A Planning Application by

NOVUS RENEWABLE SERVICES LIMITED

In respect of

Cefn Road Solar Farm,
WREXHAM

Construction Traffic Management Plan

November 2021

Document Management

Document Review

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1 Introduction

1.1 This Construction Traffic Management Plan (CTMP) has been prepared by Transport Planning Associates (TPA) on behalf of Novus Renewable Services Limited in relation to a proposed solar farm, battery storage facility and substation near Cefn Road, Wrexham (the Site).

1.2 The proposed development comprises the construction, operation, management and decommissioning of a grid connected solar farm with associated infrastructure. The solar farm will supply 9.9 MW of clean renewable electricity to the national grid.

1.3 The main Site comprises approximately 11 hectares of agricultural land across two fields and is located approximately four kilometres south east of Wrexham and immediately south west of Wrexham Industrial Estate. The red line also includes land to the south of Cefn Road, in the vicinity of an existing waste water treatment plant. The proposed substation will be situated in this location. A site location plan is included as **Appendix A**.

1.4 This CTMP provides a framework for the management of construction vehicle activity at the Site to ensure that the impact of the construction phase on the local highway network is minimised.

1.5 This CTMP sets out the strategy for the following;

- Site access arrangement;
- Construction traffic routing;
- Site compound and internal routing;
- Trip attraction; and
- Proposed mitigation measures.

1.6 It will be the responsibility of the appointed contractor to comply with all statutory regulations and guidelines in relation to construction activities at the Site. The Site manager's details will be provided to the highway authority in advance of construction activities commencing.

2 Site Access

2.1 This section sets out the details of the construction and operational phase access arrangements.

Construction Phase

2.2 All construction vehicles will access and egress the main Site via an existing agricultural access on Cefn Road.

2.3 In the vicinity of the access junction, Cefn Road is subject to a 40mph speed limit. The access arrangement attached as **Appendix B** confirms that 2.4 x 120m visibility splays can be achieved to the east and west of the junction, with vegetation trimming, in accordance with the posted speed limit.

2.4 Swept path analysis, also attached as **Appendix A**, demonstrates that a 16.5m articulated HGV, which is the largest vehicle that will require access to the Site, can comfortably negotiate the access junction. The access will be widened and formalised to accommodate construction vehicles.

2.5 Construction vehicles associated with the substation will utilise the existing waste water treatment plant access junction on Cefn Road. This junction has recently been widened and accommodates articulated HGV's associated with the waste water treatment plant, and is therefore considered suitable for use by construction vehicles.

2.6 The online Crash Map database has been reviewed and it is confirmed that no Personal Injury Collisions (PIC's) have been recorded in the vicinity of either the existing agricultural access or the waste water treatment plant accesses during the most recent five year period available.

2.7 In summary, the proposed site access arrangements are considered appropriate for the following reasons:

- The accesses are currently used by large agricultural vehicles and articulated HGV's;
- Visibility splays can be achieved in accordance with the posted speed limit;
- No PIC's have been recorded in the vicinity during the most recent five year period;
- Construction vehicles will access and egress the Site in a forward gear; and
- Banksmen will oversee all construction vehicle arrivals and departures.

Operational Phase

2.8 Once operational, maintenance vehicles will access the Site via the above described existing agricultural access and waste water treatment plant access. It is likely that a maintenance vehicle (likely to be a transit van) will visit the Site up to twice a month.

Plate 1 Visibility from Existing Agricultural Access Looking East (L) and West (R)

3 Construction Vehicle Routing

3.1 The details of the construction vehicle route are set out below. Drivers will be made aware of the route in advance of driving to the Site.

Route Overview

3.2 The designated route for all construction vehicles is shown in **Figure 3.1**. It is considered the most appropriate and direct route to the Site and does not feature any height or weight restrictions.

3.3 The designated route to the Site follows roads that serve Wrexham Industrial Estate and as such, are used regularly by HGV's. This was confirmed during the site visit undertaken in June 2021. They are therefore considered appropriate for use by HGV's associated with the construction phase of the proposed development.

3.4 Sections of the designated route have also been used by construction vehicles associated with neighbouring solar farm developments, including at Bryn Lane (Ref: P/2014/0484).

3.5 It is anticipated that the majority of deliveries will arrive from the east on the A534, as this provides a connection to the M6 Motorway. From the A354, the designated inbound construction vehicle route comprises the following roads:

- Industrial Estate Road;
- Abenbury Way;
- Clywedog Road North;
- Clywedog Road South; and
- Cefn Road.

Route Details

Inbound Construction Vehicle Route

3.6 Construction vehicles will take the first exit at the A534 Wrexham Road / Industrial Estate Road / Sandy Lane / A534 roundabout and proceed south along Industrial Estate Road, which is a dual carriageway. After approximately 1.2km, construction vehicles will take the third exit on the following roundabout and continue along Abenbury Way. This is a single carriageway two-way road subject to a 40mph speed limit, with street lighting throughout and a continuous footway along the southern side of the carriageway.

3.7 Construction vehicles will then utilise a right-turn filter lane to access Clywedog Road North before continuing along Clywedog Road South, which routes around the south western extent of Wrexham Industrial Estate. Both roads are single carriageway two-way roads with street lighting and continuous footways throughout and serve various units located within the industrial estate.

3.8 At its southern extent, Clywedog Road South adjoins a roundabout junction with Bridge Road South, at which point construction vehicles will take the third exit, before taking the third exit on the following roundabout and continuing along Cefn Road.

3.9 Cefn Road routes to the Site access and is 40mph single carriageway two-way road, with street lighting and a footway along the northern side of the carriageway. It is noted that Cefn Road serves an existing waste water treatment facility and solar farm, and it therefore considered appropriate for use by HGV's.

Outbound Construction Vehicle Route

3.10 Outbound construction vehicles will follow the reverse of the above described route.

Alternative Construction Vehicle Route

3.11 A construction vehicle route was considered from the A534 via the A534 Holt Road and Cefn Road. Whilst this route to Site from the strategic road network is more direct, it has been discarded as it routes through a more residential area and passes through a school zone.

Route Signage

3.12 Temporary road signing will be implemented along the designated route to inform background traffic of the ongoing construction works and to direct construction traffic to and from the Site. The signs will be located at key points on the route.

3.13 All signage will be compliant with the Traffic Signs Manual where applicable. The following points will be considered when locating signage:

- The position of the sign in relation to the highway;
- Possible distraction to drivers; and
- The proximity to junctions and roundabouts.

Management of Deliveries

3.14 Due to the relatively low number of vehicles associated with the construction phase at the Site, there is not anticipated to be any delay to background traffic. Background traffic will always be given priority in the vicinity of the Site access junction.

3.15 The phone number of the Site Manager will be made available to all drivers of vehicles that will be accessing the Site. The drivers of the construction vehicles will be required to call ahead to allow enough time for banksmen to prepare at the Site access. A layby is located on the A534, approximately seven kilometres east of the roundabout junction with Industrial Estate Road, from which drivers can stop and call ahead.

3.16 The following procedure will be initiated when deliveries are made to the Site:

Procedure for Arrival to Site

- Driver to call ahead when stationary at the A534 layby, prior to arriving at the Site;
- The banksmen are mobilised and will go to position at the Site access;
- Driver will be informed the operators are in place and it is appropriate to travel to the Site via the agreed route;
- All operatives will communicate with each other, as necessary; and
- Banksmen will assist HGVs to manoeuvre from Cefn Road into the Site access, but will not direct general traffic.

3.17 The following procedure will be initiated when HGVs are leaving the Site:

Procedure for Leaving the Site

- Before drivers depart the Site Manager will be notified. They will then mobilise the banksmen at the Site access;
- Drivers will be advised when the banksmen and operatives are in place and will leave the Site; and
- Banksmen will guide the drivers exiting the Site access onto Cefn Road, but will not direct general traffic.
- .

4 Contractors Compound and Internal Routing

Contractors Compound

4.1 A construction compound will be set up within the Site, near to the access track. The construction compound will include contractor facilities, car parking, storage and loading/unloading areas.

4.2 Approximately 20 - 30 construction workers are anticipated to be required on Site on an average day. This may increase slightly during peak construction. The location where staff will travel from is unknown at this stage as it will depend on the appointed contractor. However, it is envisaged that the majority of non-local workforce will stay at local accommodation and be transported to the Site by minibuses to minimise the impact on the strategic and local highway network. Notwithstanding this, appropriate car parking provision for construction workers and visitors will be provided within the contractor compound.

4.3 No parking by contractors, visitors or delivery vehicles will be permitted on the local highway network or the Site access road at any time during the construction phase, and visitors will be advised of the parking arrangements in advance of travelling to the Site. The Site Manager will monitor that parking is taking place in the designated area on a regular basis.

Internal Routing

4.4 The access track will route from Cefn Road into the Site and will comprise a combination of asphalt and aggregate surfaces.

4.5 It is confirmed that no Public Rights of Way (PRoW) cross the Site.

5 Construction Vehicle Trip Attraction

5.1 This section sets out the vehicle movements forecast to be associated with the construction and operational phases of the proposed development.

Construction Phase

5.2 It is anticipated that the construction phase will last for approximately 16 weeks. Construction activities and deliveries will be carried out Monday to Friday 08:00-1800 and between 08:00 and 13:30 on Saturdays. No construction activities or deliveries will occur on Sunday or Public Holidays. Where possible, construction deliveries will be coordinated to avoid construction vehicle movements during the traditional AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00).

5.3 The construction period will include the use of HGVs to bring the equipment onto the Site and this will be strictly managed to ensure that vehicle movement is controlled and kept to a minimum

5.4 Deliveries to the Site shall be reported to the Site Manager and will be made by the smallest possible vehicles for that particular item of plant or material, to ensure that vehicles can manoeuvre safely.

5.5 The largest vehicle that will access the site during the construction phase is a 16.5m articulated lorry.

Enabling Works

5.6 A breakdown of activities within this phase, the anticipated vehicle type and number of trips is set out in **Table 5.1** below.

Table 5.1 Forecast Construction Vehicle Trips (Enabling Works)

Activity	Type of Vehicle	Number of Deliveries
Delivery of plant and equipment, temporary fencing and site accommodation	Max 16.5 Articulated	8 (16 two-way)
Aggregate delivery, access track and compound construction	10m Rigid and 16.5m Articulated	76 (152 two-way)
Concrete for foundations	10m Rigid	38 (76 two-way)
Temporary fencing	Max 16.5 Articulated	5 (10 two-way)
Site accommodation	Max 16.5 Articulated	5 (10 two-way)
Total		**132** deliveries (average of **5** deliveries per day or **10** two way movements per day)*
* Deliveries taking place over a 5 week period (25 working days, excluding Saturdays to be robust).		

5.7 As set out in **Table 5.1** it is anticipated that approximately 132 deliveries (264 two-way movements) could be made by HGVs during the enabling works phases, at an average of around five deliveries, or 10 two-way movements, per day.

5.8 The majority of vehicle trips in this phase will occur during the delivery of aggregate and concrete for the construction of the internal access track/compound and foundations. These deliveries will therefore be spread over a four week duration of the enabling works phase.

Solar Array Construction

5.9 A breakdown of activities within this phase, the anticipated vehicle type and number of trips is set out in **Table 5.2** below.

Table 5.2 Forecast Construction Vehicle Trips (Solar Farm Array)

Activity	Type of Vehicle	Number of Deliveries
PV panels delivery	Max 16.5 Articulated	30 (60 two-way)
Delivery of frames	Max 16.5 Articulated	40 (80 two-way)
Inverters and transformers	Max 16.5 Articulated	20 (40 two-way)
Cable trenching and backfill	10m Rigid	21 (42 two-way)
Electrical connections	10m Rigid	5 (10 two-way)
CCTV	Van/10m Rigid	1 (2 two-way)
Commissioning and testing	Van	2 (4 two-way)
Fencing	10m Rigid	2 (4 two-way)
Total		**121** deliveries (average of **2** delivery per day or **4** two way movements per day)*
* Deliveries taking place over a 15 week period (75 working days, excluding Saturdays to be robust).		

5.10 As set out in **Table 5.2** it is anticipated that approximately 121 deliveries (242 two-way movements) could be made by HGVs during the construction phase of the solar farm, at an average of around two deliveries, or four two-way movements, per day.

5.11 The majority of vehicle trips in this phase will occur during the delivery and erection of the frames, however, these deliveries will be spread over a six week period week within this construction phase.

5.12 It should also be noted that the access track construction for the enabling works, set out in **Table 5.1** will, for a period of five weeks, run concurrently with deliveries associated with the construction of the solar farm, as set out in **Table 5.2**.

Battery Facility Construction

5.13 A breakdown of activities within this phase, the anticipated vehicle type and number of trips is set out in **Table 5.3** below.

Table 5.3 Forecast Construction Vehicle Trips (Battery Facility Construction)

Activity	Type of Vehicle	Number of Deliveries
Compound preparation and ground works	Max 16.5 Articulated	8 (16 two-way)
Delivery of aggregate for battery compound	10m Rigid	42 (84 two-way)
Battery install	Max 16.5 Articulated	10 (20 two-way)
PCS and inverters	Max 16.5 Articulated	2 (4 two-way)
Electrical connections	10m Rigid	5 (10 two-way)
Fencing	10m Rigid	2 (4 two-way)
Commissioning and testing	Van	2 (4 two way)
Total		**71** deliveries (average of **1** delivery per day or **2** two way movements per day)*
* Deliveries taking place over a 12 week period (60 working days, excluding Saturdays to be robust).		

5.14 As set out in **Table 5.3** it is anticipated that approximately 71 deliveries (142 two-way movements) could be made by HGVs during the construction phase of the battery storage facility, at an average of around one delivery, or two two-way movements, per day.

5.15 Deliveries associated with the battery storage facility will run concurrently with deliveries associated with the enabling works and the construction of the solar array, as set out in **Table 5.1** and **Table 5.2** respectively.

Substation Construction

5.16 A breakdown of activities within this phase, the anticipated vehicle type and number of trips is set out in **Table 5.4** below. It is reiterated that construction vehicles associated with this phase will route to site via the existing waste water treatment plant access on Cefn Road.

Table 5.4 Forecast Construction Vehicle Trips (Substation Construction)

Activity	Type of Vehicle	Number of Deliveries
Compound preparation, access and ground works	Max 16.5 Articulated	12 (24 two-way)
Delivery of aggregate for battery compound	10m Rigid	44 (88 two-way)
Transformers	Max 16.5 Articulated	2 (4 two-way)
Switchgear and housings	Max 16.5 Articulated	4 (8 two-way)
Fencing	Max 16.5 Articulated	1 (2 two-way)
Commissioning and testing	Van	2 (4 two-way)
Total		**65** deliveries (average of **1** delivery per day or **2** two way movements per day)*
* Deliveries taking place over an 11 week period (55 working days, excluding Saturdays to be robust).		

5.17 As set out in **Table 5.4** it is anticipated that approximately 65 deliveries (130 two-way movements) could be made by HGVs during the construction phase of the substation, at an average of around one delivery, or two two-way movements, per day.

5.18 Deliveries associated with the substation will run concurrently with deliveries associated with the enabling works, construction of the solar array and battery facility, as set out in **Table 5.1**, **Table 5.2** and **Table 5.3** respectively.

Site Clearance

5.19 A breakdown of activities within this phase, the anticipated vehicle type and number of trips is set out in **Table 5.5** below.

Table 5.5 Forecast Construction Vehicle Trips (Site Clearance)

Activity	Type of Vehicle	Number of Deliveries
Removal of site accommodation	10m Rigid	5 (10 two-way)
Removal of temporary fencing	10m Rigid	5 (10 two-way)
Removal of plant and equipment	Max 16.5 Articulated	8 (16 two-way)
Total		**18** deliveries (average of **4** deliveries per day or **8** two way movements per day)*
* Deliveries taking place over a 1 week period (5 working days)		

5.20 As set out in **Table 5.4** it is anticipated that approximately 18 deliveries (36 two-way movements) could be made by HGVs during the site clearance phase, at an average of around four deliveries, or eight two-way movements, per day.

Operational and Decommissioning Phase

5.21 There are anticipated to be up to two visits to the Site per month for maintenance. These would typically be made by a light van or a 4x4 type vehicle.

5.22 Space will be available within the Site for such a vehicle to turn around to ensure that reversing will not occur onto the highway.

5.23 The traffic management elements of the decommissioning phase will be addressed in the decommissioning plan.

Summary

5.24 From the construction phase vehicle trip generation set out above, it is forecast that the enabling works phase will generate the highest number of deliveries, at around five per day over a four week period. After this initial enabling works are complete, this phase will run concurrently with the commencement of the solar array construction and battery storage facility construction. Whilst the solar array construction phase will last for a period of 15 weeks, the average number of deliveries per day is only forecast to be around two per day, with an average of only one delivery per day forecast for the battery storage facility.

5.25 The substation construction will also run concurrently with the solar array and battery facility construction, however it is reiterated that construction vehicles associated with the substation will utilise the existing waste water treatment plant access and not the formalised agricultural access on Cefn Road.

5.26 There will also be construction workers arriving at the Site in the morning and departing in the evening, outside of typical highway network peak hours. It is forecast that a maximum of 13 construction worker trips will be made to the site per day at an average of around nine per day over the 16 week construction phase.

5.27 Overall, the number of vehicle movements during the construction phase is forecast to be low. It is therefore concluded that construction traffic associated with the proposed solar farm, battery facility and substation will not have a material impact on the safety or operation of the local highway network.

6 Mitigation Measures

6.1 The appointed contractor will introduce measures to minimise the impact resulting from construction activities. It will be the responsibility of the Project Manager and Site Manager to oversee the implementation of the mitigation measures.

6.1 Proposed mitigation measures include:

(i) signs to direct construction vehicles associated with the development will be installed along the route. Delivery drivers, contractors and visitors will be provided with a route plan in advance of delivering to Site to ensure that vehicles follow the identified route;

(ii) all signage on the designated route will be inspected twice daily by the Site Manager to ensure they are kept in a well maintained condition and located in safe and appropriate locations;

(iii) advisory signs informing contractors and visitors that parking is not permitted on-street in the vicinity of the Site or on the Site access track;

(iv) a compound area for contractors will be set up on-site including appropriate parking spaces. Contractors and visitors will be advised that parking facilities will be provided on-Site in advance of visiting the Site and that they should not park on-street;

(v) a wheel wash facility will be provided ahead of the Site egress onto Cefn Road to ensure that no mud or debris is spread onto the local highway network;

(vi) a road sweeper will be provided along Cefn Road in the vicinity of the Site accesses to alleviate any residual debris generated during the construction phase, as required;

(vii) spraying of areas with water supplied as and when conditions dictate to prevent the spread of dust;

(viii) vehicles carrying waste material off-site to be sheeted;

(ix) a requirement for engines to be switched off on-Site when not in use;

(x) banksmen will be provided at the formalised agricultural access to indicate to construction traffic when it is safe for them to enter and exit the Site; and

(xi) the contact details of the Site Manager will be provided on a noticeboard at the Site access junction.

APPENDIX A

Key:

Application site

0 m 400 m 800 m 1200 m 1600 m 2000 m

Scale Bar 1: 20000

rev:	date:	details:
-	-	-

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The Old Dairy
Yanworth
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tel: 01285 721072

client: Novus RS

project: Cefn Farm

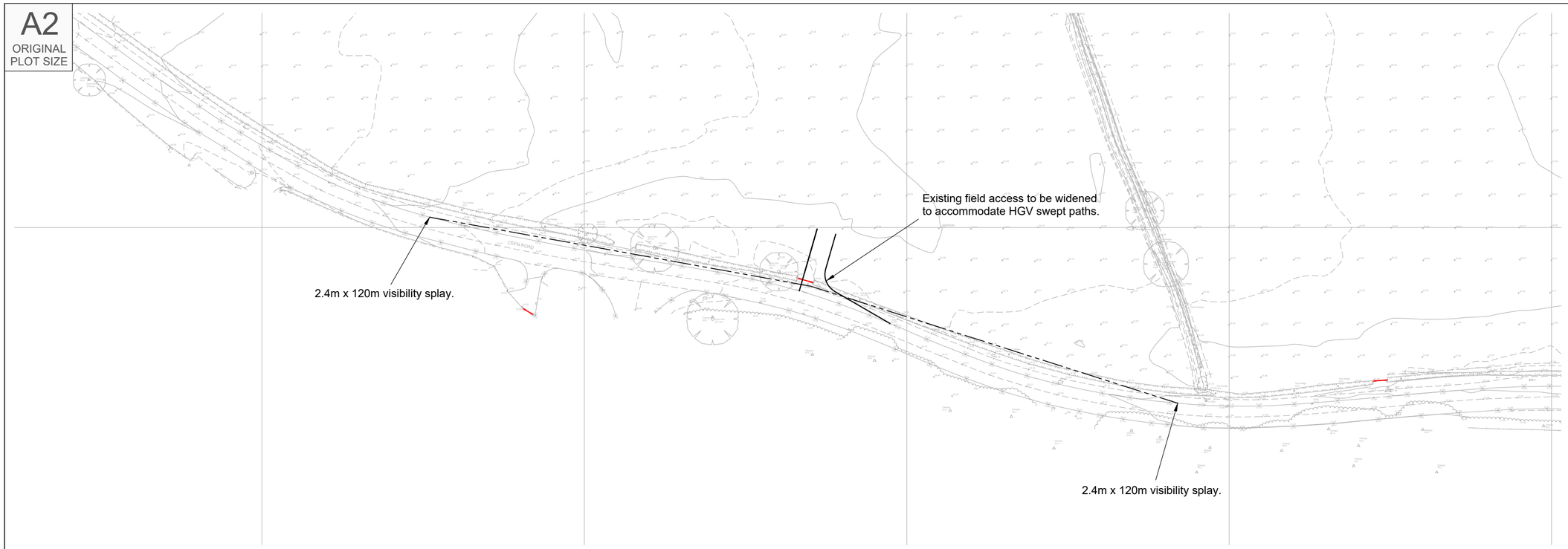
title: Location Plan

scale:	date:	drawn by :	checked by:	size:
1:20,000	15/09/21	NG	AW	A3

Project ref :	dwg no:	rev:
CE/321	CE/321/06	-

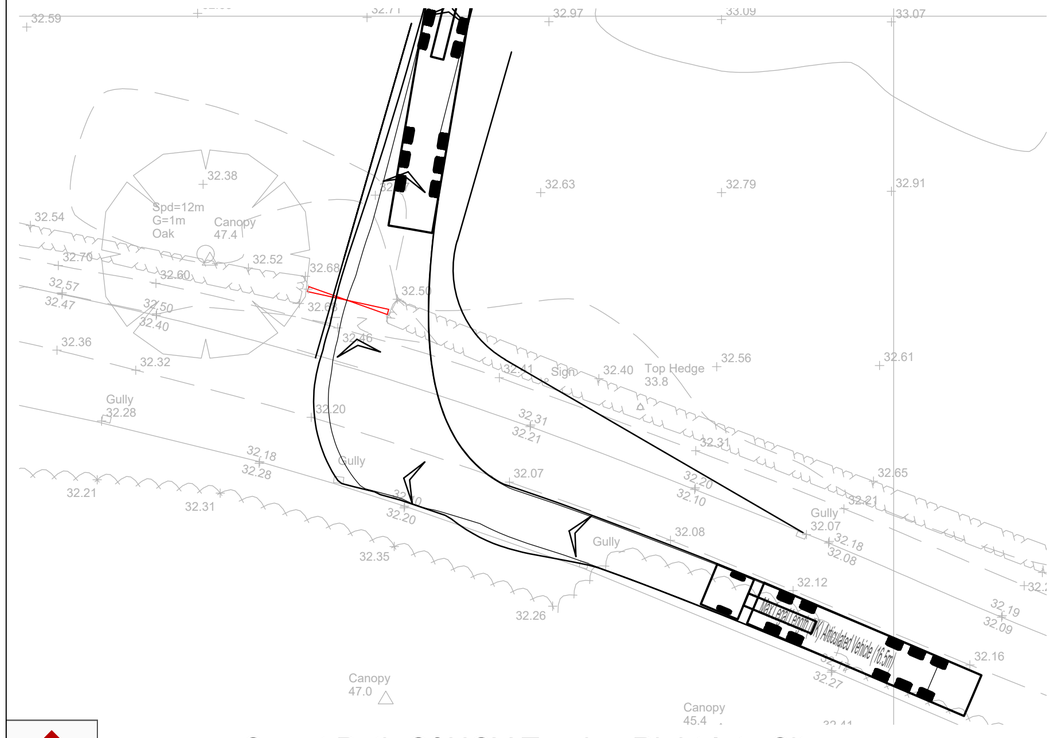
APPENDIX B

A2
ORIGINAL
PLOT SIZE



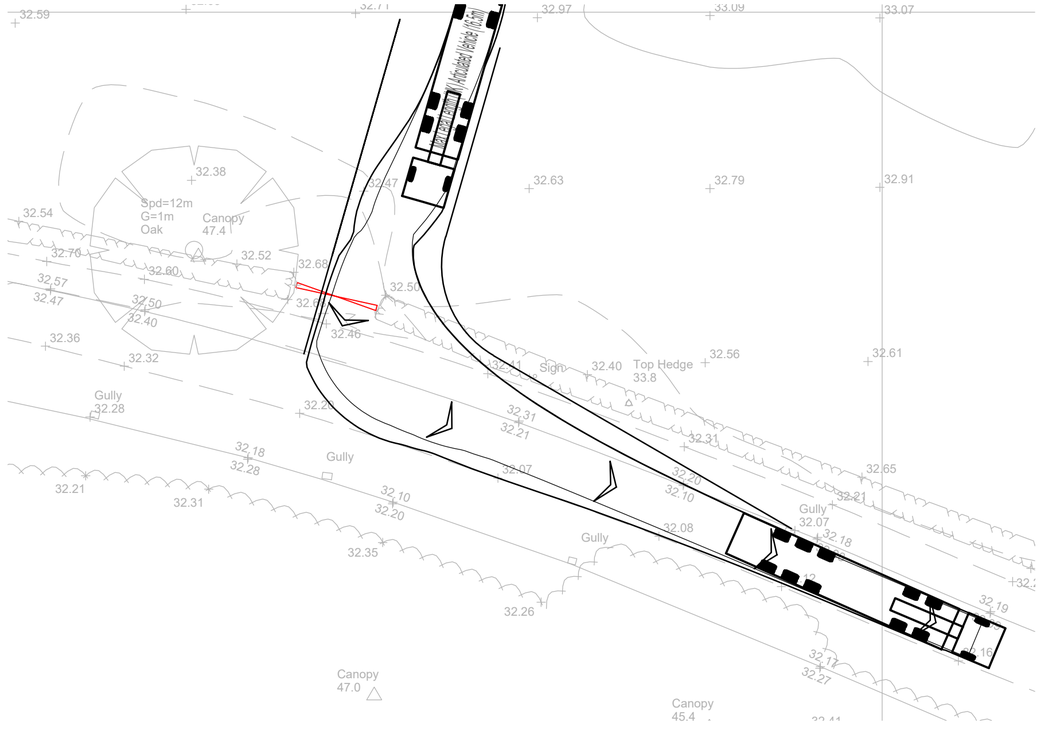
Proposed Site Access Arrangement

Scale 1:1,000



Swept Path Of HGV Turning Right Into Site

Scale 1:250



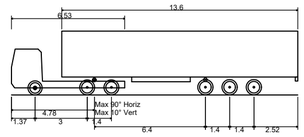
Swept Path Of HGV Turning Left Out Of Site

Scale 1:250

INDICATIVE

NOTES:

1. The posted speed limit is 40mph.



Max Legal Length (UK) Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m

Rev	Date	Details	Drawn by	Checked by	Approved by
B	14.09.21	Site access moved 1.5m east to avoid tree root protection zone.	PSW	WG	DE
A	01.07.21	Visibility splays updated.	PSW	WG	DE

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CLIENT:

NOVUS RENEWABLE SERVICES LIMITED

PROJECT:

CEFN ROAD SOLAR FARM, WREXHAM

TITLE:

Proposed Site Access Arrangement and Swept Paths Of 16.5m Articulated HGV

STATUS:

INFORMATION

SCALE:	DATE:	DRAWN:	CHECKED:	APPROVED:
1:20,000	18.06.21	PSW	RR	DE

JOB NO:	DRAWING NO:	REVISION:
2105-051	SK01	B