Raglan Enterprise Park, Raglan

Transport Statement

Monmouthshire County Council Estates Development Team

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Quality information

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Appendices

Appendix A TRICS Outputs

1. Introduction

1.1 Introduction

1.1.1 This Transport Statement (TS) has been prepared by AECOM on behalf of Monmouthshire County Council (MCC) and specifically the Estates Development Team (EDT) in regard to proposals for development on land west of Chepstow Road in Raglan, Monmouthshire.

1.1.2 The site is situated to the west of Chepstow Road, south of Raglan. The A40 and A449 lie around 850m north and 675m east of the site respectively (measured from the centre of the site). The location of the site and its context to wider surrounding environs is shown in **Figure 1-1**, with more local detail shown in **Figure 1-2**.

1.1.3 The proposed site comprises six field parcels which total approximately 21 hectares in area. It is currently used for agricultural purposes and is bounded by an area of tree cover / woodland to the north, Chepstow Road and the existing Raglan Enterprise Park (REP) to the east, and hedgerows / open fields to the south and west.

1.1.4 The proposed development comprises the following:

- A solar farm that could produce up to 5 MW of electricity, utilising approximately 19 hectares of the total site area; and
- Expansion of REP to deliver an additional 2,250 sqm of floor space for B1 use (a mix of office and light industrial uses, to be confirmed at future masterplanning stage), utilising approximately two hectares of the total site area.

1.2 Report Scope and Structure

1.2.1 The scope of this TS has been informed by past discussions with MCC, in its role as the Local Highway Authority (LHA). The LHA agreed that the transport impacts of the solar farm proposals that are primarily of concern and should be examined, relate to the construction and decommissioning phases, when there will be movements associated with deliveries by Heavy Goods Vehicles (HGVs). During operation, solar farms have limited traffic generation, with visits by personnel generally only required for maintenance purposes using light vans approximately 10-20 times per year, and therefore the impacts of such are not considered to require further examination. In regard to the proposed expansion to REP, impacts will generally be associated with the operational phase; a level of consideration to these impacts appropriate to the scale of proposals has been given in this TS.

1.2.2 The TS has been prepared based on an initial brief of the development proposals, supplied by MCC. It is intended to inform future site masterplanning and its content will be adapted as appropriate once the scheme has progressed towards a stage and level of design required for planning submission.

1.2.3 The remainder of this report is structured as follows:

- **Chapter 2 – Existing Conditions:** Identifies existing access arrangements for the site, the existing highways serving the site, connectivity to the wider highway network, and opportunities for sustainable travel (in relation to the employment proposals). Key sensitive receptors are also identified;
- **Chapter 3 – Planning Policy Review:** Considers the development in the context of relevant national and local planning and transport policies;
- **Chapter 4 – Proposed Development – Solar Farm:** Provides an overview of the solar farm proposals, including recommendations for access arrangements during the construction, operational and decommissioning phases, and potential traffic management measures;
- **Chapter 5 – Proposed Development – Expansion to Raglan Enterprise Park:** Provides an overview of the proposals for expansion to REP, including recommendations for access arrangements during the construction and operational phases, and potential traffic management measures;

- **Chapter 6 – Traffic Generation – Solar Farm:** Forecasts the level of traffic generation of the proposed solar farm during the construction, operational and decommissioning phases;
- **Chapter 7 – Traffic Generation – Expansion to Raglan Enterprise Park:** Forecasts the level of traffic generation of the proposed expansion to REP during the construction and operational phases;
- **Chapter 8 – Summary and Conclusions:** Summarises the key findings and conclusions of the report.

2. Existing Conditions

2.1 Introduction

2.1.1 This chapter of the report identifies the existing access arrangements for the site, the existing highways serving the site and connectivity to the wider highway network. Key sensitive receptors are also identified. The content of this chapter has been informed by desk-based research, confirmed by a socially distanced site visit undertaken on Thursday 11th June 2020.

2.2 Site Location and Existing Use

2.2.1 The site is situated west of Chepstow Road, south of Raglan. The A40 and A449 lie around 850m north and 675m east of the site respectively (measured from the centre of the site). The location of the premises and its context to wider surrounding environs is shown in **Figure 1-1**, with more local detail shown in **Figure 1-2**.

2.2.2 The proposed site comprises six field parcels which total approximately 21 hectares in area. It is currently used for agricultural purposes and is bounded by an area of tree cover / woodland to the north, Chepstow Road and the existing REP to the east, and hedgerows / open fields to the south and west.

2.2.3 REP, which connects to and fronts the site, is shown in **Figure 2-1**. The premises, which are owned by MCC, comprise seven light industrial units, employing a total of approximately 15-20 staff (self-employed businesses). Existing operational hours are generally 08:00-18:00hrs. There is currently provision for 15-20 car parking spaces, generally arranged perpendicular to the internal access road, which is 5.5m wide. It is understood that REP accommodates rigid vehicles of up to 7.5 tonnes, managed appropriately to service and turn within the site. The premises sit atop a bank, meaning there is a reasonably significant level difference between REP and the adjacent carriageway of Chepstow Road, particularly towards its southern end. REP is also bounded to the west by fields associated with the site, which have a steep gradient.

Figure 2-1: Raglan Enterprise Park

View south from the access road	View north at frontage

Source: AECOM (June 2020).

2.3 Local Highway Network

Existing Access to Raglan Enterprise Park

2.3.1 REP is accessed from Chepstow Road, approximately 550m south of its junction with the High Street. The access, shown in **Figure 2-2**, is a priority T-junction, with give-way markings on the minor road. Chepstow Road has a carriageway width of 5.5-6.0m at the junction. The access road (the minor road) is approximately 5.5m wide, has a bound surface and serves REP and associated parking area.

2.3.2 There are hedgerows on both sides of the access and mainline carriageway, with generally minimal verge separating the hedgerows from the carriageway edge. An existing agricultural access is immediately north of the access to REP (to be discussed within this report), which has reasonable verge separation between hedgerows and the carriageway edge.

2.3.3 The position of the access, towards the outside of a bend, is such that exit visibility to the right (i.e. the south) is maximised and, from on-site observations, is estimated at 60m. To the left (i.e. the north), there is an adjustment in the horizontal alignment such that exit visibility is, from on-site observations, estimated at 60m. This increases to 70m when measured to the centre of the carriageway, which is considered a reasonable approach at this location, given southbound traffic is unlikely to be performing overtaking manoeuvres due to the alignment of the road.

2.3.4 This section of Chepstow Road is subject to the national speed limit of 60mph. Based on Design Manual for Roads and Bridges (DMRB), exit visibility of a desirable minimum of up to 215m would be required, with one step below desirable minimum identified as 160m, although a lower level is acceptable subject to evidence from vehicle speed surveys.

2.3.5 The maximum exit visibility which is likely to be achieved to the left (70m) is sufficient for vehicle speeds of up to 50kph (31.2mph), which are likely to be exceeded at this location. However, recent changes to speeds limits has seen a 30mph speed restriction introduced around 90 metres beyond the access in this direction. Exit visibility to the right up to 215m could likely be achieved, subject to cut back of vegetation within the public highway / control of MCC.

Figure 2-2: Chepstow Road / Access to Raglan Enterprise Park Junction

Junction viewed from Chepstow Road	Junction viewed from access road

Exit visibility to left (north)	Exit visibility to right (south)

Source: AECOM (June 2020).

Existing Agricultural Accesses to Site

2.3.6 Existing agricultural accesses to the site are located on Chepstow Road, approximately 550m (Agricultural Access 1) and 675m (Agricultural Access 2) south of the High Street. These are shown in **Figure 2-3** and discussed in the following paragraphs.

2.3.7 Agricultural Access 1 is located directly to the north of the existing employment access and serves the northernmost field within the site. The access is gated, has hedgerows on both sides and has a similar level of exit visibility (both existing and achievable) to that of the existing employment access. The access is unsurfaced and there is evidence of some regular and recent agricultural use based on vehicle track patterns observed on-site.

2.3.8 Agricultural Access 2 serves the southernmost field within the site. The access is gated and has hedgerows on both sides. Exit visibility is limited given the minimal verge separation between hedgerows and the edge of the mainline carriageway. However, a higher level of visibility could be achieved with cut back of vegetation within the public highway / site boundary / control of MCC; it is considered that exit visibility of 120m is achievable, which is sufficient for speeds of up to 70kph (43.7mph). The access is unsurfaced and there is evidence of some agricultural use based on vehicle track patterns observed on-site. The alignment of the carriageway to the south of this access is conducive to achieving greater levels of visibility, specifically the desirable minimum level required on 60mph speed limit roads (i.e. 215m for speeds of up to 100kph).

Figure 2-3: Existing Agricultural Accesses to Site

Agricultural Access 1 viewed from Chepstow Road	Agricultural Access 2 viewed from Chepstow Road

Exit visibility to left (north) from Agricultural Access 2	Exit visibility to right (south) from Agricultural Access 2

Source: AECOM (June 2020).

Chepstow Road

2.3.9 Chepstow Road serves the existing accesses to the site (both to REP and existing agricultural land). It is approximately 10km in length, routeing between the High Street (at Raglan) to the northwest and the B4293 (at Cobbler's Plain) to the southeast. The following discussion focuses on the section of Chepstow Road between the High Street and the site, as this is considered the most direct and appropriate route to the wider highway network; approximately 5km south of the site, the road becomes a fairly narrow rural lane and is not considered an appropriate route to the wider highway network and is therefore not examined further.

Along the site frontage and routeing north towards the High Street, Chepstow Road is a single carriageway road, ranging in width between 5.5m and 6.0m, with white line markings to delineate each side of the carriageway. The road has two distinct sections between the site and the High Street. Along the site frontage and on the approaches to the existing site accesses, the road is subject to the national speed limit of 60mph (although the nature of the road is such that vehicle speeds are likely to be lower than this), is rural in character and generally bounded by hedgerows on both sides. The road is not street lit. The general characteristics of this section of Chepstow Road are shown in **Figure 2-4**.

Figure 2-4: Chepstow Road - Rural Character

View south along frontage of REP	View north towards Raglan

Source: AECOM (June 2020).

2.3.10 Around 280m north of Agricultural Access 1, Chepstow Road reduces to 20mph as it enters the built-up area (namely Raglan). Further on from this speed restriction change, the road becomes characterised by frontage development on one / both sides of the carriageway (including residential development and Raglan Primary School), is street lit and has footways (approximately 1.5m to 2.0m wide) on one / both sides of the carriageway. There is some localised on-street parking and four speed humps along this section of Chepstow Road. The general characteristics of this section of Chepstow Road are shown in **Figure 2-5**.

Figure 2-5: Chepstow Road - Built-Up Area

View north, south of Fayre Oakes	View north, between Fayre Oakes and Access to Raglan Primary School

Source: AECOM (June 2020).

2.3.11 Chepstow Road is accessed at its northern end via a priority crossroads junction with the High Street and Castle Street, as shown in **Figure 2-6**.

Figure 2-6: High Street / Chepstow Road / Castle Street Priority Crossroads Junction

Agricultural Access 1 viewed from Chepstow Road

Agricultural Access 2 viewed from Chepstow Road

Exit visibility to left (north) from Agricultural Access 2

Exit visibility to right (south) from Agricultural Access 2

Source: AECOM (June 2020).

High Street / Monmouth Road and Connections to A40

2.3.12 The High Street routes between Monmouth Road to the east (175m east of Chepstow Road) and the A40 to the west (350m northwest of Chepstow Road). To the west of Chepstow Road, it is subject to a 20mph speed limit and is characterised by frontage development on one / both sides of the carriageway (including residential and retail uses). The road is street lit and has footways on one / both sides of the carriageway, which are narrow in places (less than 1.5m wide). On-site observations noted on-street parking along a 100m section of the High Street in the vicinity of / at the frontage retail uses; this reduces the width of the effective carriageway to allow one-way movements only in places. This section of the High Street provides access to the A40 via a five-arm roundabout junction located 350m northwest of Chepstow Road. The general characteristics of this section of the High Street and its junction with the A40 are shown in **Figure 2-7**.

Figure 2-7: High Street, west of Chepstow Road

View west along residential / retail frontages

View east along residential / retail frontages

View northwest towards junction with A40

A40 / High Street roundabout junction, at entry from High Street

Source: AECOM (June 2020).

2.3.13 To the immediate east of Chepstow Road, the High Street is subject to a 20mph speed limit and there is limited frontage development. The road has a reduced frequency of street lighting and there is a footway on the north side of the carriageway. Around 175m east of Chepstow Road, the High Street becomes Monmouth Road at its junction with Station Road. A further 350m northeast, at the junction with Castle Road, Monmouth Road becomes subject to a 30mph speed limit and the footway terminates. The general characteristics of this section of the High Street / Monmouth Road are shown in **Figure 2-8**.

Figure 2-8: High Street / Monmouth Road, east of Chepstow Road

View east along High Street

View east along Monmouth Road, east of Castle Road

Source: AECOM (June 2020).

2.3.14 This section of the High Street / Monmouth Road provides access to the A40 approximately 825m northeast of Chepstow Road. The A40 is a dual carriageway road where it passes Raglan. It has westbound on / off slips from / to Monmouth Road. Right-turn movements from Monmouth Road onto the A40 eastbound are facilitated through a gap in the central reservation, although this is not considered to be of sufficient size to accommodate an HGV. Right-turn movements from the A40 eastbound onto Monmouth Road are prohibited at this junction. The junction with the A40 is shown in **Figure 2-9**.

Figure 2-9: A40 / Monmouth Road Junction

Junction viewed from Monmouth Road | View west along on-slip from Monmouth Road

View east along off-slip to Monmouth Road | View east at gap in central reservation

Source: AECOM (June 2020).

The A40 forms part of the strategic road network, managed by the South Wales Trunk Road Agent (SWTRA). As previously referenced, the A40 can be accessed via a roundabout with the High Street to the west (allowing for all movements) or its junction with Monmouth Road to the east (with restrictions on some movements). The A40 connects to the A466 approximately 1.6km east of its junction with the High Street. The A466, which is also managed by SWTRA, provides access to the M50 at Ross-on-Wye to the north, and the M4 Junction 24 (via the A466) at Chepstow to the south.

2.4 Road Safety

2.4.1 A review of Personal Injury Collision (PIC) data has been undertaken using the 'Crashmap' online resource to determine whether there are any locations on the local highway network with poor collision records. An extract showing the PICs recorded in the study area during the latest available five-year period from 1st January 2018 to 31st December 2022 is reproduced as **Figure 2-10**. The study area for the purposes of this assessment includes Chepstow Road, the High Street, Monmouth Road, and connections onto the A40.

Figure 2-10: Personal Injury Collisions in Vicinity of Site

Source: Crashmap (2024)

2.4.2 A single PIC was recorded on Chepstow Road, the High Street and Monmouth Road during the five-year period. The incident was recorded in proximity to the junction with Fayre Oaks and Chepstow Road and was classified as 'serious', with one vehicle and one casualty involved. This is not considered to represent an existing safety issue on the local highway network.

2.5 Opportunities for Sustainable Travel

Public Transport

2.5.1 The nearest bus stops to the development are the 'Beaufort Square' and 'St Cadoc's Church' bus stops on the High Street, around 575m from the existing access to REP. These bus stops provide access to Services 60 (routeing between Newport and Monmouth, with three services per day) and 83 (routeing between Abergavenny and Monmouth, with four services per day). Given the distance to these bus stops, the lack of a continuous footway and frequency of services available, bus travel to / from the site is not currently considered a viable mode choice, without the implementation of additional walking / cycling infrastructure, as detailed below.

2.5.2 There is an opportunity to investigate the potential for an additional bus stop to serve the REP on Chepstow Road, to follow the Chepstow to Monmouth/Abergavenny route. This would allow for users of the site to directly access the public transport network. Any such proposals would need to be investigated further and would be commensurate on the confirmed scale / mix of uses on site during the masterplanning process.

Walking and Cycling

Existing Situation

2.5.3 The opportunities for walking and cycling have been examined in relation to trips to / from REP. This is not considered to be of relevance in regard to the proposed solar farm; solar farms by their nature require component materials to be delivered by HGVs. Whilst these opportunities can be sought to be maximised in terms of travel by construction staff (e.g. car sharing / staff transport to minimise vehicle generation), maintenance visits during operation will necessitate use of a vehicle (in terms of transport of appropriate equipment) but will be minimal.

2.5.4 As identified in the discussion of the highway network, there are no footways on Chepstow Road serving the site; therefore, pedestrian activity in the vicinity is likely to be negligible and was observed as such during the site visit. Footways become available on one / both sides of Chepstow Road around 300m to the north of the existing access to REP, on approach to the junction between Chepstow Road and Fayre Oaks. These provide connections to existing footways on the High Street and Monmouth Road. The footways on Chepstow Road, the High Street and Monmouth Road serve frontage development including residential, educational and retail land uses.

2.5.5 MCC's cycle map of the county identifies Chepstow Road, the High Street and Monmouth Road as suitable for cycling as they are "quiet in terms of traffic flows". Chepstow Road is not designated as a formal cycle route. The High Street and Monmouth Road form part of National Cycle Route (NCR) 423, routeing between Cwmbran and Monmouth, although there is no particular cycle provision along the section of this route through Raglan. The existing residential areas of Raglan are well within cycling distance of the site (considered to be 5km).

2.5.6 There are a number of Public Rights of Way (PRoW) in the vicinity of / within the site. A series of connected public footpaths (References: 377/72/1, 377/68/1, 377/80/1 and 377/69/1) lie in close proximity to the west of the REP site and connect the adjacent field parcels to the residential area located immediately to the north. The primary connection route is ref. 377/68/1, which lies to the west of the site and continues northwards, becoming ref.377/72/1 and connecting to Prince Charles Road / Ethley Drive.

2.5.7 On the opposite side of Chepstow Road, to the east of the site, ref. 377/90/11 connects existing field parcels to the east of Chepstow Road, with the southern extent of the public footway network and associated access to the nearby residential areas via Fayre Oaks. Whilst this connection would not serve to address the lack of walking facilities in the immediate proximity of the site, there is potential for a cycle lane to be implemented along Chepstow Road that could connect to the existing PRoW ref. 377/90/11. Due to the nature of the road, there is unlikely to be scope to implement a shared footpath. Despite the uneven topography of the land, there is potential to provide a new path running close to the woodland edge, to the employment site at REP.

2.5.8 The PRoW network surrounding the REP site is shown in **Figure 2-11**.

Figure 2-11: Public Rights of Way

Source: Public Rights of Way - Public Rights of Way Map (monmouthshire.gov.uk)

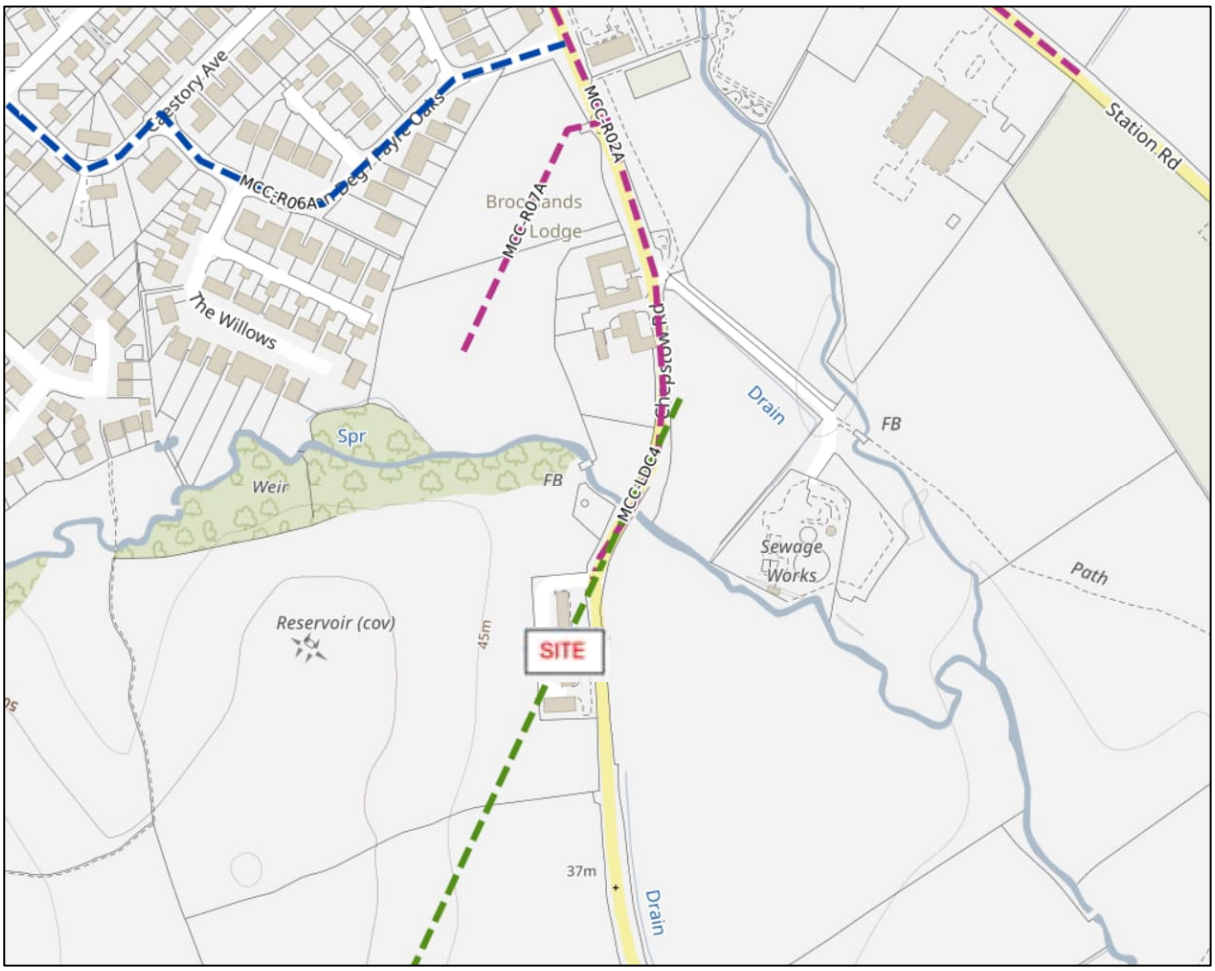
Future Routes

2.5.9 A set of Integrated Network Maps was submitted by MCC to the Welsh Government (WG) in 2017, which set out the Council's plans for enhancing active travel infrastructure over the following 15 years. According to DataMapWales, there is a planned future walking and cycling route, ref. 'MCC-LDC4' which routes through the premises. This proposed route then connects to Chepstow Road at the point of the existing access to the site, whereby another future route, ref. 'MCC-R02A' is proposed along the length of Chepstow Road, leading towards Raglan centre and High Street / Monmouth Road. These proposed routes offer the potential for the site to connect to the existing public footpath network, enabling connections into Raglan and beyond.

2.5.10 Any such proposals to connect to these routes would need to be investigated further and would be commensurate on the confirmed scale / mix of uses on site during the masterplanning process.

2.5.11 The proposed routes, as described above, are shown on **Figure 2-12,** in relation to the REP site.

Figure 2-12 : MCC Integrated Network Mapping



2.5.12 Additionally, there may be a possibility to incorporate a connection between the REP site and a committed residential development (planning ref. DM/2021/02070), which is located directly to the north of the site, to the north of Nant y Wilcae brook. This application is a reserved matters consent for outline development of up to 45 dwellings. Any potential investigation for a connection to the south of the residential site would require consideration of a bridge crossing, as well as identification of potential challenges to delivery, in the form of protected woodland trees lying between the REP site and the residential development.

2.6 Summary

2.6.1 The site is situated west of Chepstow Road, south of Raglan. The A40 and A449 lie around 850m north and 675m east of the site respectively (measured from the centre of the site). The proposed site comprises six field parcels which total approximately 21 hectares in area. It is currently used for agricultural purposes and is bounded by an area of tree cover / woodland to the north, Chepstow Road and the existing REP to the east, and hedgerows / open fields to the south and west.

2.6.2 The existing accesses to REP and adjacent agricultural land are from Chepstow Road. The level of visibility currently achieved from these accesses is, based on likely vehicle speeds, is below the standards identified as the desirable minimum under DMRB, although improvements can be achieved with the cut back of vegetation within the public highway / site boundary / control of MCC. Chepstow Road provides access to the A40 via the High Street (at a roundabout junction) and Monmouth Road (at a priority-controlled junction). There are particular constraints associated with on-street parking on the High Street west of Chepstow Road. The A40 forms part of the strategic road network (managed by SWTRA, connecting to the A466 approximately 1.6km east of its junction with the High Street. The A466, which is also managed by SWTRA, provides access to the M50 at Ross-on-Wye to the north, and the M4 Junction 24 (via the A466) at Chepstow to the south.

2.6.3 A review of PIC data has been undertaken using the 'Crashmap' online resource to determine whether there are any locations on the local highway network with poor collision records. The analysis would suggest that there are no existing highway safety issues in the vicinity of the site and more specifically the existing accesses to the site.

2.6.4 Existing opportunities for sustainable travel to / from the site, in regard to the proposed expansion of REP, are considered to be limited. The neighbouring highways, based on their identification by MCC as *"quiet in terms of traffic flows"*, and designation as NCR (for the High Street), suggests there is an opportunity to cycle to / from the site.

2.6.5 There are a number of Public Rights of Way (PRoW) in the vicinity of / within the site. A series of connected public footpaths (References: 377/72/1, 377/68/1, 377/80/1 and 377/69/1) lie in close proximity to the west of the REP site and connect the adjacent field parcels to the residential area located immediately to the north. The primary connection route is ref. 377/68/1, which lies to the west of the site and continues northwards, becoming ref.377/72/1 and connecting to Prince Charles Road / Ethley Drive. On the opposite side of Chepstow Road, to the east of the site, ref. 377/90/11 connects existing field parcels to the east of Chepstow Road, with the southern extent of the public footway network and associated access to the nearby residential areas via Fayre Oaks.

2.6.6 A set of Integrated Network Maps was submitted by MCC to the Welsh Government (WG) in 2017, which set out the Council's plans for enhancing active travel infrastructure over the following 15 years. According to DataMapWales, there is a planned future walking and cycling route , ref. 'MCC-LDC4' which routes through the site. This proposed route then connects to Chepstow Road at the point of the existing access to the site, whereby another future route, ref. 'MCC-R02A' is proposed along the length of Chepstow Road, leading towards Raglan centre and High Street / Monmouth Road. These proposed routes offer the potential for the site to connect to the existing public footpath network, enabling connections into Raglan and beyond.

3. Planning Policy Review

3.1 Introduction

3.1.1 This chapter of the TS provides a summary of the planning and, in particular, transport planning policy relevant to the development proposals.

3.2 National Policy

Planning Policy Wales

3.2.1 Edition 12 of PPW was published in February 2024 and sets out the land use planning policies of the WG. It is supported by a number of Technical Advice Notes (TANs), which provide detailed planning advice on subjects contained within PPW. *TAN 18: Transport* is considered of particular relevance to the Proposed Development and is included in this policy review. An overarching theme within PPW is the commitment of the WG to sustainability.

3.2.2 Planning policy in Wales is plan-led, with up to date LDPs forming a fundamental part of the system. PPW states that planning applications *"must be determined in accordance with the adopted plan unless material considerations indicate otherwise."*

3.2.3 PPW outlines the vision for development of a more effective and efficient transport system, the promotion of more sustainable and healthy forms of travel, as well as minimising the need to travel. PPW indicates that this will be achieved through integration:

- "Within and between different types of transport;
- Between transport measures and land use planning;
- Between transport measures and policies to protect and improve the environment; and
- Between transport measures and policies for education, health, social inclusion and wealth creation."

3.2.4 The WG outlines a support for a transport hierarchy in relation to the accessibility of new development that prioritises walking and cycling in the first instance, followed by public transport, ultra-low emissions vehicles and finally other private motor vehicles.

3.2.5 Paragraph 4.1.11 states:

"Development proposals must seek to maximise accessibility by walking, cycling and public transport, by prioritising the provision of appropriate on-site infrastructure and, where necessary, mitigating transport impacts through the provision of off-site measures, such as the development of active travel routes, bus priority infrastructure and financial support for public transport services. Importantly, sustainable transport infrastructure and services should be prioritised and put in place from the outset, before people have moved in and travel patterns have been established."

3.2.6 Paragraph 4.1.15 further states the importance of walking and cycling facilities when there is development that is likely to increase movements.

"Careful consideration needs to be given in development plans to the allocation of new sites which are likely to generate significant levels of movement, to ensure that access provisions which enable walking and cycling, as well as for public transport, are included from the outset and that any implications associated with airborne pollution can be addressed".

Technical Advice Note 18: Transport

3.2.7 TAN 18 was published in March 2007. It describes how to integrate land use and transport planning, and explains how transport impacts should be assessed and mitigated. It supports, and should be read in conjunction with, PPW. It primarily deals with the location, design, assessment and mitigation of major new development during its operational phase to ensure that accessibility by sustainable modes is maximised.

3.2.8 As referenced above, this is identified to be a policy consideration for the proposed expansion to REP rather than the proposed solar farm. Solar farms by their nature require component materials to be delivered by HGVs and are typically located in rural areas where sustainable transport opportunities can be limited. Whilst these opportunities can be sought to be maximised in terms of travel by construction staff (e.g. promotion of sustainable travel/minimise vehicle generation through car sharing/staff transport), maintenance visits during operation will necessitate use of a vehicle (in terms of transport of appropriate equipment) but will be minimal. For the purposes of this development, the key element of TAN 18 which is considered in this TS is to identify what access arrangements are required and to specify the package of measures needed to accommodate these requirements, minimising the impact on local communities, users and infrastructure. The discussion of TAN 18 in the following paragraphs should be considered in regard to the proposed expansion to REP.

3.2.9 The integration of land use and transport planning forms part of an overall sustainable development approach by the WG towards strategy and policy objectives. This is predominantly through maximising the accessibility of developments by sustainable modes of transport. This also includes reducing the need to travel and encouraging multi-purpose trips. Accessibility is defined in TAN 18 as “the relative ability to take up services, markets or facilities.”

3.2.10 Paragraph 4.6 of TAN 18 states that parking standards for new developments should be determined on an evidence basis which includes accessibility to other modes of transport.

3.2.11 Section 5 of TAN 18 requires all new development to be designed in a way that is inclusive for all. The design of the development also plays an important role in providing genuine alternatives to car travel.

3.2.12 Section 6 of TAN 18 highlights the ability for walking and cycling to replace shorter car journeys, as well as the ways in which developments can encourage this. This includes the creation and protection of safe and legible pedestrian and cycle routes along key desire lines, and provision of cycle parking and facilities.

3.2.13 Section 7 of TAN 18 considers the role that public transport can play in offering an alternative to car travel, giving emphasis to the provision of new services and facilities, as well as facilitating interchange, as methods of encouraging uptake.

3.2.14 Paragraph 9.2 of TAN 18 states that “developers should be required by local authorities to submit transport assessments to accompany planning applications for developments that are likely to result in significant trip generation.”

3.3 Local Policy

Monmouthshire County Council Adopted Local Development Plan 2011-2021

3.3.1 The *Monmouthshire County Council Local Development Plan 2011-2021* (LDP) was adopted in February 2014 and covers the period 2011-2021. The vision is that, by 2021, Monmouthshire will be a place where:

“People live in more inclusive, cohesive, prosperous and vibrant communities, both urban and rural, where there is better access to local services, facilities and employment opportunities.

The distinctive character of its built heritage, countryside and environmental assets has been protected and enhanced; and

People enjoy more sustainable lifestyles that give them opportunities for healthy activity, reduced reliance on the private motor car and minimised impact on the global environment.”

3.3.2 The LDP sets out a number of objectives to achieve this vision. Objective 9 is considered of relevance in regard to the proposed solar farm, and Objectives 3, 7 and 14 are considered of relevance to the proposed expansion to REP. These are listed below:

- *"Objective 3. To support existing rural communities as far as possible by providing development opportunities of an appropriate scale and location in rural areas in order to assist in building sustainable rural communities and strengthening the rural economy.*
- *Objective 7. To support a thriving, diverse economy, which provides good quality employment opportunities and enables local businesses to grow.*
- *Objective 9: To promote the efficient use of natural resources including providing increased opportunities for water efficiency, energy efficiency, renewable energy, recycling and waste reduction.*
- *Objective 14. To provide opportunities for integrated sustainable transport, for increased walking, cycling and use of public transport, for reducing reliance on the private motor car and for reducing the need to travel."*

3.3.3 Policy SAE2 relates to protected employment sites. It identifies the existing REP (under Reference: SAE2u) as protected for industrial and business development (B1, B2 and B8 uses).

3.3.4 Policy RE1 relates to employment within villages. It references that that small-scale purpose built industrial and business development will be permitted, subject to detailed planning considerations. The supplementary text states there may be instances where the development of new, or expansion of existing employment sites on the edge of settlements would be more acceptable from an amenity, environmental and highway safety perspective than development within settlements.

3.3.5 Policy SD1 relates to renewable energy schemes, stating they will be permitted where:

- *"There are no unacceptable adverse impacts upon the landscape, townscape and historic features and there is compliance with Policy LC5, with regard to protection and enhancement of landscape character;*
- *There are no unacceptable adverse impacts on biodiversity;*
- *There are no unacceptable adverse impacts on the amenities of nearby residents by way of noise, dust, odour or increases in traffic;*
- *The wider environmental, economic, social and community benefits directly related to the scheme outweigh any potentially adverse impacts; and*
- *The distinct identity of Monmouthshire will not be compromised."*

3.3.6 There are a number of development management policies under Policy S16 (Transport). Policy MV2 states that the development of sites shall, dependent on their location, size and local need, include provision for and the integration of appropriate sustainable transport links, including public transport, walking and cycling. The scale of the proposed development is such that its trip generation during operation will be minimal (discussed at Chapters 6 and 7). As such, measures to improve access by public transport, walking and cycling are not considered to be appropriate to the type or scale of the proposed development, particular given the principle of employment development at this location is already established.

3.3.7 Policy MV3 relates to PRoW; this is of particular relevance to solar farm sites given their rural nature. It states:

"Development that would obstruct or adversely affect a public right of way will not be permitted unless satisfactory provision is made which maintains the convenience, safety and visual amenity offered by the original right of way…"

3.3.8 The policy requirements of the LDP are considered to be satisfied in the findings and proposals of this report. The report includes forecasts for the level of traffic generation of the proposed development and identifies appropriate measures to manage / mitigate associated impacts. Measures to improve access by public transport, walking and cycling are to be investigated, in line with the confirmed scale of the development proposals to come forward.

Monmouthshire County Council Local Transport Plan

3.3.9 The *Monmouthshire County Council Local Transport Plan* (LTP) was produced following a shift from regional to local transport plan-making. MCC was formerly one of the ten constituent local authorities of the South East Wales Transport Alliance (SEWTA), the regional transport body which produced the Regional Transport Plan (RTP), covering the period from 2010 to 2015. The regional transport consortia were dissolved in March 2014 which also marked the end of the SEWTA RTP five-year transport delivery programme. This was accompanied by WG guidance that required all local authorities in Wales to produce a LTP, which effectively replaces the RTP.

3.3.10 The LTP identifies the A40 (linking the M50 via Monmouth and Abergavenny with Brecon and west Wales) and A449 (connecting Newport with the A40 towards Monmouth and the M50) as part of the county's 'strategic' road network. This is considered in identifying an appropriate construction route for the proposed development.

3.3.11 It is identified that the LTP does not contain any further details of particular relevance to the study area and type of development not already referenced in the review of the LDP.

Monmouthshire Council Parking Standards

3.3.12 The MCC Parking Standards were adopted as Supplementary Planning Guidance (SPG) in January 2013. They have been based upon the *CSS Wales Parking Standards 2008* (the '2008 standards'), adjusted and updated to reflect changes in legislation and in accordance with local circumstances. The discussion of these standards is undertaken in reference to the proposed expansion to REP.

3.3.13 The SPG seeks to promote and ensure transparent and consistent approaches to the provision of parking. In addition to this it helps to inform developers and designers what is expected of them in terms of sustainability considerations and travel planning.

3.3.14 The standards are defined according to a zoning system. The site is considered to fall within either Zone 3 (Countryside) or 4 (Deep Rural), although there are no differences in the standards for these locations for the proposed land uses. **Table 3-1** and **Table 3-2** summarise the car and cycle parking standards in the SPG respectively for offices and industrial uses.

Table 3-1: Monmouthshire County Council Car Parking Standards

Type of Development	Scale	Standard by Type of Provision		
		Operational	Non-Operational	Disabled Provision
Offices	<1,000 sqm	1 space per 25 sqm	1 space per 80 sqm	2% and 5% of the total car park capacity (minimum of one space) at existing and new employment premises respectively.
	>1,000 sqm	1 space per 40 sqm		
Industry	100 sqm	70 sqm minimum parking area		
	250 sqm	85 sqm minimum parking area		
	500 sqm	100 sqm minimum parking area		
	1,000 sqm	150 sqm minimum parking area		
	1,500 sqm	175 sqm minimum parking area		

Table 3-2: Monmouthshire County Council Cycle Parking Standards

Type of Development	Standard by Type of Provision	
	Long Stay	Short Stay
Offices	1 stand per 200 sqm	1 stand per 1,000 sqm
Industry	1 stand per 500 sqm	1 stand per 1,000 sqm

3.4 Summary

3.4.1 This chapter has discussed the planning policies at a national and local level considered relevant to the proposed development. National policy and local policy are supportive of decarbonising the energy sector by moving towards renewable energy, but reference the requirement to ensure that the construction, operation, decommissioning, remediation and aftercare of proposals should take into account the need to minimise impacts on local communities and the transportation network.

3.4.2 National and local policy also references accessibility by sustainable modes in regard to new development. Whilst the proposed solar farm will seek to minimise the traffic generation to / from the site through an efficient delivery schedule and encourage use of sustainable modes where possible, these policy elements are not identified as a key consideration for this part of the development proposals, given that its effects will be primarily during construction and therefore temporary, and are minimal during operation. They are instead considered to be primarily of relevance to the proposed expansion to REP and have been discussed with regard to the scale of the proposals.

3.4.3 For the purposes of this development, the key element of this area of policy which is considered in this report is to identify what access arrangements are required and to specify the package of measures needed to accommodate these requirements, minimising the impact on local communities, users and infrastructure. This is addressed in **Chapters 4** and **5**.

4. Proposed Development – Solar Farm

4.1 Overview of Proposals

4.1.1 The proposal, based on the detail contained in the initial brief supplied by MCC's EDT, includes a solar farm that could produce up to 5 MW of electricity, utilising approximately 19 hectares of the total site area.

4.1.2 This chapter provides recommendations of access arrangements for this component of the scheme (and management measures) to inform future masterplanning. Further details will be provided / confirmed once the scheme has progressed towards a stage and level of design required for planning submission.

4.2 Construction Phase

Introduction

4.2.1 The review of existing access arrangements at **Chapter 2** identifies that there are numerous opportunities for access to the site, each with their own benefits / constraints in terms of their form and levels of visibility. Generally, opportunities relating to use of existing access points should be fully explored before constructing new accesses onto the public highway. On this basis, two options have been identified in terms of construction access for the solar farm proposals, shown on **Figure 4-1** and discussed in the following paragraphs.

Construction Access Option A

4.2.2 Option A utilises the existing access to REP. The principle of access is already established at this location and is already constructed with a tarmac surface. This, together with a northern spur off the access road to REP, will provide access to the area in the northeast corner of the site, which benefits from being reasonably flat compared to the rest of the land, and therefore appears a suitable location for a construction compound.

4.2.3 Potential widening to the existing access may be required to accommodate HGV manoeuvres. The extent of widening and the design of a northern spur off the access road will need to be confirmed by Swept Path Analysis (SPA). Ordnance Survey (OS) mapping could be used to inform such analysis but can be, typically, unreliable in rural locations. It is therefore recommended that any future topographical survey of the site includes the existing access, adjacent carriageway and reasonable approaches to enable SPA to be undertaken and a design prepared to a reasonable level of confidence.

4.2.4 As identified at **Chapter 2**, the alignment of the road to the north is such that the maximum achievable exit visibility to the left is 70m, which is sufficient for speeds of up to 50kph (31.25mph), based on standards set out in DMRB. Whilst vehicle speeds are likely to exceed this, under the proposed construction routeing arrangements (to be discussed), exiting construction vehicles would be turning left only, and therefore there would be no opposing movements with southbound traffic. In regard to exit visibility to the right (i.e. the south), the maximum level required on 60mph speed limit roads (215m for speeds of up to 100kph) is considered achievable subject to cut back of vegetation within the public highway / site boundary / control of MCC. To avoid excessive removal of vegetation, vehicle speeds should be confirmed by a speed survey undertaken using an Automatic Traffic Count (ATC). The level of vegetation to be removed should be confirmed by analysis based on topographical survey.

4.2.5 From previous experience on solar farm projects, construction compounds for the scale of proposal can typically measure up to 50m x 50m (2,500 sqm in area). A compound of this area has been assumed for the proposed development, to be confirmed as part of future masterplanning. A compound of the same area, albeit slightly different dimensions (40m x 62.5m), is considered achievable in the northeast corner of the site, and the proposals under Option A would provide a direct connection to this.

Construction Access Option B

4.2.6 Option B utilises Agricultural Access 2, located to the south of the existing access to REP). This option has been considered on the basis that there may be a desire to separate construction access from the existing operational access to REP.

4.2.7 The existing access will need to be widened to accommodate HGV manoeuvres, with the extent of widening to be confirmed by SPA, based on a topographical survey. The details of improvements to the existing field access will need to be agreed with the LHA. Should the access be used for construction purposes only, then a temporary construction will likely be sufficient, with the existing field access reinstated post build-out. Should it be utilised for operational access, then a permanent construction of full depth will potentially be required. Both the temporary / permanent access options will likely require an impermeable surface (such as Hot Rolled Asphalt) from the edge of carriageway to a point 10-15m back from the limit of public highway, forming a new bell-mouth.

4.2.8 As identified at **Chapter 2**, exit visibility of 120m in both directions is considered achievable with cut back of vegetation within the public highway / site boundary / control of MCC, which is sufficient for speeds of up to 70kph (43.7mph), based on DMRB. This should be confirmed by analysis based on topographical survey. The existing field access is located on a section of Chepstow Road that is subject to the national speed limit of 60mph. Although this is unlikely to be the speed at which vehicles travel, there is a potential for the LHA to seek confirmation of this via a speed survey. Should the access be utilised for the operational phase, the level of movements will be minimal, not dissimilar to that associated with agricultural use.

4.2.9 A construction compound measuring 50m x 50m can be accommodated in the area to the south of the field access, with direct connect to the construction access. This size of compound has been assumed for the proposed development, to be confirmed as part of future masterplanning.

Traffic Management Measures

4.2.10 Proposed traffic management measures that should be put in place during the construction phase are discussed in the following paragraphs and are summarised in **Figure 4-2**. These are considered to apply to both of the access options identified. The measures will be confirmed as part of a Construction Environmental Management Plan (CEMP), Construction Traffic Management Plan (CTMP) or similar document, which will be secured by a Planning Condition.

4.2.11 Movements at the site access will be managed by construction staff, with arriving vehicles having priority and existing vehicles required to wait within the construction compound. This will ensure that vehicles will not need to wait on the public highway. In regard to Option A, this will also include appropriate management of traffic associated with existing operations at REP to minimise disruption.

4.2.12 Construction traffic will be instructed to travel to / from the site via the A40. The routeing arrangements between the site and the A40 aim to minimise any impacts on the section of the High Street between the A40 and Chepstow Road, which has been identified as an area of frontage activity, with particular constraints associated with on-street parking. The proposed routeing is as follows:

- Traffic to / from A40 (East): All construction traffic to route via the A40 / Monmouth Road junction, therefore avoiding the section of the High Street to the west of Chepstow Road. Departing construction traffic will be instructed to turn left onto the A40 and undertake a u-turn manoeuvre at the A40 / High Street roundabout junction. It is considered that most construction traffic will utilise this route given that, together with the A466 to the east, this provides the most direct access to the motorway network.
- Traffic to / from A40 (West): Given the restrictions on movements at the A40 / Monmouth Road junction, arriving construction traffic will need to route to the site from the A40 / High Street roundabout junction and along the section of the High Street to the west of Chepstow Road. As most deliveries will come from the wider strategic network (i.e. using the route to / from the east), the use of this route is likely to be limited to local contractors. Departing construction will be instructed to route via the A40 / Monmouth Road junction.

4.2.13 All contractors / suppliers will be instructed to adhere to these routeing arrangements. Temporary signage will be positioned on the approaches to the access to warn other users of construction traffic, and at key junctions to direct construction traffic to / from the site, as shown on **Figure 4-2**.

4.2.14 There are a number of Public Rights of Way (PRoW) in the vicinity of / within the site. A series of connected public footpaths (References: 377/72/1, 377/68/1, 377/80/1 and 377/69/1) lie in close proximity to the west of the REP site and connect the adjacent field parcels to the residential area located immediately to the north. The primary connection route is ref. 377/68/1, which lies to the west of the site and continues northwards, becoming ref.377/72/1 and connecting to Prince Charles Road / Ethley Drive. Subject to future masterplanning, these public footpaths will need to be segregated from other parts of the site or temporarily diverted (via a formal process) to minimise conflicts between users and construction traffic. This, together with an appropriate management arrangement during the operational phase, is subject to discussion with MCC's PRoW Officer.

4.3 Operational Phase

4.3.1 The operational access to the solar farm will need to be in a location that is both appropriate in highways terms and convenient to that of the substation, which will be determined as part of future masterplanning. There is flexibility in terms of location, with access via the existing access to REP or Agricultural Access 2 (as discussed above, with potential need for permanent improvements) considered appropriate.

4.3.2 The operational access will need to be of suitable size to accommodate the envisaged vehicle types (typically light vehicles / vans) and include an appropriately sized turning head within the site.

4.4 Decommissioning Phase

4.4.1 The decommissioning phase of the solar farm is likely to be similar in nature to construction. It is therefore envisaged that access arrangements and traffic management measures will be as those agreed for construction.

4.5 Summary

4.5.1 This chapter has set out recommendations of access arrangements for the solar farm proposals to inform future masterplanning.

4.5.2 Two options have been identified in terms of construction access. Option A utilises the existing access to REP. This, together with a new northern spur off the access road to REP, will provide access to the area in the northeast corner of the site, which benefits from being reasonably flat compared to the rest of the site, and therefore appears a suitable location for a construction compound. Potential widening to the existing access may be required to accommodate HGV manoeuvres. The extent of widening and the design of a northern spur off the access road will need to be confirmed by SPA based on topographical survey. Whilst there are limitations on achievable exit visibility to the left (i.e. the north), this is considered reasonable given the proposed construction routeing arrangements. Improvements in exit visibility to the right (i.e. the south) can be achieved, subject to cut back of vegetation within the public highway / site boundary / control of MCC, the requirements for which should be confirmed by a speed survey using an ATC and the extent confirmed by analysis based on topographical survey.

4.5.3 Option B utilises existing Agricultural Access 2, located to the south of the existing access to REP. This option has been considered on the basis that there may be a desire to separate construction access from the existing operational access to REP. The design of the construction access and associated SPA will need to be based on topographical survey, with details agreed with the LHA. Should the access be used for construction purposes only, then a temporary construction will likely be sufficient, with the existing field access reinstated post-construction. Should it be utilised for operational access, then a permanent construction of full depth will potentially be required. Both the temporary / permanent access options will likely require an impermeable surface (such as Hot Rolled Asphalt) from the edge of carriageway to a point 10-15m back from the limit of public highway, forming a new bell-mouth. A construction compound can be accommodated in the area to the south of the field access, with direct connect to the construction access. The use of this access is subject to achieving a level of visibility commensurate with vehicles speeds on Chepstow Road. Should vehicle speeds be recorded to be higher than the achievable visibility allows for, it will need to be highlighted that the principle of access is already established at this location and any intensification in use associated with construction will be temporary. Alternatively, there may be a requirement to construct a new access further south where a higher level of visibility can be achieved

4.5.4 Construction management measures have been proposed, which will be confirmed in a CEMP / CTMP or similar document, to be secured by a Planning Condition. The measures include appropriate management at the access onto Chepstow Road and a construction routeing arrangement. Measures in regard to management of public footpaths crossing the site will be subject to further discussion with MCC's PRoW Officer.

4.5.5 The operational access to the solar farm will need to be in a location that is both appropriate in highways terms and convenient to that of the substation, which will be determined as part of future masterplanning. There is flexibility in terms of location, with access via the existing access to REP or Agricultural Access 2 considered appropriate. The operational access will need to be of suitable size to accommodate the envisaged vehicle types (typically light vehicles / vans) and include an appropriately sized turning head within the site.

4.5.6 The decommissioning phase of the solar farm is likely to be similar in nature to construction. It is therefore envisaged that access arrangements and traffic management measures will be as those agreed for construction.

5. Proposed Development – Expansion to Raglan Enterprise Park

5.1 Overview of Proposals

5.1.1 The proposal, based on the detail contained in the initial brief supplied by MCC's EDT, includes an expansion of REP to deliver an additional 2,250 sqm of floor space for B1 use (a mix of office and light industrial uses, to be confirmed at future masterplanning stage), utilising approximately two hectares of the total site area.

5.1.2 This chapter provides recommendations of access arrangements for this component of the scheme to inform future masterplanning. Further details will be provided / confirmed once the scheme has progressed towards a stage and level of design required for planning submission.

5.2 Access Arrangements

Construction Phase

5.2.1 The options identified for construction access for the solar farm proposals and associated traffic management measures are considered applicable to the proposed expansion of REP.

Operational Phase

5.2.2 The proposals are of a scale that a single point of vehicular access is considered to be appropriate.

5.2.3 In general, opportunities relating to use of existing access points should be fully explored before constructing new accesses onto the public highway. On this basis, it is recommended that use of the existing access to REP be examined, both in terms of acceptability to the LHA and deliverability of masterplanning aspirations. It would be highlighted to the LHA that the principle of access is already established at this location and that the proposals are for an expansion of the type of uses already permitted / served at REP. However, the LHA may deem the level of intensification in use, which will be both permanent and of a level significantly higher than that associated with the operational phase of the proposed solar farm, to be unacceptable without compliance with DMRB standards for visibility. As identified at **Chapter 2**, there are restrictions on achievable exit visibility to the left (i.e. the north) and also on forward visibility for southbound traffic. A level of provision to DMRB standards is unlikely to be achieved, subject to confirmation by a speed survey.

5.2.4 Should the use of the existing access to REP not be considered acceptable / appropriate, either in terms of highway issues or deliverability of masterplanning aspirations, alternative options for access will need to be explored. As identified at **Chapter 2**, there are opportunities for access further south, with the existing agricultural access (Agricultural Access 2) offering a higher level of achievable visibility over the existing access to REP in terms of achievable visibility, although the risks associated with vehicle speeds and associated visibility requirements still remains.

5.2.5 The optimum location is considered to be further south, from which the maximum level of visibility required on 60mph speed limit roads (i.e. 215m desirable minimum for speeds of up to 100kph) is considered to be achievable, subject to cut back of vegetation within the public highway / site boundary / control of MCC. The optimal position of an access will need to be confirmed based on analysis of topographical survey and speed survey data. As part of provision of a new access, the LHA may seek closure of the existing access to REP to consolidate the number of accesses onto Chepstow Road.

5.3 Parking Provision

5.3.1 Car and cycle parking will need to be provided in accordance with the adopted parking standards at the time of the reserved matters applications. MCC's current adopted parking standards are included at **Chapter 4** for information.

5.4 Summary

5.4.1 This chapter has set out recommendations of access arrangements for proposed expansion to REP to inform future masterplanning.

5.4.2 The options identified for construction access for the solar farm proposals and associated traffic management measures are considered applicable to the proposed expansion of REP.

5.4.3 A single point of vehicular access is considered to be appropriate during operation. It is recommended that use of the existing access to REP be examined, both in terms of acceptability to the LHA and deliverability of masterplanning aspirations. It would be highlighted to the LHA that the principle of access is already established at this location and that the proposals are for an expansion of the type of uses already permitted / served at REP. However, the LHA may deem the level of intensification in use, which will be both permanent and of a level significantly higher than that associated with the operational phase of the proposed solar farm, to be unacceptable without compliance with DMRB standards for visibility, which are unlikely to be achieved, subject to confirmation by a speed survey.

5.4.4 There are opportunities for access further south, with the existing agricultural access (Agricultural Access 2) offering a higher level of achievable visibility over the existing access to REP in terms of achievable visibility, although the risks associated with vehicle speeds and associated visibility requirements still remains. The optimum location is considered to be further south, from which the maximum level of visibility required on 60mph speed limit roads (i.e. 215m desirable minimum for speeds of up to 100kph) is considered to be achievable, subject to cut back of vegetation within the public highway / site boundary / control of MCC. The optimum position of an access will need to be confirmed based on analysis of topographical survey and speed survey data. As part of provision of a new access, the LHA may seek closure of the existing access to REP to consolidate the number of accesses onto Chepstow Road.

5.4.5 Car and cycle parking will need to be provided in accordance with the adopted parking standards at the time of the reserved matters applications.

6. Traffic Generation – Solar Farm

6.1 Introduction

6.1.1 This chapter of the report sets out the method for calculating the traffic generation of the proposed solar farm during the construction, operational and decommissioning phases.

6.2 Construction Phase

6.2.1 The construction period of a solar farm is dependent on both the scale of scheme and rate of construction. For a 5 MW scheme, construction will typically take approximately 12 weeks (circa three months). During this period there will be trips associated with the arrival and departure of construction staff, and with the delivery of parts and construction materials.

6.2.2 Deliveries of construction materials and equipment will mainly be made by HGVs (varying from smaller rigid vehicles to standard articulated vehicles approximately 16.5m in length). Staff trips will mainly be made by cars, vans or minibuses.

6.2.3 A construction compound and HGV turning area will be provided and will remain for the duration of the construction period. It will be of a sufficient size to store materials for the construction of the solar farm, and for vehicles to park and turn around. At this stage, it is assumed that the surface of the compound will be formed using aggregate materials, which will remain on-site and be redistributed to form internal access tracks within the array area for use during the operational phase. However, efficiencies may be gained through use of metal trackways or similar (e.g. Dura-Base).

6.2.4 The following forecasts are indicative, based on previous experience on solar farm projects and with regard to the limited scheme details available at this stage. They will need be reviewed and appropriate revisions made once the scheme design has progressed towards a level of detail suitable for planning submission.

Trip Generation: HGV's

6.2.5 Weeks 1 to 4 will involve preparation of the site, including establishment of a construction compound and security measures such as security fencing. It is estimated that the materials to surface the construction compound will result in 50 HGV deliveries, with another 10 HGVs associated with the security fencing. There will be a number of other deliveries to the site associated with landscaping, machinery, temporary site welfare and office, and any other materials (hired plant, concrete, etc.), expected to total approximately 35 HGV deliveries. Therefore, it is calculated that there will be 95 deliveries over these four weeks, equating to 23-24 deliveries per week or 4-5 deliveries per day (assuming five day working).

6.2.6 Weeks 5 to 9 will involve delivery of items associated with solar farm infrastructure such as cabling, transformers / inverters, solar panels and solar panel support frames and any other materials (hired plant, concrete, etc.). It is calculated that this will result in 63 deliveries over these five weeks, equating to 12-13 deliveries per week or 2-3 deliveries per day.

6.2.7 Weeks 10 to 12 will involve testing and commissioning of the works, the removal of the temporary site welfare and machinery. This will result in approximately 16 HGVs entering the site to remove the items, equating to 5-6 deliveries per week or 1-2 deliveries per day.

6.2.8 In total, the construction of the solar farm will result in 174 deliveries, spread over the 12 week construction period. It is unlikely that, even at the most intense period of construction there will be more than five deliveries (10 HGV movements) per day.

6.2.9 The forecast HGV numbers are based on best estimates at this stage and will be dependent on further development of the scheme design and the construction programme, including the shipping of materials.

Trip Generation: Light Vehicles

6.2.10 The number of construction staff on site will vary over the construction period depending on the activity that is taking place. The majority of staff will travel in crew minibuses / vans, which will park on-site during the day. At the peak of activity, there could be 10 minibuses / vans on the site, equating to 20 movements per day (i.e. 10 arrivals and 10 departures). In addition, there are expected to be a small number of managerial cars / vans. There will be sufficient parking space provided during construction to accommodate these vehicles and the unloading of delivery vehicles.

6.3 Operational Phase

6.3.1 Vehicle movements during the operation of solar farms are very low, being mainly associated with the monitoring, upkeep and cleaning of the site. These trips will typically be made by small vans.

6.3.2 The frequency of vehicle trips associated with monitoring and upkeep of the site is typically expected to be about 10-20 times a year.

6.3.3 Due to the low number of vehicular movements being made to and from the site during its operation, the development is unlikely to have any significant impact to the local highway network once up and running.

6.4 Decommissioning Phase

6.4.1 The decommissioning phase of the solar farm is likely to be similar in nature to construction. Whilst traffic forecasts are not available, they are likely to be of a similar level, potentially more efficient, to that generated during the construction phase.

6.5 Summary

6.5.1 Indicative forecasts have been prepared for the traffic generation during the construction, operational and decommissioning phases, based on previous experience on solar farm projects and with regard to the limited scheme details available at this stage. They will need be reviewed and appropriate revisions made once the scheme design has progressed towards a level of detail suitable for planning submission.

6.5.2 During the construction phase, it is forecast the solar farm will result in 174 HGV deliveries, spread over the 12 week construction period. It is unlikely that, even at the most intense period of construction there will be more than five deliveries (10 HGV movements) per day. In addition, there will be light vehicle movements associated with construction staff, who will travel in crew minibuses / vans, resulting in around 20 movements per day. This therefore equates to a total of no more than 30 vehicle movements per day during construction and this level of traffic is considered to be low. During the operational phase, traffic generation will be limited to maintenance visits around 10-20 times a year, undertaken by small vans. The decommissioning phase of the solar farm is likely to be similar in nature to construction and potentially more efficient. Whilst traffic forecasts are not available, they are likely to be of a similar level to that generated during the construction phase.

7. Traffic Generation – Expansion to Raglan Enterprise Park

7.1 Introduction

7.1.1 This chapter of the TS sets out the method for calculating the traffic generation of the proposed expansion to REP during the operational phase. At this stage, the form of the expansion (i.e. building size, number of storeys, height of storeys, etc) is not known and therefore details of traffic generation during the construction and decommissioning phases cannot be reasonably forecast.

7.2 Operational Phase

7.2.1 The mix of proposed B1 land uses is not known at the time of this assessment and will be confirmed as part of future masterplanning process. A vehicle trip generation envelope has therefore been calculated to reflect that the mix of land uses is not yet confirmed and to allow flexibility.

7.2.2 The analysis has used trip rates obtained from an interrogation of numerous land use categories in the Trip Rate Information Computer System (TRICS) database (Version 7.11.2). TRICS is an industry standard, national database of trip rate information compiled by County Councils and private sources which provides a wide range of survey information. Sites in England, Wales and Scotland (excluding Greater London), and located on the 'Edge of Town' have been selected. The TRICS outputs are included at **Appendix A**.

7.2.3 **Table 7-1** summarises the vehicle trip rates by land use category for the weekday AM and PM peak hours. This is provided for land use categories B1a (Office), B1c (Light Industry) and mixed B1a / B1c. These rates are applied to the proposed expansion to REP (2,250 sqm) in **Table 7-2.**

Table 7-1: Vehicle Trip Rates (per 100 sqm)

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour		
	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
B1a (Office)	1.946	0.115	2.061	0.161	2.475	2.636
B1c (Light Industry)	0.413	0.044	0.457	0.031	0.413	0.444
Mixed B1a / B1c	0.599	0.371	0.970	0.456	0.657	1.113

Notes:

1. *AM peak hour is the peak hour of trip generation during the three-hour time period 07:00-10:00. PM peak hour is the peak hour of trip generation during the three-hour time period 16:00-19:00.*
2. *'B1a (Office)' trips rates are from 'Employment – Office' TRICS category. 'B1c (Light Industry)' trips rates are from 'Employment – Industrial Unit' TRICS category. 'Mixed B1a / B1c' trip rates are from 'Employment – Industrial Park' TRICS category.*

Table 7-2: Vehicle Trip Generation of Expansion to Raglan Enterprise Park (2,250 sqm)

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour		
	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
B1a (Office	44	3	46	4	56	59
B1c (Light Industry)	9	1	10	1	9	10
Mixed B1a / B1c	13	8	22	10	15	25

7.2.4 **Table 7-2** shows that the proposed expansion to REP is forecast to generate between 10 and 46 two-way trips during the AM peak hour, and between 10 and 59 two-way trips during the PM peak hour (dependent on the land use mix that comes forward). The upper level of the forecast trip generation (i.e. 46 and 59 trips during the AM and PM peak hours respectively) may dictate the need for an assessment of traffic impact, subject to confirmation of the proposed development mix as part of future masterplanning. As a minimum, this could comprise a percentage impact assessment of additional traffic, associated with the development proposals, being generated onto Chepstow Road. This exercise would enable an understanding of the current traffic flows on Chepstow Road, particularly during the morning and evening peak hours, and enable a conclusion to be made regarding the impact of the proposals on the surrounding highway network.

7.3 Summary

7.3.1 A vehicle trip generation envelope of the proposed B1 land uses has been calculated to reflect that the mix of land uses is not yet confirmed. This has utilised a range of trip rates obtained from TRICS, the industry standard database. The proposed expansion to REP is forecast to generate between 10 and 46 two-way trips during the AM peak hour, and between 10 and 59 two-way trips during the PM peak hour (dependent on the land use mix that comes forward). The upper level of the forecast trip generation (i.e. 46 and 59 trips during the AM and PM peak hours respectively) may dictate the need for an assessment of traffic impact, subject to confirmation of the proposed development mix as part of future masterplanning. As a minimum, this could comprise a percentage impact assessment of additional traffic, associated with the development proposals, being generated onto Chepstow Road.

8. Summary and Conclusions

8.1 Project and Site Context

8.1.1 This TS has been prepared by AECOM on behalf of MCC's EDT in regard to proposals for development on land west of Chepstow Road in Raglan, Monmouthshire. The proposed development comprises the following:

- A solar farm that could produce up to 5 MW of electricity, utilising approximately 19 hectares of the total site area; and
- Expansion of REP to deliver an additional 2,250 sqm of floor space for B1 use (a mix of office and light industrial uses, to be confirmed at future masterplanning stage), utilising approximately two hectares of the total site area.

8.1.2 The site is situated west of Chepstow Road, south of Raglan. The A40 and A449 lie around 850m north and 675m east of the site respectively (measured from the centre of the site). The proposed site comprises six field parcels which total approximately 21 hectares in area. It is currently used for agricultural purposes and is bounded by an area of tree cover / woodland to the north, Chepstow Road and the existing REP to the east, and hedgerows / open fields to the south and west.

8.1.3 The TS has been prepared based on an initial brief of the development proposals, supplied by MCC's EDT. It is intended to inform future masterplanning and its content will be adapted as appropriate once the scheme has progressed towards a stage and level of design required for planning submission. The scope of this TS has been informed by discussions with MCC, in its role as the LHA.

8.1.4 The existing accesses to REP and adjacent agricultural land are from Chepstow Road. The level of visibility currently achieved from these accesses is, based on likely vehicle speeds, is below the standards identified as the desirable minimum under DMRB, although improvements can be achieved with the cut back of vegetation within the public highway / site boundary / control of MCC. Chepstow Road provides access to the A40 via the High Street (at a roundabout junction) and Monmouth Road (at a priority-controlled junction). There are particular constraints associated with on-street parking on the High Street west of Chepstow Road. The A40 forms part of the strategic road network (managed by SWTRA, connecting to the A466 approximately 1.6km east of its junction with the High Street. The A466, which is also managed by SWTRA, provides access to the M50 at Ross-on-Wye to the north, and the M4 Junction 24 (via the A466) at Chepstow to the south.

8.1.5 A review of PIC data has been undertaken using the 'Crashmap' online resource to determine whether there are any locations on the local highway network with poor collision records. The analysis would suggest that there are no existing highway safety issues in the vicinity of the site and more specifically the existing accesses to the site.

8.1.6 Opportunities for walking and bus travel to / from the site, in regard to the proposed expansion of REP, are considered to be limited. The neighbouring highways, based on their identification by MCC as *"quiet in terms of traffic flows"*, and designation as NCR (for the High Street), suggests there is an opportunity to cycle to / from the site.

8.1.7 There are a number of Public Rights of Way (PRoW) in the vicinity of / within the site. A series of connected public footpaths (References: 377/72/1, 377/68/1, 377/80/1 and 377/69/1) lie in close proximity to the west of the REP site and connect the adjacent field parcels to the residential area located immediately to the north. The primary connection route is ref. 377/68/1, which lies to the west of the site and continues northwards, becoming ref.377/72/1 and connecting to Prince Charles Road / Ethley Drive. On the opposite side of Chepstow Road, to the east of the site, ref. 377/90/11 connects existing field parcels to the east of Chepstow Road, with the southern extent of the public footway network and associated access to the nearby residential areas via Fayre Oaks.

8.1.8 A set of Integrated Network Maps was submitted by MCC to the Welsh Government (WG) in 2017, which set out the Council's plans for enhancing active travel infrastructure over the following 15 years. According to DataMapWales, there is a planned future walking and cycling route , ref. 'MCC-LDC4' which routes through the site. This proposed route then connects to Chepstow Road at the point of the existing access to the site, whereby another future route, ref. 'MCC-R02A' is proposed along the length of Chepstow Road, leading towards Raglan centre and High Street / Monmouth Road. These proposed routes offer the potential for the site to connect to the existing public footpath network, enabling connections into Raglan and beyond.

8.2 Solar Farm

Construction Phase

8.2.1 Two options have been identified in terms of construction access. Option A utilises the existing access to REP. This, together with a new northern spur off the access road to REP, will provide access to the area in the northeast corner of the site, which benefits from being reasonably flat compared to the rest of the site, and therefore appears a suitable location for a construction compound. Potential widening to the existing access may be required to accommodate HGV manoeuvres. The extent of widening and the design of a northern spur off the access road will need to be confirmed by SPA based on topographical survey. Whilst there are limitations on achievable exit visibility to the left (i.e. the north), this is considered reasonable given the proposed construction routeing arrangements. Improvements in exit visibility to the right (i.e. the south) can be achieved, subject to cut back of vegetation within the public highway / site boundary / control of MCC, the requirements for which should be confirmed by a speed survey using an ATC and the extent confirmed by analysis based on topographical survey.

8.2.2 Option B utilises Agricultural Access 2, located to the south of the existing access to REP. This option has been considered on the basis that there may be a desire to separate construction access from the existing operational access to REP. The design of the construction access and associated SPA will need to be based on topographical survey, with details agreed with the LHA. Should the access be used for construction purposes only, then a temporary construction will likely be sufficient, with the existing field access reinstated post-construction. Should it be utilised for operational access, then a permanent construction of full depth will potentially be required. Both the temporary / permanent access options will likely require an impermeable surface (such as Hot Rolled Asphalt) from the edge of carriageway to a point 10-15m back from the limit of public highway, forming a new bell-mouth. A construction compound can be accommodated in the area to the south of the field access, with direct connect to the construction access. The use of this access is subject to achieving a level of visibility commensurate with vehicles speeds on Chepstow Road. Should vehicle speeds be recorded to be higher than the achievable visibility allows for, it will need to be highlighted that the principle of access is already established at this location and any intensification in use associated with construction will be temporary. Alternatively, there may be a requirement to construct a new access further south where a higher level of visibility can be achieved

8.2.3 Construction management measures have been proposed, which will be confirmed in a CEMP / CTMP or similar document, to be secured by a Planning Condition. The measures include appropriate management at the access onto Chepstow Road and a construction routeing arrangement. Measures in regard to management of public footpaths crossing the site will be subject to further discussion with MCC's PRoW Officer.

8.2.4 During the construction phase, it is forecast the solar farm will result in 174 HGV deliveries, spread over the 12 week construction period. It is unlikely that, even at the most intense period of construction there will be more than five deliveries (10 HGV movements) per day. In addition, there will be light vehicle movements associated with construction staff, who will travel in crew minibuses / vans, resulting in around 20 movements per day. This therefore equates to a total of no more than 30 vehicle movements per day during construction and this level of traffic is considered to be low.

Operational Phase

8.2.5 The operational access to the solar farm will need to be in a location that is both appropriate in highways terms and convenient to that of the substation, which will be determined as part of future masterplanning. There is flexibility in terms of location, with access via the existing access to REP or Agricultural Access 2 considered appropriate. The operational access will need to be of suitable size to accommodate the envisaged vehicle types (typically light vehicles / vans) and include an appropriately sized turning head within the site.

8.2.6 Traffic generation will be limited to maintenance visits around 10-20 times a year, undertaken by small vans.

Decommissioning Phase

8.2.7 The decommissioning phase of the solar farm is likely to be similar in nature to construction. It is therefore envisaged that access arrangements, traffic management measures and traffic generation will be similar, potentially more efficient, to that set out for construction.

8.3 Expansion to Raglan Enterprise Park

Construction Phase

8.3.1 The options identified for construction access for the solar farm proposals and associated traffic management measures are considered applicable to the proposed expansion of REP.

8.3.2 At this stage, the form of the expansion (i.e. building size, number of storeys, height of storeys, etc) is not known and therefore cannot be reasonably forecast beyond a high level total GFA assessment.

Operational Phase

8.3.3 A single point of vehicular access is considered to be appropriate during operation. It is recommended that use of the existing access to REP be examined, both in terms of acceptability to the LHA and deliverability of masterplanning aspirations. It would be highlighted to the LHA that the principle of access is already established at this location and that the proposals are for an expansion of the type of uses already permitted / served at REP. However, the LHA may deem the level of intensification in use, whilst forecast to be low, will be both permanent and of a level significantly higher than that associated with the operational phase of the proposed solar farm, to be unacceptable without compliance with DMRB minimum desirable standards for visibility, which are unlikely to be achieved, subject to confirmation by a speed survey.

8.3.4 There are opportunities for access further south, with the existing agricultural access (Agricultural Access 2) offering a higher level of achievable visibility over the existing access to REP in terms of achievable visibility, although the risks associated with vehicle speeds and associated visibility requirements still remains. The optimum location is considered to be further south, from which the maximum level of visibility required on 60mph speed limit roads (i.e. 215m desirable minimum for speeds of up to 100kph) is considered to be achievable, subject to cut back of vegetation within the public highway / site boundary / control of MCC. The optimum position of an access will need to be confirmed based on analysis of topographical survey and speed survey data. As part of provision of a new access, the LHA may seek closure of the existing access to REP to consolidate the number of accesses onto Chepstow Road.

8.3.5 Car and cycle parking will need to be provided in accordance with the adopted parking standards at the time of the reserved matters applications.

8.3.6 A vehicle trip generation envelope of the proposed B1 land uses has been calculated to reflect that the mix of land uses is not yet confirmed. This has utilised a range of trip rates obtained from TRICS, the industry standard database. The proposed expansion to REP is forecast to generate between 10 and 46 two-way trips during the AM peak hour, and between 10 and 59 two-way trips during the PM peak hour (dependent on the land use mix that comes forward). The upper level of the forecast trip generation (i.e. 46 and 59 trips during the AM and PM peak hours respectively) may dictate the need for an assessment of traffic impact, subject to confirmation of the proposed development mix as part of future masterplanning. As a minimum, this could comprise a percentage impact assessment of additional traffic, associated with the development proposals, being generated onto Chepstow Road.

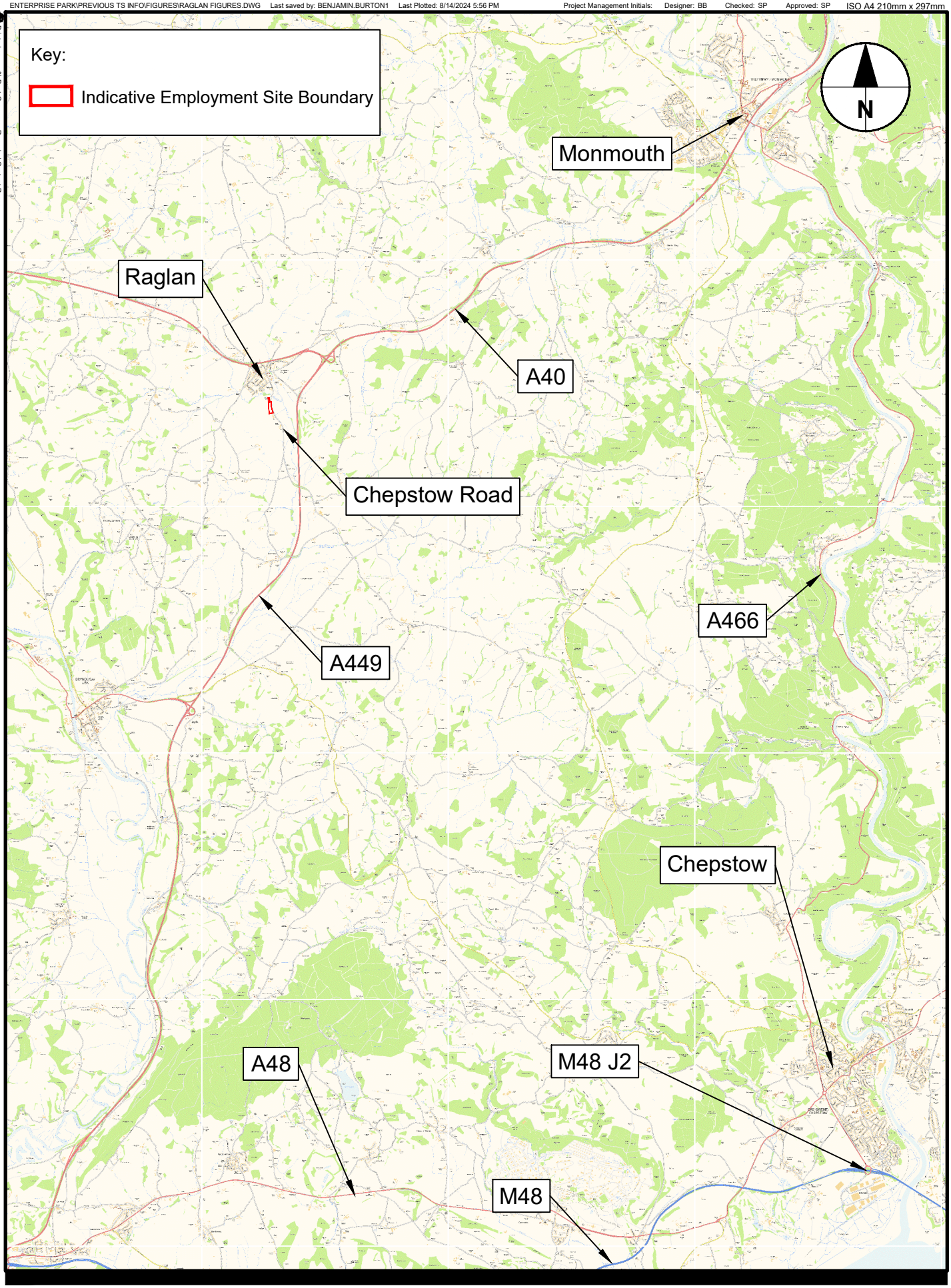
8.4 Conclusions

8.4.1 The development proposals align with existing planning and transport policy at both a national and local level. Potential access arrangements have been identified along with a supporting package of management measures to accommodate these requirements, minimising the impact on local communities, users and infrastructure. These will need to be examined further in regard to wider masterplanning issues, with an appropriate strategy developed that does not prejudice delivery of either component of the scheme.

8.4.2 The potential traffic impacts which have been forecasted to be associated with the construction phase of the solar farm proposals are low. With regard to the proposed REP expansion, subject to confirmation of the proposed development mix, there may be a requirement for further assessment of traffic impact to be undertaken to ensure there will not be an unacceptable impact on the local highway network, particularly during the morning and evening peak hours.

8.4.3 This report provides a suitable level of detail to inform future masterplanning and, on the basis of the recommendations being integrated into the scheme and being acceptable to the LHA, it is considered that there are unlikely to be any transport reasons why the proposed development would not be granted planning permission, subject to an appropriate assessment of traffic impact, commensurate with the finalised development proposals.

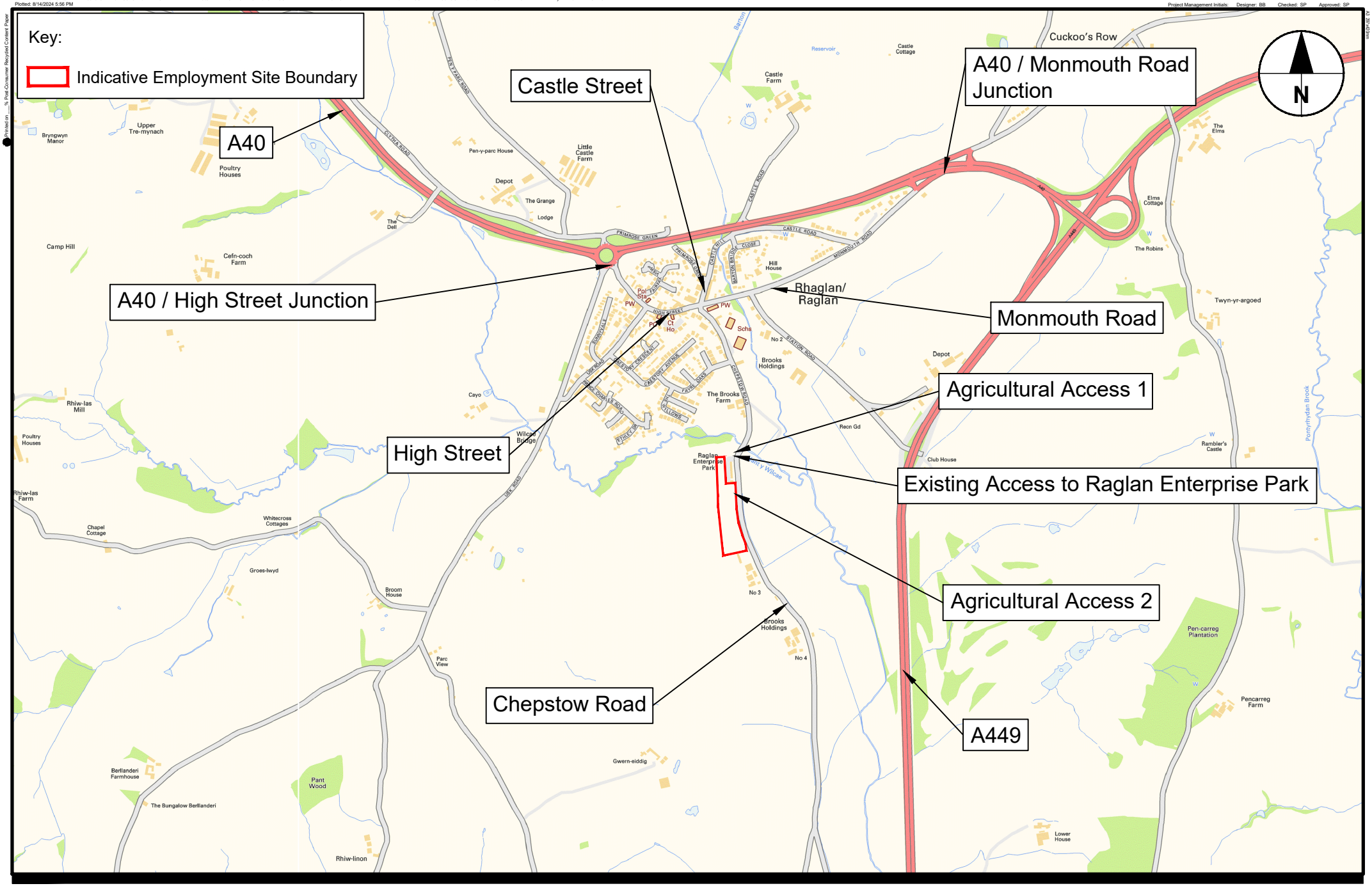
Report Figures



Raglan Enterprise Park, Raglan

Transport Statement

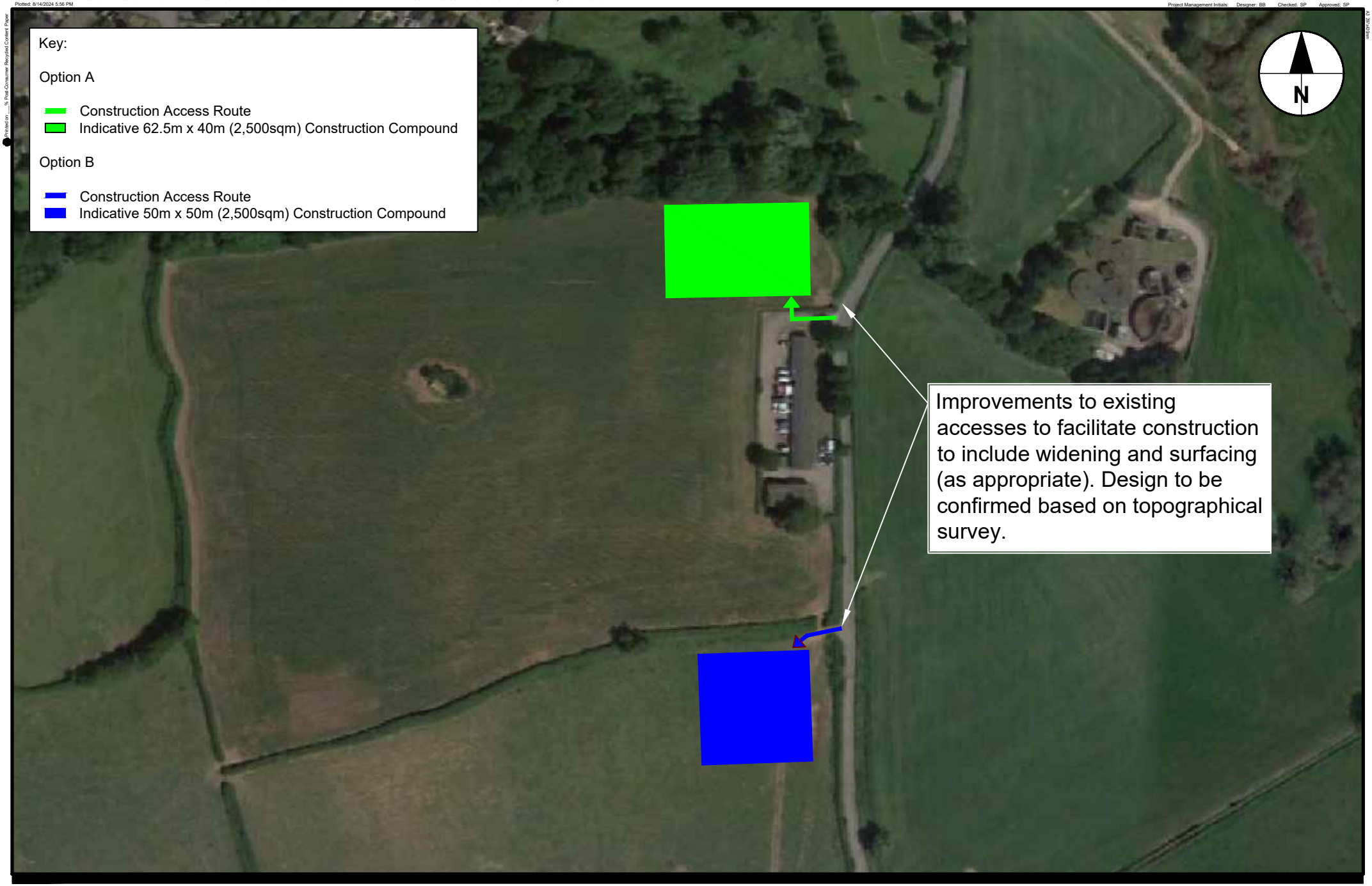
Figure 1.1: Site Location Plan



Raglan Enterprise Park, Raglan

Transport Statement

Figure 1.2: Local Context Plan

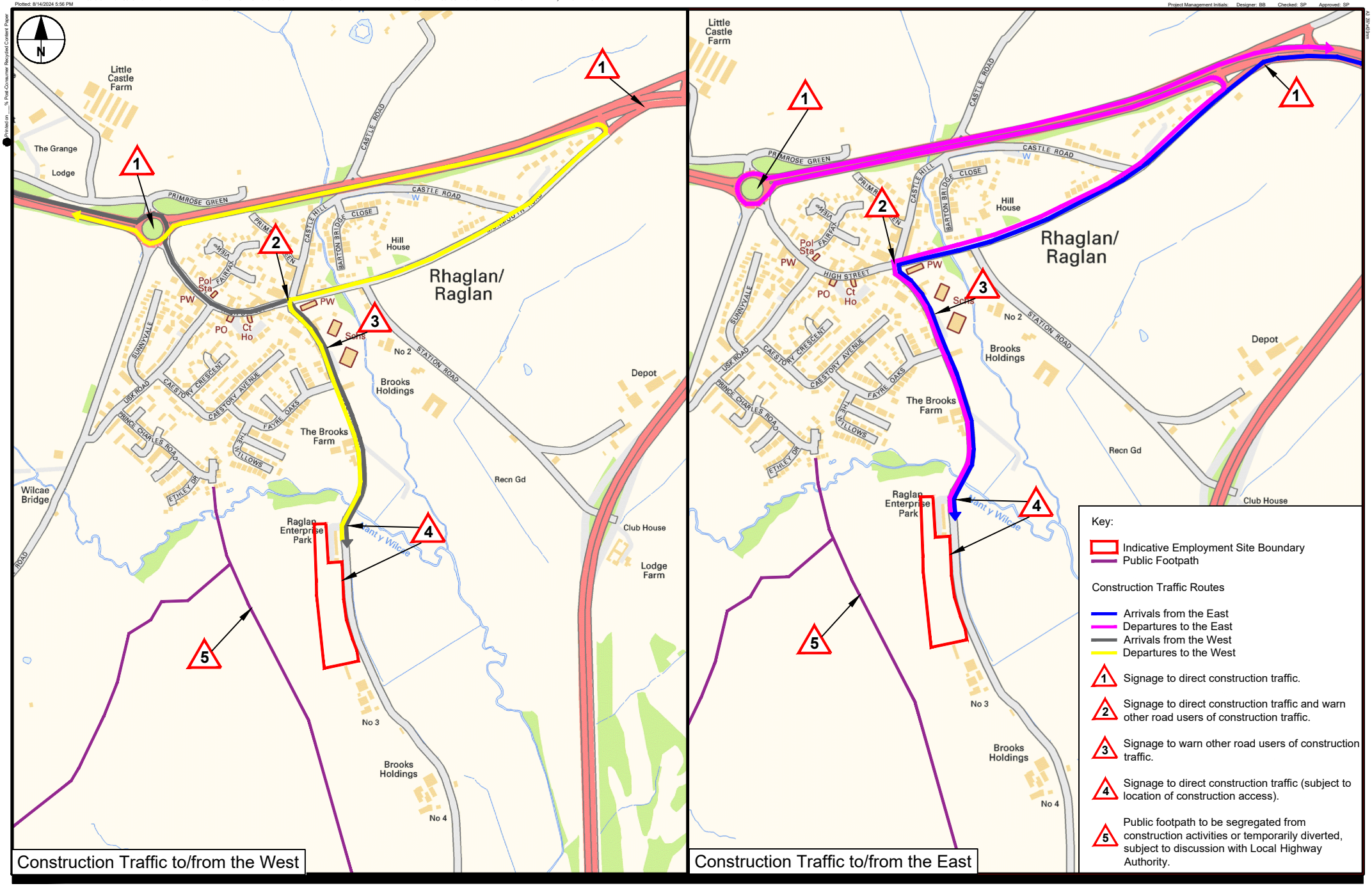


Raglan Enterprise Park, Raglan

Transport Statement

Figure 4.1: Proposed Options for Construction Access

AECOM



Raglan Enterprise Park, Raglan

Transport Statement

Figure 4.2: Proposed Traffic Management Measures

Appendix A TRICS Outputs

Calculation Reference: AUDIT-204605-240812-0824

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
TOTAL VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	WL	WILTSHIRE	1 days
10	WALES		
	CO	CONWY	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Gross floor area
Actual Range:	2500 to 6186 (units: sqm)
Range Selected by User:	118 to 175000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/16 to 23/11/22

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	1 days
Wednesday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	2 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town	2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Commercial Zone	1
Development Zone	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	2 days - Selected
Servicing vehicles Excluded	4 days - Selected

Secondary Filtering selection:

Use Class:

Not Known	2 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	1 days
10,001 to 15,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	1 days
50,001 to 75,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	2 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	2 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 CO-02-A-01 GOVERNMENT OFFICES CONWY
NARROW LANE
LLANDUDNO JUNCTION

Edge of Town
Commercial Zone
Total Gross floor area: 6186 sqm
Survey date: WEDNESDAY 28/03/18 Survey Type: MANUAL

2 WL-02-A-01 PET INSURANCE COMPANY WILTSHIRE
THE CRESCENT
AMESBURY
SUNRISE WAY
Edge of Town
Development Zone
Total Gross floor area: 2500 sqm
Survey date: TUESDAY 18/09/18 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
EC-02-A-04	Surveyed during covid restrictions

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	4343	0.196	2	4343	0.069	2	4343	0.265
08:00 - 09:00	2	4343	1.750	2	4343	0.081	2	4343	1.831
09:00 - 10:00	2	4343	1.946	2	4343	0.115	2	4343	2.061
10:00 - 11:00	2	4343	0.656	2	4343	0.115	2	4343	0.771
11:00 - 12:00	2	4343	0.299	2	4343	0.115	2	4343	0.414
12:00 - 13:00	2	4343	0.311	2	4343	0.403	2	4343	0.714
13:00 - 14:00	2	4343	0.495	2	4343	0.426	2	4343	0.921
14:00 - 15:00	2	4343	0.345	2	4343	0.380	2	4343	0.725
15:00 - 16:00	2	4343	0.242	2	4343	0.357	2	4343	0.599
16:00 - 17:00	2	4343	0.219	2	4343	0.622	2	4343	0.841
17:00 - 18:00	2	4343	0.161	2	4343	2.475	2	4343	2.636
18:00 - 19:00	2	4343	0.058	2	4343	1.359	2	4343	1.417
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			6.678			6.517			13.195

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	2500 - 6186 (units: sqm)
Survey date date range:	01/01/16 - 23/11/22
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	1

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Faber Maunsell Prince Street Bristol Licence No: 204605

Calculation Reference: AUDIT-204605-240812-0837

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : C - INDUSTRIAL UNIT
TOTAL VEHICLES

Selected regions and areas:

06	WEST MIDLANDS		
	WK	WARWICKSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	1 days
08	NORTH WEST		
	EC	CHESHIRE EAST	2 days
	LC	LANCASHIRE	1 days
11	SCOTLAND		
	FI	FIFE	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 700 to 9216 (units: sqm)
Range Selected by User: 150 to 67459 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/16 to 04/10/23

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Wednesday	1 days
Thursday	3 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	6 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town	6

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	5
Development Zone	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	2 days - Selected
Servicing vehicles Excluded	13 days - Selected

Secondary Filtering selection:

Use Class:

Not Known	6 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	4 days
10,001 to 15,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

50,001 to 75,000	2 days
75,001 to 100,000	4 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	5 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	6 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	6 days

This data displays the number of selected surveys with PTAL Ratings.

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions

LIST OF SITES relevant to selection parameters

1 EC-02-C-01 OFFICE FURNITURE CHESHIRE EAST
BRUNEL ROAD
MACCLESFIELD
LYME GREEN BUS. PARK
Edge of Town
Development Zone
Total Gross floor area: 6658 sqm
Survey date: MONDAY 19/09/16 *Survey Type: MANUAL*

2 EC-02-C-02 FABRICS MANUFACTURE CHESHIRE EAST
CHARTER WAY
MACCLESFIELD
HURDSFIELD
Edge of Town
Industrial Zone
Total Gross floor area: 3200 sqm
Survey date: FRIDAY 07/05/21 *Survey Type: MANUAL*

3 FI-02-C-02 GLASS SPECIALISTS FIFE
DICKSON STREET
DUNFERMLINE

Edge of Town
Industrial Zone
Total Gross floor area: 1240 sqm
Survey date: THURSDAY 20/04/23 *Survey Type: MANUAL*

4 LC-02-C-06 STEEL FABRICATION LANCASHIRE
TOLLGATE ROAD
BURSCOUGH

Edge of Town
Industrial Zone
Total Gross floor area: 700 sqm
Survey date: THURSDAY 21/04/22 *Survey Type: MANUAL*

5 NY-02-C-03 WORKWEAR MANUFACTURER NORTH YORKSHIRE
WETHERBY ROAD
KNARESBOROUGH

Edge of Town
Industrial Zone
Total Gross floor area: 1500 sqm
Survey date: THURSDAY 29/06/23 *Survey Type: MANUAL*

6 WK-02-C-01 MACHINE ENGINEERING WARWICKSHIRE
CASTLE MOUND WAY
RUGBY

Edge of Town
Industrial Zone
Total Gross floor area: 9216 sqm
Survey date: WEDNESDAY 10/11/21 *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	3	4372	0.076	3	4372	0.000	3	4372	0.076
06:00 - 07:00	4	3589	0.118	4	3589	0.007	4	3589	0.125
07:00 - 08:00	6	3752	0.413	6	3752	0.044	6	3752	0.457
08:00 - 09:00	6	3752	0.275	6	3752	0.040	6	3752	0.315
09:00 - 10:00	6	3752	0.129	6	3752	0.071	6	3752	0.200
10:00 - 11:00	6	3752	0.111	6	3752	0.098	6	3752	0.209
11:00 - 12:00	6	3752	0.058	6	3752	0.102	6	3752	0.160
12:00 - 13:00	6	3752	0.142	6	3752	0.195	6	3752	0.337
13:00 - 14:00	6	3752	0.098	6	3752	0.133	6	3752	0.231
14:00 - 15:00	6	3752	0.084	6	3752	0.098	6	3752	0.182
15:00 - 16:00	6	3752	0.084	6	3752	0.160	6	3752	0.244
16:00 - 17:00	6	3752	0.031	6	3752	0.413	6	3752	0.444
17:00 - 18:00	6	3752	0.022	6	3752	0.195	6	3752	0.217
18:00 - 19:00	5	4255	0.024	5	4255	0.024	5	4255	0.048
19:00 - 20:00	3	4372	0.008	3	4372	0.023	3	4372	0.031
20:00 - 21:00	3	4372	0.000	3	4372	0.015	3	4372	0.015
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.673			1.618			3.291

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	700 - 9216 (units: sqm)
Survey date date range:	01/01/16 - 04/10/23
Number of weekdays (Monday-Friday):	6
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-204605-240812-0811

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : D - INDUSTRIAL ESTATE
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	EX	ESSEX	2 days
03	SOUTH WEST		
	DV	DEVON	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	1 days
08	NORTH WEST		
	LC	LANCASHIRE	1 days
10	WALES		
	SW	SWANSEA	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Gross floor area
Actual Range:	1660 to 6822 (units: sqm)
Range Selected by User:	552 to 10000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/16 to 06/10/23

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Wednesday	1 days
Thursday	1 days
Friday	4 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	7 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town	7

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	7

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	3 days - Selected
Servicing vehicles Excluded	7 days - Selected

Secondary Filtering selection:

Use Class:

Not Known	7 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

10,001 to 15,000	5 days
15,001 to 20,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

100,001 to 125,000	1 days
125,001 to 250,000	6 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	7 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	7 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 DV-02-D-07 INDUSTRIAL ESTATE DEVON
BITTERN ROAD
EXETER
SOWTON IND. ESTATE
Edge of Town
Industrial Zone
Total Gross floor area: 3600 sqm
Survey date: MONDAY 03/07/17 Survey Type: MANUAL

2 EX-02-D-03 INDUSTRIAL ESTATE ESSEX
WYNCOLLS ROAD
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 4876 sqm
Survey date: FRIDAY 18/05/18 Survey Type: MANUAL

3 EX-02-D-05 INDUSTRIAL ESTATE ESSEX
HECKWORTH CLOSE
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 7280 sqm
Survey date: FRIDAY 18/05/18 Survey Type: MANUAL

4 LC-02-D-07 INDUSTRIAL ESTATE LANCASHIRE
CHAIN CAUL WAY
PRESTON
ASHTON-ON-RIBBLE
Edge of Town
Industrial Zone
Total Gross floor area: 4700 sqm
Survey date: FRIDAY 17/11/17 Survey Type: MANUAL

5 NY-02-D-04 INDUSTRIAL ESTATE NORTH YORKSHIRE
GRIMBALD CRAG CLOSE
KNARESBOROUGH

Edge of Town
Industrial Zone
Total Gross floor area: 1660 sqm
Survey date: FRIDAY 30/06/23 Survey Type: MANUAL

6 SW-02-D-01 INDUSTRIAL ESTATE SWANSEA
UPPER FOREST WAY
SWANSEA
SWANSEA ENTERPRISE PK
Edge of Town
Industrial Zone
Total Gross floor area: 6822 sqm
Survey date: WEDNESDAY 09/10/19 Survey Type: MANUAL

7 SW-02-D-02 INDUSTRIAL ESTATE SWANSEA
CLARION COURT
SWANSEA
SWANSEA ENTERPRISE PK
Edge of Town
Industrial Zone
Total Gross floor area: 5280 sqm
Survey date: THURSDAY 10/10/19 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	3	4587	0.073	3	4587	0.015	3	4587	0.088
06:00 - 07:00	3	4587	0.174	3	4587	0.022	3	4587	0.196
07:00 - 08:00	7	4696	0.386	7	4696	0.076	7	4696	0.462
08:00 - 09:00	7	4696	0.599	7	4696	0.371	7	4696	0.970
09:00 - 10:00	7	4696	0.578	7	4696	0.374	7	4696	0.952
10:00 - 11:00	7	4696	0.541	7	4696	0.380	7	4696	0.921
11:00 - 12:00	7	4696	0.493	7	4696	0.554	7	4696	1.047
12:00 - 13:00	7	4696	0.465	7	4696	0.529	7	4696	0.994
13:00 - 14:00	7	4696	0.496	7	4696	0.523	7	4696	1.019
14:00 - 15:00	7	4696	0.383	7	4696	0.453	7	4696	0.836
15:00 - 16:00	7	4696	0.429	7	4696	0.484	7	4696	0.913
16:00 - 17:00	7	4696	0.456	7	4696	0.657	7	4696	1.113
17:00 - 18:00	7	4696	0.268	7	4696	0.602	7	4696	0.870
18:00 - 19:00	7	4696	0.091	7	4696	0.289	7	4696	0.380
19:00 - 20:00	3	4587	0.015	3	4587	0.283	3	4587	0.298
20:00 - 21:00	3	4587	0.000	3	4587	0.080	3	4587	0.080
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			5.447			5.692			11.139

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

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Parameter summary

Trip rate parameter range selected:	1660 - 6822 (units: sqm)
Survey date date range:	01/01/16 - 06/10/23
Number of weekdays (Monday-Friday):	7
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

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