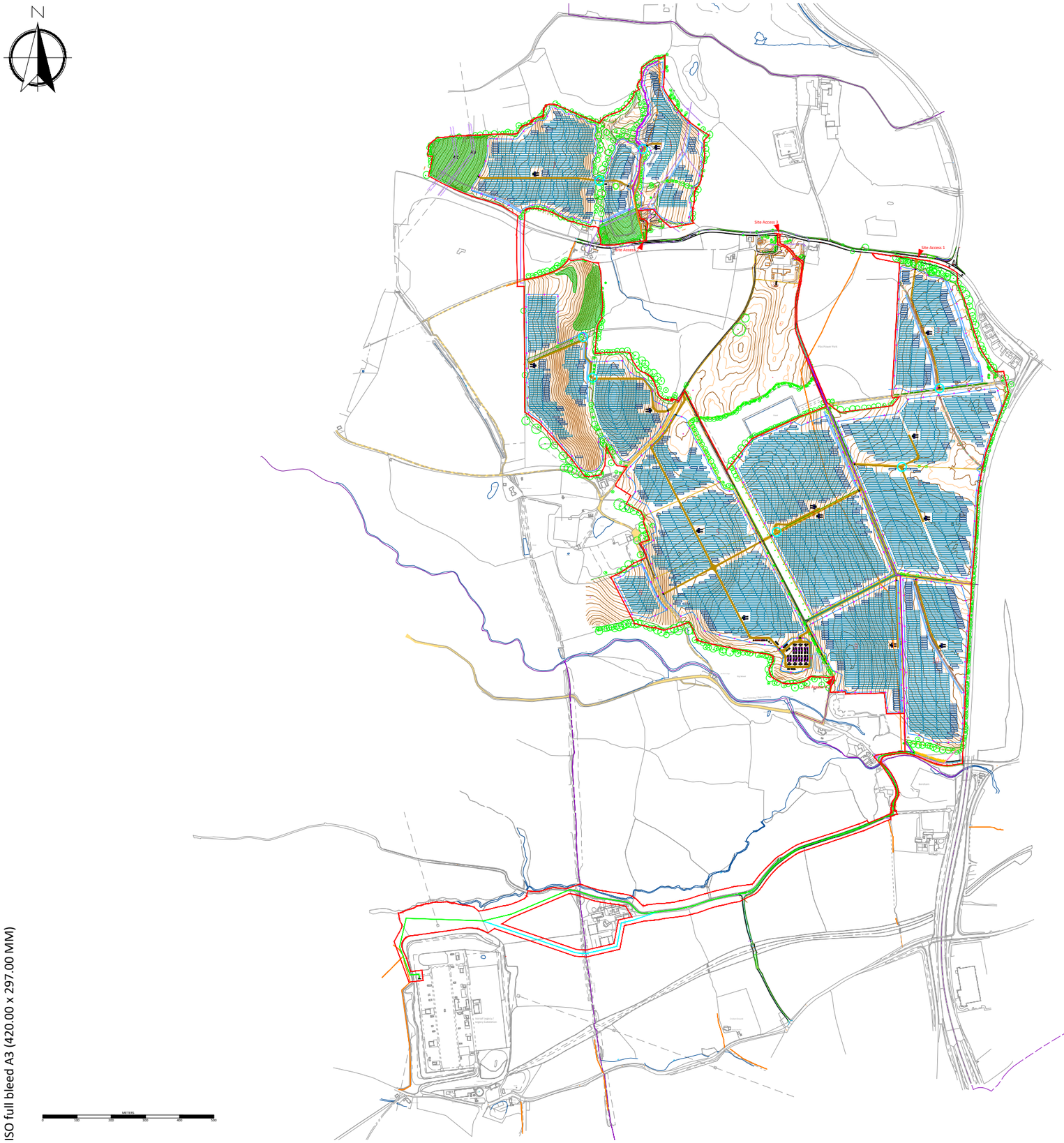
Meeting Minutes

Item	Subject	Actions
	carriageway where possible. TH commented that temporary road closures and traffic management may be needed if cabling works in the carriageway are needed.	
7.	**Approach to the DNS & Transport Scoping** WCBC agree that a Transport Statement (TS) is sufficient and traffic modelling will not be required. WCBC also agreed that the CTMP will be the main control document.	
8.	**Next Steps** TH/KM confirmed the next steps for the project. Provide copy of the slides – provide prior to the meeting. Non-statutory consultation Q2-3 2023 Statutory consultation Q3 2023 DNS submission in Q4 2023	

Appendix C Indicative Site Layout Plans

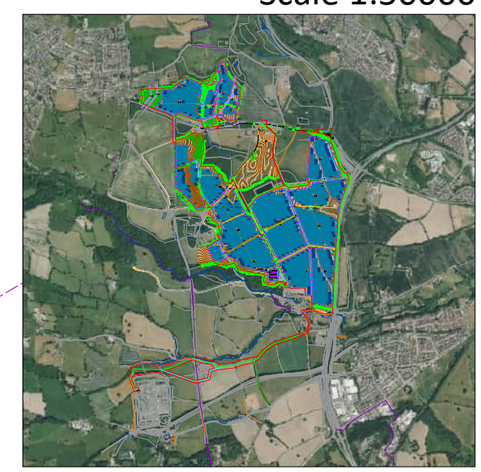
GBR_Plas Power Solar & Battery Project_LP2 - Indicative Site layout_15

Area 1,355,959 m2 (335.06 acres)



- Site Boundary
- Site Access
- Security Fence
- Module Table 30 x 2
- Module Table 15 x 2
- Transformer
- Inverter
- Switchgear Substation
- PV Intake Substation
- GRP
- Customer Substation
- Monitoring House
- Auxiliary Transformer
- Spares Container
- Access Road
- Access Gates
- CCTV
- Toilet
- BESS Enclosure x 4
- BIC
- Twin MV Skid
- Backup Generator
- BESS Intake Substation
- Spares Container
- BESS Security Fence
- Landscape / Biodiversity
- Preferred Cable Route Option
- Cable Route Option 1
- Cable Route Option 2
- Cable Route Option 3
- Cable Route
- Existing PRoW
- Proposed PRoW diversion
- Possible hedge removal
- Indicative Swales
- Attenuation Pond
- Existing Access Road
- Existing Tree
- Existing Hedgerow/Vegetation
- Existing Ditch
- Cable Sealing End

Scale 1:50000



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DRAWN	CHECKED	APPROVED	DATE
DA			22.05.2024

PROJECT NAME & ADDRESS:
Location: Plas Power Estate, Rhosrobin
Postcode: Caego, Wrexham, Wales

NOTES:
-
-
-
-

Paper Size:	Scale:	Sheet:
A3	1:12500	1

CAPACITY:

DRAWING TITLE:
GBR_Plas Power Solar & Battery Project_LP2 - Indicative Site Layout_15

DRAWING NUMBER:	STATUS:
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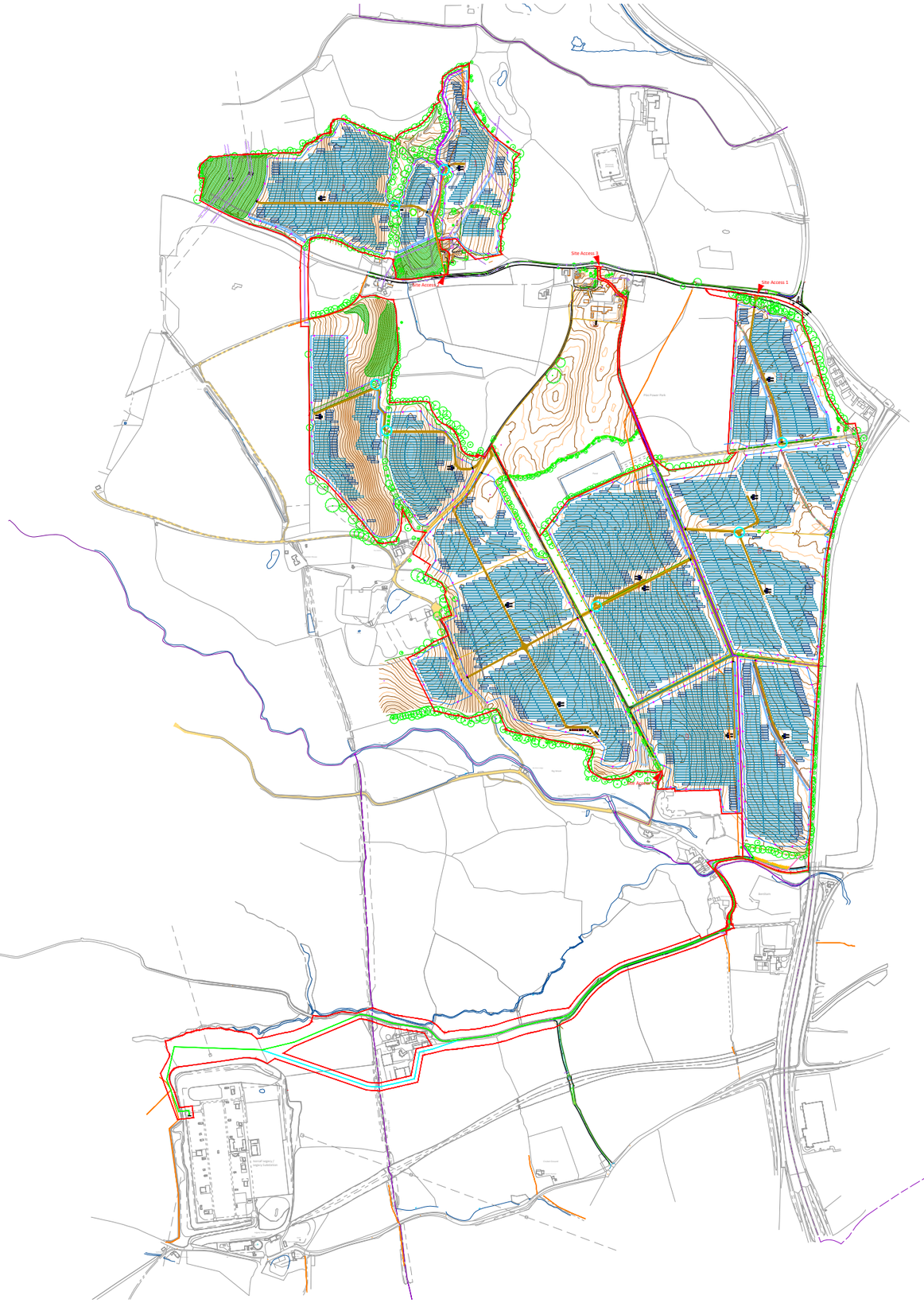
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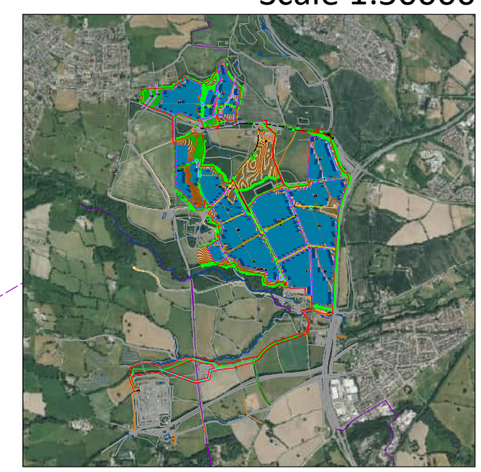
Area 1,355,959 m2 (335.06 acres)



- Site Boundary
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- Customer Substation
- Monitoring House
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- Spares Container
- Access Road
- Access Gates
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- Proposed PRoW diversion
- Possible hedge removal
- Indicative Swales
- Attenuation Pond
- Existing Access Road
- Existing Tree
- Existing Hedgerow/Vegetation
- Existing Ditch
- Cable Sealing End

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PROJECT NAME & ADDRESS:
Location: Plas Power Estate, Rhosrobin
Postcode: Caego, Wrexham, Wales

NOTES:
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CAPACITY:

DRAWING TITLE:
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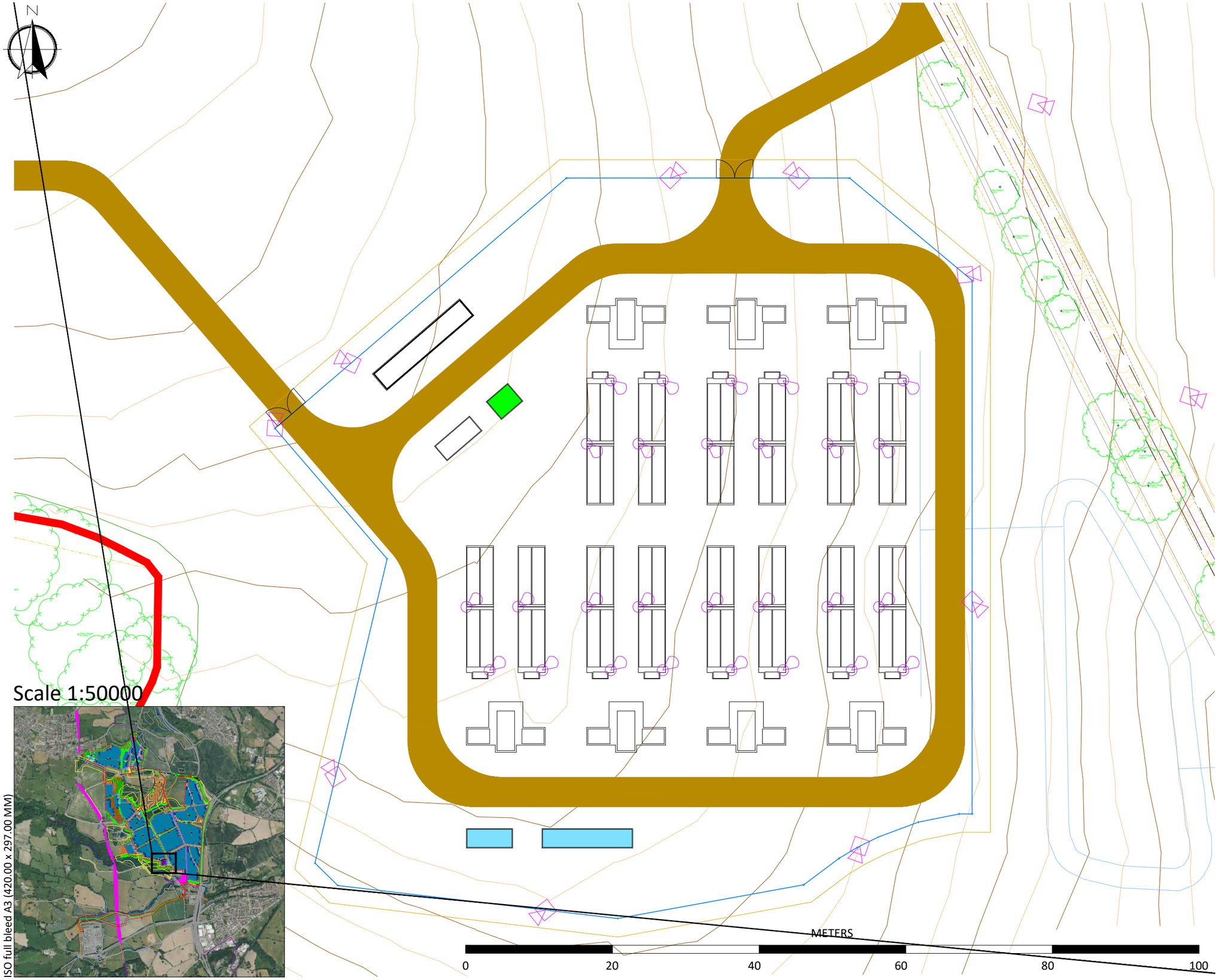
DRAWING NUMBER:	STATUS:
LP2-PDL-S	Pre-application Consultation

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Scale 1:50000

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Postcode: Caego, Wrexham, Wales

NOTES:
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CAPACITY:

DRAWING TITLE:
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DRAWING NUMBER:	STATUS:
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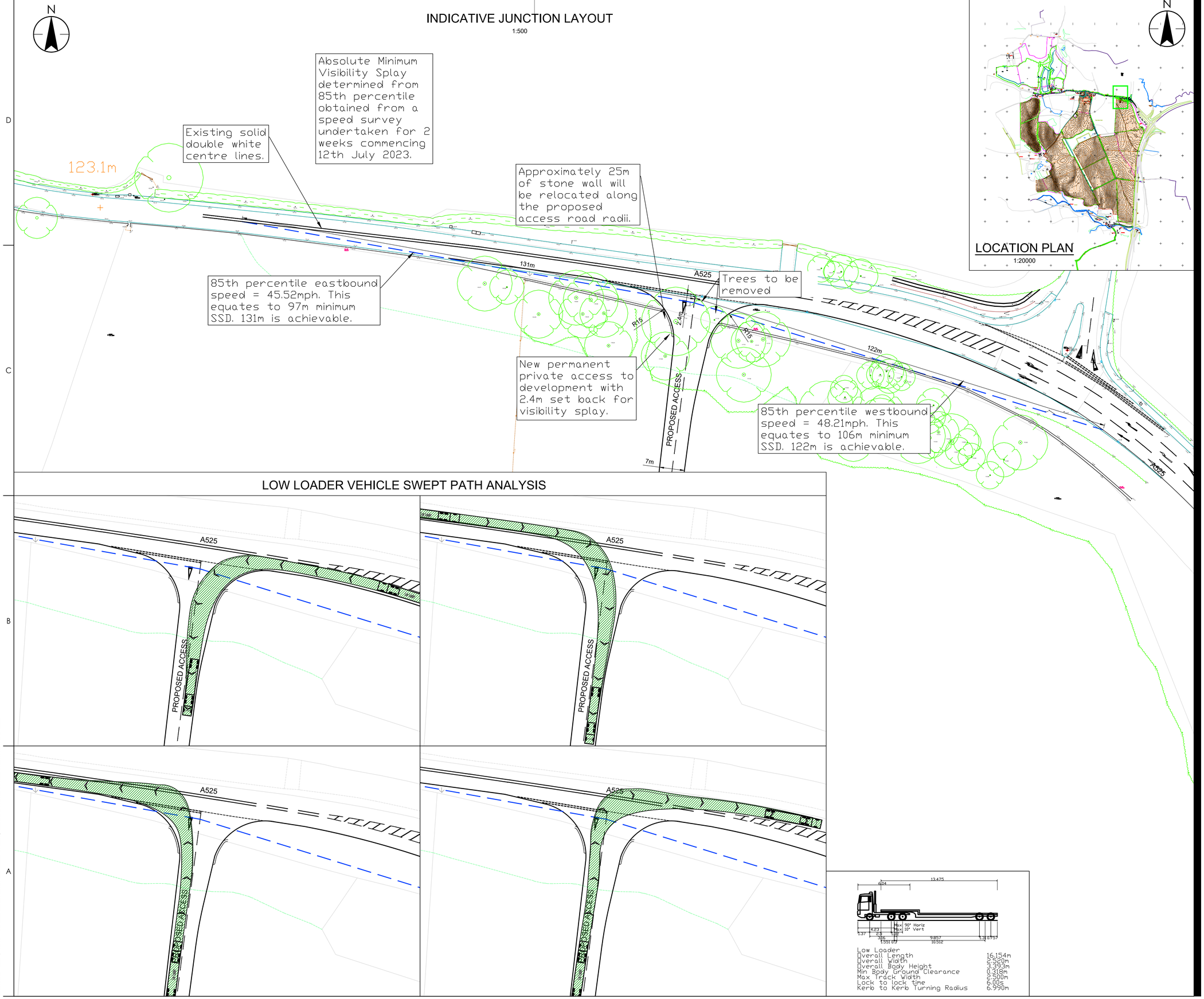
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Appendix D Concept Junction Design Drawings and Swept Path Analysis

INDICATIVE JUNCTION LAYOUT

1:500



LOCATION PLAN

1:20000

LOW LOADER VEHICLE SWEPT PATH ANALYSIS

Low Loader	
Overall Length	16.154m
Overall Width	2.520m
Overall Body Height	3.393m
Min Body Ground Clearance	0.318m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.990m

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Notes

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NOTES:

1. SOUTHERN CONSTRUCTION ACCESS - SWEPT PATH ANALYSIS BASED ON 10mph/16kph SPEED.
2. SITE STOPPING DISTANCE (SSD) IS CALCULATED FROM THE AVERAGE DAILY 85TH PERCENTILE VEHICLE SPEED AND ASSUMES A 2 SECOND REACTION TIME AND DECELERATION RATE OF 0.375g.

KWM	MG	-	2023.10.04
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Issue Status

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PLAS POWER SOLAR DEVELOPMENT

Title

INDICATIVE SOUTHERN SITE ACCESS

Project No.	Scale
330610724	AS SHOWN
Revision	**Drawing No.**
-	**330610724-SK-1200-001**

Plotted: 04.10.2023 10:04 10:15:32 AM By: Fowler, William
File No: C:\Users\william.fowler\Stantec\Plas Power Solar - Documents\330610724 Plas power solar development\5000 - transport\04_drawings\cad\330610724-sk-1200-001_indicative southern construction access



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LEGEND

UTILITY LINETYPES

British Telecom		Gas	
Cable Television		Heating Pipes	
Closed Circuit Television		HV Cables	
Communications		Multiple Services Route	
Drainage		Oil	
Drainage - Combined Water		Oxygen	
Drainage - Foul Water		Street Lighting	
Drainage - Storm Water		Traffic Signal Loop	
Empty Duct		Unknown found by GPR	
Electric		Unknown	
Fire Hydrant Main		Unknown Cable	
Fibre Optic		Unknown Pipeline	
Fuel		Water	

Assumed Service Route - See GENERAL NOTES (Using abbreviation of service and colour as above)

UTILITY SURVEY INFORMATION

Area of Concern		Unable to Survey	UTS
Contracted Survey Area	CNTR AREA	Unable to Lift (cover)	UTL
Previous Survey Area	PREVIOUS	Unable to Trace	UTR
Extent of (Post processed) GPR	GPR Survey	Unable to Trace (due to blockage)	UTB
Depth to Top of Service (metres)	(0.60d)	Unable to Trace Further	UTF
		End of Trace	UTE

ABBREVIATIONS used on a PAS 128 Survey

(0.65d B2P) 0.65d = Depth in metres, B2 = Quality Level, P = Post processed GPR

TOPOGRAPHIC & UTILITY DETAILS

Barrier (symbol - sized)		Pipe into Ground (symbol)	
Bellalra Beacon (symbol)	BS	Post (symbol)	PO
Bollard (symbol)	B	Rain Water Pipe (symbol)	RWP
Borehole (symbol)		Road Sign (symbol)	RS
British Telecoms IC (sized)	BTIC	Rodding Eye (symbol)	RE
Building (incomplete detail)		Sapling (symbol)	
Cable into Ground (symbol)		Sign Post (symbol)	SP
Cable TV Box (symbol)	CTV	Spot Light (symbol)	SL
CCTV Camera (symbol)		Spot Height	50.00 +
Cover Level in metres	CL 50.00	Stop Cock (symbol)	SC
Direction of Flow (Drainage)		Stop Valve (symbol)	SV
Distribution Board (symbol)	DB	Survey Station (symbol)	
Earth Rod (symbol)	ER	Telephone Pole (symbol)	TP
Electric Cabinet (sized)	EC	Traffic Bollard (symbol)	
Electric Pole (symbol)	EP	Tree (dimensions in metres - e.g.)	
Electric Sign (symbol)	ES	Diameter at 1mh: (bole) Height: Spread: Species:	Dbl: 0.3 Tip: 7.5 ht: 10.2 Maple
Embankment			
Feeder Pillar (sized)	FP		
Fire Hydrant (sized)	FH	Traffic Light (symbol)	TL
Flag Pole (symbol)	FP	Unknown Valve (symbol)	UV
Flat Roof Level in metres	FRL 50.00	Vent Pipe (symbol)	VP
Flood Light (symbol)	FL	Wall	
Gas Valve (symbol)	GV	Waste Pipe (symbol)	WP
Gate		Water Meter (symbol)	WM
Ground Level in metres	GL 50.00	Water Valve (symbol)	WV
Gulley (sized)	GU	Building Canopy	
Inspection Cover (sized)	IC	Crash Barrier	
Invert Level in metres	IL 50.00	Drainage Channel	Drainage Channel
Junction Box - BT (sized)	JB BT	Drop Kerb (level in metres)	00.00
Junction Box - Comms (sized)	JB COM	Edge Detail (level in metres)	00.00
Junction Box - Elec (sized)	JB	Footpath (level in metres)	00.00
Lamp Post (symbol)	LP	Fence	
Light Bollard (symbol)	LB	Heras Fence	
Light in ground (symbol)	LIG	Kerb channel (level in metres)	00.00
Manhole (sized)	MH	Kerb top (level in metres)	00.00
Manhole Capped Port		Overhead Service Line	OHS
Parapet Level in metres	PL 50.00	Pedestrian Railing	
Pipe Diameter in millimetres	100		

	WF	WF	TH	2023.10.03
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Issue Status

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Title

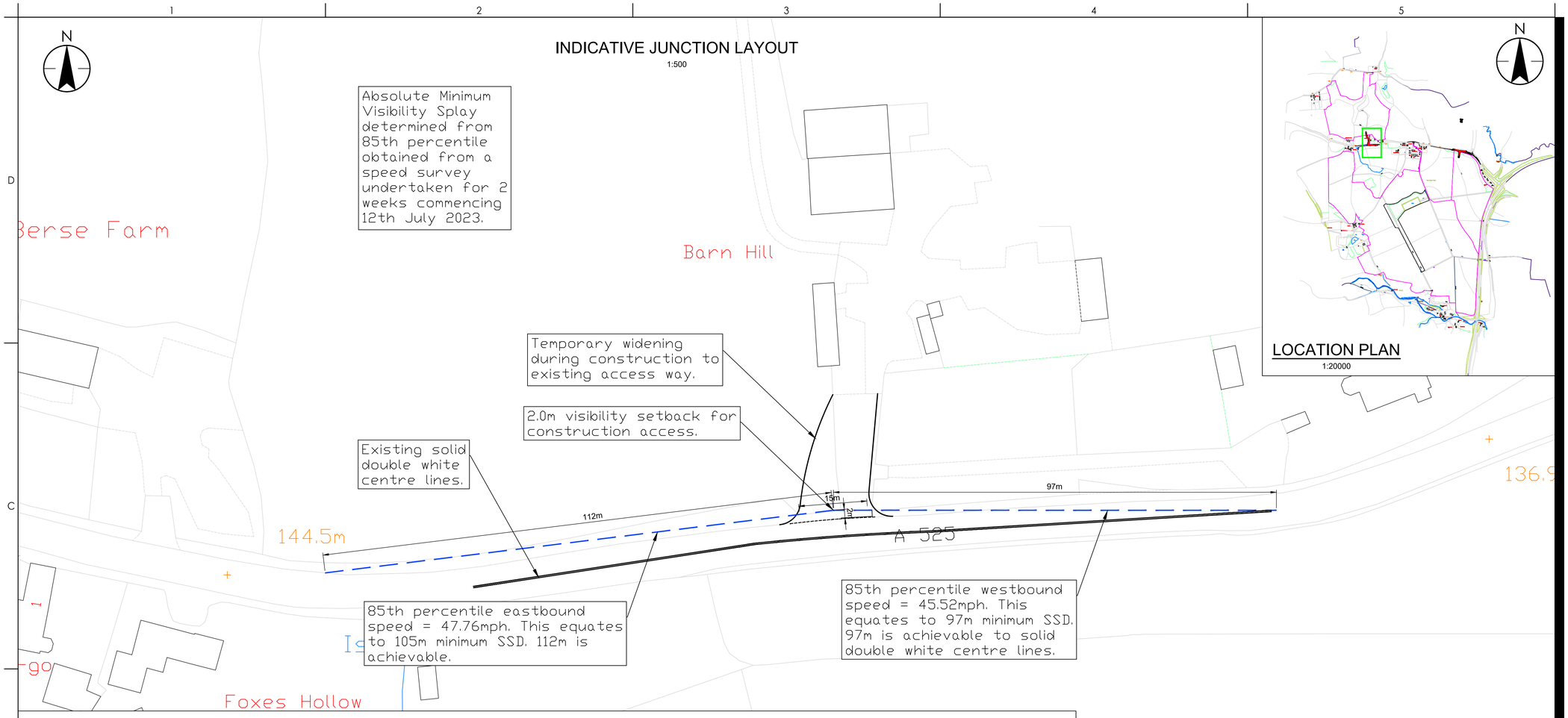
INDICATIVE SOUTHERN SITE ACCESS

Project No.	Scale
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Revision	Drawing No.
-	**330610724-SK-1200-004**

Plotted: 04.10.2023 2023.10.04 10:19:57 AM By: Fowler, William
File Name: \\GBWOR1-IGDC1 \330610724 - Plas Power Solar development\S00 - transport\04_drawings\cad\330610724-sk-1200-004_existing southern construction access

INDICATIVE JUNCTION LAYOUT

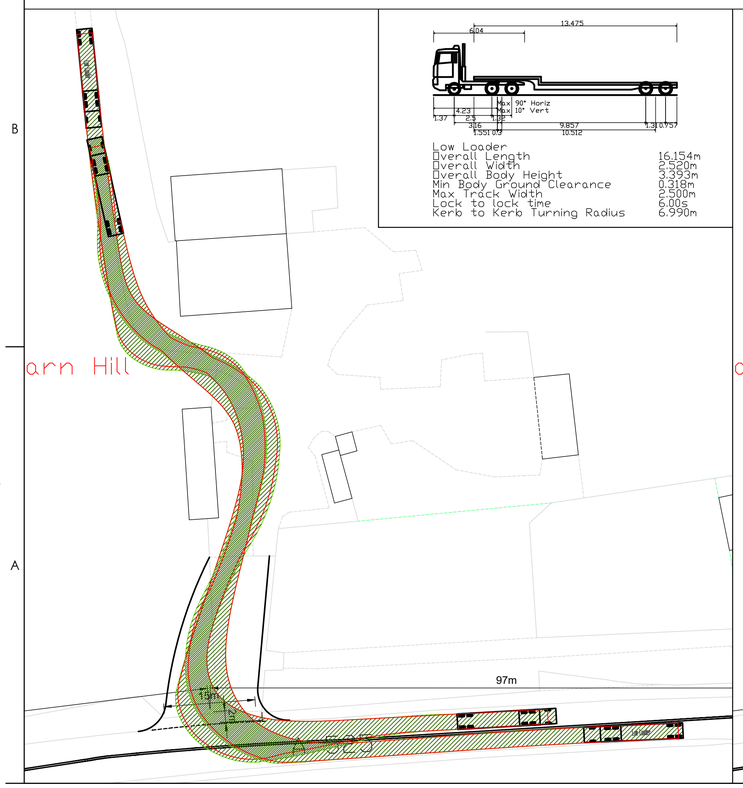
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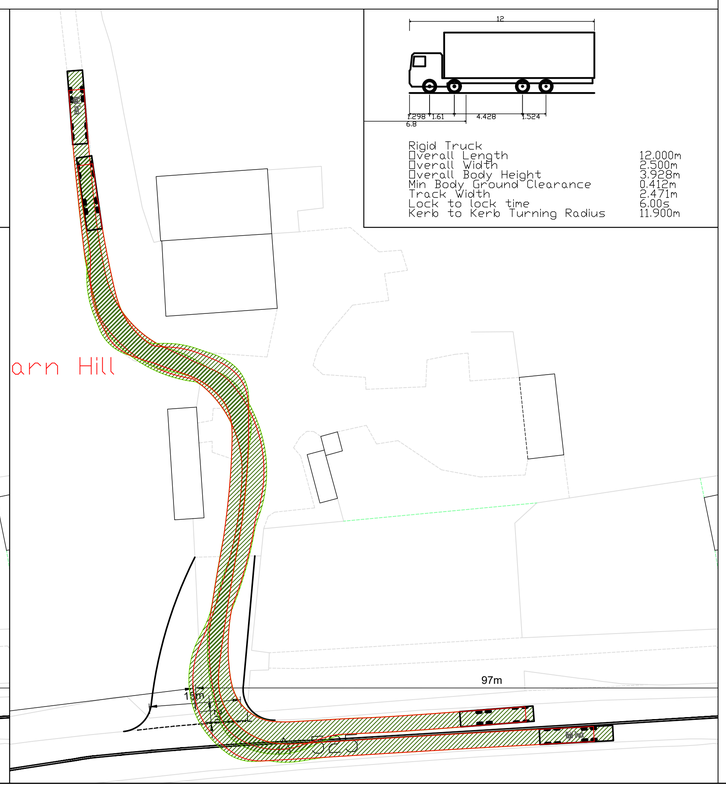


LOCATION PLAN

1:20000

VEHICLE SWEPT PATH ANALYSIS





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Notes

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NOTES:

1. NORTHERN CONSTRUCTION ACCESS - SWEPT PATH ANALYSIS BASED ON 5mph/8kph RESTRICTED SPEED LIMIT.
2. SITE STOPPING DISTANCE (SSD) IS CALCULATED FROM THE AVERAGE DAILY 85TH PERCENTILE VEHICLE SPEED AND ASSUMES A 2 SECOND REACTION TIME AND DECELERATION RATE OF 0.375g.

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KWM	KWM	-	2023.09.29

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Title

INDICATIVE NORTHERN SITE CONSTRUCTION ACCESS

Project No.	Scale
330610724	AS SHOWN
Revision	**Drawing No.**
-	**330610724-SK-1200-003**

Plotted: 03.10.2023 10:03:73 5501 PM By: Fowler, William
Drawing Path: C:\Users\WFowler\Stantec\Plas power solar development\330610724 - plas power solar development\330610724-sk-1200-003 indicative northern construction access

Appendix E Stage 1 Road Safety Audit Response

Plas Power Solar and Battery Project

Stage 1 Road Safety Audit Response

On behalf of **Lightsource bp**

Project Ref: 332410749 | Rev: - | Date: February 2024

Document Control Sheet

Project Name: **Plas Power Solar and Battery Project**

Project Ref: **332511471**

Report Title: **Stage 1 Road Safety Audit Response**

Date: **February 2024**

	Name	Position	Signature	Date
Prepared by:	Will Fowler	Transport Planner	*W. Fowler*	February 2024
Reviewed by:	Tim Hapgood	Associate Transport Planner	*T. Hapgood*	February 2024
Approved by:	Adrian Neve	Director	*A. Neve*	February 2024
For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved

This report has been prepared by Stantec UK Limited ('Stantec') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client. This report is not intended for and should not be relied on by any third party (i.e. parties other than the Client). Stantec accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this report.

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1.3 Proposed Highway Works 2
2 Designer's Response 3
2.1 Problem 1 (Visibility Splays) 3
2.2 Problem 2 (Left turn movement onto A525 by HGVs) 4
2.3 Problem 3 (Conspicuousness of access) 4
2.4 Problem 4 (Existing road markings) 5
2.5 Problem 5 (Street lighting) 5
2.6 Problem 6 (Gradient of minor road arm of junction) 5
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3 Organisation Statements 1
3.1 Design Organisation Statement 1
3.2 Overseeing Organisation Statement 1

Appendices

Appendix A Stage 1 Road Safety Audit

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1 Introduction

1.1.1 This Stage 1 Road Safety Audit Response Report has been prepared in response to a Stage 1 Road Safety Audit (RSA) carried out by TMS Consultancy, dated 1st December 2023. The RSA was undertaken for the proposed access arrangements for the Plas Power Solar and Battery Project.

1.1.2 Stantec has been commissioned by Lightsource bp (the Applicant) to produce a Transport Statement (TS) to support the Development of National Significance (DNS) application for the Plas Power Solar and Battery Project (herein referred to the 'Plas Power Project' or 'Proposed Development' to the west of Wrexham.

1.1.3 The audit comprised an examination of the documents listed below.

- Stage 1 Road Safety Audit Brief Document
- ATC survey results
- Swept Path Analysis and Visibility Splays Drawing (Northern Access) –

  330610724-SK-1200-001_Indicative Southern Construction Access
- Swept Path Analysis and Visibility Splays Drawing (Southern Access) –

  330610724-SK-1200-003A_Indicative Northern Construction Access

1.1.4 The site was visited by the Audit Team on Wednesday 29th November 2023 at 12pm. The weather was sunny and the road surface was damp. Traffic flows were moderate to high. There were no pedestrian or cycle flows.

1.1.5 This document intends to respond to the comments and recommendations raised in the Stage 1 Road Safety Audit. The report details whether the RSA recommendations are accepted, accepted with alternative solution, or disagreed. This report will be issued to the RSA team for information and to the Overseeing Organisation, Wrexham County Borough Council (WCBC), to seek agreement with the responses provided.

1.2 Key Organisations

1.2.1 The Stage 1 Road Safety Audit has been requested by WCBC, who are the Overseeing Organisation. The Design Organisations is Stantec UK Limited. The Third-Party Organisation is Lightsource bp. The key personnel involved from each respective organisation are listed below.

Overseeing Organisation

Wrexham County Borough Council – Doug Bailey, Development Control Engineer, Environment and Technical Services

Road Safety Audit Team

Audit Team Leader – Harminder Aulak – BSc (Hons), IEng, FIHE, RegRSA (IHE) National Highways Approved RSA Certificate of Competency

Audit Team Member – Lee Williams – BSc (Hons), MIHE National Highways Approved RSA Certificate of Competency

Design Team

Stantec – Tim Hapgood, Associate Transport Planner

Stantec – Will Fowler, Transport Planner

Stantec – Adrian Neve, Director

Third Party Organisation

Lightsource bp – Katy McGuinness, Head of Environmental Planning, Northern Europe

1.3 Proposed Highway Works

Northern Parcel Access (Access 1):

1.3.1 Junction improvement works to reconfigure the access to facilitate safe turning movements for HGVs. Right turn in, left turn out only. Improvement of visibility splays at junction with some removal of vegetation, based on Absolute Minimum Visibility Splay determined from 85th percentile eastbound and westbound speeds. Temporary warning signage to identify the works access. Potential temporary speed reduction if identified as necessary.

Southern Parcel Access (Access 2):

1.3.2 Construction of new private access along the A525 to serve as main temporary construction access point. Access 2 will also serve as the permanent maintenance access during the development's operation. Access junction will allow for all turning movements but predominantly left in and right out. Access will include 2.4m setback for visibility splays at junction (particularly for A525 west). Construction will include the removal of approximately 25m of the existing wall and removal of two trees.

1.3.3 A copy of the Road Safety Audit can be found at Appendix A of this Response.

2 Designer's Response

2.1 Problem 1 (Visibility Splays)

Location: Both Access 1 and Access 2

Summary: The visibility splays from both accesses appear to be calculated in accordance with the visibility formula given in Manual for Streets 2 (MfS 2). The formula in MfS 2 is recommended where speed limits are up to 40mph, or where actual measured 85 percentile speeds are up to 37mph. Otherwise, visibility splays (or stopping sight distance (SSD)) should be in accordance with Table 2.10 of DMRB CD 109 Highway Link Design.

Visibility splays below DMRB values on higher-speed inter-urban roads could increase the risk of pull-out collisions at junctions, especially in this case where heavy vehicles are likely to be emerging at low speed from the construction accesses.

Recommendation

2.1.1 It should be ensured that the visibility splays at the junction are in accordance with the values given in DMRB CD 109. In this case, the visibility splays at both accesses should have y-distances of 160m, based on the measured 85 percentile speeds giving a design speed of 80kph.

2.1.2 To achieve these distances, additional vegetation and other obstructions such as walls and signs would need to be removed.

Design Team Response

Disagree.

2.1.3 According to DMRB CD 109, the design speed for the road is 85kmph (although the recorded 85th percentile recorded speed is lower). It is agreed that the desirable minimum SSD for this design speed is 160m as demonstrated in the Table 1 below. However, CD 109 also states that Band A all purpose roads have a permitted relaxation of 2 steps, as demonstrated in Table 2, meaning the absolute minimum SSD is 90m.

Table 1 - DMRB CD 109 Table 2.10 Extract

Design speed kph	120	100	85	70	60	50
Stopping sight distance (metres)						
Desirable minimum	295	215	160	120	90	70
One step below desirable minimum	215	160	120	90	70	50

Table 2 - DMRB CD 109 Table 3.1

Road type	Design speed band	Permitted relaxation
Motorways	Band A	1 step
Motorways	Band B	2 steps
All-purpose	Band A	2 steps
All-purpose	Band B	3 steps

2.1.4 The visibility splays presented are in excess of the absolute minimum SSD of 90m and is therefore DMRB compliant.

2.1.5 The formula used to determine the visibility splay distances presented used the reaction time (2s) and deceleration rate (3.679m/s), in accordance with DMRB. Using the 85th percentile recorded speed is an industry standard methodology to determine an SSD more specific to the road.

2.1.6 The access will also have signage in advance to make approaching vehicles aware of the junction and cautious of possible manoeuvres. Vehicles turning left out of the access can do so without overrunning the opposing lane. The temporary nature of the access, the relatively low vehicle movements and the 85th percentile speed being below the road design speed, justifies the use of the absolute minimum SSD rather than the desirable minimum.

2.2 Problem 2 (Left turn movement onto A525 by HGVs)

2.2.1 **Location:** Access 1

2.2.2 **Summary:** The swept path analysis shows that HGVs turning left onto the A525 from the access would encroach into the westbound traffic lane on the major road.

Recommendation

2.2.3 The geometry of the access should be amended to allow HGVs to accomplish the left turn manoeuvre without encroaching into the opposing traffic lane.

Design Team Response

Accept.

2.2.4 An access taper has been added to prevent left-out vehicles overrunning the centreline. An extract of the updated tracking is included below

2.3 Problem 3 (Conspicuousness of access)

2.3.1 **Location:** Access 1

2.3.2 **Summary:** Risk of collisions if road users fail to identify the position of the access.

2.3.3 There are heavy tree canopies along the A525 where the access is located and due to the bends either side, the position is discreet and can easily be missed by road users. Unfamiliar drivers delivering to the site may brake late, swerve suddenly, or attempt to U-turn further along the road. These types of maneuvers could result in collisions, such as shunts, loss of control and side swipes.

Recommendation

2.3.4 The tree canopies should be cut back to improve natural light at the access. The access should also be highlighted by measures such as marker posts which road users could easily identify. Suitable advance temporary signs indicating the access should also be provided.

Design Team Response

Accept.

2.3.5 Tree canopy can be cut back as necessary prior to commencement of construction subject to input from the arboriculturist. Temporary warning signage to identify the works access will also be installed.

2.4 Problem 4 (Existing road markings)

2.4.1 **Location:** Access 1

2.4.2 **Summary:** Worn road markings and reflective road studs could increase the risk of collisions at the access.

Recommendation

2.4.3 The road markings should be renewed (which is likely to require periodic attention over the construction period). The road studs should also be inspected and replaced if necessary.

Design Team Response

Disagree.

2.4.4 **Renewal of l**ine markings and road studs are considered to be a **highway** maintenance issue, it is suggested this should be reviewed by the local highway authority, WCBC.

2.5 Problem 5 (Street lighting)

2.5.1 **Location:** Access 2

2.5.2 **Summary:** Risk of collisions if junction is in partial darkness at night.

2.5.3 The existing street lighting will end a short distance to the west of the new junction. Therefore, at night the junction could be in partial darkness and at a point where the eyesight of road users may not transition fully from an unlit to lit area (and vice versa). This could increase the risk of collisions involving road users braking suddenly, swerving or turning abruptly, such as shunts and loss of control collisions.

Recommendation

2.5.4 The street lighting should be assessed and extended as necessary to ensure the junction and immediate approach is suitably illuminated at night.

Design Team Response

Disagree.

2.5.5 The access is considered to be within the street lighting area with existing streetlamps either side of the access on the northern side of the road. Turning movements will be primarily left-in, right-out movements. Vehicle use of the access will take place primarily during daylight hours with no overnight deliveries anticipated.

2.6 Problem 6 (Gradient of minor road arm of junction)

2.6.1 **Location:** Access 2

2.6.2 **Summary:** Risk of collisions involving slow moving HGVs pulling out on to the major road.

Recommendation

2.6.3 It should be ensured that a level dwell area over a suitable distance (to accommodate HGVs) is provided on the approach to the give-way line of the junction.

Design Team Response

Accept.

2.6.4 Levelling works to be undertaken. Access will be within acceptable gradient tolerances – no greater than 1 in 20 - in accordance with Designing for Deliveries guidance (Logistics UK).

2.7 Problem 7 (Existing Information Sign to the west of the new junction)

2.7.1 **Location:** Access 2

2.7.2 **Summary:** Risk of pull-out type collisions if visibility splay is obstructed by an Information Sign.

Recommendation

2.7.3 The sign should be relocated out of the visibility splay.

Design Team Response

Accept.

2.7.4 Suitable relocation position for the sign will be agreed with WCBC.

3 Organisation Statements

3.1 Design Organisation Statement

On behalf of the design organisation I certify that: **1) the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation.**	
Name:	Tim Hapgood
Signed:	*Tim Hapgood*
Position:	Associate Transport Planner
Organisation:	Stantec
Date:	01.02.24

3.2 Overseeing Organisation Statement

On behalf of the Overseeing Organisation I certify that: **1) the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the design organisation; and** **2) the agreed RSA actions will be progressed.**	
Name:	
Signed:	
Position:	
Organisation:	
Date:	

Appendix A Stage 1 Road Safety Audit

safer roads for everyone

Plas Power Solar and Energy Storage Project A525 Wrexham, Wales

Road Safety Audit Stage 1

on behalf of Wrexham County Borough Council

Stantec for Lightsource bp

TMS reference no: 18189

Date: 1st December 2023

Revision: 0

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THE CHARTERED INSTITUTION OF HIGHWAYS & TRANSPORTATION

INSTITUTE OF HIGHWAY ENGINEERS

QMS ISO 9001 REGISTERED

1. Project Details

Report Title:	Plas Power Solar and Energy Storage Project A525 Wrexham, Wales Road Safety Audit Stage 1
Author	Harminder Aulak
Document Ref No:	TMS Report Ref No: 18189
Revision	0
Prepared by:	TMS Consultancy
On behalf of:	Wrexham County Borough Council (Overseeing Organisation)
TMS Client	Stantec for Lightsource bp

Document Control Sheet

Issue No	Revision	Audit Team	Completion Date	TMS Issue Date
1	0	HA / LW	01/12/2023	01/12/2023

2. Introduction

2.1 This report describes a Stage 1 Road Safety Audit carried out on access proposals for a new Plas Power Solar and Energy Storage Project on land off the A525 to the west of Wrexham, on behalf of Stantec for Lightsource bp.

2.2 The audit team members were as follows:

Audit Team Leader

Harminder Aulak – BSc (Hons), IEng, FIHE, RegRSA (IHE)
National Highways Approved RSA Certificate of Competency
Technical Director – Engineering Services, TMS Consultancy

Audit Team Member

Lee Williams – BSc (Hons), MIHE
National Highways Approved RSA Certificate of Competency
Principal Engineer, TMS Consultancy

2.3 The audit comprised an examination of the documents listed in **Appendix A**. The Road Safety Audit was undertaken in accordance with the instructions from Tim Hapgood of Stantec.

2.4 The site was visited by the Audit Team on Wednesday 29th November 2023 at 12pm. The weather was sunny and the road surface was damp. Traffic flows were moderate to high. There were no pedestrian or cycle flows.

2.5 The terms of reference of the Road Safety Audit are as described in GG 119 Revision 2. The team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the design to any other criteria.

2.6 All of the problems described in this report are considered by the audit team to require action in order to improve the safety of the scheme and minimise collision occurrence.

2.7 Scheme drawings are included in **Appendix B**, where the locations of specific problems are referenced. A location plan of the scheme is also included in this Appendix.

2.8 The scheme consists of two accesses for the Plas Power Project, with both located on the A525 to the west of Wrexham. Descriptions of the two accesses are as follows:

Northern Parcel Access (Access 1):
Junction improvement works are proposed to reconfigure an existing access to facilitate safe turning movements for HGVs. Only right turn in and left turn out movements will be permitted. Improvements to visibility will be carried out with some removal of vegetation. Temporary warning signage is proposed to identify the works access. A potential temporary speed reduction if identified will be implemented as necessary. The speed limit of the road is currently 50mph and no street lighting is present.

Southern Parcel Access (Access 2):
The scheme consists of the construction of a new private access (to the west of Hermitage Way) to serve as the main temporary construction access point. Access 2 will also serve as the permanent maintenance access during the development's operation. The junction will allow for all turning movements, but the predominant movements will be left in and right out. The construction will include the removal of approximately 25m of the existing wall and removal of two trees, which will improve visibility. The speed limit is currently 50mph and street lighting is present.

2.9 **Road Safety Audit Response Report**

Following the completion of the road safety audit, the design team should prepare a road safety audit response report in collaboration with the Overseeing Organisation.

The response report should incorporate the following:

- **Decision Log** spreadsheet, where each Problem and Recommendation in the Safety Audit report is reiterated
- In the Decision Log, a response should be provided by the Design Team and Overseeing Organisation for each problem raised in the RSA report, together with an agreed action

Further information is provided in **GG 119 Sections 4.11 to 4.19** and **Appendix F** (where a road safety audit response report template is available).

The response report should be produced and finalised within *one month* of the issue of the RSA report. A copy of the response report should be issued to the Safety Audit Team for information.

3. Items resulting from the Stage 1 Audit Road Safety Audit

3.1 PROBLEM

Location: Visibility splays at both Access 1 and Access 2

Summary: Risk of pull-out type collisions if visibility splays are below DMRB recommended values.

The visibility splays from both accesses appear to be calculated in accordance with the visibility formula given in Manual for Streets 2 (MfS 2). The formula in MfS 2 is recommended where speed limits are up to 40mph, or where actual measured 85 percentile speeds are up to 37mph. Otherwise, visibility splays (or stopping sight distance (SSD)) should be in accordance with Table 2.10 of DMRB CD 109 Highway Link Design.

Visibility splays below DMRB values on higher-speed inter-urban roads could increase the risk of pull-out collisions at junctions, especially in this case where heavy vehicles are likely to be emerging at low speed from the construction accesses.

RECOMMENDATION

It should be ensured that the visibility splays at the junction are in accordance with the values given in DMRB CD 109. In this case, the visibility splays at both accesses should have y-distances of 160m, based on the measured 85 percentile speeds giving a design speed of 80kph.

To achieve these distances, additional vegetation and other obstructions such as walls and signs would need to be removed.

3.2 PROBLEM

Location: Access 1 – Left turn movement onto A525 by HGVs

Summary: Risk of collisions between left turning HGVs and westbound traffic on the A525.

The swept path analysis shows that HGVs turning left onto the A525 from the access would encroach into the westbound traffic lane on the major road. Drivers travelling westbound may not expect to encounter HGVs in their lane in a head-on position (especially as forward visibility may be limited by the right-hand bend in the road) and collisions could occur as a result.

RECOMMENDATION

The geometry of the access should be amended to allow HGVs to accomplish the left turn manoeuvre without encroaching into the opposing traffic lane.

3.3 PROBLEM

Location: Access 1 – Conspicuousness of access

Summary: Risk of collisions if road users fail to identify the position of the access.

There are heavy tree canopies along the A525 where the access is located and due to the bends either side, the position is discreet and can easily be missed by road users. Unfamiliar drivers delivering to the site may brake late, swerve suddenly, or attempt to U-turn further along the road. These types of manoeuvres could result in collisions, such as shunts, loss of control and side swipes.

RECOMMENDATION

The tree canopies should be cut back to improve natural light at the access. The access should also be highlighted by measures such as marker posts which road users could easily identify. Suitable advance temporary signs indicating the access should also be provided.

3.4 PROBLEM

Location: Access 1 – Existing road markings

Summary: Worn road markings and reflective road studs could increase the risk of collisions at the access.

The existing double white line system along the centre of the carriageway is becoming worn and faded. The condition of the reflective studs is also not known. When the access is in use, the scrubbing action caused by the tyres of heavy vehicles is likely to accelerate the deterioration. Worn road markings (and road studs) would reduce the effectiveness of the features and potentially increase the risk of collisions at the access involving turning vehicles.



RECOMMENDATION

The road markings should be renewed (which is likely to require periodic attention over the construction period). The road studs should also be inspected and replaced if necessary.

3.5 PROBLEM

Location: Access 2 – Street lighting

Summary: Risk of collisions if junction is in partial darkness at night.

The existing street lighting will end a short distance to the west of the new junction. Therefore, at night the junction could be in partial darkness and at a point where the eyesight of road users may not transition fully from an unlit to lit area (and vice versa). This could increase the risk of collisions involving road users braking suddenly, swerving or turning abruptly, such as shunts and loss of control collisions.

RECOMMENDATION

The street lighting should be assessed and extended as necessary to ensure the junction and immediate approach is suitably illuminated at night.

3.6 PROBLEM

Location: Access 2 – Gradient of minor road arm of junction

Summary: Risk of collisions involving slow moving HGVs pulling out on to the major road.

The existing land to the south of the A525 falls away from the carriageway. Therefore, the minor arm could have a steep uphill gradient towards the give-way line of the junction. This could result in HGVs being slow moving as they enter the major carriageway, potentially increasing the risk of collisions with other vehicles travelling along the A525.

RECOMMENDATION

It should be ensured that a level dwell area over a suitable distance (to accommodate HGVs) is provided on the approach to the give-way line of the junction.

3.7 PROBLEM

Location: Access 2 – Existing Information Sign to the west of the new junction

Summary: Risk of pull-out type collisions if visibility splay is obstructed by an Information Sign.

There is a large Information Sign (giving distances to settlements) on the southern side of the A525, which is likely to be within the right-hand visibility splay at the new junction. Obstructions to the visibility splay could increase the risk of pull-out type collisions, particularly involving HGVs.



RECOMMENDATION

The sign should be relocated out of the visibility splay.

4. Audit Team Statement

We certify that the terms of reference of the road safety audit are as described in GG 119 Revision 2.

Audit Team Leader

Harminder Aulak – BSc (Hons), IEng, FIHE, RegRSA (IHE) National Highways Approved RSA Certificate of Competency Technical Director – Engineering Services, TMS Consultancy

Signed	[redacted]
Date	1st December 2023

Audit Team Member

Lee Williams – BSc (Hons), MIHE National Highways Approved RSA Certificate of Competency Principal Engineer, TMS Consultancy

Signed	[redacted]
Date	1st December 2023

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Appendix A

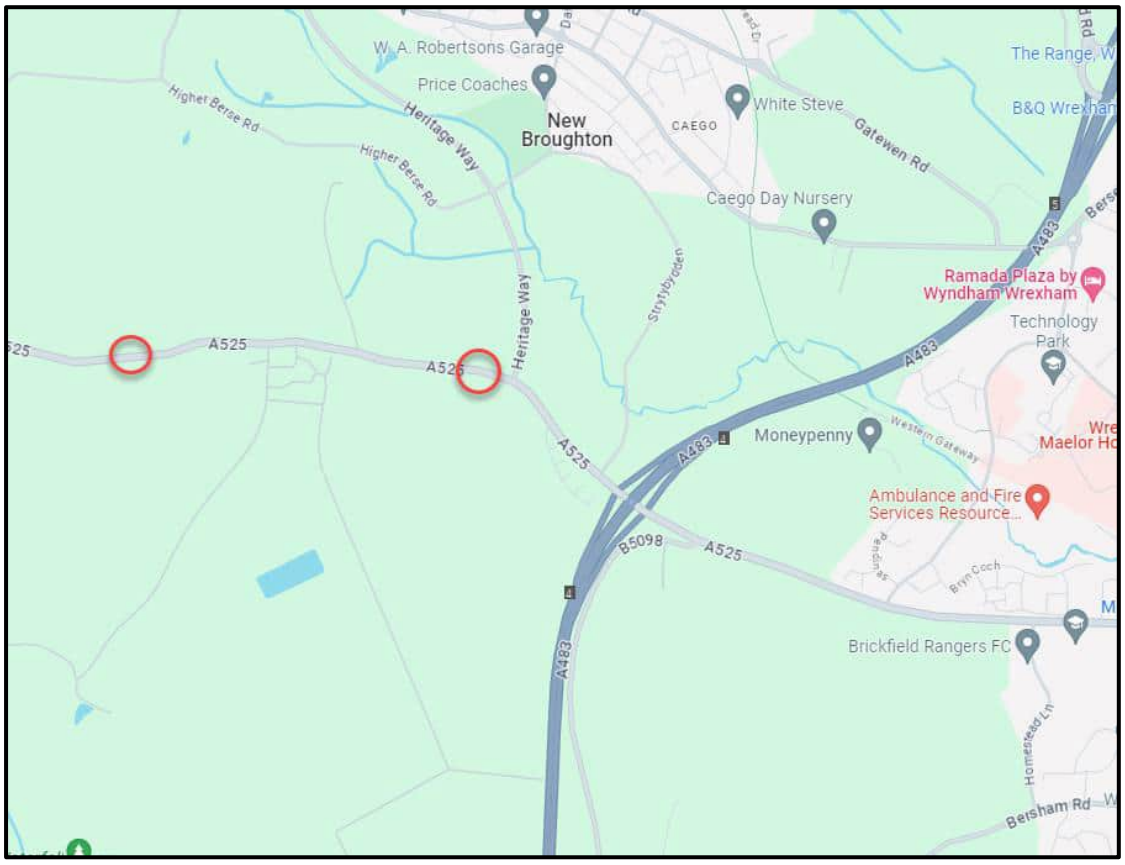
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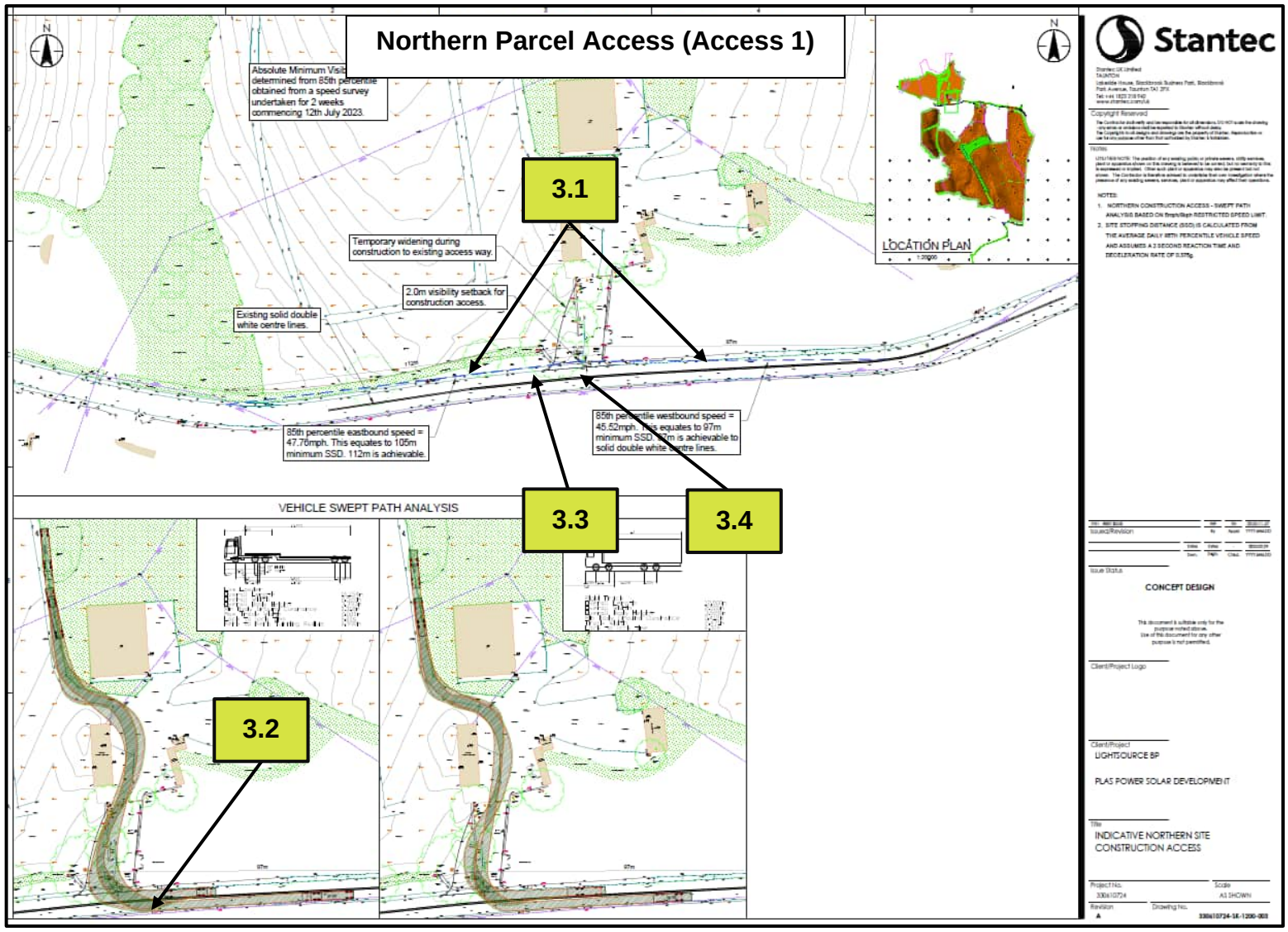
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- 231127 Plas Power RSA 1 Brief 330610724.pdf
- 330610724-SK-1200-001_Indicative Southern Construction Access.pdf
- 330610724-SK-1200-003A_Indicative Northern Construction Access.pdf
- RSA1 - Checklist of Information Required - Plas Power 231121.docx

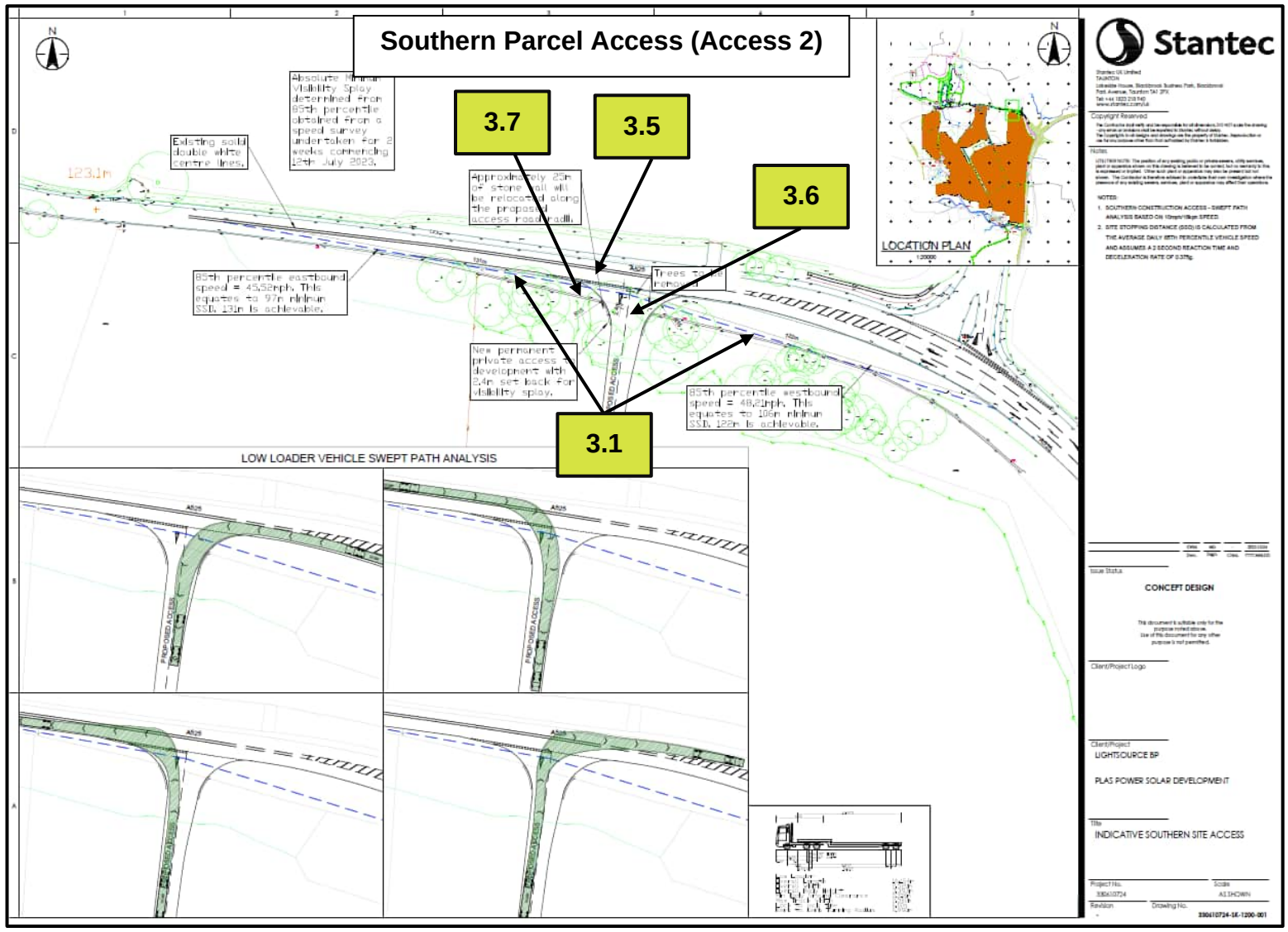
Appendix B

Please refer to the following pages for plans illustrating the locations of the problems identified as part of this audit (location numbers refer to paragraph numbers in the report).

The location of the scheme is shown below:




Northern Parcel Access (Access 1)
3.1
3.2
3.3
3.4
Temporary widening during construction to existing access way.
2.0m visibility setback for construction access.
Existing solid double white centre lines.
85th percentile eastbound speed = 47.76mph. This equates to 105m minimum SSD. 112m is achievable.
85th percentile westbound speed = 45.52mph. This equates to 97m minimum SSD. 97m is achievable to solid double white centre lines.
VEHICLE SWEPT PATH ANALYSIS
LOCATION PLAN
Stantec
CONCEPT DESIGN
LIGHTSOURCE BP
PLAS POWER SOLAR DEVELOPMENT
INDICATIVE NORTHERN SITE CONSTRUCTION ACCESS


Southern Parcel Access (Access 2)
3.7
3.5
3.6
3.1
Existing solid double white centre lines.
Absolute Minimum Visibility Splay determined from 85th percentile obtained from a speed survey undertaken for 2 weeks commencing 12th July 2023.
Approximately 25m of stone wall will be relocated along the proposed access road infill.
85th percentile eastbound speed = 45.32mph. This equates to 97m minimum SSD. 123m is achievable.
New permanent private access to development with 2.4m set back for visibility splay.
85th percentile westbound speed = 48.81mph. This equates to 106m minimum SSD. 122m is achievable.
LOCATION PLAN
LOW LOADER VEHICLE SWEPT PATH ANALYSIS
Stantec
CONCEPT DESIGN
LIGHTSOURCE BP
PLAS POWER SOLAR DEVELOPMENT
INDICATIVE SOUTHERN SITE ACCESS

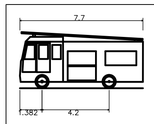
Appendix F Swept Path Analysis - Fire Tender

Site Access 1

FIRE TENDER
1:250

Pwll-y-gi
Foxes Hollow
The Woodside
Drain
Pond
The Bungalow
The Stables
Icehouse (disused)
Well
Pond
Pond
Pond
Drain
Drain
Drain
Drain
Drain
Offa's Dyke
Bersham Lodge
Pylons
A483
A 525

1 2 3 4 5
D C B A



Dennis Sabre Fire Tender (LWB)	
Overall Length	7.700m
Overall Width	2.430m
Overall Body Height	3.512m
Min Body Ground Clearance	0.397m
Track Width	2.380m
Lock-to-lock time	5.00s
Curb to Curb Turning Radius	7.400m

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P01 ORIGINAL ISSUE	SR	TH	2024.05.21
P02 Additional tracking route added	SR	TH	2024.05.22
Issued/Revision	By	Appd	YYYY.MM.DD
	SR	-	TH	2024.05.22
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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PLAS POWER SOLAR FARM

SWEPT PATH ANALYSIS

Title

SWEPT PATH ANALYSIS
SITE ACCESS 1
FIRE TENDER
SHEET 1 of 2

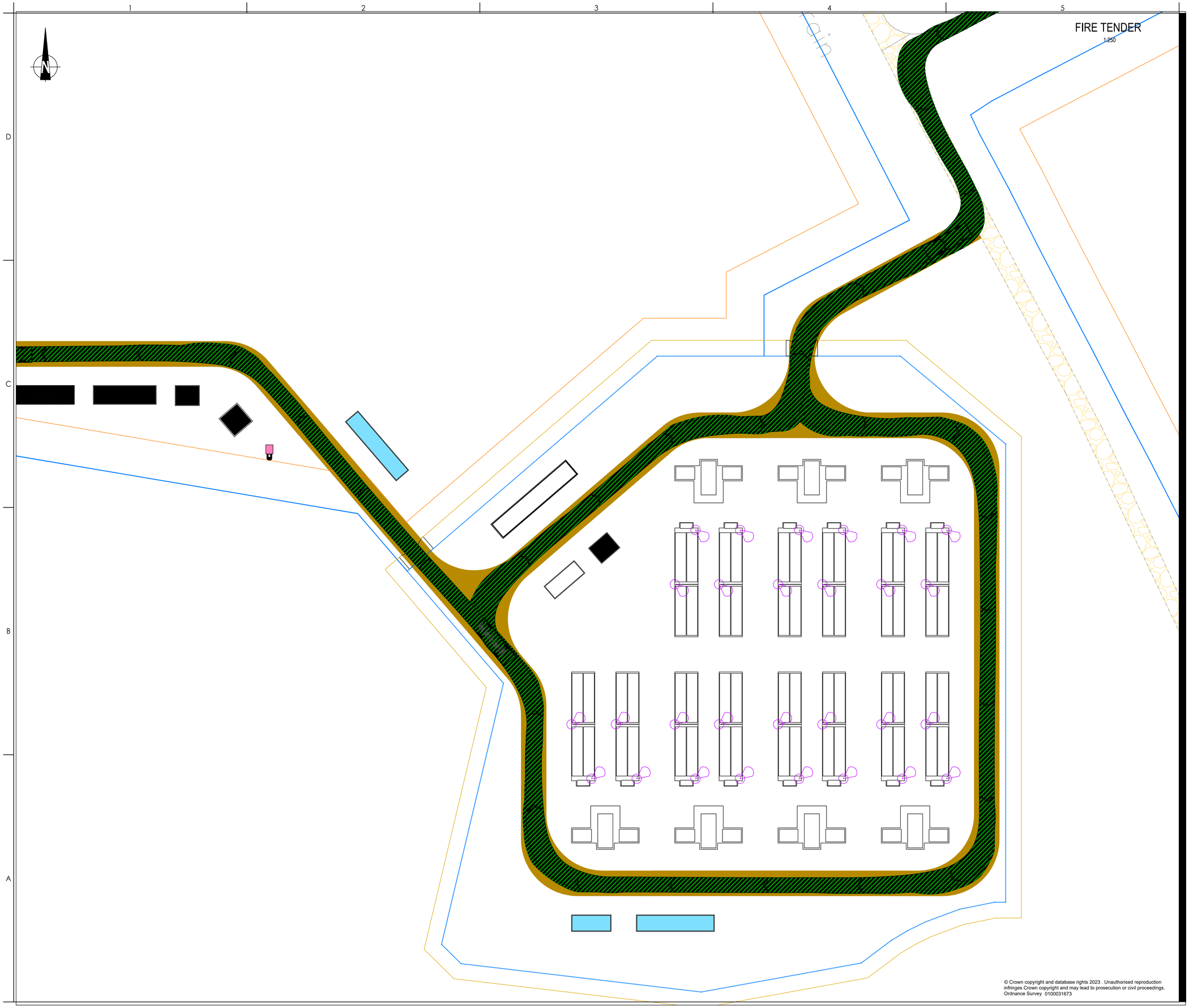
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330610724	1:250
Revision	Drawing No.
02	330610724-STN-HGN-XX-DR-H-0101

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FIRE TENDER

1:250



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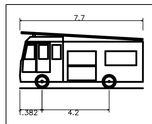
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Dennis Sabre Fire Tender (LWB)	
Overall Length	7.700m
Overall Width	2.430m
Overall Body Height	3.512m
Min Body Ground Clearance	0.397m
Track Width	2.380m
Lock-to-lock time	5.00s
Curb to Curb Turning Radius	7.400m

Issued/Revision	By	Appd	YYYY.MM.DD
P01 ORIGINAL ISSUE	SR	TH	2024.05.22
P02 Additional tracking route added	SR	TH	2024.05.22
	SR	-	TH	2024.05.22
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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PLAS POWER SOLAR FARM

SWEPT PATH ANALYSIS

Title

SWEPT PATH ANALYSIS
SITE ACCESS 1
FIRE TENDER
SHEET 2 of 2

Project No.	Scale
330610724	1:250

Revision	Drawing No.
02	330610724-STN-HGN-XX-DR-H-0102

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