

Tydd Solar

Transport and Access Statement

Client: PACE

22 February 2024

Document Reference: C23103/TS01



This document is formatted for double sided printing.

© Apex Transport Planning Ltd.

All Rights Reserved.

Registered Office:

30 Summerfield Avenue

Cardiff

CF14 3QA

QUALITY MANAGEMENT

REPORT DETAILS

Issued by	Apex Transport Planning Ltd Clockwise, Brunel House 2 Fitzalan Road Cardiff CF24 0HA	Tel: 02920 619 361 info@apex.tp.co.uk www.apex.tp.co.uk	
Client	PACE		
Project Name	Tydd Solar		
Report Title	Transport and Access Statement		
Report Ref.	TS01		
Project No.	C23103		
Date	22/02/2024		

ISSUE HISTORY

Issue No.	Status	Date	Produced by	Approved by	Revision Details
1	Final	23/01/2024	GP	DC	First Issue
2	Final	22/02/2024	GP	DC	Second Issue

NOTICE

This report has been prepared for PACE in accordance with the terms and conditions of appointment. Apex Transport Planning Ltd cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

The material presented in this report is confidential. This report has been prepared and is intended solely for PACE for use in relation to the Tydd Solar project.

CONTENTS

1.	INTRODUCTION	1
1.1	Overview	1
1.2	Scope	1
2.	EXISTING CONDITIONS	3
2.1	Site Location, Use and Access	3
2.2	Local Highway Network	4
2.3	Traffic Flows	8
2.4	Road Safety Analysis	8
3.	SUSTAINABLE CONNECTIVITY	11
3.1	Introduction	11
3.2	Walking and Cycling	11
3.3	Public Transport	13
3.4	Summary	13
4.	SITE ACCESS, LAYOUT AND DESIGN	14
4.1	Vehicle access requirements	14
4.2	Proposed Construction Access	14
4.3	Internal Site Layout	15
4.4	Fire Safety	18
4.5	Security and Health and Safety	18
4.6	Workforce	19
4.7	Parking	19
4.8	Construction Plant	19
5.	CONSTRUCTION PHASE	20
5.1	Overview	20
5.2	Construction Programme	20
5.3	Working Hours and Deliveries	20
5.4	Construction Vehicle Movements	20
5.5	Construction Route Assessment - Overview	23
5.6	Preferred Construction Access Route	25
5.7	Temporary Construction Traffic Impacts	26
5.8	Construction Waste	27
6.	SITE OPERATION AND DECOMMISSIONING PHASES	29
6.1	Operation	29
6.2	Decommissioning	29
7.	MITIGATION	30
7.1	Traffic Management Measures	30
7.2	Managing Internal Construction Movements	30
7.3	Vehicle Emissions	31
7.4	Travel planning	31
7.5	Parking	31
7.6	Noise	31
7.7	Mud on roads	31

7.8	Air Quality and Dust Management	32
7.9	Local Environment Protection	32
7.10	Monitoring	32
8.	SUMMARY AND CONCLUSIONS	33
8.1	Summary	33
8.2	Conclusions	34

Tables

Table 2-1: DfT AADT Count Data	8
Table 5-1: Estimated weekly construction vehicle flows	22
Table 5-2: Temporary Daily Traffic Impacts	27

Figures

Figure 2-1: Indicative Site Location Plan (the red line shows the indicative site area)	4
Figure 2-2: Existing Site Access – Guanockgate Road	6
Figure 2-3: PIA Location Plan	9
Figure 3-1: Public Rights of Way within vicinity of the site – Lincolnshire CC	12
Figure 3-2: Public Rights of Way within vicinity of the site – Cambridgeshire CC	12
Figure 3-3: Cycle Network within vicinity of the site	13
Figure 4-1: Proposed internal access roads and location of PRoW	17
Figure 5-1: Potential Access Routes	24
Figure 5-2: Preferred Construction Access Route	26

Appendices

Appendix A	Proposed Site Layout
Appendix B	Adopted Highway Plan
Appendix C	Swept Path Analysis
Appendix D	Proposed Access Visibility Splays
Appendix E	Public Rights of Way and Site Access

1. INTRODUCTION

1.1 Overview

- 1.1.1 Apex Transport Planning Ltd (Apex) has been commissioned to provide transport support for a proposed c.49.9 megawatt (MW) solar farm and battery storage development on land east of Guanockgate Road, Gorefield, Lincolnshire (the 'site'). The development site is known Tydd Solar Farm.
- 1.1.2 The proposed development largely comprises rows of solar panels spread over a number of fields which make up the site. This includes solar panels, composed of photovoltaic cells, which are mounted on a supporting frame and orientated to face south, with arrays 2 to 3 metres in height. The proposed development would also include a battery energy storage system (BESS), comprising 38 BESS units and associated infrastructure, enclosed within a separate compound within the site. The proposed development includes additional infrastructure including conversion units and transformation cabins, control buildings and substations containing electrical equipment. The BESS site also includes auxiliary systems such as fire suppression and alarm systems, ventilation and cooling systems, internal lighting and thermal control systems.
- 1.1.3 Access to the site will be obtained from Guanockgate Road via the existing site access and internal hardstanding areas which currently serve the site. New access tracks will be constructed to serve the development areas, enabling the transportation of construction materials, solar panel components and BESS units. The site will incorporate turning areas and a temporary construction compound suitable to allow construction vehicles to access and egress the site safely in forward gear.
- 1.1.4 The panels and BESS units are to be set back from the site boundary and the site would be secured behind a perimeter fence, with CCTV camera poles located at intervals along the fence. During the construction and decommissioning phases, temporary personnel units will be located within the site compounds providing space for the site office and staff welfare facilities.
- 1.1.5 Once constructed, the solar and BESS site would generate renewable energy and release back into the National Grid's network or store as required.
- 1.1.6 Due to the nature of the proposals, the impact on the highway will be temporary, attributed to the construction vehicle movements required during the construction and decommissioning phases. During its operation, only a small number of vehicles will frequent the site for maintenance and servicing purposes and these vehicles will typically be smaller commercial vans (LGVs).
- 1.1.7 The boundary between South Holland District Council and Fenland District Council routes through the centre of the site in a north-south alignment. The Local Highway Authority (LHA) within the South Holland District Council boundary is Lincolnshire County Council (LCC); Cambridgeshire County Council (CCC) serves as the LHA for sites within the Fenland District Council.
- 1.1.8 The proposed site layout is shown in Appendix A.

1.2 Scope

- 1.2.1 This Transport and Access Statement (TAS) has been prepared to demonstrate to LCC and CCC, as the LHAs, that the proposals can be safely accessed from the adopted highway and will not lead to a severe impact on the operation of the local highway network or an unacceptable impact on road safety. Due to the nature of the proposals, the impact on the highway will be temporary, attributed to the construction vehicle movements required during the construction and decommissioning phases.

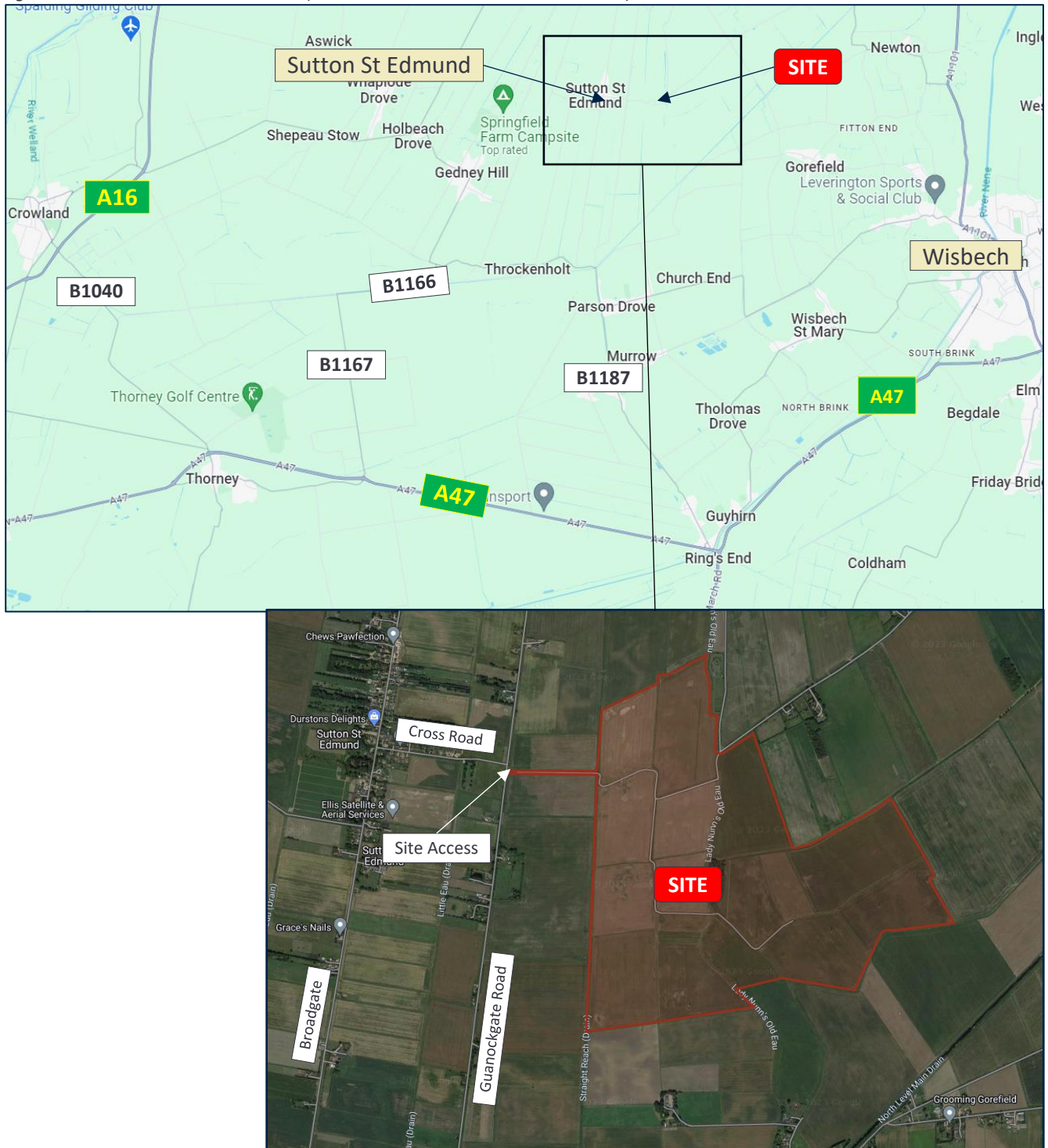
- 1.2.2 This TAS sets out the existing situation, detailing the surrounding transport infrastructure currently serving the site. It sets out the proposals and the anticipated number and composition of vehicle movements to and from the site during construction. It includes the general construction principles, the site layout and construction waste. It also provides details of the proposed site access and routing for vehicles.
- 1.2.3 This report details proposed traffic management and mitigation measures that could be implemented in order to minimise any adverse effects of vehicular movements associated with the development on the surrounding highway network.
- 1.2.4 The TAS has been prepared in accordance with national planning policies (NPPF), the Design Manual for Roads and Bridges (DMRB), the Department for Transport (DfT) publication Manual for Streets (MfS) and the CIHT publication Manual for Streets 2 (MfS2).

2. EXISTING CONDITIONS

2.1 Site Location, Use and Access

- 2.1.1 The site is located on the eastern edge of Sutton St Edmunds, within both the South Holland District of Lincolnshire and the Fenland District of Cambridgeshire, with the border routing through the site in a north-south alignment.
- 2.1.2 The site is approximately 7.0km to the northwest of Wisbech, c.5.8km west of the A1101 and 9.2km north of the A47. The site comprises of agricultural fields and rural access tracks, and the land has been used for agricultural purposes surrounding the site to the north, south, east and west.
- 2.1.3 The site is currently connected to the adopted highway at Guanockgate Road to the west, via the existing access tracks. A plan showing the extent of the adopted highway within the vicinity of the site is included in Appendix B, with the site boundary shown on the proposed site layout at Appendix A.
- 2.1.4 The indicative location of the site and access routes within the context of the local area are shown in Figure 2-1.

Figure 2-1: Indicative Site Location Plan (the red line shows the indicative site area)



Source: Google Maps

2.2 Local Highway Network

Overview

- 2.2.1 The site is connected to the adopted highway at Guanockgate Road, via the existing agricultural access located to the west of the site area. This access has been used for an extended period of time to provide access to the site. Online records obtained from LCC show Guanockgate Road to be adopted highway.

- 2.2.2 As shown in Figure 2-1, the site is located within close proximity to strategic roads, with the A47 located approximately 10km (crow-fly distance) to the south and the A16 located approximately 11km (crow-fly distance) to the west. In addition, the A1101 is located approximately 7.5km to the east of the site.
- 2.2.3 It is considered that the primary access routes would be to and from the south of the site, via the local roads which connect to the B1166. The B1166 provides routes all directions, in addition to connecting to the A47 and A16.

Guanockgate Road

- 2.2.4 Guanockgate Road is a single carriageway rural road which routes in a north-south alignment to the west of the site, and provides access to the site via the existing farm access. It forms a junction with New Fen Dike at its northern extent and the B1166 at its southern extent; the junction with the B1166 is a priority junction.
- 2.2.5 Guanockgate Road serves a small number of agricultural properties and residential dwellings, with approximately 25 properties located between the site and the B1166 to the south. As such, the carriageway is expected to be lightly trafficked.
- 2.2.6 The carriageway measures between approximately 4.4m – 5.3m in width, with additional width available within grass verges and informal passing places located along its length. Information obtained from LCC shows the adopted highway extends into the grass verges and along the front of accesses on either side of Guanockgate Road within the vicinity of the site. It is subject to a 60mph speed limit (national speed limit).
- 2.2.7 Although Guanockgate Road is too narrow in places to enable a HGV to pass a car in accordance with dimensions set out in Manual for Streets, there are opportunities for vehicles to pass using the informal passing places, as well as at accesses and on grass verges within the adopted highway. In addition, the majority of the route consists of straight sections with no hedgerows on either side to restrict visibility, and as such drivers are provided with appropriate levels of forward visibility to enable vehicles to pass. Figure 2-2 shows the existing site access from Guanockgate Road.

Figure 2-2: Existing Site Access – Guanockgate Road



Source: Google Streetview

Cross Road

- 2.2.8 Cross Road is a single carriageway road which routes in an east-west alignment, and connects Guanockgate Road and Broadgate to the west of the site location. It is subject to a 40mph speed limit.
- 2.2.9 Cross Road serves approximately 28 residential properties within Sutton St Edmund, and the eastern section passes open fields with no properties. Historical traffic data obtained from the DfT shows Broadgate to be lightly trafficked, and it is expected that Cross Road would also experience very low vehicle movements.
- 2.2.10 From Guanockgate Road, Cross Road measures between 4.3m – 4.7m for approximately 320 metres, before widening to between 4.8m – 5.6m for the remaining 235 metres on approach to Broadgate to the west. It benefits from additional width available within grass verges and informal passing places located along its length. Information obtained from LCC shows the adopted highway extends into the grass verges and along the front of accesses on either side of the road along the section.
- 2.2.11 Although the eastern section of Cross Road is too narrow in places to enable a HGV to pass a car in accordance with dimensions set out in Manual for Streets (Figure 7.1), there are opportunities for vehicles to pass using the grass verges and informal passing places located within the adopted highway. This section extends over a short distance and vehicles are provided with appropriate levels of forward visibility to assist with passing. Due to the low number of dwellings in this location, the likelihood of vehicles needing to pass construction traffic will be low, particularly when construction movements will be kept low and managed as part of a CTMP. However, there are opportunities to create either a new passing place or minor widening within the available adopted highway to assist movements along this section, as outlined in Sections 5 and 7.

- 2.2.12 The carriageway widths along the western section of Cross Road are appropriate for accommodating HGV movements safely. This section also consists of straight sections of carriageway, providing appropriate forward visibility between vehicles, if required.

Broadgate

- 2.2.13 Broadgate is a single carriageway rural road which routes in a north-south alignment between New Fen Dike to the north and the B1166 to the south of the site. It is located approximately 560 metres to the west of the site location, and connected to Guanockgate Road via Cross Road. It is subject to a 60mph speed limit (national speed limit).
- 2.2.14 Broadgate serves Sutton St Edmund which comprises residential and agricultural properties, as well as Orchard View Caravan and Camping Park. Historical traffic data obtained from the DfT indicates that this road is lightly trafficked, with average daily two-way flows of 783.
- 2.2.15 The carriageway measures between approximately 5.5m – 6.5m in width, with additional width available within grass verges and informal passing places located along its length. These carriageway widths are appropriate for accommodating HGV movements safely in accordance with MfS. In addition, the route consists of straight sections with appropriate forward visibility between vehicles.

B1166 / B1187 / B1167

- 2.2.16 The B1166 is a single carriageway road which routes in an east-west direction to the south of the site location, connecting to the A16 to the west. The B1166 connects to the B1187 to the south east and the B1167 to the south west. The B1166 is subject to a 40mph speed limit within the vicinity of the site location.
- 2.2.17 The B1187 is a single carriageway road which continues south from the B1166 to the south east of the site. At this location the carriageway narrows as it passes over a stone bridge which crosses New South Eau (Drain). From here the B1187 routes south and forms the minor arm of the ghost-island right-turn lane junction arrangement with the A47, with left-out only movements allowed. The B1187 is subject to the national speed limit (60mph for single carriageway roads) within the vicinity of the site location.
- 2.2.18 The B1167 is a single carriageway road which connects the B1166 to the A47 to the south, largely through open countryside. The B1167 is subject to a 50mph speed limit within the vicinity of the site location.
- 2.2.19 With the exception of the narrow bridge on the B1167/B1166, these routes generally measure between approximately 5.5m – 6.0m, and benefit from centreline carriageway markings. These carriageway widths are appropriate for accommodating HGV movements safely.
- 2.2.20 These connections are discussed in more detail in Section 5.5.

A47

- 2.2.21 The A47 forms part of the Strategic Road Network (SRN) linking Birmingham to Lowestoft, Suffolk, maintained and operated by National Highways.
- 2.2.22 Within proximity to the site, the A47 is a single carriageway road which routes in an east-west direction routing from Peterborough to the west and Wisbech to the east. The carriageway measures between 7.0-9.0m in width and benefits from centreline carriageway markings; these carriageway widths are appropriate for accommodating HGV movements safely. It is subject to a 40mph speed limit within proximity to its junction with the B1187.

2.3 Traffic Flows

- 2.3.1 The DfT provides Annual Average Daily Flow (AADF) traffic data at a number of locations across the highway network. Within the vicinity of the site, count data is available for Broadgate, the B1167, the B1166 and the A47, which are identified as key local routes to and from the site location. Table 2-1 provides a summary of this data.

Table 2-1: DfT AADT Count Data

Location / Road	DfT Count Point	Year	AADT Flow (two-way)		
			Total Vehicles	HGV	HGV %
Broadgate	941010	2008	783	39	5%
B1166	966638	2009	2,474	165	6%
B1167	805538	2022	1670	54	3%
A47	74047	2022	18,743	2,199	11%

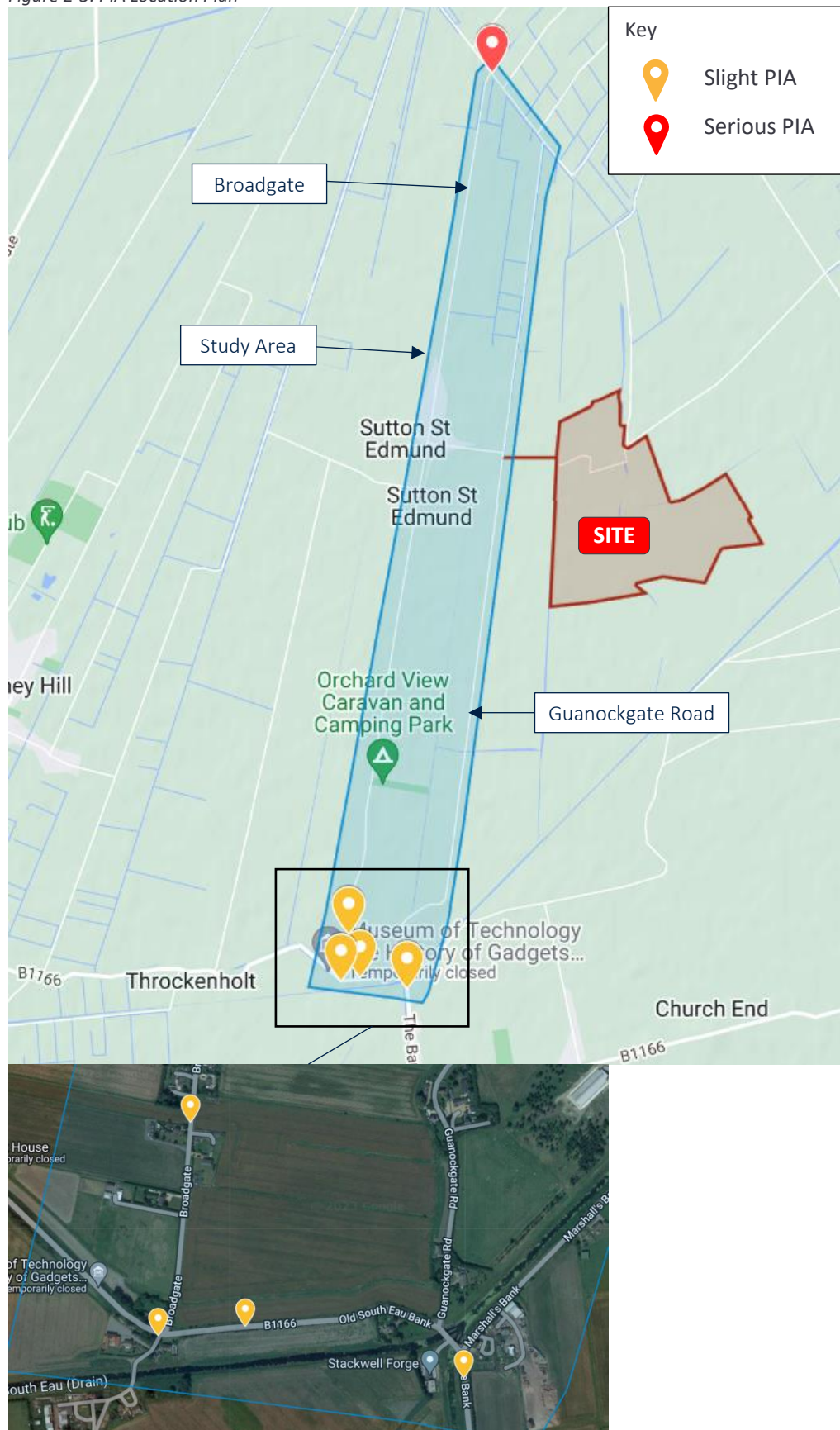
Source: DfT

- 2.3.2 The data demonstrates that these surrounding roads already accommodate HGV traffic, with higher proportions on the A47, as would be expected of higher category roads. The traffic data for the B1167 and A47 is based on raw count data recorded in 2022, which represents the first year post-pandemic and is considered robust. Traffic data for Broadgate and the B1166 is based on raw count data recorded in 2008 and 2009. It is noted that this data is historic, although it still provides some context of the background flows and composition.
- 2.3.3 Although no count data was available for Guanockgate Road and Cross Road, the count data for Broadgate is considered an appropriate benchmark for these local roads in the absence of any other available data. Indeed, there are less dwellings along Cross Road and Guanockgate Road and as such the available data could be considered robust for these local roads.
- 2.3.4 The flows in Table 2-1 have been used as a baseline against which to assess the proposals.

2.4 Road Safety Analysis

- 2.4.1 Personal Injury Accident (PIA) data has been obtained from road safety data published annually by the Department for Transport (DfT). The statistics provide PIA data which has been recorded using the STATS19 accident reporting form. This review covers the four-year period prior to the pandemic between 1st January 2016 and 31st December 2019, data from the two years during the pandemic between 1st January 2020 and 31st December 2021, as well as the most recent publicly available data which covers up to 31 December 2022. The most recent seven years of data has therefore been reviewed, which includes the most recent five full years of data outside of the pandemic.
- 2.4.2 The study area considered within the analysis includes the site access location as well as local roads between the site and the wider road network. The PIA study area is shown within Figure 2-3.

Figure 2-3: PIA Location Plan



Source: Crashmap.co.uk

- 2.4.3 Figure 2-3 shows that over the seven year period, a total of five PIA's were recorded within the study area. Four of these were classified as slight with one recorded as a serious injury accident. No fatal accidents were recorded.
- 2.4.4 The serious incident occurred at the junction between New Fen Dike and Broadgate to the north of the site, and involved one vehicle (motorcyclist). As an isolated incident over a seven year period there is no evidence of a specific road safety issue in this location. None of the PIA's involved cyclists.
- 2.4.5 None of the PIA's occurred along Guanockgate Road or at its connecting junctions with the B1166 and New Fen Dike. Indeed, further analysis shows no accidents occurred within the vicinity of the access over the entire 24 years of recorded data. As such, there is no evidence of a road safety issue within the vicinity of the access over an extended period of time. This access and route has safely accommodated movements associated with the existing uses over this time.
- 2.4.6 There were no clusters of four or more PIAs occurring in the same location, therefore no evidence to suggest a re-occurring road safety issue.
- 2.4.7 As such, although all incidents are regrettable, the PIA data does not suggest a road safety issue that would be exacerbated by the proposals, particularly when considering that the majority of the proposed traffic generation would occur over a short-term temporary period and be subject to a number of controls (set out in Section 5 and 7).

3. SUSTAINABLE CONNECTIVITY

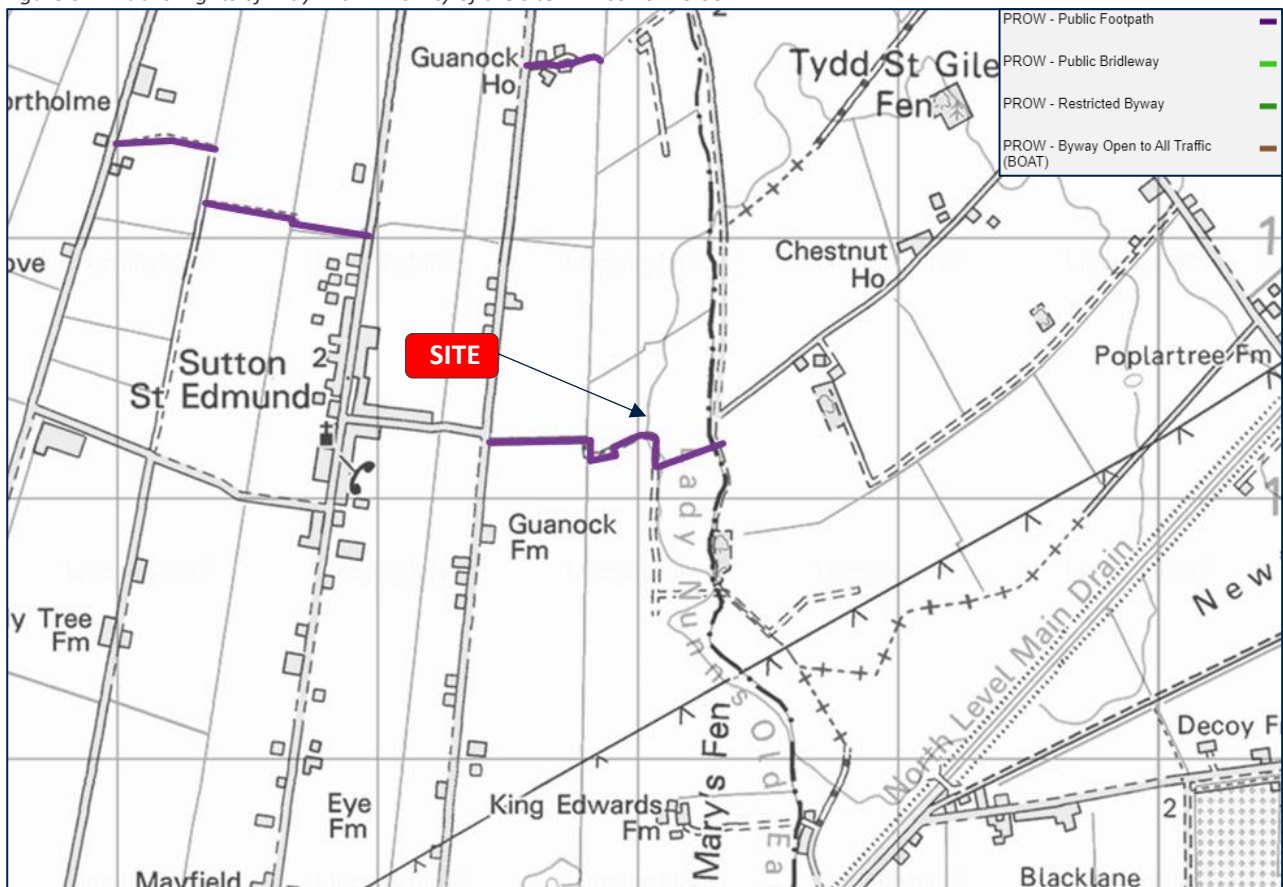
3.1 Introduction

- 3.1.1 The site is situated in a rural location with limited accessibility by sustainable modes. Due to the nature of the proposed use, the development will only result in a temporary short term peak in movements to and from the site, occurring during the construction and decommissioning phases. As such, there will not be a need to support sustainable travel to and from the site outside of the controlled and scheduled temporary construction and decommissioning phases. As part of the proposals, measures will be put in place to minimise vehicle movements from the construction workers, such as encouraging car sharing.
- 3.1.2 However, there are some options for workers to travel to and from the site using sustainable modes of travel, and the level of provision is considered appropriate given its rural location. These options have been set out within this section.

3.2 Walking and Cycling

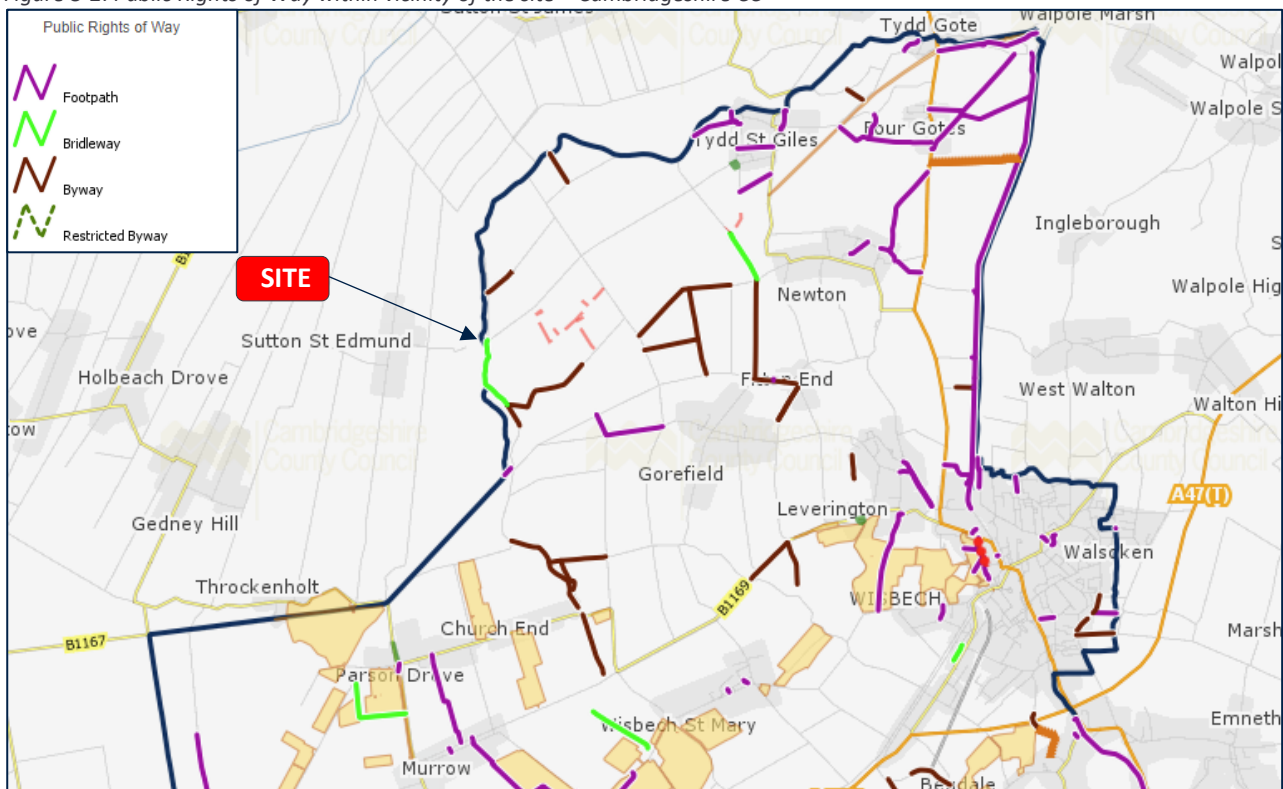
- 3.2.1 There are no footways linking to the site, which is not uncommon in rural locations. The surrounding streets are lightly trafficked and suitable for accommodating shared use between pedestrians and vehicles, with pedestrians being able to step off onto the verges, where needed.
- 3.2.2 However, the site benefits from being connected to the network of Public Rights of Ways (PRoW) which provide alternative routes.
- 3.2.3 PRoW footpath Tydd/4/1, located within the LCC boundary, routes along the proposed site access track which connects to Guanockgate Road at its western extent. This PRoW connects to Bridleway 238/13 which is within CCC boundary. The PRoWs within the vicinity of the site are shown on Figure 3-1.
- 3.2.4 The surrounding local roads are generally lightly trafficked and relatively flat in nature. The site also lies within proximity to National Cycle Network (NCN) Route EV12 located approximately 8.9km (cycle distance) to the east of the site. As such, there are some options for local contractors to cycle to and from the site. The cycle network within the vicinity of the site is shown in Figure 3-3.

Figure 3-1: Public Rights of Way within vicinity of the site – Lincolnshire CC



Source: LCC Public Rights of Way Online Map

Figure 3-2: Public Rights of Way within vicinity of the site – Cambridgeshire CC



Source: CCC Public Rights of Way Online Map

Figure 3-3: Cycle Network within vicinity of the site



Source: EuroVelo Cycling Maps

3.3 Public Transport

3.3.1 The closest bus stops to the site are located on Broadgate, approximately 640m (journey distance) to the west of the site access. These stops are accessible by partly walking on carriageway/verge for approximately 215m where a footway commences on Cross Road. The northbound stop benefits from a bus stop shelter which is accessible via existing footways.

3.4 Summary

3.4.1 The site is situated in a rural location and has some options for access by sustainable modes. It is connected by walking via public rights of way and lightly trafficked on-carriageway routes for walking and cycling, and there are bus services within acceptable walking and cycling distance. As such, there are some options for travel to and from the site by non-car modes.

3.4.2 In addition, given the nature of the proposals, car sharing will also be encouraged and promoted to contractors working on the site to encourage more sustainable travel.

3.4.3 As such, considering the rural location and the type of development proposed, appropriate opportunities for sustainable travel are available, which is considered to be in accordance with relevant policies in NPPF.

4. SITE ACCESS, LAYOUT AND DESIGN

4.1 Vehicle access requirements

- 4.1.1 The site access accommodates up to 16.5m long articulated vehicles for construction, which represent the largest vehicle size required to transport components and materials to the site. However, the majority of these vehicles are likely to be rigid HGVs of up to 10m in length, which are capable of transporting all construction materials and components. Only the BESS units and substation components are likely to require transportation by larger articulated vehicles of up to 16.5m in length. These vehicles have been considered as part of the construction routing analysis.
- 4.1.2 Due to the modular nature of the site's construction and ability to partially assemble components on site such as the transformers, no abnormal load movements are required, and these have not been considered in this assessment. However, if this changes once the contractor is in place and large components are required to be delivered fully assembled, a full assessment of the routes to and from the site can be completed and included within a Construction Traffic Management Plan, which will be submitted to LCC and CCC prior to commencement of construction. All relevant consultees will be contacted, and the relevant abnormal loads order applied for, as required, prior to any abnormal load movements arriving at the site. As outlined in Section 7, banks person(s) will be located at the access during delivery times to manage movements along the access road, and to provide additional awareness for PRow users.

4.2 Proposed Construction Access

- 4.2.1 Access to the site will be obtained from the highway via the existing private agricultural access onto Guanockgate Road. Upon entering the site from Guanockgate Road, vehicles will route east to the development areas using existing and proposed access tracks.
- 4.2.2 The existing access comprises an access road of approximately 4.0m-4.8m, with approximately a 10m radii connecting to Guanockgate Road. The junction has a bellmouth width of c.16m. The proposals include minor widening to the access road to enable 16.5m long articulated vehicles (the largest vehicle expected at the site) to access and egress the site safely. As such, the access will also be suitable for emergency vehicles such as fire appliances. The swept path analysis is provided in Appendix C. The proposals will also include improvements and widening, where required, to the internal access tracks to appropriately accommodate construction vehicles.
- 4.2.3 Visibility for drivers emerging from the access is shown at 2.4m x 153.8m in each direction using a 1m carriageway offset, in accordance with recommendations within Manual for Streets 2 (MfS2) for 60mph speeds. These splays can be accommodated entirely within the adopted highway. The proposed access and visibility is shown at Appendix D.
- 4.2.4 This level of visibility is in accordance with the absolute minimum parameters provided in MfS2, calculated using the formula included in Para. 10.1.5. MfS2 is considered the appropriate design guidance for an access in this location on Guanockgate Road, as this is not a trunk road. The absolute minimum visibility splays are considered appropriate as the access will accommodate a low number of movements during the temporary construction period which will be controlled through a Construction Traffic Management Plan (CTMP). In addition, approaching drivers are provided with an appropriate level of forward visibility to emerging vehicles in both directions, in line with the distances recommended in MfS for this 60mph speed road.

- 4.2.5 As demonstrated in Section 2, there is no evidence of a road safety issue at the access location, and as such the access is considered appropriate.
- 4.2.6 This will form the only access and egress point for the site during the construction, operation, and decommissioning periods onto the highway network, although minimal movements would be generated during the operational phase with the majority of movements occurring during the construction phase. As an existing access, it has safely accommodated large farm vehicles over an extended period of time (as demonstrated in Section 2) from this location, including from the site itself, and as such is considered safe for the proposed temporary construction and decommissioning periods subject to appropriate management measures.
- 4.2.7 Deliveries can be scheduled via a booking system, avoiding peak hours and the access will be controlled by qualified banksperson(s) to ensure vehicles enter and exit the site safely. The banksperson will manage vehicle movements to and from the access and provide additional awareness for PRoW users who share the private access. Details of these measures are included in Section 7.

Access Signage and safety

- 4.2.8 Within the vicinity of the access and on the adjacent highway network, the contractor would position appropriate signage to inform drivers of the increased likelihood of vehicles, especially HGVs turning into or out of the development site. This would include:
- Caution signs warning of works and construction traffic ahead; and
 - Signage denoting the construction traffic access to the site
- 4.2.9 The exact location, position and content of these signs will be agreed with the LHA, prior to the commencement of construction.
- 4.2.10 Temporary lighting of the site access could be considered as a possible mitigation measure, if required. It is expected that any access works will be undertaken first to minimise the impact of delivery vehicles.

4.3 Internal Site Layout

On-Site Access Routes and Safety

- 4.3.1 Permeable access tracks will be constructed to enable the site to be served appropriately during construction, operation, and decommissioning stages. The access tracks will serve the solar and BESS development areas including turning areas and temporary construction compounds, enabling vehicles to turn safely. Turning areas are provided to enable components to be transported to the development areas and ensure space for maintenance.
- 4.3.2 The access tracks will be constructed to approximately 3.5m-4m in width and comprise permeable materials to a standard suitable for carrying construction traffic. The access and access roads will be constructed to gradients suitable for all vehicles including emergency appliances, with minimal change for the first c. 20 metres from the A4169 and the maximum gradients are 1:15.
- 4.3.3 All internal access tracks can accommodate up to 10m long rigid HGVs, and as such are appropriate for emergency vehicles including fire appliances. These facilities will remain on site during its operation. Vehicles larger than 10m in length (up to 16.5m long articulated HGVs) will be accommodated on routes to and from the BESS site and substation only, and will use the temporary construction compounds which will be available during the construction and decommissioning phases. These

arrangements are shown on the proposed site layout plan, and will be managed by a qualified banksperson. Swept path analysis contained in Appendix C shows these vehicles successfully accessing and egressing the site in forward gear using the proposed turning areas and temporary construction compounds.

4.3.4 When reversing is required, in addition to a competent banksperson directing vehicle movements, as set out within the HSE guidance consideration will be given to:

- Aids for drivers - mirrors, CCTV cameras, reversing alarms and sensors that can help drivers can see movement all-round the vehicle
- Vehicle visibility aids – beacons, additional lights, reflectors, beacons, and horns
- Lighting - so that drivers and pedestrians on shared routes can see each other easily. Lighting may be needed after sunset or in bad weather
- Clothing - pedestrians on site should wear high-visibility clothing
- Excluding non-essential personnel from areas where vehicles are reversing

4.3.5 There would be no unloading or loading of materials on the highway network or the PRow routing through the site.

Temporary Construction Compounds

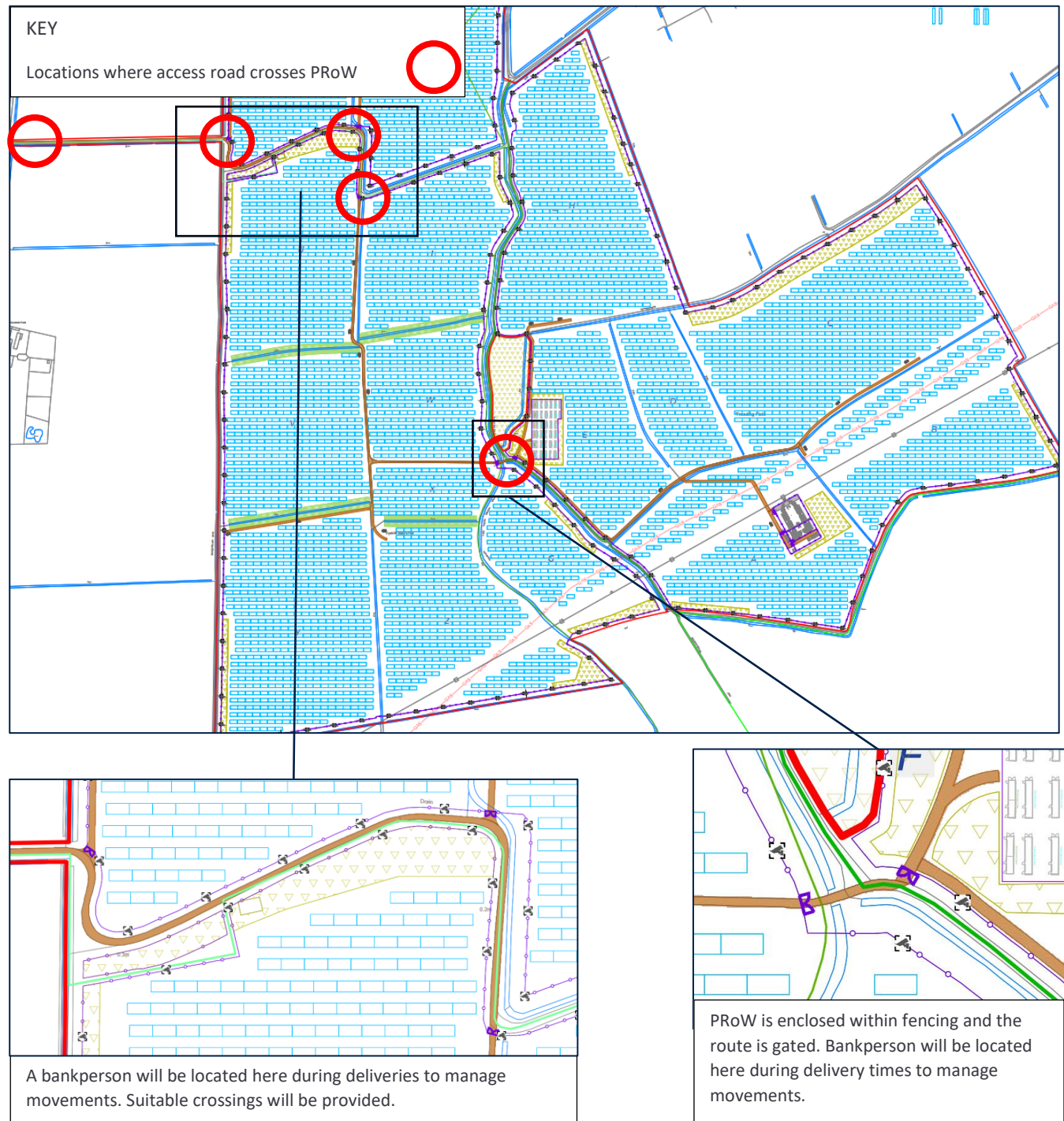
4.3.6 Two temporary compounds are proposed to serve the BESS site and substation site, as shown on the site layout. These will accommodate daily deliveries, including large HGVs of up to 16.5m in length. The compound will provide separation from vehicles accessing/egressing the site and during unloading/loading of materials. Due to the relatively low number of deliveries each day, all delivery vehicles will be able to enter the site and unload within the compound area.

4.3.7 The temporary construction compound, which will be reinstated for decommissioning, will be used for all parking, turning, unloading / loading. There will be no queuing, parking, or unloading on the highway.

PRow Management

4.3.8 PRow footpaths route through and around the site, and the proposed layout shows five locations where vehicles will be required to crossing the PRow to serve the solar panel fields from the existing access off Guanockgate Road. These locations are shown indicatively on Figure 4-1.

Figure 4-1: Proposed internal access roads and location of PRow



4.3.9 Where the vehicular access routes cross the PRow, suitable signage will be displayed, warning pedestrians of the presence of construction traffic and drivers of the presence of pedestrian movements. Suitable crossings will also be provided with visibility between vehicles and pedestrians. PRow currently share the existing farm access tracks with agricultural vehicles, and as such these users are already aware of vehicles using these routes. Section 7 provides more detail on the proposed management measures designed to provide additional awareness between PRow users and vehicles.

4.3.10 A public rights of way plan in the context of the site access is provided in Appendix E.

4.4 Fire Safety

- 4.4.1 As stated in Section 4.2 and 4.3, all internal access tracks can accommodate up to 10m long rigid HGVs which are expected during the construction phase. Turning facilities are provided for these vehicles to access and egress the site safely. As such the proposed access tracks are suitable for enabling emergency vehicles to access and egress the site safely. This is in accordance with Approved Document Part B (fire safety) Volume 2: Buildings other than dwellings (2019), which provides statutory guidance.
- 4.4.2 The proposals also consider the National Fire Chief's Council (NFCC) guidance for Fire and Rescue Services. This guidance relates to BESS sites only. In relation to access, the following recommendations have been considered:
- At least two separate access points to the site to account for opposite wind conditions/direction
 - Roads/hard standing capable of accommodating fire service vehicles in all weather conditions. As such there should be no extremes of grade.
 - A perimeter road or roads with passing places suitable for fire service vehicles.
 - Road networks on sites must enable unobstructed access to all areas of the facility.
 - Turning circles, passing places etc size to be advised by FRS depending on fleet.
- 4.4.3 The internal access tracks will provide unobstructed access to the BESS site and will be constructed with suitable materials and constructed to suitable gradients with no obstructions. During operation the site will not generate any traffic, other than for maintenance vehicles, and as such the access tracks will provide a clear route, allowing emergency vehicles to access the site safely.
- 4.4.4 The BESS site development area (i.e. where the units are located) is provided with three separate access points from the internal access tracks, which enable vehicular access to the southern, eastern and western sides of the site. The access tracks are provided in a looped arrangement with opportunities for vehicles to pass within the access points. Turning areas are also provided within the wider site which are capable of accommodating up to 10m long rigid HGVs, and as such suitable for emergency vehicles.
- 4.4.5 As such, the proposals are in line with the relevant NFCC guidance.

4.5 Security and Health and Safety

- 4.5.1 The solar farm would be closed to the general public throughout the construction, operation and decommissioning through use of security fencing and CCTV.
- 4.5.2 The appointed Site Manager will oversee Health and Safety on site. A Health and Safety board identifying potential hazards will be updated daily with all visitors required to sign in and adhere to on-site Health and Safety practices. All personnel working on site will be required to wear a high visibility vest or jacket, steel cap boots, and a hard hat as well as any other activity-specific safety wear.
- 4.5.3 It is intended that the security fence that will surround the solar farm for the duration of its life will be erected prior to the construction phase of the solar farm, thus ensuring the site is secure during this phase. However, if this is not possible, the site will have 24 hour security on patrol in order to adhere to health and safety regulations as well as prevent crime.
- 4.5.4 In terms of the site design, as far as possible, during the construction phase, pedestrians and vehicles will be separated and the HSE guidance will be adhered to. This will include scheduling collections and

deliveries to avoid the start and end of shifts so that pedestrians and passenger cars do not conflict with HGV traffic. All visitors would also report to the site office before they are allowed into areas where vehicles operate.

- 4.5.5 The internal site design will consider the separation of pedestrians and vehicles through locating staff parking areas away from the HGV turning areas and the compound where the construction activity occurs. As far as possible, pedestrians will have access to the welfare facilities from the staff parking areas without crossing the path of construction traffic.

4.6 Workforce

- 4.6.1 Facilities to obtain food and drink on site during the working day will be provided, where reasonably practicable, to minimise the need for personnel to leave the site during the working day.
- 4.6.2 It is expected that the number of staff required during the construction phase would vary depending on the activities undertaken during each week. It is estimated that there would be approximately 30 staff employed at the site on a typical day.

4.7 Parking

- 4.7.1 Vehicle parking for staff during the construction period would be accommodated on site and no vehicles associated with the construction would park on the highway network. To minimise the impact of personal car use, the staff parking area will be located away from work areas and HGV turning areas.

4.8 Construction Plant

- 4.8.1 In order to minimise road use as far as is possible, consideration will be given to retaining large items of plant on site for the duration of an activity, rather than the normal practice of plant coming and going from site to keep hire rates/standing time to a minimum, although this will be of a greater cost to the project. Consideration will be given to such measures where feasible.
- 4.8.2 Plant equipment would include but not be limited to the following:

Equipment	Primary Function
JCB Diggers	Trenching
Dump Trucks	Earth Removal
Vibrating Roller	Compacting access track / compound area
Piling machine (s)	Ramming piles
Telehandler (s) / Crawler (s)	Distributing materials
Crane	Lifting cabinets / housing into place and setting up welfare facilities
Fuel Bowser	Refuel plant as required

5. CONSTRUCTION PHASE

5.1 Overview

- 5.1.1 This section details the construction programme and associated vehicle movements, together with details on the routing of vehicles to the site and the potential impacts.

5.2 Construction Programme

- 5.2.1 The construction period for the proposed development is estimated to take between 10 and 12 months. The construction programme is an estimate and would be dependent upon a range of factors, such as the shipping of materials and the weather. As such, the final construction programme and vehicle flows will be provided within a Construction Traffic Management Plan produced by the Contractor, and which can be conditioned as part of any forthcoming planning consent.
- 5.2.2 The construction period would be split into a number of different phases including site mobilisation, civil engineering, solar farm and BESS construction, landscaping phases and de-mobilisation. A small number of vehicular movements will also be associated and the arrival and departure of construction staff.
- 5.2.3 The delivery of construction components and materials would be mainly by HGVs up to 10 metres in length, with staff trips mainly by cars or vans. Only the BESS units and substation components will require transportation by larger articulated vehicles of up to 16.5m in length. These vehicles have been considered as part of the construction routing analysis. Abnormal Indivisible Loads (AIL) are not anticipated as being required to transport materials to and from the site and have not been considered in this assessment.

5.3 Working Hours and Deliveries

- 5.3.1 Deliveries to the site would be coordinated to avoid large numbers of vehicles arriving and departing from the site at the same time. It is expected that HGV deliveries would be distributed throughout the day. The site deliveries would occur between 09:00 and 17:00 Monday to Friday and 08:00 and 12:00 on Saturdays.
- 5.3.2 Where feasible, deliveries will also be scheduled to avoid peak traffic times, i.e. avoiding peak periods on the transport network, contractor start/finish times and school pick up/drop off times.
- 5.3.3 During busier periods, deliveries will be staged with drivers given specific time windows for arrival at the site. To manage this, communication will be required between the site manager and the source company. This will prevent convoying of vehicles to and from the site and reduce the impact of construction traffic on the local highway network by seeking to evenly spread vehicle movements throughout the day.
- 5.3.4 As far as possible and feasible, the shifts for construction workers will be scheduled to minimise the number of traffic movements on the local highway network between the peak periods of 08:00-09:00 and 17:00-18:00 to reduce the impact on the operation of the highway.

5.4 Construction Vehicle Movements

Construction vehicles / HGVs

- 5.4.1 The construction phase is anticipated to generate a variety of vehicle types that would travel to and from the site, which could include:

- 16.5m long articulated HGVs
- Material and component transporters (10m rigid HGVs)
- Cement trucks
- Water tankers
- Flatbed trucks
- Cranes
- Cars, vans, minibuses, and light goods vehicles

5.4.2 The construction phase of the development is programmed to take between 10-12 months.

5.4.3 For the purposes of a robust assessment, it has been assumed that all construction vehicles would be generated by HGVs, with vehicles up to 16.5m long (i.e. articulated HGVs). However, the significant majority of construction vehicles are likely to be up to 10m long rigid HGVs, which are capable of transporting all construction materials and smaller components associated with the development.

5.4.4 The following provides a summary of the programme and subsequent vehicle movements which have been programme over a robust 49 week period (approximately 11 months), which is in line with the operators experience of other similar sites, considering the scale of the proposals:

- In **Weeks 1-2** it is expected that there would be deliveries relating to site set up, cabling, site compound set up and plant machinery (i.e. mobile cranes). Containers would be delivered to serve as offices and welfare facilities for staff, such as toilets. These components would be delivered in approximately 30 HGVs (60 two-way movements). At this time, deliveries would be required to secure the development site, which would include deliveries of the site security measures, such as security fencing to be placed around the perimeter of the site. It is estimated that the security fencing would require approximately 10 HGV deliveries (20 two-way movements) for the fencing panels.
- During **Weeks 3-15** it is expected that some c.4,620 m³ of stone would be required to create the access tracks and compound areas. The stone for the access tracks is based on the length of access road (c.4,000m), with a 10% allowance for turning areas and compounds based on the site layout plan in Appendix A. For robustness, it has been assumed the depth of the road would be 0.3m and the width would be 3.5m. It is assumed that the stone would be transported to site in HGV deliveries that can carry 20m³ of material, therefore it is estimated that the stone would be transported in some 231 HGV deliveries (462 two-way movements). The access tracks will remain on site following construction throughout the operational and decommissioning phases. It is also expected that the substation will require 1,050 m³ of stone material, which would generate an additional 53 vehicles or 106 movements during this period.
- During **Weeks 16-20** it is expected that some c.864 m³ of concrete will be required for the BESS, customer substation, transformers and components. This material/ would be transported using 8 m³ concrete vehicles, therefore it is estimated that 109 deliveries are required (218 movements).
- During **Weeks 21-26** it is expected that the solar panel frames would be delivered in 55 HGVs (2,000 units per HGV), equating to 110 movements. The forecast is for the solar panels to be delivered in 271 HGVs (542 movements) over weeks 21-45, with some of these movements delivered alongside the frames.
- During **Weeks 27-45** it is expected that the majority of solar panels will be delivered. Additional electrical equipment such as the inverters will also be delivered alongside the panels, requiring 17 HGV deliveries (34 movements).

- During **Weeks 46-47** it is expected that the 12m long containers for the BESS components will be delivered as single HGVs equating to 38 vehicle arrivals or 76 vehicle movements. In addition, there would be 6 HGVs (12 two-way movements) relating to the BESS inverter cabins.
- During **Weeks 48 and 49** it is expected that the substation components will be delivered to the site using 20 HGVs, which equates to 40 vehicle movements. During this time demobilisation of the site will also be undertaken using 22 HGVs (44 movements).

5.4.5 Table 5-1 provides a breakdown of daily and weekly deliveries expected, based on a 49 week (approximately 11 months) programme with 5.5 working days per week and deliveries that occur over an 8 hour period (four hours on a Saturday).

Table 5-1: Estimated weekly construction vehicle flows

Week	No. of Deliveries	No. of Movements	Av. Daily Deliveries	Av. Hourly Deliveries	Associated activity
1	20	40	4	0.5	Plant, cabling and containers / welfare facilities, cranes, fencing
2	20	40	4	0.5	Plant, cabling and containers / welfare facilities, cranes, fencing
3	22	44	4	0.5	Stone for access tracks and compound
4	22	44	4	0.5	Stone for access tracks and compound
5	22	44	4	0.5	Stone for access tracks and compound
6	22	44	4	0.5	Stone for access tracks and compound
7	22	44	4	0.5	Stone for access tracks and compound
8	22	44	4	0.5	Stone for access tracks and compound
9	22	44	4	0.5	Stone for access tracks and compound
10	22	44	4	0.5	Stone for access tracks and compound
11	22	44	4	0.5	Stone for access tracks and compound
12	22	44	4	0.5	Stone for access tracks and compound
13	22	44	4	0.5	Stone for access tracks and compound
14	22	44	4	0.5	Stone for access tracks and compound
15	20	40	4	0.5	Stone for access tracks and compound
16	22	44	4	0.5	Concrete Deliveries
17	22	44	4	0.5	Concrete Deliveries
18	22	44	4	0.5	Concrete Deliveries
19	22	44	4	0.5	Concrete Deliveries
20	21	42	4	0.5	Concrete Deliveries
21	9	18	2	0.3	Solar Panel Frames
22	9	18	2	0.3	Solar Panel Frames
23	9	18	2	0.3	Solar Panel Frames
24	22	44	4	0.5	Solar Panels and Frames
25	22	44	4	0.5	Solar Panels and Frames
26	23	46	4	0.5	Solar Panels and Frames
27	16	32	3	0.4	Solar Panels and Invertors
28	16	32	3	0.4	Solar Panels and Invertors
29	16	32	3	0.4	Solar Panels and Invertors
30	16	32	3	0.4	Solar Panels and Invertors
31	15	30	3	0.4	Solar Panels and Invertors
32	14	28	3	0.4	Solar Panels and Invertors
33	12	24	2	0.3	Solar Panels
34	12	24	2	0.3	Solar Panels
35	12	24	2	0.3	Solar Panels
36	12	24	2	0.3	Solar Panels
37	12	24	2	0.3	Solar Panels
38	12	24	2	0.3	Solar Panels
39	12	24	2	0.3	Solar Panels
40	12	24	2	0.3	Solar Panels
41	12	24	2	0.3	Solar Panels
42	12	24	2	0.3	Solar Panels
43	12	24	2	0.3	Solar Panels

Week	No. of Deliveries	No. of Movements	Av. Daily Deliveries	Av. Hourly Deliveries	Associated activity
44	12	24	2	0.3	Solar Panels
45	12	24	2	0.3	Solar Panels
46	22	44	4	0.5	BESS units and Invertors
47	22	44	4	0.5	BESS units and Invertors
48	21	42	4	0.5	Delivery of sub-station and demobilisation
49	21	42	4	0.5	Delivery of sub-station and demobilisation
Total	862	1,724	3	0.4	

5.4.6 In summary, the construction phase of the proposed solar and BESS development is forecast to generate approximately 862 HGV deliveries (1,724 two-way movements) over the assessed 49 week period. This equates to an average of 3 HGV deliveries per day across the entire period.

5.4.7 During the peak weeks, it is estimated there would be up to 4 HGV deliveries per day (8 movements). This would equate to one HGV movement every hour, on average, across the busiest weeks of the temporary construction programme.

Staff Movements

5.4.8 A maximum of 30 staff has been assumed during the construction phase. This equates to a maximum of 60 two-way movements on a typical day, if it is assumed all workers arrive in single occupancy vehicles and generate one trip to and from the site. It has been assumed that this level of trips occurs on each day of the construction phase for the purposes of this assessment. This is a robust assessment as car sharing would be encouraged and there is some accessibility by sustainable modes of travel.

5.5 Construction Route Assessment - Overview

5.5.1 An assessment of the surrounding road network has been undertaken to determine the most appropriate route to accommodate the forecast HGV deliveries which are expected to occur over the temporary construction period.

5.5.2 It is proposed that all construction traffic will access and egress the site via the existing Guanockgate Road access. As outlined in Section 2, the primary routes are to and from the south of the site location, providing links to the B1166. The B1166 provides routes all directions, in addition to connecting to key strategic routes such as the A47 and A16.

5.5.3 Three potential construction traffic routes have been identified from the site location, which have been considered in this assessment. Two potential routes were identified to the A47 at New Cut Roundabout to the south west, with a third to the A47 via Gull Road to the south.

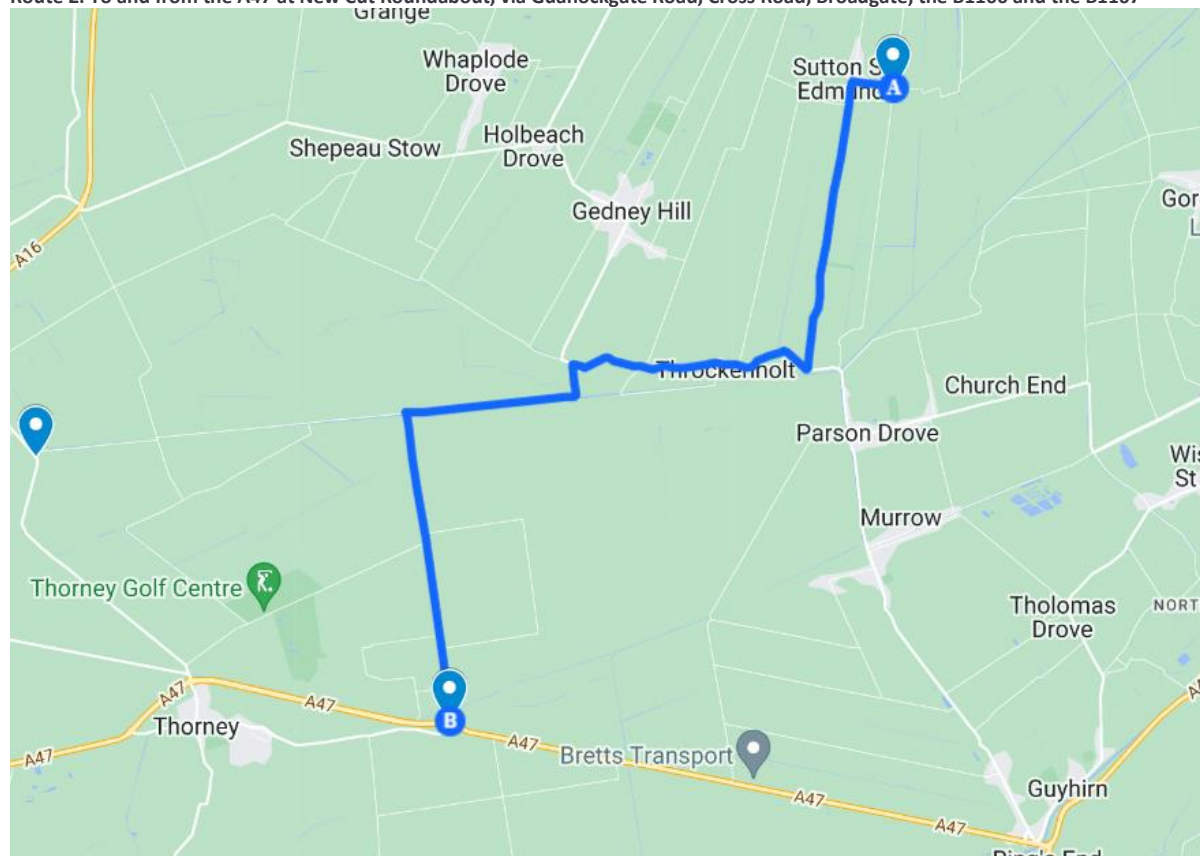
5.5.4 Routes to the A16 were also considered via the B1166 and French Drove, but these were discounted due to restrictions along the eastern section of French Drove and the alignment of the route through small settlements including Gedney Hill.

5.5.5 Three potential routes have been considered, and these are summarised as follows:

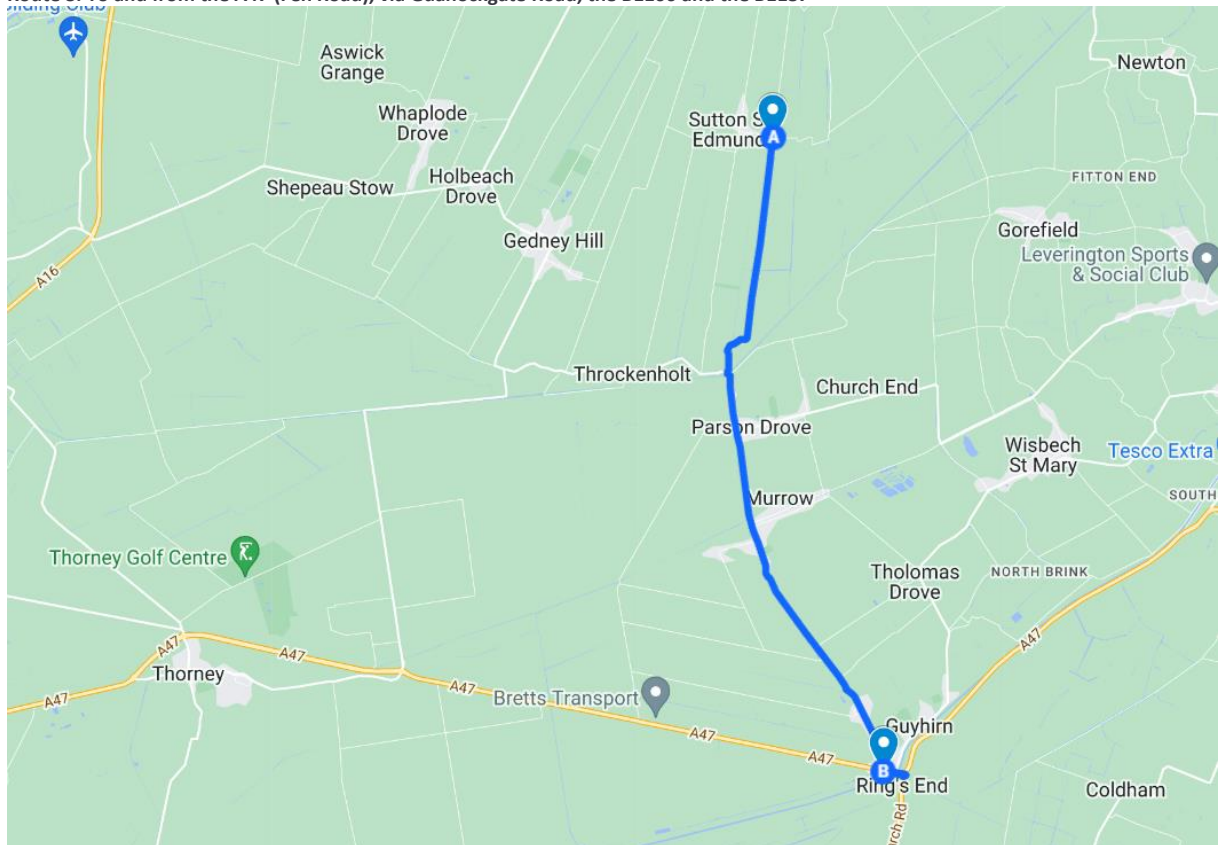
- Route 1: To and from the A47 at New Cut Roundabout, via Guanockgate Road, the B1166 and the B1167
- Route 2: To and from the A47 at New Cut Roundabout, via Guanockgate Road, Cross Road, Broadgate, the B1166 and the B1167
- Route 3: To and from the A47 (Fen Road), via Guanockgate Road, the B1166 and the B1187

5.5.6 The three potential routes are shown on Figure 5-1.

Route 1: To and from the A47 at New Cut Roundabout, via Guanockgate Road, the B1166 and the B1167



Route 3: To and from the A47 (Fen Road), via Guanockgate Road, the B1166 and the B1187



Source: Google Maps

5.6 Preferred Construction Access Route

5.6.1 Based on a review of the potential routing options, it has been considered that the preferred route for all construction vehicles would be to and from the A47 at New Cut Roundabout, via Guanockgate Road, Cross Road, Broadgate, the B1166 and the B1167 (Route 2), for the following reasons:

- Carriageway widths would support two-way movements for HGVs for the majority of the route (with the exception of a short section of Cross Road).
- The majority of the route comprises higher category roads such as the B1166, B1167 and A47, which are suitable for accommodating larger vehicles.
- There are no HGV movement restrictions and/or weight and height limits.
- There is a minimal impact on residential areas and no schools are located along the route.

5.6.2 The route analysis identifies a narrow section of the route at the eastern end of Cross Road, which extends over a 320m distance. As such, a passing place is proposed as shown on drawing C23103-ATP-DR-TP-003 at Appendix C. This passing place can be delivered within the adopted highway and would be subject to agreement with LCC. The location of the passing place enables appropriate inter-visibility in either direction along this route, allowing vehicles to pass safely.

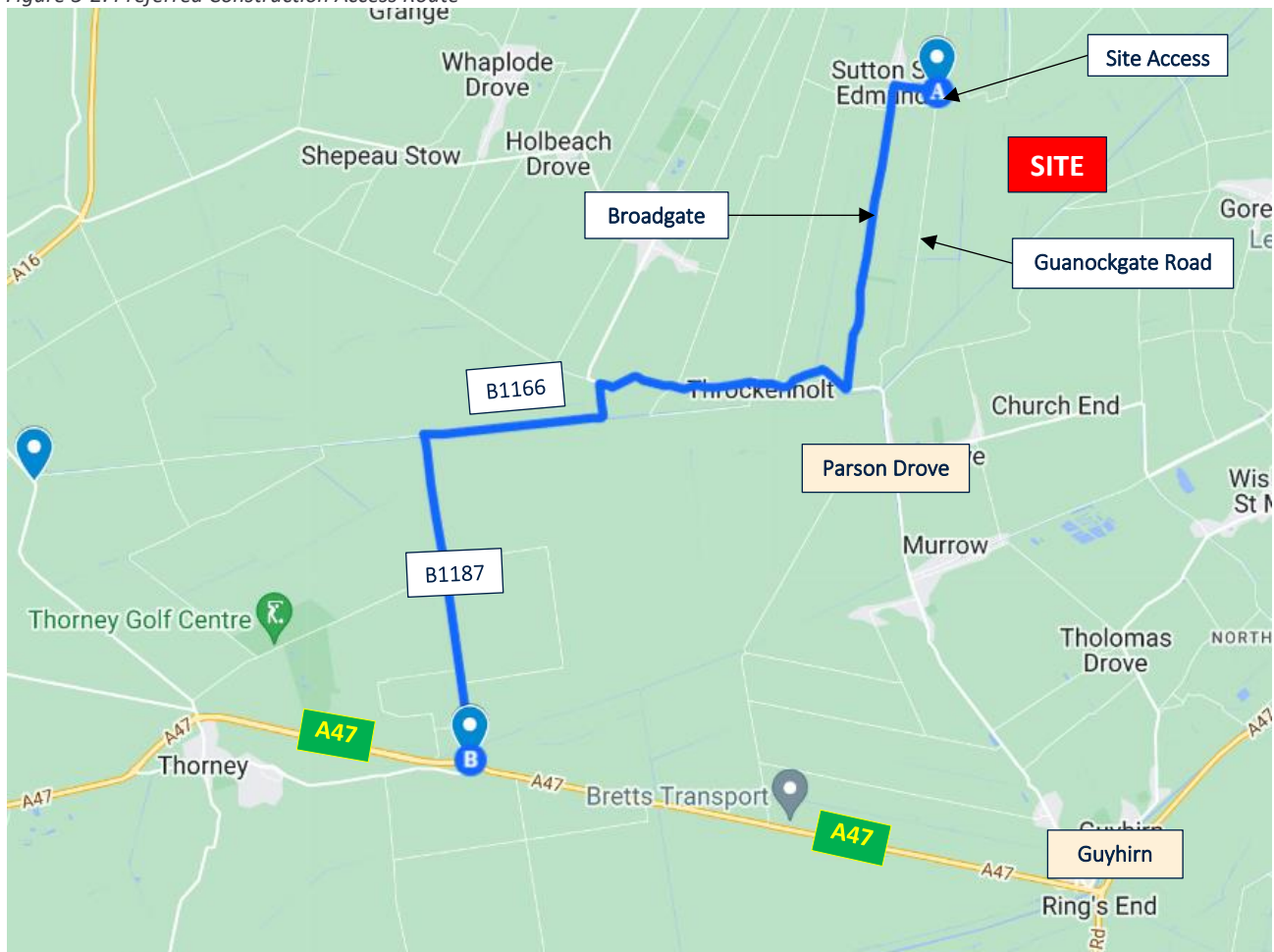
5.6.3 The preferred route to and from the site for construction vehicles is shown on Figure 5-2.

5.6.4 The prescribed access route will be a condition of all supply orders and sub-contractors, and no other local roads within the vicinity of the site will therefore be impacted. If required, a log of regular drivers will be maintained, including records of agreements with organisations and the drivers to demonstrate their understanding of the prescribed access route. In the event of non-compliance, the subcontractor

or supplier will be in breach of contract, potentially allowing disciplinary action against individual drivers.

- 5.6.5 Bankspeople will be located at the site access junction with Guanockgate Road and along the internal access road and site compound areas to coordinate movements into and out of the site during the site operational hours. Signage will also be provided which shows the construction route for delivery vehicles and enables background traffic to be aware of the routing being used.
- 5.6.6 Further details on the proposed traffic management and mitigation measures, which have been set out to minimise the impact on existing vehicles using the network, are included in Section 7.
- 5.6.7 It is considered that routes 1 and 3 to the south via Guanockgate Road would be suitable for smaller vehicles associated with contractors such as transit/commercial vans, if needed. As existing access routes for the site, these would also remain a viable option for HGVs and are considered suitable for construction vehicles, if these routes were considered more suitable by the highway authorities.

Figure 5-2: Preferred Construction Access Route



Source: Google Maps

5.7 Temporary Construction Traffic Impacts

- 5.7.1 During the worst case peak demand for construction traffic, expected during the civils phase of construction, it is predicted that there would be 8 two-way daily movements of HGVs alongside the 60 two-way construction staff movements predicted. The predicted 60 two-way construction staff movements are considered to be robust and car sharing would be encouraged to reduce movements further.

- 5.7.2 A high level traffic impact assessment has been undertaken using the background traffic data shown in Section 2, which includes DfT AADT flows for the preferred route which will accommodate the temporary construction traffic associated with the proposed development. The impact assessment is summarised in Table 5-2. Traffic data was not available for Guanockgate Road and Cross Road, although the data for Broadgate is considered appropriate due to its proximity to the site.
- 5.7.3 For a worst case analysis of the temporary impacts, no traffic growth has been applied to the background traffic flows and all vehicles (including staff) have been assumed to travel on all links.

Table 5-2: Temporary Daily Traffic Impacts

Link	Base Traffic Flow (AADT)	Total development daily movements (HGV + Staff)	% Increase	Base HGV Flow (AADT)	Development daily HGV Movements	% Increase
Broadgate	783	68	8%	39	8	17%
B1166	2,474	68	3%	165	8	5%
B1167	1670	68	4%	54	8	13%
A47	18,743	68	0%	2,199	8	0%

Source: DfT

- 5.7.4 Table 5-2 shows that during the worst case peak demand weeks for construction traffic (deliveries and staff), the impact on total traffic movements on the preferred construction route would be minimal at between less than 1% and 8%. Broadgate experiences the highest increase of 8% on total traffic, which is a consequence of the very low level of background traffic, which is also expected to be representative of the adjacent local roads including Cross Road and Guanockgate Road.
- 5.7.5 Although the data shows Broadgate and the adjacent local roads are likely to experience higher percentage increases during the peak construction weeks (8% on total traffic and 17% in HGV's), the predicted traffic volumes are not considered to be at a level which would result in a severe impact on the operation of these roads. Background traffic levels are very low, which would reduce the likelihood of vehicles passing on these links and as such the adjacent local roads are expected to be able to accommodate the forecast temporary increase in movements.
- 5.7.6 In addition, the 60 two-way movements predicted from construction staff would likely use routes 1 and 3 identified in Figure 5-1, and therefore the impact on the preferred construction access route could reduce to just the 8 two-way construction vehicle movements per day during the peak weeks.
- 5.7.7 The scheduling of construction deliveries (HGVs) will ensure that the temporary construction traffic is spread across the day (between 0900-1700), which will minimise vehicle movements to one per hour, on average. As far as possible and feasible, the shifts for construction workers will be scheduled to minimise the number of traffic movements on the local highway network between the peak periods of 0800-0900 and 1700-1800 to further reduce the impact on the operation of the highway network. Car sharing would be encouraged, to reduce the number of construction staff trips.
- 5.7.8 As such, the level of temporary trip generation during the construction period would have a negligible impact on the operation of the local highway network and/or at key junctions, and would not have an unacceptable impact on highway safety.

5.8 Construction Waste

- 5.8.1 The specialist contractor hired to construct the solar development will ensure that all waste is disposed of responsibly from the site. The removal of waste products from site will be minimised by recycling of excess materials wherever possible. The guidelines contained in the statutory guidance, Waste duty of care; Code of Practice, 2018 will be adhered to.

5.8.2 The potential waste generated during the construction process will primarily be related to packaging and potential measures to minimise the impact of construction waste are set out as follows:

- **The pallets that the solar panels are packaged in.** These will be either wood crates, or cardboard boxes. These will be removed from the site on a regular basis. If they arrive on wooden pallets – then these will be returned to the manufacturers. If they arrive packaged in cardboard boxes, then these will be removed from site on a regular basis through a hired skip(s).
- **Packing materials for various components**, such as screws, cabling, and mounting frames. Any non-recyclable waste will be stored in a skip for regular removal to an appropriate landfill.
- **Food waste from workers.** Personal rubbish will be collected along with non-recyclable packaging materials, for appropriate disposal.
- **Portable toilets** will be hired for the duration of the construction period.
- The site involves some **ground works** for access tracks, cable trenching, cabinet platforms. Excavated soil will be used for backfilling activities. Excess subsoil will be removed from the site and disposed of appropriately or sold to a landowner needing additional soil.
- All spoil or waste that needs to be transferred out of the site for reuse, recycling or disposal purposes will be collected and transferred by vehicles from registered licensed contractors.

5.8.3 A more detailed Construction Waste Management Plan can be conditioned and produced by the contractor, potentially as part of a combined Construction Traffic Management Plan (CTMP) or a Construction Environmental Management Plan (CEMP).

6. SITE OPERATION AND DECOMMISSIONING PHASES

6.1 Operation

- 6.1.1 The traffic generated by the proposed site during its operation would be negligible, as there would be no staff based at the site and movements would be limited to periodic routine maintenance activities, such as routine maintenance checks in relation to the electrical components and general site maintenance. These visits would typically be made by Light Goods Vehicles (LGVs), and it is expected that approximately 12 trips per year would be required (one per month on average). Due to the low number of vehicular movements expected to and from the site during the operational period, the site would have a negligible impact on the local highway network and SRN.
- 6.1.2 The operational site layout has been designed to ensure that a light vehicle can turn appropriately.

6.2 Decommissioning

- 6.2.1 The solar arrays, with associated equipment and fencing, would be removed and the land returned to its current use after 40 years. The decommissioning of the site is expected to follow the principles of the construction as set out in this document, however given the expected life of the solar farm / BESS, these would be reviewed prior to decommissioning. The number of HGVs required for decommissioning would be at similar levels as the construction phase and such the impacts would remain as set out for construction.
- 6.2.2 Vehicles would use the same routes as for the construction although this would be discussed and agreed with the LHA prior to decommissioning.

7. MITIGATION

7.1 Traffic Management Measures

- 7.1.1 The impact on the surrounding area will be minimised by routing traffic movements as outlined within the previous sections. Fuel consumption will be minimised by encouraging the use of local materials and sub-contractors, where feasible. It is recognised that there are specialist materials and equipment used in the construction and as such there may be less potential for using local materials.
- 7.1.2 The deliveries to the site would be co-ordinated to avoid large numbers of vehicles arriving and departing from the site at the same time. If required, a vehicle booking system can be implemented so that vehicles do not pass on the narrower section of Cross Road, as far as possible, although there is sufficient space for this to occur using the proposed passing place.
- 7.1.3 Bankspeople can be located at the Guanockgate Road access and within the site to manage construction vehicle movements, ensuring that vehicles are not arriving/departing outside of the allocated timeslot. Bankspeople would then be in contact with drivers and those arriving at the site outside of their time slot would be requested to continue to a safe waiting place elsewhere. Vehicles will be held back on the site, if needed, until their allocated leave time. Space would be provided within the site (compound or other) for vehicles to wait within the site, to assist with managing movements.
- 7.1.4 The booking system could allow, for example, vehicle arrivals only during one hour and vehicle departures only during the following hour, to ensure that vehicles associated with the site are not queuing on Guanockgate Road.
- 7.1.5 Due to the low levels of traffic predicted during the construction period, vehicle movements can be managed effectively with the proposed management measures.

7.2 Managing Internal Construction Movements

- 7.2.1 Figure 4-1 indicates the locations where the proposed internal access roads will cross the existing PRoW's that route through the site. PRoW users currently share the existing farm access tracks with agricultural vehicles, including the site access from Guanockgate Road. As such, users will already be aware of vehicles using these routes. The following measures are proposed during the construction period to safely manage construction movements alongside existing PRoW users at these locations:
- As indicated in Figure 4-1, these locations will be managed by qualified bankspeople during construction delivery times to provide awareness between users.
 - Suitable signage will be in place at these locations to warn both pedestrians and construction workers, although construction staff will be suitably informed of the known risks including pedestrian movements and drivers will have to adhere to a 10mph speed limit within the site.
 - Crossing points will be provided with appropriate visibility between pedestrians and vehicles to ensure that pedestrian movements can continue safely. As such, the aim will be to minimise disruption to pedestrian movements whilst ensuring that all movements can be safely accommodated.
 - PRoW will be fenced on both sides with a suitable buffer.
 - On the initial section into the site the northern verge will be maintained free of vegetation allowing adequate space for PRoW users.
 - The access track will be resurfaced during construction.
 - 4m gap will be left in the treeline for users.

7.2.2 At the end of the construction period, any PRow impacted by the scheme would be reinstated to their original condition.

7.2.3 If needed, a temporary stopping up order or diversions could be applied for to restrict movements on PRow's interacting with the site or access routes. Information will be supplied in advance providing details of any such order and provisions made for users to continue their journey appropriately (if routes are diverted).

7.2.4 The improvements are also shown on the plan provided in Appendix E.

7.3 Vehicle Emissions

7.3.1 All construction vehicles are required to comply with relevant European standards. Suppliers and drivers will be required to:

- Switch off their vehicle's engine when stationary to prevent exhaust emissions
- Maintain vehicles including engines in tune and catalysts working efficiently
- All vehicles used by contractors must always comply with MOT emission standards

7.4 Travel planning

7.4.1 To minimise the number of vehicles travelling to and from the site on a daily basis, staff would be encouraged to vehicle share, where feasible. They will also be encouraged to travel by sustainable modes of travel (particularly cycling), where this is feasible.

7.5 Parking

7.5.1 Vehicle parking for staff during the construction period would be accommodated on site and no vehicles associated with the construction will park on the highway network.

7.6 Noise

7.6.1 There will always be some noise associated with a building project, however this will be temporary and can be controlled by limiting the hours of noise generating activities to limit disruption for neighbouring properties.

7.6.2 In order to limit potential noise impacts, noise generating construction and decommissioning works shall only be undertaken between:

- 08:00 and 18:00 Monday to Friday
- 08:00 to 12:00 on Saturdays.

7.6.3 No noise generating works will be undertaken outside of those hours.

7.6.4 Contractors will be required to conform to the construction noise code of practice.

7.6.5 HGV movements will be restricted to between 09:00 and 17:00 to ensure noise impacts from large vehicles is kept to a minimum.

7.7 Mud on roads

7.7.1 During construction most delivery vehicles will be constrained to the permeable site access tracks and construction compound area (exceptions may include the piling rig and small vehicles for on-site transport). As and when necessary, vehicle wheels will be manually cleaned prior to release onto the highway. The site construction manager will monitor the highway conditions and will assess if further

measures are required to maintain road cleanliness, such as road sweeping. Road sweeping would involve the use of an approved mechanical road sweeper to clean the site of any mud or debris deposited by site vehicles within the vicinity of the site.

- 7.7.2 By segregating the on-site traffic from the delivery vehicles, the potential for mud can be reduced. Adequate sheeting of vehicles carrying waste materials will also be adopted to reduce the impact from mud.

7.8 Air Quality and Dust Management

- 7.8.1 It is not anticipated that any significant dust issues would arise during construction or decommissioning. If conditions on site are very dry, then water misting/spraying will be employed to dampen ground to avoid any dust nuisance.

- 7.8.2 Specific measures will be adopted on the site relating to vehicles entering and leaving the site to reduce any impact of dust on the local highway network and these will include:

- Easily cleaned hardstanding areas for vehicles
- Maintain haul roads and hardstanding by regular brushing and water spraying
- All vehicles carrying soil and other dusty materials to be fully sheeted
- Enforcing site speed limit of 10mph

7.9 Local Environment Protection

- 7.9.1 The contractor would undertake mitigation measures to protect the local environment during construction, such as:

- All marshalling areas and site offices would be included within the site boundary
- Provision of adequate storage space within the site, to ensure the site entrance does not become blocked at any time
- All loads to be properly stowed and secured

7.10 Monitoring

- 7.10.1 The contractor would be responsible for monitoring the operation of the site during construction, the construction routes, delivery timings and access arrangements, as well as to ensure the mitigation measures are implemented effectively. Monitoring would be undertaken continuously, in order to ensure efficient operation and to minimise the impacts on the local environment.

8. SUMMARY AND CONCLUSIONS

8.1 Summary

- 8.1.1 Apex Transport Planning Ltd (Apex) has been commissioned to provide transport support for a proposed c.49.9 megawatt (MW) solar farm and battery storage development on land east of Guanockgate Road, Gorefield, Lincolnshire (the 'site'). The development site is known Tydd Solar Farm.
- 8.1.2 The proposed development largely comprises rows of solar panels spread over a number of fields which make up the site. This includes solar panels, composed of photovoltaic cells, which are mounted on a supporting frame and orientated to face south, with arrays 2 to 3 metres in height. The proposed development would also include a battery energy storage system (BESS) site, comprising 38 BESS units, enclosed within a separate compound within the site. The proposed development includes additional infrastructure as well as auxiliary systems such as fire suppression and alarm systems, ventilation and cooling systems, internal lighting and thermal control systems.
- 8.1.3 Access to the site will be obtained from Guanockgate Road via the existing site access and internal access tracks which currently serve the site. New access tracks will be constructed to serve the development areas, enabling the transportation of construction materials, solar panel components and BESS units. All internal access tracks can accommodate up to 10m long rigid HGVs, and as such are appropriate for emergency vehicles including fire appliances. The BESS site is provided with three separate access points which allow vehicles to access the southern, eastern and western sides of the site. The access tracks are provided in a looped arrangement with opportunities for vehicles to pass within the access points. Turning areas are also provided within the wider site which are capable of accommodating up to 10m long rigid HGVs, and as such suitable for emergency vehicles.
- 8.1.4 As an existing access, it has safely accommodated larger farm vehicles with no accident record over the entire 24 years of recorded data, and as such the location is considered safe for the proposed temporary construction and decommissioning periods. As outlined in Section 7, a banksperson will be located at the access during delivery times to manage movements to and from the adopted highway, preventing queuing, parking, or unloading on the highway.
- 8.1.5 The site will incorporate turning areas suitable to allow construction vehicles to access and egress in forward gear, as well as temporary construction compounds for larger HGVs. Vehicles would route within the site using the proposed internal access roads which connect to Guanockgate Road via the existing access tracks. The layout of the internal access tracks will enable the transportation of construction materials and solar panel components around the site. Where the vehicular access routes cross the existing PRow, measures will be put in place to ensure the safety of these users including signage, suitable crossings and the use of qualified banksperson(s).
- 8.1.6 Due to the nature of the proposals, the impact on the highway will be temporary, attributed to the construction vehicle movements required during the construction and decommissioning phases. Abnormal Indivisible Loads (AIL) would not be required to transport materials to and from the proposed development site and no AIL's would be generated by the Development. During its operation, only a small number of vehicles will frequent the site for maintenance and servicing purposes and these vehicles will typically smaller commercial vans (LGVs).
- 8.1.7 All construction traffic will access and egress the site using the existing site access onto Guanockgate Road. All construction vehicle movements would route to and from the site via the prescribed route which links to the A47 to the south, via Guanockgate Road, Cross Road, Broadgate, the B1166 and the

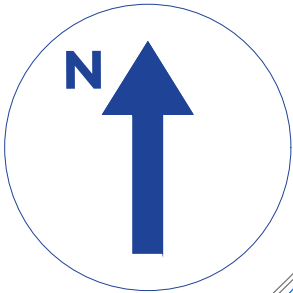
B1187. Measures would be in place to manage movements to and from the site, including the use of a banksperson(s) and a booking system, if required.

- 8.1.8 Road safety data has been analysed and there is no evidence of a highway safety issue within the vicinity of the site and along part of the construction access route, which would be exacerbated by the proposals. The proposals would not have an unacceptable impact on highway safety.
- 8.1.9 Considering the proposed use and the rural location, there are options available for sustainable travel to the site. In addition, vehicle movements will be minimised through car sharing which will be encouraged and promoted.
- 8.1.10 The construction phase of the development is programmed to take between 10-12 months.
- 8.1.11 During the worst case peak demand for construction traffic, it is forecast that there would be up to 8 two-way daily movements of HGVs alongside the 60 two-way construction staff movements. The forecast 60 two-way construction staff movements are considered to be robust and car sharing would be encouraged to reduce movements further. This level of temporary trip generation would have a minimal impact on traffic flows and congestion on the local highway network.
- 8.1.12 Appropriate mitigation measures will be put in place to ensure that vehicle movements can be safely accommodated at the site access and adjacent adopted highway, and within the site itself. These measures will also minimise any impact from development traffic on noise, highway capacity, mud and dirt and air quality. The measures include the provision of a passing place on Cross Road to improve access for construction vehicles. The contractor would also position appropriate signage to inform other road users of the presence of construction traffic, especially HGVs, turning to and from Guanockgate Road.

8.2 Conclusions

- 8.2.1 The proposals will offer users some options for sustainable travel, considering the type and rural location of the development, as well as promoting car sharing, and as such is in line with the requirements of the NPPF.
- 8.2.2 The development will not have a severe impact on the operation of the surrounding highway network or the Strategic Road Network, or an unacceptable impact on highway safety, in accordance with the NPPF.
- 8.2.3 It is therefore considered that there are no reasons relating to transport or highways for objecting to the application.

Appendix A Proposed Site Layout



Site: UKZ157 Tydd
Date: 01/12/2023

- | | |
|----------------------------|---|
| Planning Area: |  |
| Solar array: |  |
| CCTV Pole |  |
| Access Track: |  |
| Fence: |  |
| PRoW (Footpath): |  |
| PRoW (Bridleway): |  |
| PRoW (Byway): |  |
| Inverter Cabin: |  |
| Battery Storage Container: |  |
| Tree Planting: |  |
| Reedbed Planting: |  |
| Acoustic Barrier: |  |

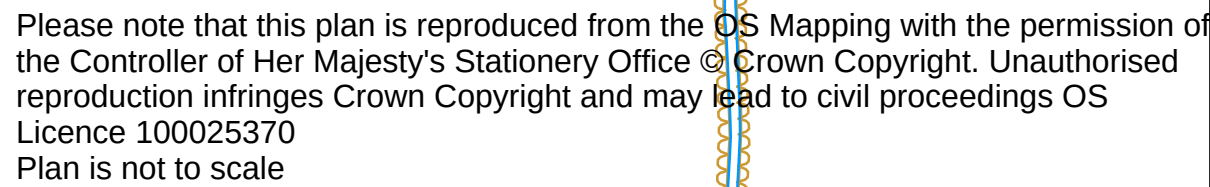
Note: Development is 9 metres from IDB Drains

Scale:	1:6000 (A3)
Planning Area:	140.50 ha / 351.13 acres
Size:	49.9 MW

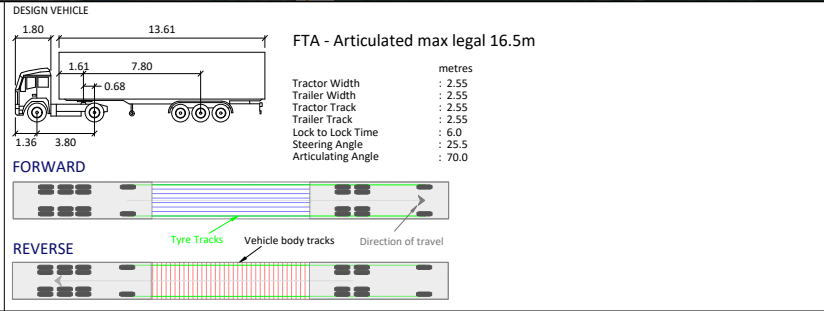
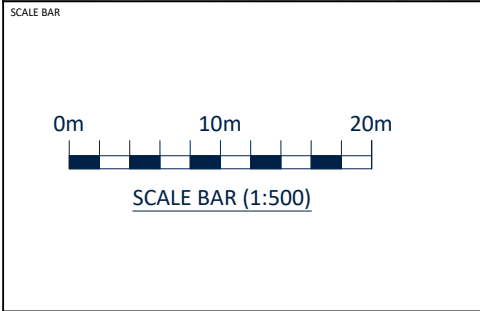
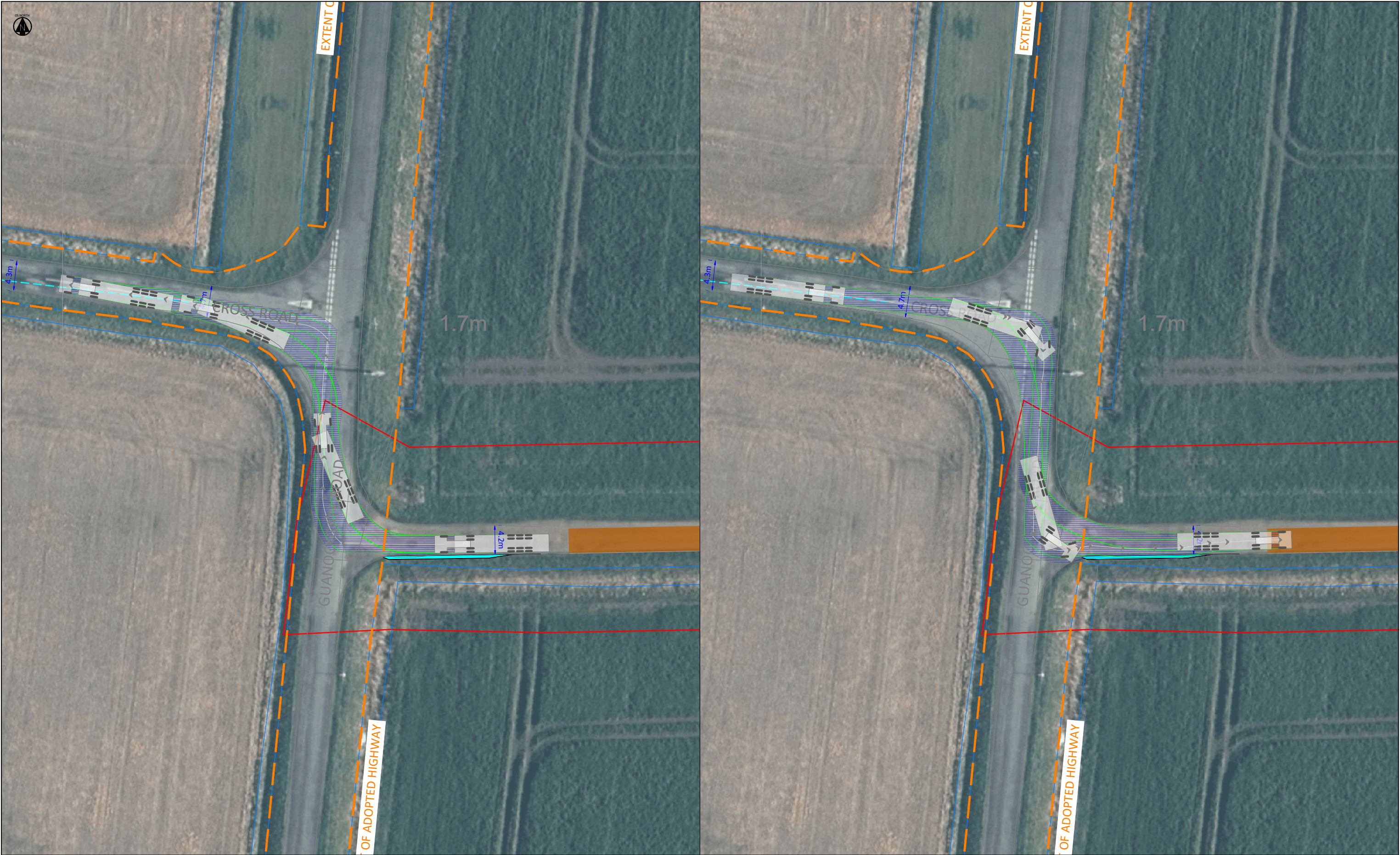


Filename:	UKZ157.dwg
-----------	------------

Appendix B Adopted Highway Plan



Appendix C Swept Path Analysis



NOTES

REVISIONS				
PO1	03/01/24	First Issue	GP	DC
Rev	Date	Description	By	App

11-13 PENHILL ROAD
CARDIFF
CF11 9PQ

101 VICTORIA STREET
BRISTOL
BS1 6PU

t: 02920 619 361
e: cardiff@apextp.co.uk

t: 0117 427 0414
e: bristol@apextp.co.uk

CLIENT
PACE

PROJECT
TYDD SOLAR

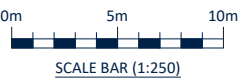
TITLE SWEPT PATH ANALYSIS USING A 16.5M LONG ARTICULATED HGV	
SITE ACCESS - GUANOCKGATE ROAD	
PROJECT NO. C23-103	SCALE @ A3 1:500
STATUS DESCRIPTION INFORMATION	STATUS S2
DRAWING NO. C23103-ATP-DR-TP-002	

Appendix D Proposed Access Visibility Splays



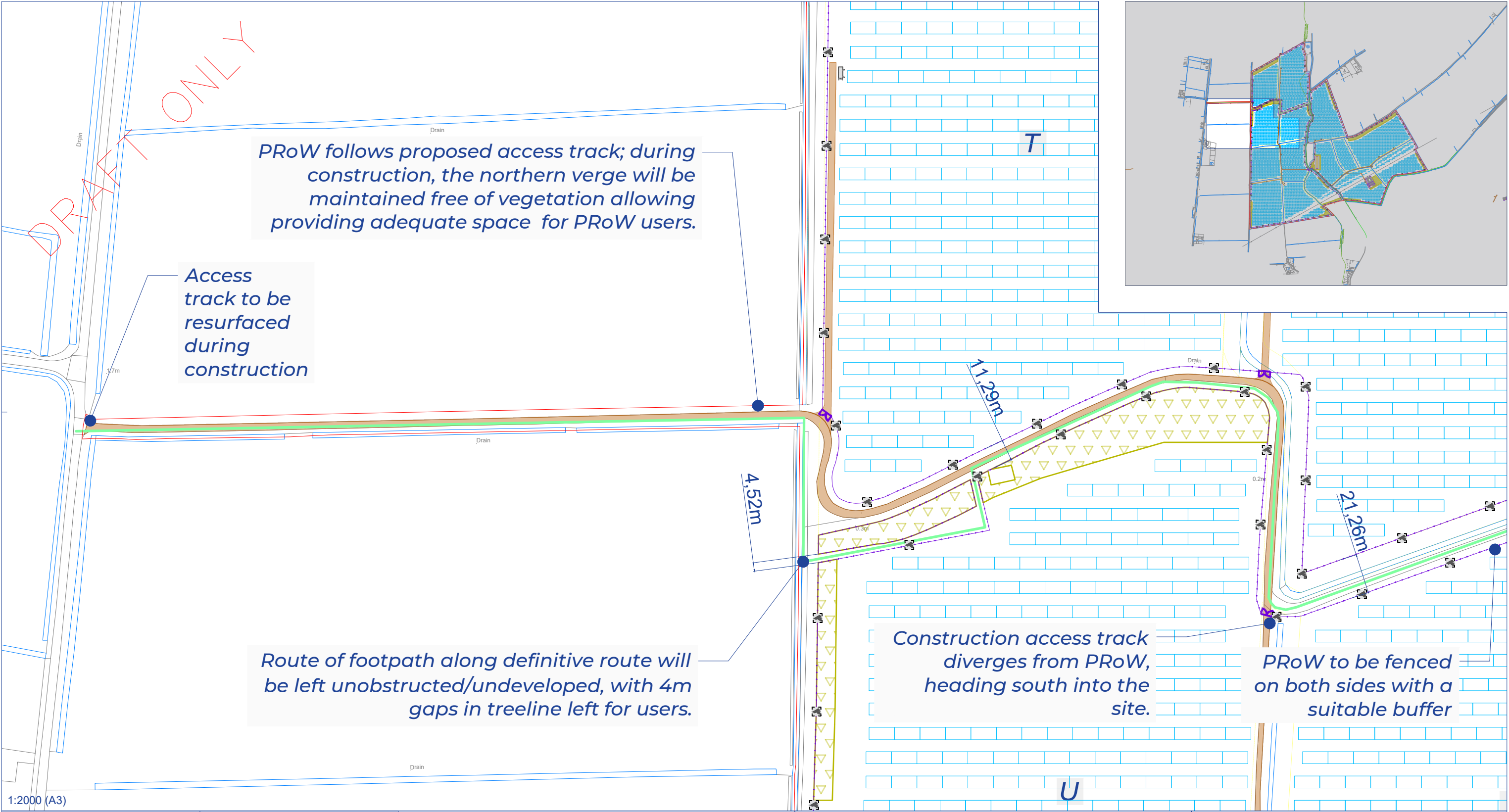
INSET AT SCALE 1:250

Minor widening is required along the southern side of the access road to accommodate construction vehicle movements.



KEY PLAN	SCALE BAR 0m
----------	---

Appendix E Public Rights of Way and Site Access



1:2000 (A3)

District Council:	South Holland
PRoW Type:	Footpath
Route Code(s):	SuSE/8/1 Tydd/4/1
Parish:	Sutton St Edmund

Drawing Title:
UKZ157 PRoW Lincolnshire County Council

Site:
UKZ157

Date:
28/10/2022



Filename: UKZ157.dwg

Tree Planting	
Fence	
PRoW (footpath)	
PRoW (bridleway)	
PRoW (byway)	
Inverter Cabin:	
Battery Storage Container:	

Key	
Planning Area	
Area within land ownership	
Solar array	
CCTV Pole	
Access Track	