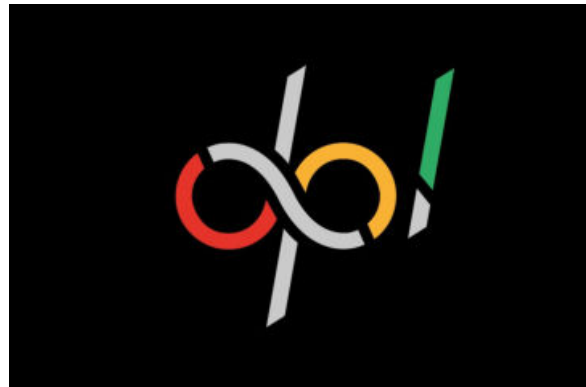




TRANSPORT ASSESSMENT

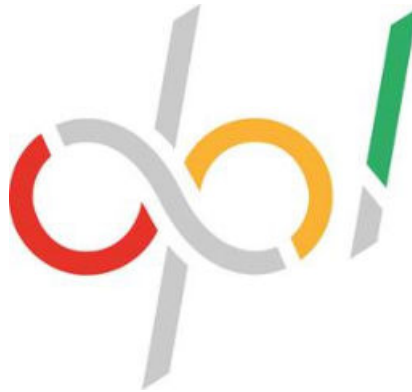
MAGELLAN WREXHAM NEW FACILITY
MAGELLAN AEROSPACE (UK) LIMITED



MAGELLAN
A E R O S P A C E

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Development Planning Limited
 Old Barn 418 Aberford Road
 Stanley
 Wakefield
 WF3 4AA
 01924 684 000
info@devplanning.co.uk
www.devplanning.co.uk
 Company Number : 08771328



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FOR THE PLANET AND FOR THE FUTURE

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1. EXECUTIVE SUMMARY

- 1.1.1 Development Planning Limited have been commissioned by Magellan Aerospace (UK) Limited to provide a Transport Assessment for the proposed Magellan Wrexham New Facility.
- 1.1.2 The site is located is on Miners Road, within the Llay Industrial Estate in Wrexham. The site is bound to the north by Miners Road, to the east by the existing Magellan Aerospace facility and to the south and west by existing employment land uses.
- 1.1.3 The existing land use for the site is that of a vacant development plot within the wider Llay Industrial Estate. The site is allocated as Employment Site 29 within the Wrexham Unitary Development Plan as 'Llay: Industrial Estate (v)'. The Unitary Development Plan requires that:
- ...All new employment development will be directed to the above locations and to site with planning permission for employment use...*
- 1.1.4 The project involves the development of a new assembly, warehouse, and distribution facility to support Magellan Aerospace (UK) Ltd's existing facilities at Llay Industrial Estate.
- 1.1.5 The way we travel can significantly impact on the environment and respecting the transport hierarchies is an essential part of helping towards reducing the impact of the development and helping to foster a more environmentally responsible culture.
- 1.1.6 Current planning policy clearly supports sustainable development and the sustainable transport hierarchy and should be read and considered against the ever-changing political background surrounded the environment.
- 1.1.7 A review of the existing accessibility of the site shows that all of Llay is within a reasonable walking distance of the site. The reasonable cycling distance includes the northern areas of Wrexham, for which a significant length of the route has a segregated cycleway available.
- 1.1.8 The existing bus routes closest to the site provide a similar level of public transport access as the existing premises across the industrial estate.
- 1.1.9 The site access proposals incorporate a shared-use access for all user groups, with on-site provision made for secure and covered cycle stands.
- 1.1.10 The site access has been designed for all appropriate vehicle types which would access the site, including extendable trailer vehicles (21.3m trailer). A bespoke swept path analysis vehicle has been utilised for this assessment.
- 1.1.11 The car parking proposals align with the site's forecast requirements and the council's car parking standards. The proposals include for disabled parking, car share priority spaces, active charging provision of 3% of spaces and passive provision for all the other spaces.
- 1.1.12 The site access proposals are considered to meet with the access requirements of the proposed facility and help to encourage sustainable travel to the site.
- 1.1.13 A detailed review of the of the car parks across the existing and proposed facilities has been undertaken.
- 1.1.14 The proposals for the existing facility incorporate a material reduction in the availability of car parking to 123, down from 163 currently (including an existing off-site car park).

- 1.1.15 The proposed facility would provide 72 car parking spaces, which falls short of the forecast requirement of 78 spaces, prior to Car Park Management and the Travel Plan being implemented.
- 1.1.16 Importantly, as 72 spaces are proposed for the new facility, with 40 being extinguished for the existing facility, the net increase in available car parking as a result of the development proposals is 32.
- 1.1.17 The Car Park Management Plan and Travel Plan will be also be delivered across the whole site, which could result in reduced car travel to the site overall and help to manage car parking demand. The targets are set as a short-term 5% decrease in single occupancy private car use, with a stretch target equating to a 10% decrease.
- 1.1.18 The following measures are set out within the Travel Plan to help encourage staff to travel sustainably and reach the short-term and stretch mode share targets:
- Car share priority spaces;
 - Car sharing to be promoted to staff, including the cost benefits being promoted. This could include an informal car sharing database of people who wish to pick up or be picked up. A recommended contribution towards fuel costs could be suggested;
 - Car park management to be implemented;
 - Passive electrical charging provision to all spaces within the proposed new car park;
 - Active electrical charging provision to two spaces within the proposed new car park (equivalent to a 3% provision, which significantly exceeds the current electric vehicle ownership levels of 0.3%);
 - Adequate secure and covered cycle shelters to be provided;
 - Lockers and showers to be available for walkers/ cyclists;
 - Active travel to be encouraged, with the health and cost benefits promoted to staff; and
 - A Travel Plan to be implemented and promoted to staff to help encourage them to travel to work by sustainable travel modes.
- 1.1.19 The car parking proposals, in conjunction with the Car Park Management Strategy and Travel Plan are considered to meet with the needs of the development, whilst helping to encourage sustainable travel to and from the site.
- 1.1.20 A review of publicly available traffic data shows that the AM peak hour is 8am to 9am and the PM peak hour is 5pm to 6pm. An assessment of the forecast shift patterns for the new facility has been undertaken and, as a result of the shift patterns, there are forecast to be no staff-related vehicle trips in the AM peak hour, with all shifts starting before 8am.
- 1.1.21 For the PM peak hour, there are forecast to be 62 cars exiting the site with the shift patterns resulting in shift changeovers generally outside of this period. This is a robust estimate which does not include for the reduction in existing car parking availability.
- 1.1.22 The 62 cars equate to an average of around one vehicle per minute in the PM peak hour existing the site. The traffic impact is not considered to be material to the operation of the Rackery Lane/ Miners Road junction.
- 1.1.23 Based upon the Aldi Transport Assessment, the forecast development-generated traffic is below the forecast available capacity at the junction of Straight Mile/ Gresford Road/ Llay Road/ Rackery Lane and Chapel Lane in the 2024 future year traffic model (including committed developments and the Aldi proposals).
- 1.1.24 The impact is prior to the implementation of the Car Park Management Plan and Travel Plan, which could reduce the forecast traffic impacts further.
- 1.1.25 As a result, the development proposals are considered to be suitably low to be accommodated within the existing highway network.

2. INTRODUCTION

2.1 BACKGROUND

- 2.1.1 Development Planning Limited have been commissioned by Magellan Aerospace (UK) Limited to provide a Transport Assessment for the proposed Magellan Wrexham New Facility.
- 2.1.2 This Transport Assessment assesses access to the development site by appropriate modes of transport and considers the implications on the wider transport networks.
- 2.1.3 This Transport Assessment has been prepared for submission as part of a planning application package and should be read in conjunction with the documents and plans which have been submitted as part of that package.
- 2.1.4 This Transport Assessment has been prepared in accordance with the principles set out within Planning Policy Wales (December 2018).
- 2.1.5 The conclusions and recommendations contained herein have been drawn based on information available and obtained in advance of any planning submission.

2.2 CORONAVIRUS

- 2.2.1 At the time of writing this report the UK Government retain partial lockdowns due to the risk to public health of transmission of the Covid-19 disease, with local lockdowns enforced where spikes in the virus are occurring. As such, travel patterns are highly unusual with traffic levels suppressed and some information on regular public transport routes not being available.
- 2.2.2 The 'new normal' may not be realised until some time, with the UK Government's furlough scheme extended to the end of October. The return to normality is not currently envisaged until Spring 2021, or beyond.
- 2.2.3 The 'new normal' cannot be fully quantified and could include significant changes in travel patterns, including increased use of more sustainable transport modes, increased flexibility in daily working patterns, including home working and travel time choices being made to reduce travel during peak times.
- 2.2.4 Best endeavours have been taken to provide accurate information within this report based upon historic and currently available information, where available. As the Government are taking all steps that they can to help to secure the economy, it is considered necessary that planning applications continue to be determined based upon the best information that is currently available to allow development and investment to continue.

2.3 SITE LOCATION

- 2.3.1 The site is located on Miners Road, within the Llay Industrial Estate in Wrexham. The site location is shown in Figure 2.1, Appendix A. The site is located adjacent to the existing Magellan Aerospace facility and would form an extension of the existing operations on the site.
- 2.3.2 The site is bound to the north by Miners Road, to the east by the existing Magellan Aerospace facility and to the south and west by existing employment land uses.

2.4 EXISTING LAND USE

- 2.4.1 The existing land use for the site is that of a vacant development plot within the wider Llay Industrial Estate.

2.5 PLANNING ALLOCAITON

2.5.1 The site is allocated as Employment Site 29 within the Wrexham Unitary Development Plan as 'Llay: Industrial Estate (v)'. The Unitary Development Plan requires that:

...All new employment development will be directed to the above locations and to site with planning permission for employment use...

2.6 DEVELOPMENT PROPOSAL

2.6.1 The project involves the development of a new assembly, warehouse, and distribution facility to support Magellan Aerospace (UK) Ltd's existing facilities at Llay Industrial Estate. The project involves the construction of a new facility, providing on site carparking, a service yard and associated one-way vehicle route and the formation of a new site access point off Miners road. The works also make provision for supporting ancillary buildings including substation, paint store, compressor house.

2.6.2 In terms of floor area, the following use types are proposed:

- B1 - 610sqm;
- B2 – 4,009sqm; and
- B8 – 4,084sqm.

3. THE CHANGING FACE OF TRANSPORT

3.1 INTRODUCTION

- 3.1.1 The way we travel and impact upon the world is now seen as the Government's highest priority by many and features high on the political agenda.
- 3.1.2 The way we travel can significantly impact on the environment and respecting the transport hierarchies is an essential part of helping towards reducing the impact of development and helping to foster a more environmentally responsible culture.
- 3.1.3 This chapter considers the changing face of transport to allow consideration of the way in which travel is forecast to change in the short to medium term and, as such, allow consideration of emerging technologies to be given, when interpreting future traffic forecasts.

3.2 THE IMPACT OF TRAVEL

- 3.2.1 With regard to transport, the changing use of vehicles began decades ago with government interventions including the implementation of Travel Plans for all major new development from the early 2000's and a significant policy shift to reducing car emissions, beginning in major UK cities such as London through their congestion charge from 2003 onwards.
- 3.2.2 Currently, Cardiff are considering a congestion charging scheme with wider consideration being given by the Welsh Government who have announced an independent review on whether road users across Wales should be charged.
- 3.2.3 In recent years, there has been a significant focus on reducing the emissions of road-going vehicles through reduced tax tariffs on those that pollute the least and the increasing standards of vehicle emissions through the Euro emission standards which has seen allowable emissions dropping significantly since first implemented in 1992.
- 3.2.4 Government policies have been the start of the reduction of emissions, due to the global environmental movement and environmental standards across the world being continually reviewed and made more stringent.
- 3.2.5 On the 29th April 2019, the Welsh government declared a climate emergency and stated:

...The declaration sends a clear signal the Welsh Government will not allow the process of leaving the EU to distract us from the challenge of climate change, which threatens our health, economy, infrastructure and our natural environment.

The announcement draws attention to the magnitude and significance of the latest evidence from the Intergovernmental Panel on Climate Change and highlights the recent climate protests across the UK...
- 3.2.6 In response to evolving Governmental commitments, it now appears to be industry who are using their research and development budgets to come up with more and more innovative ways of reducing the impacts of travel, whether it be electric buses, hybrid or zero-emission technologies or through the delivery of computer-based communication and work platforms.
- 3.2.7 Through education, information and encouragement a more connected world with a more sustainable travel culture can be created.

3.3 HISTORY OF CLIMATE CHANGE EMERGENCY

- 3.3.1 On the 1st May 2019 the UK Parliament passed a national declaration of an Environment and Climate Emergency, following independent declarations on the 28th and 29th April by Scotland and Wales, respectively. The UK Parliament was the first to do so in the world.
- 3.3.2 There are now over 1,000 declarations across the world and the climate change agenda is quickly resulting in new and emerging policies to help the world work towards a zero carbon position within the coming decades.
- 3.3.3 Quickly following the UK declaration, the UK Government became the first major economy in the world to pass laws to end its contribution to global warming by 2050 (Climate Change Act 2008 (2050 Target Amendment) Order 2019), which is significantly more stringent than its previous commitments to reduce greenhouse gas emissions by 80% (compared to 1990 levels).
- 3.3.4 The Climate Change Emergency was pre-ceded by the Government's 'The Road to Zero Strategy' that sees the end of conventional fossil fuel vehicles by 2040, with the Committee on Climate Change seeking only pure battery electric vehicles and long range plug in hybrids to be sold by 2035.
- 3.3.5 Current planning policy clearly supports sustainable development and the sustainable transport hierarchy and should be read and considered against the ever-changing political background surrounding the environment.
- 3.3.6 We are entering a new period of change in transport and should ensure that the policies which are applied are relevant and deliverable.

3.4 ACCESS BY ULTRA LOW AND ZERO EMISSION VEHICLE

- 3.4.1 Everyone who can drive a car can also drive an ultra-low or zero emission vehicle. Ultra-low and zero emission vehicles have all the benefits of personalised transportation, whilst significantly reducing the overall impact of travel.
- 3.4.2 HM Government have set out their emissions strategy in the July 2018 report 'The Road to Zero'. The policies set out the long-term ambitions of Government as:

Our mission is to put the UK at the forefront of the design and manufacturing of zero emission vehicles, and for all new cars and vans to be effectively zero emission by 2040. As set out in the NO2 plan, we will end the sale of new conventional petrol and diesel cars and vans by 2040. By then, we expect the majority of new cars and vans sold to be 100% zero emission and all new cars and vans to have significant zero emission capability. By 2050 we want almost every car and van to be zero emission.

We want to see at least 50%, and as many as 70%, of new car sales and up to 40% of new van sales being ultra low emission by 2030.

We expect this transition to be industry and consumer led, supported in the coming years by the measures set out in this strategy. We will review progress towards our ambitions by 2025. Against a rapidly evolving international context, we will seek to maintain the UK's leadership position and meet our ambitions, and will consider what interventions are required if not enough progress is being made.

- 3.4.3 Even more stringently, the Committee on Climate Change, who advise government and other bodies, sought only pure battery electric vehicles and long-range plug-in hybrids to be sold by 2035. The Government have revised their policy to ban the sale of all petrol, diesel and hybrid cars by 2035, or before.
- 3.4.4 In response to these policies and similar national policies around the world, all major vehicle manufacturers either already sell, or are developing, ultra-low emission vehicles. The most notable commitment at the time of writing is from Honda who have stated:

Honda is the world's largest engine manufacturer, and from what we have announced today we are committing to ending all mainstream non-electrified petrol and diesel production for Europe by the end of 2022.

- 3.4.5 With vehicle manufacturing being a highly competitive market, it is almost certain that all major vehicle manufacturers will be following suit over the coming years, with research and development budgets being focussed on these technologies.
- 3.4.6 As such, within the lifetime of this development, it is expected that all cars and vans will, ultimately, be zero emission.
- 3.4.7 The technologies to arrive at a 100% zero emission road network are not currently in place and are likely to alter over time and become standardised, as such it is unlikely that the same technologies which are available today will be the ones which achieve this significant shift in the type of vehicles we drive.
- 3.4.8 One example of the new technologies which are being tested and are becoming increasingly successful is Battery Swapping Stations. These act in a similar way to a petrol filling station, however swap used and part-used batteries for full ones.
- 3.4.9 The operational time for the current units is around three minutes, which is quicker than filling a fossil fuel vehicle. At the forefront of the technology is the G4 Expressway in China, which has 18 such stations promoted by the company NIO, founded in November 2014.
- 3.4.10 Also in China, company BJEV is working on the construction of 3,000 battery swapping stations and aims to supply half a million electric vehicles by 2022.
- 3.4.11 In Europe, the technology is being heavily invested in by Shell, Repsol and others through the company Ample, whose aim is for 'Electric Cars for Everyone'. Battery Swapping Stations is one of the technologies that is expected to result from their research.
- 3.4.12 In terms of purchasing a car, manufacturers are now bringing in options to rent the battery pack, as oppose to buy them. This can reduce purchase prices and a monthly payment is made for battery rental, depending upon the mileage driven. Some packages include free recharging within the rental price.
- 3.4.13 It is clear that these technologies will result in a major change to the way electric vehicles are seen and purchased by the public and that current research and development will significantly impact the way in which private vehicles are used in the future.

3.5 EMERGING IN-VEHICLE TECHNOLOGIES

- 3.5.1 All new cars sold in the UK and Europe from 2022 are to be fitted with devices to automatically stop drivers exceeding the speed limit under planned changes to vehicle safety rules that the EU has provisionally agreed.
- 3.5.2 Although Wales will no longer be part of the EU when the rules come into effect, the UK regulator, the Vehicle Certification Agency, has said it will mirror safety standards for vehicles in the UK.
- 3.5.3 The speed limiter is one of a range of safety features to be made mandatory from 2022, along with automated emergency braking, electronic data recorders and improved visibility built into lorries for drivers to see vulnerable cyclists and pedestrians around the vehicle.
- 3.5.4 The mandatory data recorders will help investigate vehicle crashes and assist research into increased safety. Another feature already standard in many new cars, a lane departure warning system, will become obligatory.

- 3.5.5 In 2015 UK government established the Centre for Connected and Autonomous Vehicles (C-CAV), a joint policy and strategy unit. C-CAV provides a single point of contact for industry and academia for CAV technologies and will coordinate and enhance government activity in the sector.
- 3.5.6 Testing of driverless cars is already taking place on British roads, with Bristol, Milton Keynes and South-East London selected as test cities. The Bristol Venturer consortium aims to investigate whether driverless cars can reduce congestion, while the GATEway scheme in Greenwich is testing automated passenger shuttles and valet parking and Milton Keynes tests its LUTZ Pathfinder Pods in pedestrianised areas.
- 3.5.7 In February 2016, £17 million of funding was awarded to eight collaborative research and development projects as well as additional funding for 14 feasibility studies. The projects will stimulate development in key areas of autonomous vehicles and connected transport systems including.
- 3.5.8 Beyond connected and autonomous vehicles, Intelligent Transport Systems is a wider cross sector area of development.
- 3.5.9 Intelligent Transport Systems allow communication not just between vehicles themselves, but also vehicles and infrastructure. Utilising these communication systems will help to reduce road accidents, relieve congestion and reduce emissions.
- 3.5.10 Intelligent Transport Systems are already in use on UK roads – for example urban and motorway traffic management and control systems, electronic toll collection and route navigation systems. Another safety technology in development is Intelligent Speed Adaptation. Intelligent Speed Adaptation systems inform the driver of the speed limit for the road they are travelling on, automatically reducing the speed of the vehicle if necessary.
- 3.5.11 Within the lifetime of the development, it is highly likely that Connected and Autonomous Vehicles, as well as Intelligent Transport Systems will be increasingly used on UK road networks and, as such, the way in which traffic interacts could be increasingly managed automatically. As a result, future traffic flow forecasts using traditional techniques could overstate the potential impacts of development.

3.6 SUMMARY

- 3.6.1 The way we travel and impact upon the world is now seen as high on the Government's priority and features at the top of the political agenda on a regular basis.
- 3.6.2 Government policies have been the start of the reduction of emissions, due to the global environmental movement and environmental standards across the world being continually reviewed and made more stringent.
- 3.6.3 In response to this, it now appears to be industry who are using their research and development budgets to come up with more and more innovative ways of reducing the impacts of travel.
- 3.6.4 These changes include investment in Battery Swapping Stations and electric vehicle battery rental, both of which help to overcome two of the current barriers to electric vehicle ownership of battery range and initial purchase cost.
- 3.6.5 The way we travel can significantly impact on the environment and respecting the transport hierarchies is an essential part of helping towards reducing the impact of the development and helping to foster a more environmentally responsible culture.
- 3.6.6 Current planning policy clearly supports sustainable development and the sustainable transport hierarchy and should be read and considered against the ever-changing political background surrounded the environment.

- 3.6.7 Within the lifetime of the development, it is highly likely that Connected and Autonomous Vehicles, as well as Intelligent Transport Systems will be increasingly be used on UK road networks and, as such, the way in which traffic interacts could be increasingly managed automatically. As a result, future traffic flow forecasts using traditional techniques could overstate the potential impacts of development.
- 3.6.8 We are entering a new period of change in transport and should ensure that the policies which are applied are relevant and deliverable.

4. PLANNING POLICY

4.1 INTRODUCTION

- 4.1.1 Taking into account the information provided in Chapter 3, a review of pertinent current local and national planning policy has been undertaken to provide the context within which the proposals should be assessed. The review is summarised below.

4.2 PLANNING POLICY WALES

- 4.2.1 Planning Policy Wales (December 2018) states in the foreword that:

PPW will help to ensure that the planning decisions taken in Wales, no matter how big, or how small, are going to improve the lives of both our current and future generations. It will support changing the way we live and work, and the buildings and environment of Wales, today, building a better environment to accommodate current and future needs.

- 4.2.2 Within the Paragraph 3.6 of the Strategic and Spatial Choices chapter, Planning Policy Wales states:

...Good design must also involve the provision of measures that help to reduce the inequality of access to essential services, education and employment experienced by people without access to a car. Design measures and features should enable easy access to services by walking, cycling and public transport.

- 4.2.3 Paragraph 3.12 goes on to state that:

Good design is about avoiding the creation of car-based developments. It contributes to minimising the need to travel and reliance on the car, whilst maximising opportunities for people to make sustainable and healthy travel choices for their daily journeys...

- 4.2.4 And in Paragraph 3.13 that

Existing infrastructure must be utilised and maximised, wherever possible. Where new infrastructure is necessary to mitigate transport impacts of a development and to maximise accessibility by sustainable non-car modes, it should be integrated within the development layout and beyond the boundary, as appropriate...

- 4.2.5 Section 4.1 specifically sets out the requirements for transport. Paragraph 4.1.6 provides guidance to planning authorities, stating that they must set out an integrated planning and transport strategy, which should:

- *integrate and co-ordinate sustainable transport and land use planning;*
- *facilitate and promote accessibility for all;*
- *reduce the need to travel;*
- *reduce dependency on private vehicles;*
- *prioritise and support walking, cycling and use of public transport;*
- *support the uptake of Ultra Low Emission Vehicles;*
- *reduce transport related airborne pollution; and*
- *facilitate the provision of transport infrastructure and necessary sustainable transport improvements and development.*

- 4.2.6 Specifically regarding sustainable travel, Paragraph 4.18 states that :

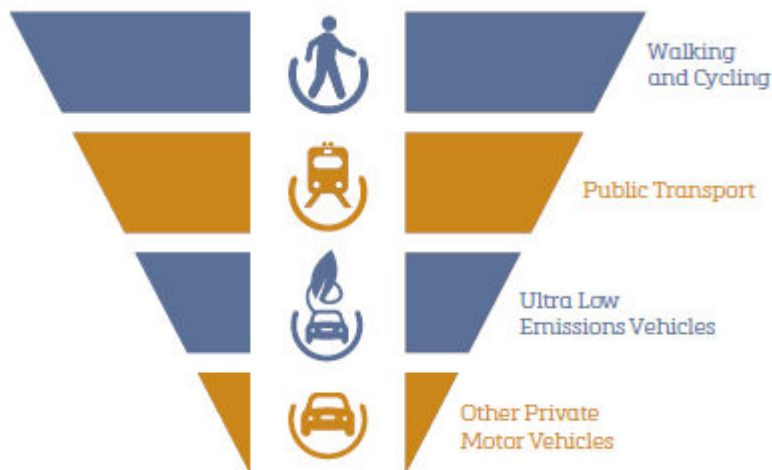
The Welsh Government is committed to reducing reliance on the private car and supporting a modal shift to walking, cycling and public transport. Delivering

this objective will make an important contribution to decarbonisation, improving air quality, increasing physical activity, improving the health of the nation and realising the goals of the Well-being of Future Generations Act.

4.2.7 And goes on to state in Paragraph 4.1.10 that:

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.

4.2.8 The sustainable transport hierarchy is set out in Figure 8, as below:



4.2.9 It is clear from Planning Policy Wales that the transport user hierarchy is a key consideration in the determination of planning applications, with the key focus being on the encouragement of active travel.

4.2.10 With regard to electric vehicle charging points, Paragraph 4.1.39 states:

To encourage the use of Ultra Low Emission Vehicles (ULEVs), the planning system should encourage and support the provision of ULEV charging points as part of new development.

Where car parking is provided for new non-residential development, planning authorities should seek a minimum of 10% of car parking spaces to have ULEV charging points...

4.2.11 The required provision is clarified in Paragraph 4.1.40 as:

It may be appropriate for some of the provision to be 'passive', with the necessary underlying infrastructure provided to enable installation and activation in the future.

4.2.12 With regard to car parking, Paragraph 4.1.50 states:

Car parking provision is a major influence on how people choose to travel and the pattern of development. Where and how cars are parked can in turn be a major factor in the quality of a place.

4.2.13 With Paragraph 4.1.51 stating:

design-led approach to the provision of car parking should be taken, which ensures an appropriate level of car parking is integrated in a way which does not dominate the development. Parking provision should be informed by the local context, including public

transport accessibility, urban design principles and the objective of reducing reliance on the private car and supporting a modal shift to walking, cycling and public transport. Planning authorities must support schemes which keep parking levels down, especially off-street parking, when well designed. The needs of disabled people must be recognised and adequate parking provided for them.

- 4.2.14 A Car Park Management Plan has been produced to accompany the planning application to set out the proposals for delivering a car parking scheme for the site which meets with the end-user requirements and reduces the potential impact of the development on local roads.
- 4.2.15 Technical Advice Note 18:Transport sets out further details on the requirements for transport relating to development. Technical Advice Note 18 sets out that industrial developments in excess of 5,000sqm and distribution and warehousing in excess of 10,000sqm should be accompanied by a Transport Assessment.
- 4.2.16 Whilst it is understood that the highway authority do not have the capability to assess a Travel Plan, a Travel Plan forms part of the planning application package. The Travel Plan is a document which has been designed for use by Magellan Aerospace to encourage the use of sustainable travel to and from the site.

4.3 DEVELOPMENT PLAN

- 4.3.1 The Council Plan (2019 to 2022) was first approved in 2017 and sets out 14 objectives across the four themes of :

- *Economy;*
- *People;*
- *Place; and*
- *Organisation.*

- 4.3.2 Under the theme of Economy, the 10 to 15 year vision sets out that the economy will:

- *Be thriving and resilient – with a good mix of new and existing businesses, local enterprises, national and international companies;*
- *Reflect the position of Wrexham town as the major urban area of North Wales;*
- *Offer a range of employment opportunities, with higher salaries and better job satisfaction;*
- *Be a good mix of traditional industry with the skills and knowledge economy;*
- *Value older people through continuing to use their skills and expertise in work places or through volunteering opportunities; and*
- *Be well-connected regionally, nationally and internationally – both in terms of travel and communications.*

- 4.3.3 With the long-term vision to:

...be recognised for our improvements in the county borough through the continuous pursuit of economic growth. This will be evidenced by a revitalised Wrexham town- centre and surrounding neighbourhoods via the delivery of new and improved homes, the creation of businesses, jobs and growth of heritage based, arts and creative industries sectors to strengthen its regional position and make it the place people choose to live, work, visit and invest in.

- 4.3.4 Policy P12 sets out the policy for 'Pride In Our Environment', with a long-term vision to:

...be recognised as a low carbon, low waste, environmentally responsible organisation that supports local people to play their part.

- 4.3.5 This high-level policy has clear implications on the carbon emissions relating to development, which includes the use of the fossil fuels which power many current motor vehicles.
- 4.3.6 Policy E2 sets out the policy framework for supporting businesses to located and grow in Wrexham. The long term vision is to:
- ...influence and create the conditions for businesses to be able to develop and expand. To provide an environment where new and existing businesses can operate in a digitally enabled, technologically enhanced economy, embracing the transformational aspect of digital technology to secure a sustainable economy, responding locally to population growth and strategic positioning within the UK to create business growth and employment.*
- 4.3.7 At a more strategic level, is the Wrexham Unitary Development Plan (1996 to 2011, adopted February 2005). The Plan comprises two parts:
- Part 1 -The Strategy which outlines the Council's broad intention for development in the area and provides a framework for the more specific policies and proposals...*
- Part 2 - Specific Policies accompanied by reasoned justifications, which expand on the strategic vision for the County Borough and provide detailed guidance for the development and other use of land...*
- 4.3.8 The council are in the process of preparing their Local Development Plan (LDP), which will replace the currently adopted Unitary Development Plan. The Deposit Plan (April 2019) is a working document, however sets out the vision and strategies which are supported by the council.
- 4.3.9 The vision for the Local Development Plan is that:
- By 2028, Wrexham will be an attractive, distinctive and accessible place where people will want to live, visit and invest. Our economy will be strong, resilient and responsive to our gateway location within Wales. Wrexham County Borough will be a sustainable place where everyone feels safe and included and a place that enhances the quality and distinctiveness of our natural, built heritage and unique culture.*
- 4.3.10 Policy SP12 sets out the requirements for transport and accessibility as follows:
- Wrexham's transport network will be developed in a safe, efficient and sustainable manner through the following measures:*
- i. Restricting development that would have an unacceptable impact on the safe and efficient operation of the transport network,*
- ii. Implement key transport projects identified in the Joint North Wales Local Transport Plan and supporting the development and delivery of key strategic road and rail transport improvement projects promoted by the North Wales region and Welsh Government (policy T4 and T6),*
- iii. Enhance the overall reliance of the network and take steps to adapt the transport network to the effects of climate change,*
- iv. Improve the coverage, service frequency, integration and priority of public transport services to provide a sustainable and viable alternative travel choice to the private car,*
- v. Improved integration of modes through the development of existing and new transport interchanges ensuring infrastructure provisions is accessible to all,*

vi. Ensure adequate levels of car parking taking into consideration the location and accessibility of new developments to existing public transport facilities and walking and cycling network,

vii. Develop the coverage of the Active Travel Network across Wrexham to promote increased use of walking and cycling as safe, viable and sustainable alternatives to the car,

viii. Deliver capacity and safety enhancements to the local highway network where considered

4.3.11 For health and wellbeing, Policy SP14 states that:

All development should seek to reduce health inequalities and provide opportunities for healthy lifestyles and improving health and well-being...

4.3.12 It is clear from the Local Development Plan that issues including respecting the transport hierarchies, encouraging active and low carbon travel and reducing inequalities are key issues, which all align with Planning Policy Wales.

4.4 LOCAL GUIDANCE NOTES

4.4.1 Wrexham County Borough Council set out their guidance on planning through the Development Plan policy and a suite of Local Planning Guidance Notes.

4.4.2 The Local Planning Guidance Notes which are most pertinent to transport are Note 15 : Cycling and Note 16 : Parking Standards.

4.4.3 The cycle parking standards are for:

- Administrative offices, research and development uses – 1 per 350sqm gross floor area (GFA);
- General industrial uses – 1 per 500sqm GFA; and
- Storage and distribution uses – 1 space per 1,000sqm GFA.

4.4.4 For cycle parking in excess of eight hours the requirement is for cycle parking to be provided within a more secure parking facility in the form of cycle cages or lockable cycle shelters.

4.4.5 The car parking standards are for:

- B1 Business and light industry – 1 space per 30sqm GFA;
- B2 General industry – 1 space per 50sqm GFA; and
- B8 Storage and distribution – 1 space per 100sqm GFA.

4.4.6 For B2 and B8 land uses there is an additional requirement for suitable areas to be provided for HGVs to load/ unload and turn within the site.

4.5 SUMMARY

4.5.1 Policy E2 sets out the policy framework for supporting businesses to located and grow in Wrexham. The long term vision is to:

...influence and create the conditions for businesses to be able to develop and expand. To provide an environment where new and existing businesses can operate in a digitally enabled, technologically enhanced economy, embracing the transformational aspect of digital technology to secure a sustainable economy, responding locally to population growth and strategic positioning within the UK to create business growth and employment.

- 4.5.2 Policy P14 sets out the strategy for 'Well-Connected and Sustainable Communities', with a long term vision to:
- have an accessible, efficient transport network which allows people a choice between transport options which are convenient and sustainable.*
- 4.5.3 For health and wellbeing, Policy SP14 states that:
- All development should seek to reduce health inequalities and provide opportunities for healthy lifestyles and improving health and well-being...*
- 4.5.4 This Transport Assessment sets out the proposed access by active modes of travel, which will be encouraged through the delivery of a Travel Plan.
- 4.5.5 For those who do drive to the site, a Car Park Management Plan will also be implemented to encourage car sharing to reduce the parking issues around the site.

5. EXISTING ACCESSIBILITY

5.1 INTRODUCTION

- 5.1.1 Studies show that transportation accounts for one third of CO₂ emissions in major cities and is the fastest growing source of greenhouse gases. Whilst this is being tackled through initiatives including C40 Cities, the transport hierarchy remains that active and public travel modes are to be encouraged.
- 5.1.2 This chapter reviews the existing travel patterns to the existing Magellan Aerospace unit, which is a suitable proxy for the adjacent development site and a reasonable basis for assessing the development proposals.
- 5.1.3 Changing technologies are likely to reflect the ways in which people travel and, as such, consideration should be given to these technologies as they become more integrated into our society.

5.2 LOCAL AREA

- 5.2.1 The local area is a established industrial estate, with the proposed site being allocated for employment. As such, it is considered that the site is considered by the authority as suitable for an employment land use.
- 5.2.2 Even so, it is important to consider the sustainable travel options to the site.

5.3 MODE SHARE

- 5.3.1 Before considering the opportunities, which are available to access the site, it is useful to understand the existing staff travel patterns. Due to the Covid restrictions an estimation has been provided by the management of the site with regard to the mode share of employees to the existing Magellan Aerospace facility.
- 5.3.2 There are currently around 350 staff who occupy the existing site, with this being around the capacity of the site. The existing site operates shift patterns and, as such, not all staff are on site at the same time. Further discussion on current staffing and shift patterns is considered in Chapter 8. Of these:
- Around 5% liftshare;
 - Around 5% walk;
 - Observations are for around 10 cycles to be present on site – around 5% based upon shift patterns;
 - Observations are for around 6 powered to wheelers to be present on site – around 3% based upon shift patterns.
- 5.3.3 The estimated sustainable mode share to the site is around 18%, with the remainder consisting of single occupancy car users.
- 5.3.4 The estimated mode share of the existing site has been used as the basis for the proposed development.

5.4 PEDESTRIAN ACCESS

- 5.4.1 Walking is an affordable and safe transportation option that does not generate emissions, traffic noise or traffic congestion, and instead boosts mental and physical health.
- 5.4.2 Around 5% of staff are estimated to travel to the site on foot.
- 5.4.3 Research has indicated that acceptable walking distances depend on a number of factors, including the quality of the development, the type of amenity offered, the

surrounding area, and other local facilities. The Chartered Institution of Highways and Transportation (CIHT) document entitled Providing for Journeys on Foot (2000) suggests walking distances which are relevant to this application. These distances are shown in Table 5.1.

Table 5.1 Suggested Acceptable Walking Distances

Criteria	Town Centres (m)	Commuting/ School/ Sightseeing (m)	Elsewhere/ Local Services (m)
Desirable	200	500	400
Acceptable	400	1,000	800
Preferred Maximum	800	2,000	1,200

- 5.4.4 Whilst Table 5.1 provides useful guidance on walking distances, Manual for Streets provides a context for interpreting them. Manual for Streets states that:

The propensity to walk is influenced not only by distance, but also by the quality of the walking experience. A 20-minute walk alongside a busy highway can seem endless, yet in a rich and stimulating street, such as in a town centre, it can pass without noticing. Residential areas can offer a pleasant walking experience if good quality landscaping, gardens or interesting architecture are present.

- 5.4.5 The 2km walking isochrone is shown in Figure 5.1, Appendix A. It can be seen from Figure 5.1 that the majority of Llay is within 1km of the site, with the borders of the Cefn-y-Bedd and Gresford conurbations being at the edge of the 2km walking isochrone. As such, it is expected that the vast majority of pedestrians to the site would originate from within Llay.
- 5.4.6 There is opportunity for some employees from areas beyond the 2km isochrone to walk, however the proportion would likely reduce as distances further than 2km are considered.
- 5.4.7 To the north of the site, Miners Road benefits from continuous lit footways on both sides of the carriageway. Similarly, Llay Road to the south also benefits from continuous lit footways.
- 5.4.8 The footways provide pedestrian linkage to the residential areas of Llay and provide the opportunity to walk to the site from these areas.
- 5.4.9 Public Right of Way Llay 6 is located around 120m to the west of the southern site entrance. The footpath provides direct connections to many areas of Llay on vehicle-free route.
- 5.4.10 There are appropriate pedestrian facilities to access the site on foot from within the local area.

5.5 ACCESS BY CYCLE

- 5.5.1 As with walking, cycling is also an affordable and safe transportation option that does not generate emissions, traffic noise or traffic congestion and, similarly, boosts mental and physical health.
- 5.5.2 Around 5% of staff are estimated to travel to the site by cycle.

- 5.5.3 It is widely recognised that cycling offers an attractive alternative to short car trips, particularly those under 5km, but also as part of longer journeys by public transport. Figure 5.2, Appendix A, shows the 3km, 4km and 5km cycle isochrones.
- 5.5.4 All destinations within a reasonable walking distance of the site are also within a reasonable cycling distance.
- 5.5.5 The closest cycle facility to the site is around the Llay Road/ Llay New Road roundabout, around 300m to the west of the southern site entrance and provides links to the south, towards the nearest major conurbation of Wrexham. The cycle route provides the opportunity for cyclists to travel a significant length of the distance to Wrexham segregated from traffic.
- 5.5.6 The northern areas of Wrexham, and all of Gresford, Brynteg, Gwersylit, Brymbo, Yr Hob, and Rossett are within the 5km cycle isochrone.
- 5.5.7 Importantly, 5km is not the absolute limit of cycle distance, with commuter cyclists often travelling significantly further than this.
- 5.5.8 There are appropriate cycle facilities to access the site by cycle from within the local and wider area.

5.6 PUBLIC TRANSPORT

- 5.6.1 The nearest bus stops to the site are located on Llay Road, adjacent to the existing Magellan Aerospace facility and on Rackery Lane, around 200m from the boundary of the site.
- 5.6.2 The bus stops on Llay Road are served by routes 34, PC1 and PC2. The bus stop on Rackery Lane is served by routes PC1 and PC2.
- 5.6.3 Route 34 operates Monday to Saturday, accessing the bus stops closest to the site at 10:04am, 12:04pm and 16:04pm in the direction of Trevalyn and at 10:40am, 12:40pm and 16:40pm in the direction of Wrexham.
- 5.6.4 Route PC1 operates Monday to Friday, accessing the bus stops closest to the site at 7:32am in the direction of Llay and 16:37pm in the direction of Southsea.
- 5.6.5 Route PC2 also operates Monday to Friday, accessing the bus stops closest to the site at 07:34am in the direction of Llay and 16:35pm in the direction of Caego.
- 5.6.6 The bus routes that operate closest to the site provide the site with a similar level of public transport access as that which is available to the rest of the existing industrial units.

5.7 ACCESS BY ULTRA LOW AND ZERO EMISSION VEHICLE

- 5.7.1 As discussed in Chapter 3, anyone who can drive a car can drive an ultra-low or zero emission vehicle. Within the lifetime of the development these vehicle types will become increasingly utilised, until the Government phase out the sales of all new polluting vehicles by 2035, or before.

5.8 SUMMARY

- 5.8.1 A review of the existing accessibility of the site shows that all of Llay is within a reasonable walking distance of the site. The reasonable cycling distance includes the northern areas of Wrexham, for which a significant length of the route has a segregated cycleway available.
- 5.8.2 The existing bus routes closest to the site provide a similar level of public transport access as the existing premises across the industrial estate.

6. HIGHWAY SAFETY REVIEW

6.1 INTRODUCTION

6.1.1 In order to consider whether there are any existing issues relating to road safety which are relevant to this site, a review of the five-year road traffic accident data on the local highway network has been undertaken for the key routes between the site, key local destinations and the wider transport networks.

6.1.2 The assessment considers the quantum and severity of recorded accidents.

6.2 SCOPE OF ASSESSMENT

6.2.1 The scope of assessment includes the site access points, Miners Road to the junction of Rackery Lane/ Miners Road and the junction of Rackery Lane/ Miners Road.

6.3 ACCIDENT DATA

6.3.1 The accident plot for the most recent five-years of available personal injury accident data (2015 to 2019 inclusive) is shown below:

Extract 7.1 Five-year Personal Injury Accident Data



6.3.2 It can be seen from Extract 7.1 that there have been no accidents at all reported within the study area in the full five-year study period.

6.4 SUMMARY

6.4.1 A review of the most recent five-year personal injury accident data has been undertaken for the site access points, Miners Road to the junction of Rackery Lane/ Miners Road and the junction of Rackery Lane/ Miners Road. There have been no accidents at all recorded within the study period and, as such, there are no existing highway safety issues relating to the access to the site or the industrial estate.

7. PROPOSED ACCESS

7.1 INTRODUCTION

- 7.1.1 The transport hierarchy requires sustainable modes of transport to be afforded the highest priority in terms of access. As such, the primary consideration for the site is access by sustainable modes.
- 7.1.2 Chapter 5 has demonstrated that the proposed development site meets with the sustainable access criteria, as set out in Section 4.1 of Planning Policy Wales.
- 7.1.3 The development proposals result in a capacity of around 135 new staff accessing the site. This chapter considers the access proposals for the site by the additional staff who would be located within the wider site.

7.2 PEDESTRIANS

- 7.2.1 The key pedestrian access points to the new facility are shared with the vehicular access points, which is the same arrangement as the existing facility.
- 7.2.2 The proposed pedestrian access points meet with the requirements of this user group.

7.3 CYCLISTS

- 7.3.1 The proposed access for cyclists is shared with the vehicular access. The existing proportion of staff who cycle are understood to be around 5%. With the total number of staff for the proposed unit split across shifts, this could equate to around 95 staff on site at any one time. As such, a reasonable provision for cycle storage, based upon the existing usage, could be 5 secure and covered cycle parking.
- 7.3.2 Even so, it is important to make allowance for an uptake in cycling over the short to medium term, especially with the implementation of a Travel Plan.
- 7.3.3 As such, a review has been undertaken of the cycle parking standards for the development. The proposed land use if a B2/ B8 industrial unit which would be utilised for the assembly of large aerospace products, which by their very nature are bulky.
- 7.3.4 The cycle parking standards for a admin, offices, R&D land use are 1 space per 350sqm of gross floor area, B2 land use are 1 space per 500sqm of gross floor area and for a B8 land use are 1 space per 1,000sqm of gross floor area.
- 7.3.5 The proposed development floor area, therefore, equates to a requirement for 14 cycle parking spaces (equivalent to 7 cycle stands)
- 7.3.6 The guidance states that:

In areas where long stay bicycle parking facilities are required (in excess of 8 hours in length) developers should provide more secure parking facilities in the form of cycle cages or lockable bicycle shelters. Alternatively, secure compounds within buildings may be acceptable, providing that they are located at ground floor level and are accessible.
- 7.3.7 Based upon the proposed floorspace a minimum provision of 14 secure cycle parking spaces (7 stands) would be provided for the new facility.

7.4 PUBLIC TRANSPORT

- 7.4.1 The existing public transport routes run close to the site and the access proposals for pedestrians would meet with the requirements of this user group.

7.5 PRIVATE VEHICLES

- 7.5.1 Private vehicles relate to the employees for the proposed development. The vehicular access points are shown in Figure DPL SK010 and are attached at Appendix A. The access and egress routes are separated and a one-way system would be in place for the new facility.
- 7.5.2 The proposals include 72 car parking spaces, including 4 disabled parking bays.
- 7.5.3 A review of the shift patterns for the proposed facility has been undertaken and shows that the peak staffing of the unit is forecast to occur between 08:00 and 17:00 Monday to Thursday and 08:00 to 13:00 on a Friday. The peak number of staff is forecast to be 95, of whom 82% are forecast to travel as a car driver.
- 7.5.4 The forecast car parking requirement is 78 spaces, based upon the above assessment, which does not include an allowance for visitors or day to day fluctuations in mode share. As such, the proposed 72 spaces is considered in more detail in Chapter 8.
- 7.5.5 By comparison, the car parking standards set out in Local Planning Guidance Note No.16 require a maximum of 1 space per 50sqm of B2 floorspace and 1 space per 100sqm of B8 floorspace.
- 7.5.6 For a B2 land use, the maximum car parking provision should be 110 spaces for B2 (based upon a rounded 5,500sqm of floorspace) and 55 for a B8 land use.
- 7.5.7 The proposed parking provision is below the maximum for a B2 land use and above that for a B8 land use. Consequently, the proposed car parking provision is considered to accord with the parking standards for the B2/ B8 land use.

7.6 CAR SHARE

- 7.6.1 A Travel Plan has been submitted as a separate document as part of the planning application package. The Travel Plan incorporates a commitment by the operator to implement a car sharing scheme, with car share priority spaces provided conveniently to the front of the building. These spaces will be managed and allocated for staff who can demonstrate that they car share to the site.
- 7.6.2 The car share spaces form part of an overall package of measures to encourage sustainable travel to the site, which include car park management proposals within the Travel Plan.

7.7 ELECTRIC VEHICLE CHARGING

- 7.7.1 As discussed within Chapter 3, within the lifetime of the development it is expected that the vast majority, if not all, private vehicles could be electric and may require charging. As such, passive provision is to be made to the proposed car park for the future provision of electric vehicle charging, which can then be activated once demand requires.
- 7.7.2 Initially, the proposal is for a single charging pillar to be provided within the car park, which would allow for the charging of two vehicles simultaneously. This is equivalent to around 3% of spaces, with passive allowance for up to 100% of spaces to upgraded in the future for electric vehicle charging.
- 7.7.3 The number of electric-only vehicles registered on the UK roads as of July 2020 was 136,600, against a total number of vehicles of around 38.3 million. This equates to current electric-only cars accounting for 0.35% of registered cars. As such, the 3% provision is considered appropriate for the short-term needs of the development.
- 7.7.4 The Travel Plan sets out the monitoring and delivery of electric vehicle charging points within the car park as the take-up of electric-only vehicles increases towards 2035.

7.8 DISABLED CAR PARKING

- 7.8.1 The car parking standards require that 10% of all spaces are to be provided to mobility standard. Of these 6% are to be for the exclusive use of disabled persons and 4% to aid those with young children. As there will be no staff who bring children to the proposed facility, a total provision of 6% extra-wide spaces for the use of disabled employees is considered to accord with the standard.
- 7.8.2 The proposals are for 4 extra-wide spaces to be available for disabled employees, which accords with the 6% standard.

7.9 SERVICING AND DELIVERIES – STANDARD VEHICLES

- 7.9.1 The site access for the development proposals are based upon the existing western access point to the existing site, realigned to meet with the requirements for the proposals. The site access point has been assessed using a 16.5m FTA design articulated HGV. The swept path analysis is attached as DPL SK011, Appendix A.
- 7.9.2 The access is shown to accommodate the swept path of this vehicle
- 7.9.3 The egress is a new egress point to the northwest of the development parcel. The egress has similarly been assessed using a 16.5m FTA design articulated HGV. The swept path analysis is attached as DPL SK002, Appendix A.
- 7.9.4 The egress is shown to accommodate the swept path of this vehicle.

7.10 SERVICING – EXTRA LONG VEHICLES

- 7.10.1 The proposed facility will include the assembly of extra-long aerospace products which can vary in length up to between 16m to 21m. These extra-long products would not fit on a standard articulated vehicle and, as such, an extendable trailer (upto 21.3m) would be required to access and egress the site. The same vehicle currently serves the existing facility.
- 7.10.2 The use of these vehicles is currently around four times per week, when extended to their longest length.
- 7.10.3 A bespoke swept path analysis model has been produced for the 21.3m articulated vehicle. The basis of the model is the 16.5m FTA design articulated HGV, with the following amendments:
- Rear axle configuration – unchanged dimensions, with the axle pivot amended from 'Fixed' to 'Common Axle Pivot'; and
 - Coupling to first rear axle length increased from 6.47m to 14.16m.
- 7.10.4 The vehicle currently accesses the site via the existing facility's entrance to the east of the development plot. Swept path analysis has been undertaken of the existing entrance, which shows that the existing entrance can accommodate the bespoke model. As such, the model is considered to be reasonable, yet robust.
- 7.10.5 The bespoke swept path analysis model has been used to assess the access and egress points and highlights that there is a requirement for vehicle overrun areas to be incorporated into the proposals. The swept path analysis is shown in DPL SK012, Appendix A, which shows the areas of overrun, as well as the proposed kerblines.
- 7.10.6 Discussions will be required with the highway authority on the treatment of these overrun areas, however it is initially proposed that these will be provided with an edge treatment for the standard vehicles (inset edging or low kerb, less than 50mm), with the overrun areas provided in a contrasting material or colour.

- 7.10.7 As the overrun areas are critical to the delivery of an operable scheme, this feature is considered to be of primary importance within the site access design.

7.11 SUMMARY

- 7.11.1 The site access proposals incorporate a shared-use access for all user groups, with on-site provision made for secure and covered cycle stands.
- 7.11.2 The site access has been designed for all appropriate vehicle types which would access the site, including extendable trailer vehicles (21.3m trailer). A bespoke swept path analysis vehicle has been utilised for this assessment.
- 7.11.3 The car parking proposals align with the site's forecast requirements and the council's car parking standards. The proposals include for disabled parking, car share priority spaces, active charging provision of 3% of spaces and passive provision for all the other spaces.
- 7.11.4 The site access proposals are considered to meet with the access requirements of the proposed facility and help to encourage sustainable travel to the site.

8. CAR PARKING ASSESSMENT

8.1 INTRODUCTION

- 8.1.1 Chapter 7 has discussed the proposed access and car parking arrangements to the proposed facility. This chapter considers the implications on the overall car parking requirements for the wider site.

8.2 EXISTING CAR PARKING AVAILABILITY

- 8.2.1 The car parking availability on the existing site will be reduced as a result of the development proposals. In addition, there is currently an off-site provision of 40 spaces, which would be extinguished following the redevelopment proposals.
- 8.2.2 Importantly, as 72 spaces are proposed for the new facility, with 40 being extinguished for the existing facility, the net increase in available car parking as a result of the development proposals is 32.
- 8.2.3 The residual car parking spaces for the existing facility are located as follows:
- Main car park – 72 spaces;
 - Front car park – 41 spaces; and
 - Treatment area car park – 10 spaces.
- 8.2.4 There are currently 123 spaces at the existing facility that will remain in operation following the development being implemented.
- 8.2.5 A review has been undertaken of the staffing and shift patterns to confirm the adequacy of the future car parking arrangements to accommodate the needs of the both facilities.

8.3 EXISTING SHIFT PATTERNS

- 8.3.1 There are forecast to be a total of around staff 325 accommodated at the existing facility, following the implementation of the proposals, which has been based upon existing shift patterns. These staff currently work to two main shift patterns:
- 61 staff per shift working from 7am to 7pm and 7pm to 7am on 12-hour shifts; and
 - 71 staff per shift working from 8am to 1pm.
- 8.3.2 The resultant peak number of staff on site at any one time is 132, which is based upon the day shift, from 8am to 5pm (Monday to Thursday) and 8am to 1pm (Friday) where 71 day shift staff and 61 production staff are on site.
- 8.3.3 Taking the 82% mode share by car, this results in a car parking requirement of 109 spaces.
- 8.3.4 The reprovision of 123 on-site car parking spaces is considered suitable to meet with the needs of the development, including an allowance for visitor car parking and day to day fluctuations in mode share by car.
- 8.3.5 The 123 spaces excludes the existing 40 space off-site car park and, as such, results in a significant reduction in the availability of car parking for the existing facility.
- 8.3.6 To help to manage the reduction in car parking availability the Travel Plan aims to reduce car usage to the site and would be implemented, along with car park management, across the whole site. The Travel Plan aims to reduce reliance on the private car and encourage access by sustainable travel modes.

8.4 FORECAST SHIFT PATTERNS

- 8.4.1 The proposed new facility could employ around 135 staff, in addition to the staff at the existing unit, taking the total number of employees on site to around 470. The potential timescales to achieve the full staff numbers on the site is around three to four years, based upon current projections.
- 8.4.2 As such, there is appropriate opportunity to implement a Car Park Management Strategy prior to full occupation of the two facilities. The implementation of the Car Park Management Strategy will help to encourage efficient use of the car parking, whilst also encouraging non-car modes of transport.
- 8.4.3 The peak occupation for the proposed facility is forecast to be around 95 staff, which would result in a car parking requirement of 78 spaces. The development proposals are for 72 spaces to be provided, which would result in 6 cars being required to park on the existing site, taking the total number of spare car parking spaces across the site to 9, which provides only minimal flexibility for day to day fluctuations in mode share and visitors to the two facilities.
- 8.4.4 With the development proposals in place, the following number of car parking spaces would be available:
- Main car park – 72 spaces;
 - Front car park – 41 spaces;
 - Treatment area car park – 10 spaces; and
 - New facility – 72 spaces.
- 8.4.5 A Travel Plan accompanies the planning application package and, combined with the Car Park Management are aimed at increasing sustainable mode share to the two facilities, thereby reducing overall car parking demand.

8.5 CAR PARK MANAGEMENT

EXISTING FACILITY

- 8.5.1 A detailed assessment of the start and finish times of staff for the existing facility has been undertaken and is attached at Appendix B. The assessment shows the start and finish times of staff and that, with appropriate car park management, the residual number of car parking spaces appears to meet with the demand.
- 8.5.2 It is proposed to allocate 10 spaces within the front car park to become car share priority spaces. This equates to 8% of car parking at the existing facility to be for car sharers. The 8% should accommodate the existing 5% staff who car share, with a further 3% available to encourage new car sharers.
- 8.5.3 The use of the car sharing spaces would be monitored and the provision extended as demand requires.
- 8.5.4 The Travel Plan aims for a short-term target of 82% car drivers, with a two to three-year target of 78% (equivalent to a 5% modal shift away from car drivers).
- 8.5.5 The Travel Plan sets a stretch target of 74% car drivers (equivalent to a 10% modal shift away from car drivers). The stretch target is to be aimed for once the 5% target has been met.

PROPOSED FACILITY

- 8.5.6 A detailed assessment of the start and finish times of staff for the proposed facility has been undertaken and is attached at Appendix B. The assessment shows the start and

finish times of staff and that, with appropriate car park management, there could be a shortfall of around four spaces.

- 8.5.7 It is proposed to allocate 7 spaces within the new car park to be car share priority spaces. This equates to 9% of car parking at the new facility to be for car sharers. The 9% should accommodate 5% staff car sharing, with a further 4% available to encourage new car sharers.
- 8.5.8 The use of the car sharing spaces would be monitored and the provision extended as demand requires.
- 8.5.9 The Travel Plan aims for a short-term target of 82% car drivers, with a two to three-year target of 78% (equivalent to a 5% modal shift away from car drivers). With the two to three-year target met, the proposed number of car parking spaces is forecast to fall short of demand by two. Importantly, the two to three-year target for existing employees could have been met, or materially met, by the time the proposed facility is in full operation.
- 8.5.10 The Travel Plan sets a stretch target of 74% car drivers (equivalent to a 10% modal shift away from car drivers). The stretch target is to be aimed for once the 5% target has been met. With the stretch target met, there are forecast to be around two car parking spaces available at the proposed facility, which would help to accommodate the needs of visitors and provide flexibility to accommodate any day to day fluctuations in staff travel behaviour.

8.6 TRAVEL PLAN SUMMARY

- 8.6.1 A Travel Plan forms part of the planning application package. The Travel Plan forms a commitment between Magellan Aerospace and the council to deliver measures and encouragement of sustainable travel modes to and from the site.
- 8.6.2 The following measures are set out within the Travel Plan:
- Car share priority spaces, as above;
 - Car sharing to be promoted to staff, including the cost benefits being promoted. This could include an informal car sharing database of people who wish to pick up or be picked up. A recommended contribution towards fuel costs could be suggested;
 - Car park management to be implemented;
 - Passive electrical charging provision to all spaces within the proposed new car park;
 - Active electrical charging provision to two spaces within the proposed new car park (equivalent to a 3% provision, which significantly exceeds the current electric vehicle ownership levels of 0.3%);
 - Adequate secure and covered cycle shelters to be provided;
 - Lockers and showers to be available for walkers/ cyclists;
 - Active travel to be encouraged, with the health and cost benefits promoted to staff; and
 - A Travel Plan to be implemented and promoted to staff to help encourage them to travel to work by sustainable travel modes.
- 8.6.3 The proposed measures are considered to be appropriate to the site and deliverable with the businesses existing and future operations.

8.7 SUMMARY

- 8.7.1 A detailed review of the of the car parks across the existing and proposed facilities has been undertaken.
- 8.7.2 The proposals for the existing facility incorporate a material reduction in the availability of car parking to 123, down from 163 currently (including an existing off-site car park).

- 8.7.3 The forecast car parking requirement for the existing unit is met by the re-provision of existing spaces, subject to the delivery of a Car Park Management Plan and provides some flexibility for visitors and day to day fluctuations in mode share.
- 8.7.4 The proposed facility would provide 72 car parking spaces, which falls short of the forecast requirement of 78 spaces, prior to Car Park Management and the Travel Plan being implemented.
- 8.7.5 Importantly, as 72 spaces are proposed for the new facility, with 40 being extinguished for the existing facility, the net increase in available car parking as a result of the development proposals is 32.
- 8.7.6 The planning application package includes a Travel Plan, which sets short term and stretch targets for reducing the percentage of car drivers to the site, thereby increasing the mode share by sustainable travel modes, including car sharing.
- 8.7.7 A short-term target of a 5% reduction in car drivers to the proposed facility has been set over a two to three-year period, which would result in the mode share as car drivers at 78%.
- 8.7.8 A stretch target of a 10% reduction in car drivers to the proposed facility has been set once the 5% target has been met. This results in the car parking provision being forecast to meet demand.
- 8.7.9 The Car Park Management Plan and Travel Plan will be also be delivered across the whole site, which could result in reduced car travel to the site overall and help to manage car parking demand.
- 8.7.10 The following measures are set out within the Travel Plan to help encourage staff to travel sustainably and reach the short-term and stretch mode share targets:
- Car share priority spaces, as above;
 - Car sharing to be promoted to staff, including the cost benefits being promoted. This could include an informal car sharing database of people who wish to pick up or be picked up. A recommended contribution towards fuel costs could be suggested;
 - Car park management to be implemented;
 - Passive electrical charging provision to all spaces within the proposed new car park;
 - Active electrical charging provision to two spaces within the proposed new car park (equivalent to a 3% provision, which significantly exceeds the current electric vehicle ownership levels of 0.3%);
 - Adequate secure and covered cycle shelters to be provided;
 - Lockers and showers to be available for walkers/ cyclists;
 - Active travel to be encouraged, with the health and cost benefits promoted to staff; and
 - A Travel Plan to be implemented and promoted to staff to help encourage them to travel to work by sustainable travel modes.
- 8.7.11 The car parking proposals, in conjunction with the Car Park Management Strategy and Travel Plan are considered to meet with the needs of the development, whilst helping to encourage sustainable travel to and from the site.

9. HIGHWAY ASSESSMENT

9.1 INTRODUCTION

- 9.1.1 The previous chapters have considered access to the site by sustainable travel modes and the proposed car parking availability for the existing and proposed facilities once both are fully operational.
- 9.1.2 The proposals include measures to reduce the proportion of car drivers to and from the site and demonstrate that the proposals are suitable for meeting demand, whilst also encouraging sustainable mode share.
- 9.1.3 This chapter considers the residual impacts of the development proposals on the wider highway network.

9.2 CORONAVIRUS

- 9.2.1 As discussed in Chapter 2, the existing traffic flows on the local and wider highway networks are not at their normal operational levels and, as such, new traffic counts would not provide appropriate information to assess the development proposals.
- 9.2.2 Even so, the Government are encouraging the private sector to build, build, build the UK out of the current recession. As such, it is important that planning applications continue to be determined, even if all the normally available data is not available. It is neither reasonable, nor a positive approach to planning to withhold planning permission due to the current Worldwide crisis.
- 9.2.3 As such, a qualitative assessment of the development's impact on the highway network has been undertaken.

9.3 EXISTING HIGHWAY NETWORK

- 9.3.1 A review of planning application P/2019/0525 (Aldi, Fern Meadow) includes a traffic count at the Crown Crossroads, which is the intersection of Straight Mile/ Gresford Road/ Llay Road/ Rackery Lane and Chapel Lane.
- 9.3.2 The traffic counts included within the Aldi Transport Assessment show that the peak hours for the network are, indeed, 8am to 9am and 5pm to 6pm.
- 9.3.3 The Aldi Transport Assessment shows that the operation of the Crown Crossroads to be around 67% of capacity in the PM peak hour in 2019, with a forecast of 68% by 2024 and 79% by 2024, including the Aldi proposals.
- 9.3.4 The Rackery Lane arm of the junction is forecast to operate at 78% of capacity in the PM peak hour in the 2024 scenario with the Aldi constructed.
- 9.3.5 The 78% can be calculated as 582 passenger car units (equivalent to one car) from the north on Rackery Lane, for the 2024 future year assessment, against a forecast capacity of 744 passenger car units(PCU). Even with no adjustments to the traffic signal timing submitted as part of the Aldi Transport Assessment, the commonly accepted maximum capacity before any additional works may be considered is 90% of capacity.
- 9.3.6 Taking 90% of the 744 PCU forecast capacity results in an available capacity (before the 90% threshold is met) of 670 PCU, or a forecast residual capacity of 88 passenger car units. With additional optimisation of the traffic signals, the available capacity is likely to increase further.
- 9.3.7 The Aldi Transport Assessment forecasts that, taking into account committed development, traffic growth to 2024 and the Aldi being implemented there could be

around 88 PCUs of spare traffic capacity on the Rackery Lane arm of the junction of Straight Mile/ Gresford Road/ Llay Road/ Rackery Lane and Chapel Lane in the PM peak hour.

9.4 EXISTING FACILITY

9.4.1 The existing facility (at 100% capacity) is forecast to result in the following vehicle movements, excluding service and delivery vehicles:

- Pre-7am – 61 7-7 day shift staff to arrive (in 50 cars);
- Post 7am – 61 7-7 night shift staff to depart (in 50 cars);
- Pre-8am – 71 8-5 day shift staff to arrive (in 58 cars);
- Post 5pm – 71 8-5 day shift staff to arrive (in 58 cars);
- Pre 7pm - 61 7-7 night shift staff to arrive (in 50 cars); and
- Post 7pm – 61 7-7 day shift staff to depart (in 50 cars).

9.4.2 The vast majority of vehicle movements relating to private cars are forecast to access and egress the site outside of the standard operational peak hours of 8am to 9am and 5pm to 6pm (also, as used in the Aldi Transport Assessment).

9.4.3 There are forecast to be no trips relating to staff in the period 8am to 9am due to the shift patterns.

9.4.4 During the day, there would be a number of materials deliveries into the site and goods departing from the site by HGV. There would also be a small number of extra-long loads per week departing the site.

9.4.5 The number of HGV movements to and from the site is not considered to result in a material impact on the highway network.

9.5 PROPOSED FACILITY

9.5.1 For robustness, the assessment of traffic forecasts for the proposed facility is based upon an unconstrained demand, which does not take account of the loss of existing parking spaces, which takes the net car parking availability with the proposals in place to just 32 additional spaces across the two facilities. The measures within the Travel Plan and Car Park Management Plan are also excluded from the initial assessment. As such, any forecast impacts could be overstated.

9.5.2 The proposed facility (at 100% capacity) is forecast to result in the following vehicle movements, excluding service and delivery vehicles:

- Pre-7am – 20 7-7 day shift staff to arrive (in 16 cars);
- Post 7am – 20 7-7 night shift and night shift staff to depart (in 16 cars);
- Post 7am – 10 9-7 night shift staff depart (in 8 cars)
- Pre-8am – 75 8-5 day shift staff to arrive (in 62 cars);
- Post 5pm – 81 8-5 day shift staff to arrive (in 62 cars);
- Pre 7pm - 20 7-7 night shift staff to arrive (in 16 cars);
- Post 7pm – 20 7-7 day shift staff to depart (in 16 cars); and
- Pre 9pm – 10 9-7 night shift staff arrive (in 8 cars).

9.5.3 The vast majority of vehicle movements relating to private cars are forecast to access and egress the site outside of the standard operational peak hours of 8am to 9am and 5pm to 6pm.

9.5.4 For the PM peak hour, there are forecast to be around 62 additional cars relating to the 8-5 day shift staff departing in the period 5pm to 6pm. This is the residual impact of the development proposals, prior to the implementation of any Travel Plan measures.

- 9.5.5 With a 5% modal shift away from the private car the PM peak hour traffic impact is forecast to be 58 cars departing the site. With a 10% modal shift away from the private car the PM peak hour traffic impact is forecast to be 55 cars departing the site.
- 9.5.6 The overall development-generated impact could be reduced further through the application of the Car Park Management Plan and Travel Plan across the two facilities, reducing the impacts of the existing staff travel patterns to help to mitigate the impacts of the development proposals.
- 9.5.7 The peak forecast impact of the development proposals is in the period 5pm to 6pm, as 62 cars are forecast to exit the site. This is equivalent to an average of around 1 car per minute, when spread over the peak hour.
- 9.5.8 During the day, there would be a number of materials deliveries into the site and goods departing from the site by HGV. There would also be a small number of extra-long loads per week departing the site.
- 9.5.9 The number of HGV movements to and from the site is not considered to result in a material impact on the highway network.

9.6 RACKERY LANE/ MINERS ROAD

- 9.6.1 The junction of Rackery Lane/ Miners Road is a ghost-island priority T-junction has been designed to accommodate the development of the Llay industrial estate (central area). The northern area is served by the priority T-junction of Rackery Lane/ Davy Way, with the southern area served directly from Llay Road.
- 9.6.2 The addition of one additional peak hour vehicle movement per hour at the junction of Rackery Lane/ Miners Road is not considered to result in a material impact on the operation of the ghost-island T-junction of Rackery Lane/ Miners Road.
- 9.6.3 The impact is prior to the implementation of the Car Park Management Plan and Travel Plan, which could reduce the forecast traffic impacts further.
- 9.6.4 Once at the junction of Rackery Lane/ Miners Road, a proportion of the traffic would travel towards the north, with the majority likely to travel towards the south towards the Wrexham, via the junction of Straight Mile/ Gresford Road/ Llay Road/ Rackery Lane and Chapel Lane.

9.7 STRAIGHT MILE/ GRESFORD ROAD/ LLAY ROAD/ RACKERY LANE AND CHAPEL LANE

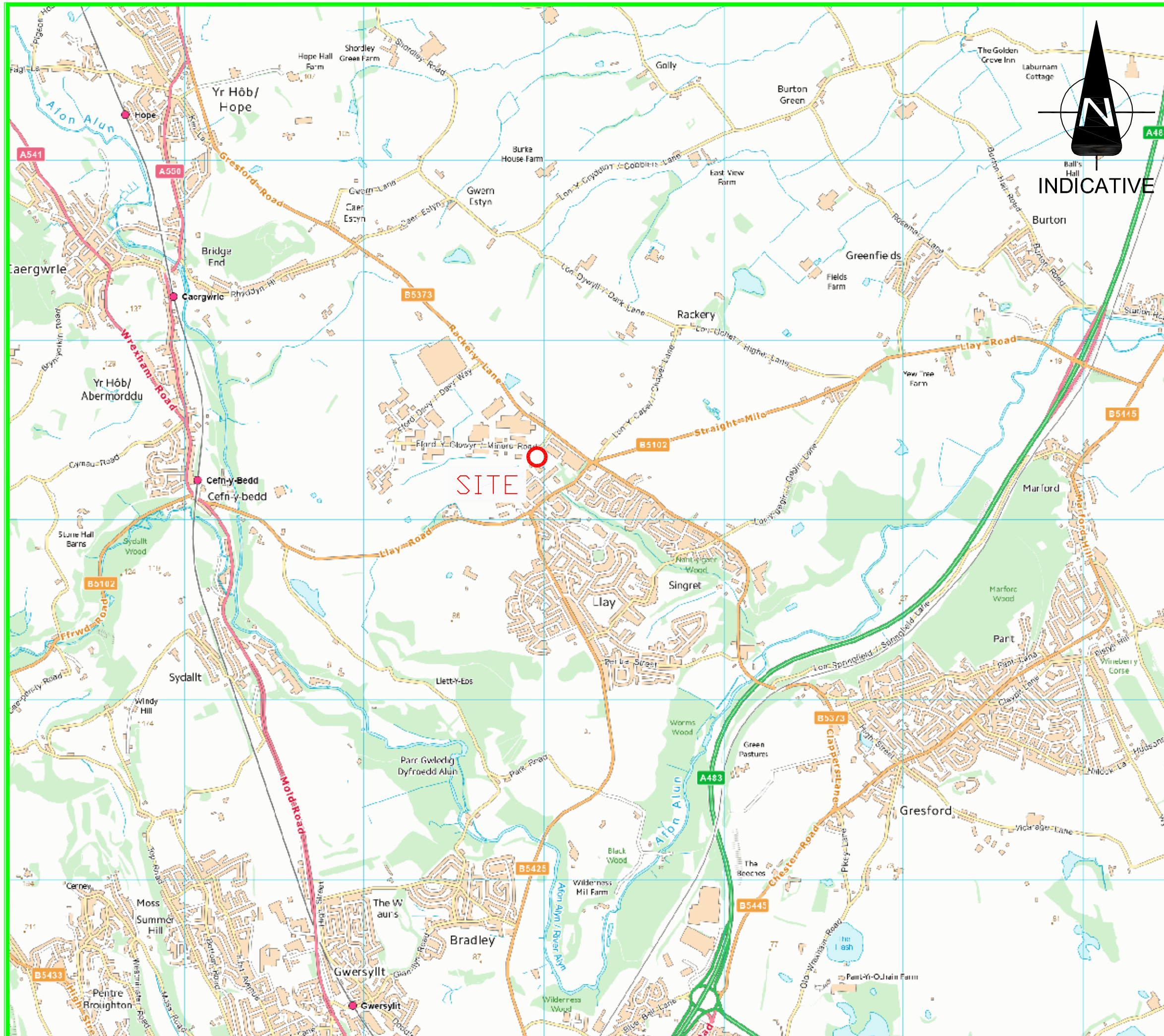
- 9.7.1 The forecast available traffic capacity at the junction of Straight Mile/ Gresford Road/ Llay Road/ Rackery Lane and Chapel Lane is discussed in Section 9.3.
- 9.7.2 The forecast traffic generation of the site sits within the available traffic capacity of the junction of Straight Mile/ Gresford Road/ Llay Road/ Rackery Lane and Chapel Lane, without any traffic signal timing optimisation required.

9.8 SUMMARY

- 9.8.1 For robustness, the assessment of traffic forecasts for the proposed facility is based upon an unconstrained demand, which does not take account of the loss of existing parking spaces, which takes the net car parking availability with the proposals in place to just 32 additional spaces across the two facilities. As such, any forecast impacts could be overstated.
- 9.8.2 A review of publicly available traffic data shows that the AM peak hour is 8am to 9am and the PM peak hour is 5pm to 6pm.

- 9.8.3 An assessment of the forecast shift patterns for the new facility has been undertaken and, as a result of the shift patterns, there are forecast to be no staff-related vehicle trips in the AM peak hour, with all staff starting their shift before 8am.
- 9.8.4 For the PM peak hour, there are forecast to be 62 cars exiting the site (leaving the site after 5pm) with the shift patterns resulting in shift changeovers outside of this period.
- 9.8.5 The 62 cars equate to an average of around one vehicle per minute in the PM peak hour exiting the site. The traffic impact is not considered to be material to the operation of the Rackery Lane/ Miners Road junction.
- 9.8.6 The majority of staff-related vehicles are expected to travel towards Wrexham, via the junction of Straight Mile/ Gresford Road/ Llay Road/ Rackery Lane and Chapel Lane. Even so, some vehicles will travel towards the north along Rackery Lane and the forecast traffic impact at the junction of Straight Mile/ Gresford Road/ Llay Road/ Rackery Lane and Chapel Lane is likely to be less than the forecast 62 PM peak hour vehicles exiting the site.
- 9.8.7 Based upon the Aldi Transport Assessment, the forecast development-generated traffic is below the forecast available capacity at the junction of Straight Mile/ Gresford Road/ Llay Road/ Rackery Lane and Chapel Lane in the 2024 future year traffic model (including committed developments and the Aldi proposals).
- 9.8.8 The impact is prior to the implementation of the Car Park Management Plan and Travel Plan, which could reduce the forecast traffic impacts further.
- 9.8.9 As a result, the development proposals are considered to be suitably low to be accommodated within the existing highway network.

APPENDIX A



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<http://www.devplanning.co.uk>

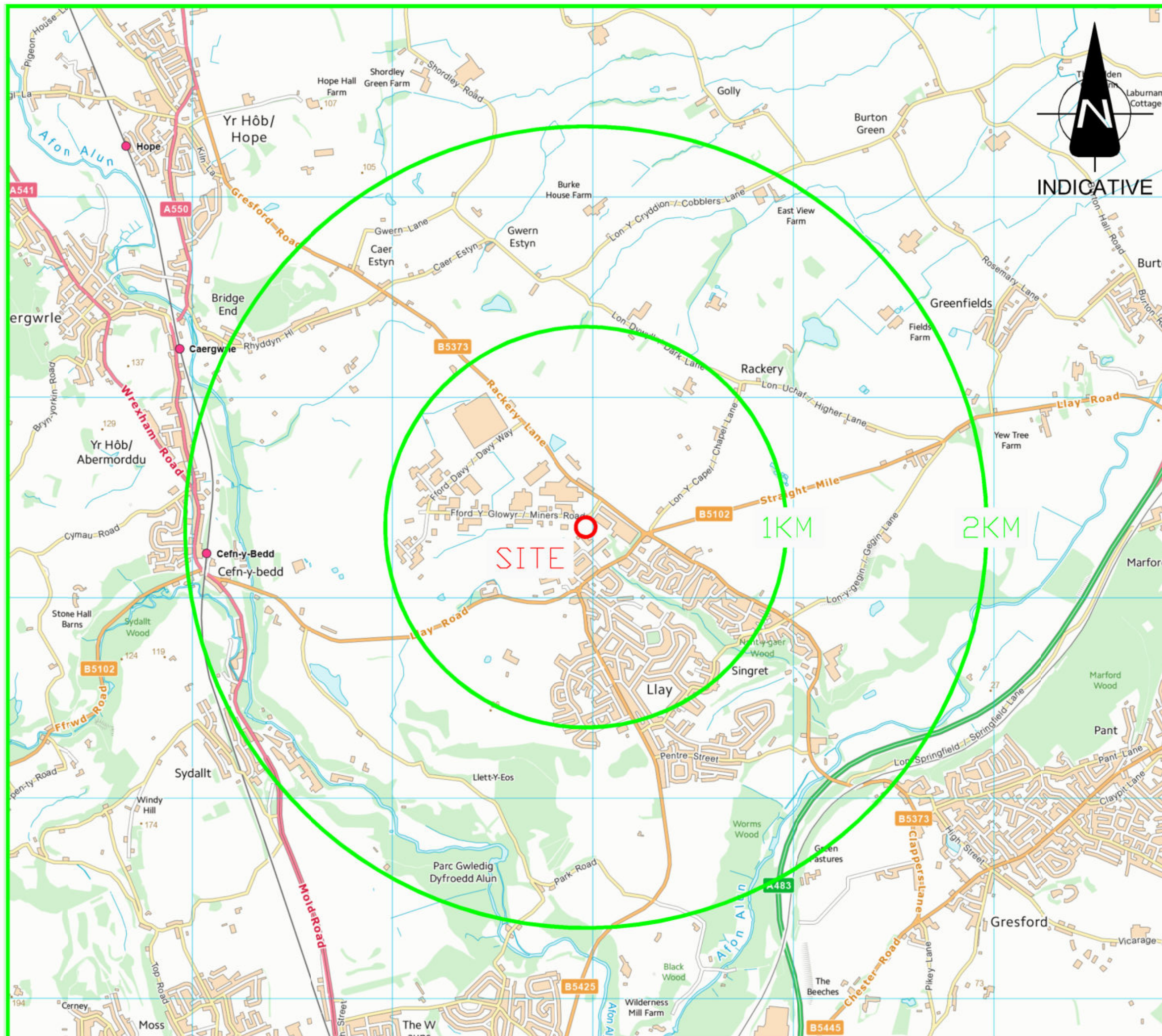
CLIENT:
 MAGELLAN AEROSPACE (UK) LIMITED

PROJECT:
 MAGELLAN WREXHAM NEW FACILITY

TITLE:
 SITE LOCATION PLAN

SCALE @ A3: NTS	APPROVED: DRS	DATE: 30/09/2020
PROJECT No: 2020200	DRAWING No: FIGURE 2.1	REV: -

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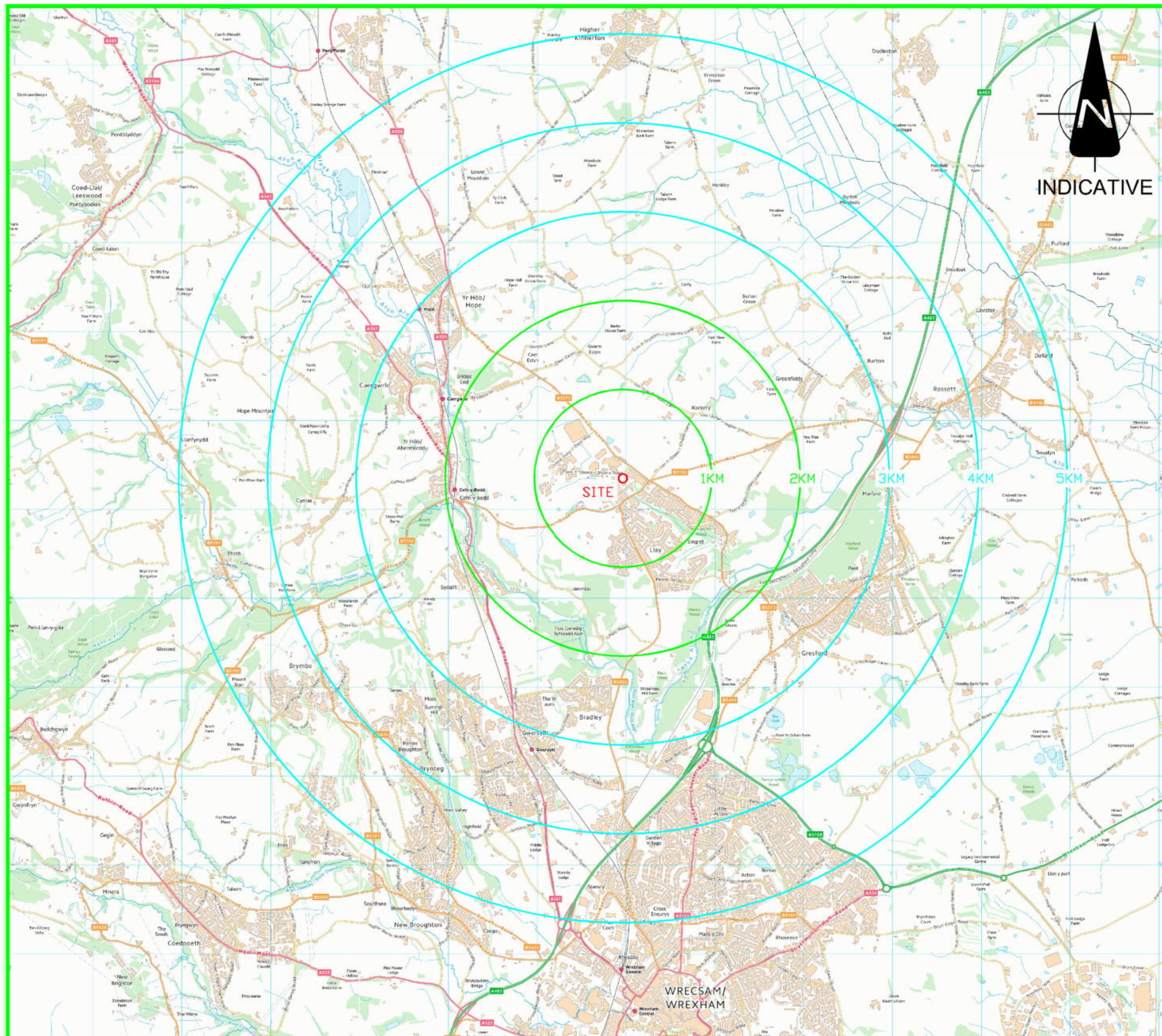
CLIENT:
MAGELLAN AEROSPACE (UK) LIMITED

PROJECT:
MAGELLAN WREXHAM NEW FACILITY

TITLE:
WALKING ISOCHRONES
1KM AND 2KM

SCALE @ A3: NTS	APPROVED: DRS	DATE: 30/09/2020
PROJECT No: 2020200	DRAWING No: FIGURE 5.1	REV: -

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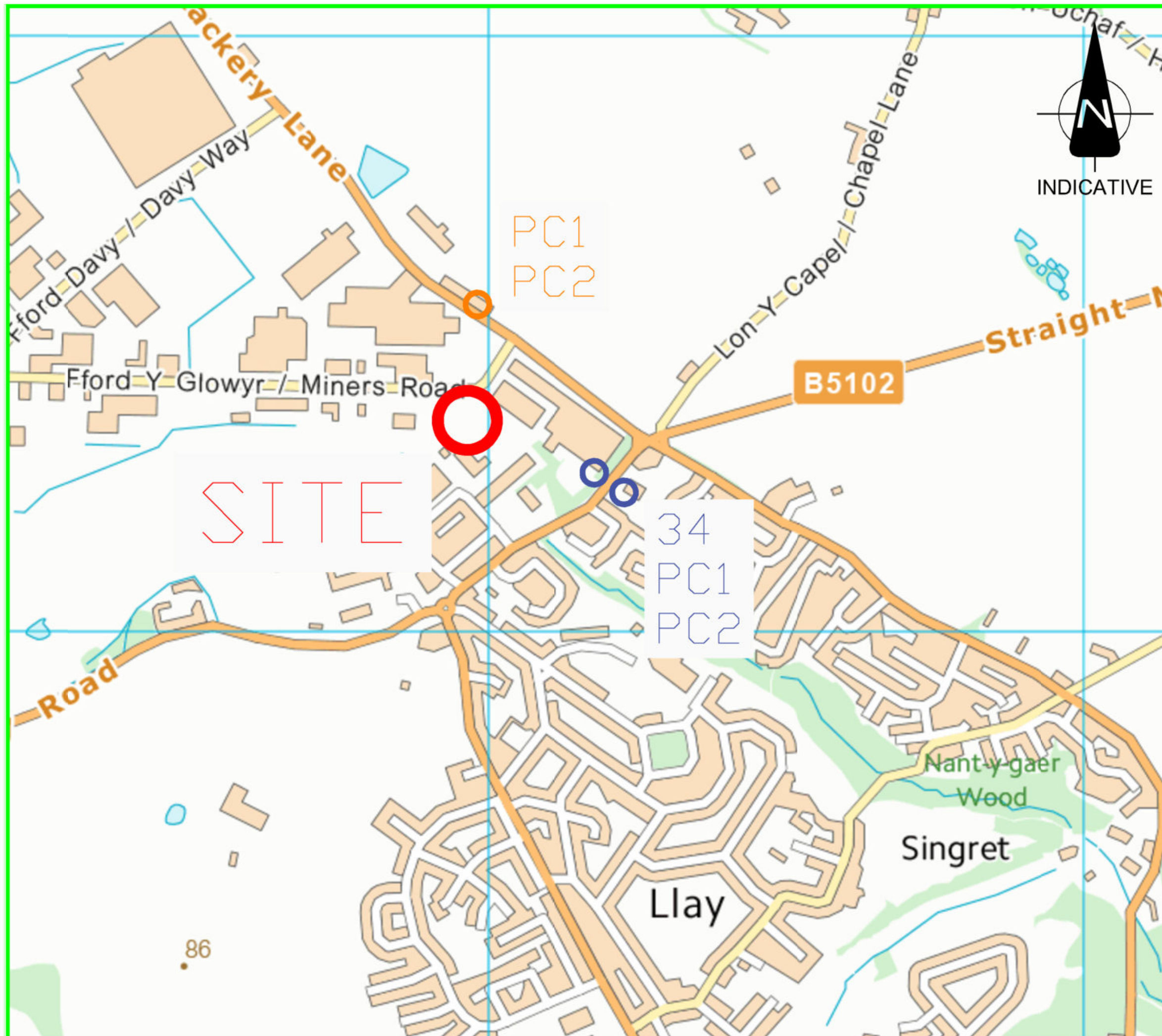
CLIENT: **MAGELLAN AEROSPACE (UK) LIMITED**

PROJECT: **MAGELLAN WREXHAM NEW FACILITY**

TITLE: **CYCLING ISOCHRONES
1KM, 2KM, 3KM, 4KM AND 5KM**

SCALE @ A3:	APPROVED:	DATE:
NTS	DRS	30/09/2020
PROJECT No:	DRAWING No:	REV:
2020200	FIGURE 5.2	-

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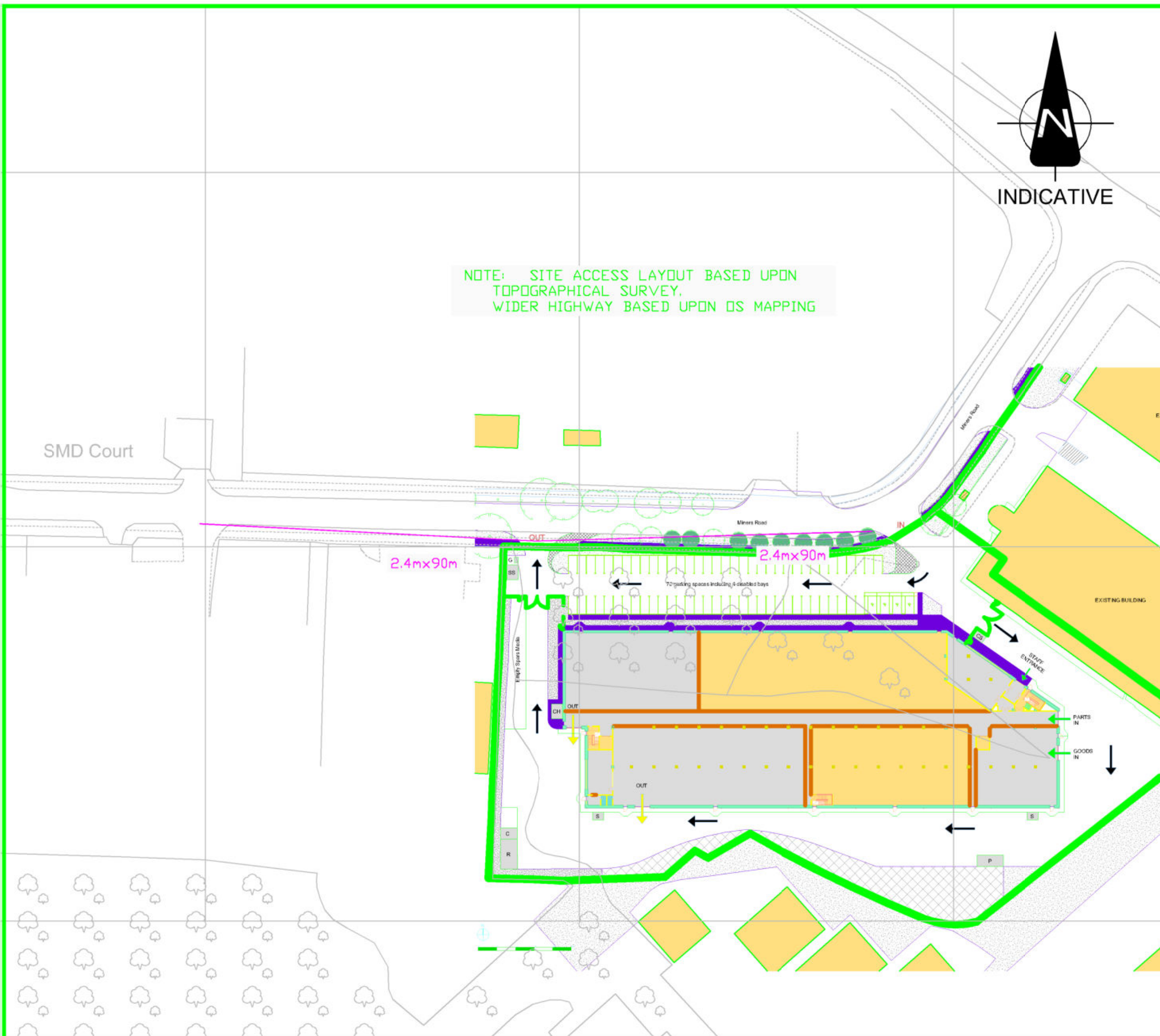
CLIENT:
 MAGELLAN AEROSPACE (UK) LIMITED

PROJECT:
 MAGELLAN WREXHAM NEW FACILITY

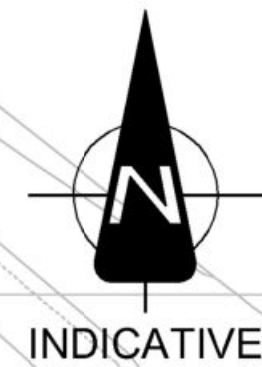
TITLE:
 BUS STOP LOCATION PLAN

SCALE @ A3: NTS	APPROVED: DRS	DATE: 30/09/2020
PROJECT No: 2020200	DRAWING No: FIGURE 5.3	REV: -

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NOTE: SITE ACCESS LAYOUT BASED UPON
TOPOGRAPHICAL SURVEY.
WIDER HIGHWAY BASED UPON OS MAPPING



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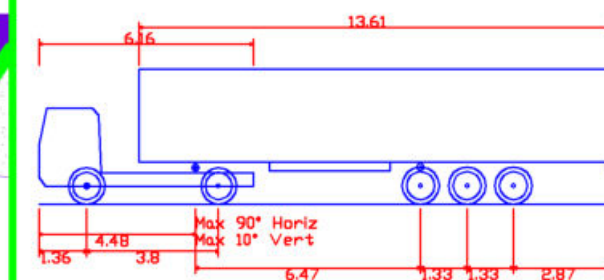
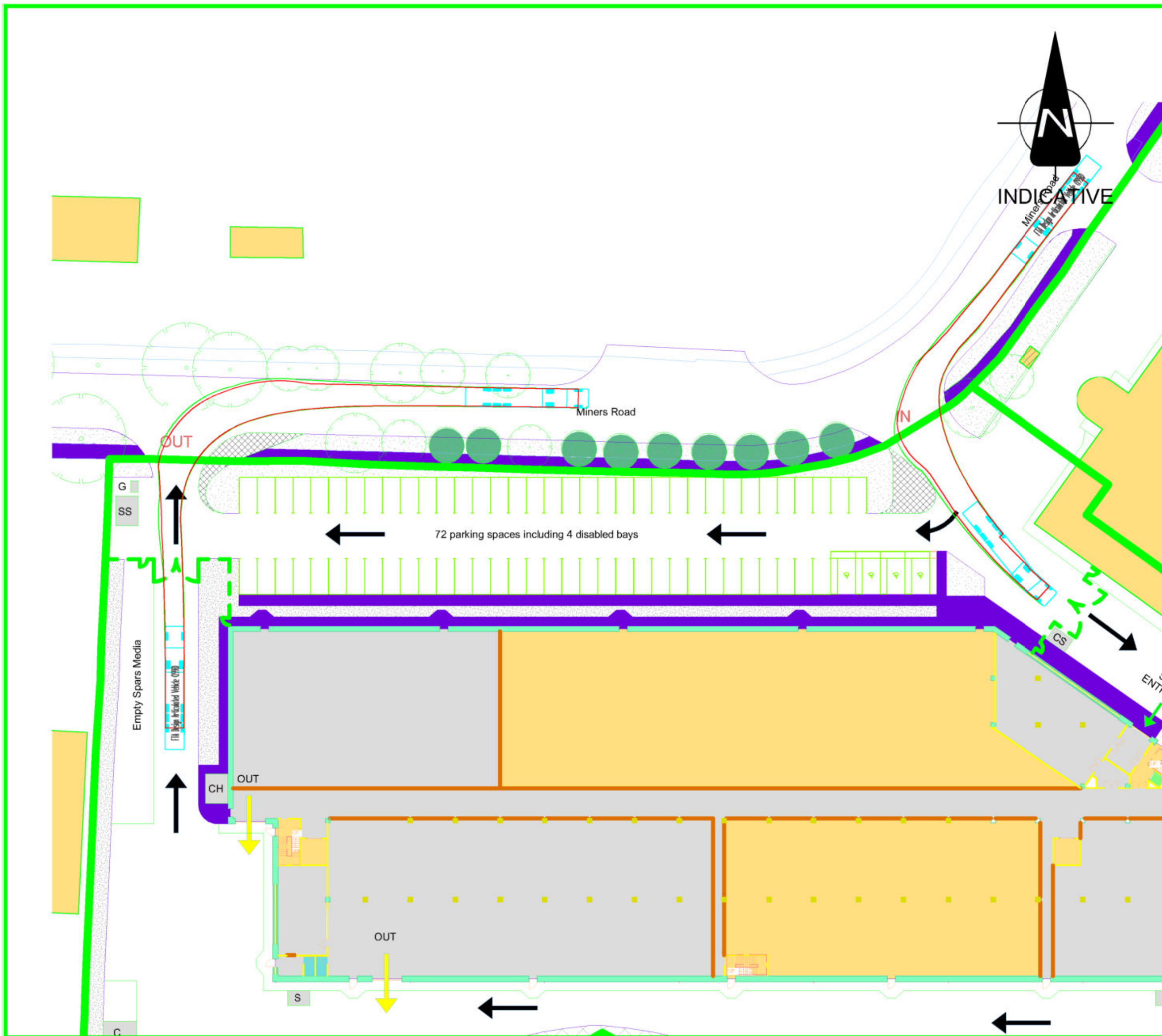
CLIENT: MAGELLAN AEROSPACE (UK) LIMITED

PROJECT: MAGELLAN WREXHAM NEW FACILITY

TITLE: SITE ACCESS LAYOUT
WITH VISIBILITY SPLAY

SCALE @ A3:	APPROVED	DATE:
NTS	DRS	30/09/2020
PROJECT No:	DRAWING No:	REV:
2020200	DPL SK010	-

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FTA Design Articulated Vehicle (1998)

Overall Length	13.61m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock-to-lock time	3.00s
Curb to Curb Turning Radius	6.550m



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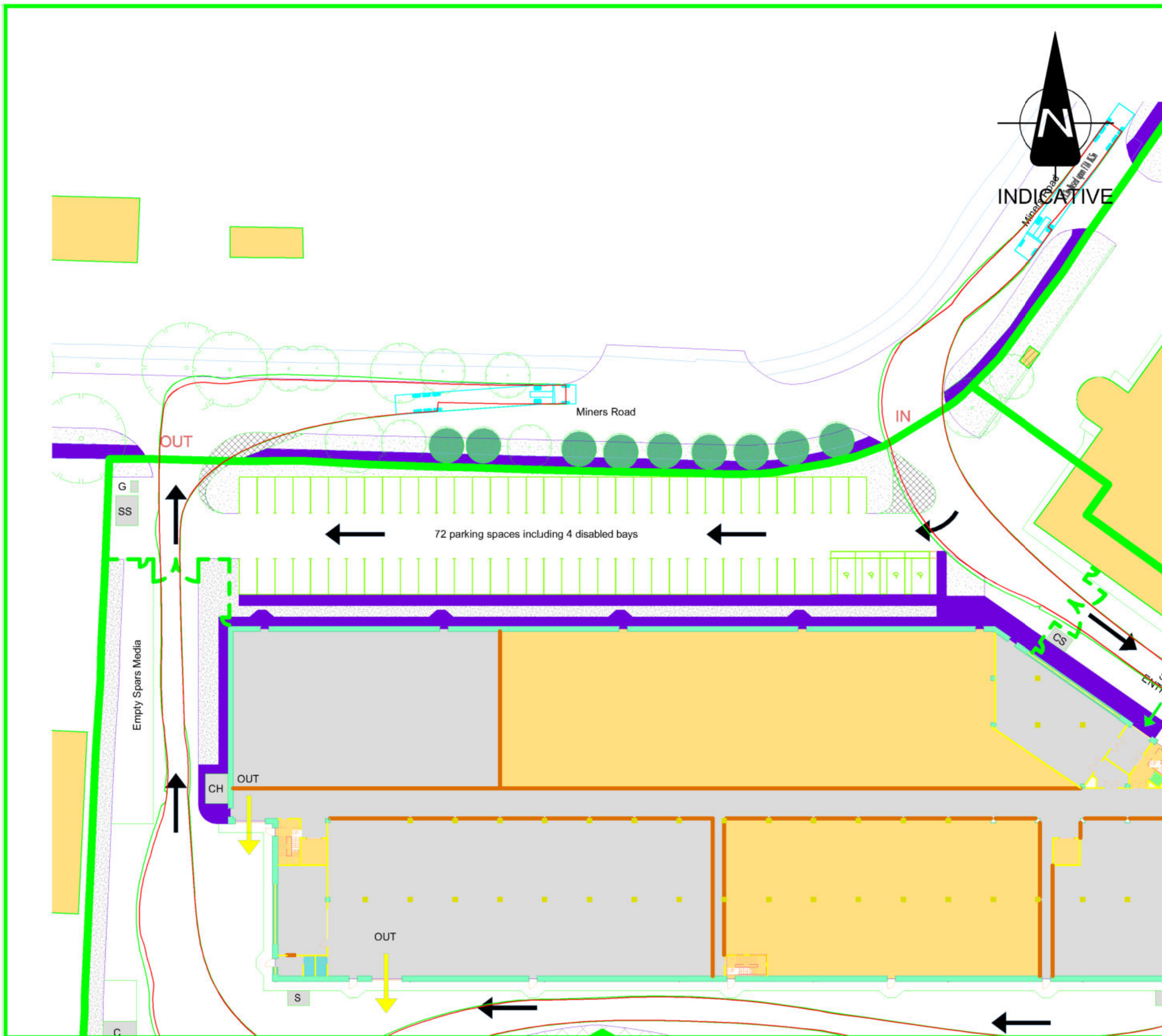
CLIENT: MAGELLAN AEROSPACE (UK) LIMITED

PROJECT: MAGELLAN WREXHAM NEW FACILITY

TITLE: SITE ACCESS LAYOUT
 SWEEP PATH ANALYSIS
 16.5M FTA DESIGN ARTIC

SCALE @ A3:	APPROVED:	DATE:
NTS	DRS	30/09/2020
PROJECT No:	DRAWING No:	REV:
2020200	DPL SK011	-

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21.3m Based upon FTA 16.5m
 Overall Length 24.170m
 Overall Width 6.550m
 Overall Body Height 3.870m
 Min Body Ground Clearance 0.470m
 Max Track Width 3.00m
 Lock-to-lock time 6.550m
 Curb to Curb Turning Radius



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CLIENT: MAGELLAN AEROSPACE (UK) LIMITED

PROJECT: MAGELLAN WREXHAM NEW FACILITY

TITLE: SITE ACCESS LAYOUT
 SWEPT PATH ANALYSIS
 TROMBONE TRAILER ARTIC

SCALE @ A3:	APPROVED:	DATE:
NTS	DRS	30/09/2020
PROJECT No:	DRAWING No:	REV:
2020200	DPL SK012	-

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APPENDIX B

Shifts - Future Unit

				Full		4 Fifths						Night Shift		Day Shift			
Assembly		50 Staff		7-7, 7-7 5 days		25		20 Staff Per Shift				50		75			
Full Capacity 135 (Excludes Visitors)																	
Hour	Start	End	Mon	Tue	Wed	Thu	Fri	Sat	Sun								
	Start	End	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site
0.00	1.00			0	0	0	30	0	30	0	30	0	0	30	0	0	0
1.00	2.00		0	0	0	0	30	0	30	0	30	0	0	30	0	0	0
2.00	3.00		0	0	0	0	30	0	30	0	30	0	0	30	0	0	0
3.00	4.00		0	0	0	0	30	0	30	0	30	0	0	30	0	0	0
4.00	5.00		0	0	0	0	30	0	30	0	30	0	0	30	0	0	0
5.00	6.00		0	0	0	0	30	0	30	0	30	0	0	30	0	0	0
6.00	7.00	20		20	20	0	50	20	0	50	20	0	50	20	0	0	0
7.00	8.00	75		95	75	30	95	75	30	95	75	30	95	75	30	95	0
8.00	9.00				0	0	95	0	0	95	0	0	95	0	0	0	0
9.00	10.00			95	0	0	0	0	0	95	0	0	95	0	0	0	0
10.00	11.00			95	0	0	95	0	0	95	0	0	95	0	0	0	0
11.00	12.00			95	0	0	95	0	0	95	0	0	95	0	0	0	0
12.00	13.00			95	0	0	95	0	0	95	0	0	95	0	0	0	0
13.00	14.00			95	0	0	95	0	0	95	0	75	20	0	0	0	0
14.00	15.00			95	0	0	95	0	0	95	0	95	0	0	0	0	0
15.00	16.00			95	0	0	95	0	0	95	0	0	20	0	0	0	0
16.00	17.00			95	0	0	95	0	0	95	0	0	20	0	0	0	0
17.00	18.00			75	0	75	20	0	75	20	0	75	20	0	0	0	0
18.00	19.00	20		40	20	0	40	20	0	40	20	0	40	20	0	0	0
19.00	20.00		20	20	20	0	20	20	0	20	20	0	20	20	0	0	0
20.00	21.00	10		30	10	0	30	10	0	30	10	0	0	0	0	0	0
21.00	22.00			30	0	0	30	0	0	30	0	0	0	0	0	0	0
22.00	23.00			30	0	0	30	0	0	30	0	0	0	0	0	0	0
23.00	0.00			30	0	0	30	0	0	30	0	0	0	0	0	0	0
Total			125	95	125	125	125	125	125	125	95	125	0	0	0	0	0

Adjust for holidays, absences and working not on site 10% (25 days holiday vs 254 working days - excludes bank holidays)

Standard Capacity 122											
Hour	Start	End	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	Start	End	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site
0.00	1.00										
1.00	2.00										
2.00	3.00										
3.00	4.00										
4.00	5.00										
5.00	6.00										
6.00	7.00	18									
7.00	8.00	68									
8.00	9.00										
9.00	10.00										
10.00	11.00										
11.00	12.00										
12.00	13.00										
13.00	14.00										
14.00	15.00										
15.00	16.00										
16.00	17.00										
17.00	18.00										
18.00	19.00	18									
19.00	20.00										
20.00	21.00	9									
21.00	22.00										
22.00	23.00										
23.00	0.00										
Total			113	86	113	113	113	86	113		

Peak Staff Demand (Excludes Visitors)					
	Night	7-7 Leaving	7-7 Arrival/ Working	Day	Total
7:00	10	20	20	0	50
8:00	0	0	20	75	95

Existing Mode Share

Existing Mode Share	82%
7-7 Night Shift	20
Night	10
Mode Share	82%
Parking Requirement	25
Proposed Car Park	72
Total	72
Remaining	-47
7-7 Day Shift	20
Mode Share	82%
Parking Requirement	14
Proposed Car Park	47
Total	47
Remaining	-33 @7am

5% Modal Shift

Existing Mode Share	82%
8-5 Day Shift	75
Mode Share	82%
Parking Requirement	63
Proposed Car Park	56
Total	56
Remaining	-4 @8am
Total Excess Demand	5

Travel Plan Mode Share	78%
7-7 Night Shift	20
Night	10
Mode Share	78%
Parking Requirement	23
Proposed Car Park	72
Total	72
Remaining	-3 @8am
7-7 Day Shift	20
Mode Share	78%
Parking Requirement	15
Proposed Car Park	40
Total	40
Remaining	-33 @7am

10% Modal Shift

Stretch Target Mode Share	74%
7-7 Night Shift	20
Night	10
Mode Share	74%
Parking Requirement	22
Proposed Car Park	57
Total	57
Remaining	-2 @8am
7-7 Day Shift	20
Mode Share	74%
Parking Requirement	13
Proposed Car Park	50
Total	50
Remaining	-39 @7am

Stretch Target Mode Share	74%
8-5 Day Shift	75
Mode Share	74%
Parking Requirement	55
Proposed Car Park	57
Total	57
Remaining	-2 @8am
Needs Met	

Average Staff Demand (Excludes Visitors)					
	Night	7-7 Leaving	7-7 Arrival/ Working	Day	Total
7:00	9	18	18	0	45
8:00	0	0	18	68	86

Existing Mode Share

Existing Mode Share	82%
7-7 Night Shift	18
Night	9
Mode Share	82%
Parking Requirement	23
Proposed Car Park	72
Total	72
Remaining	-50
7-7 Day Shift	18
Mode Share	82%
Parking Requirement	14
Proposed Car Park	50
Total	50
Remaining	-33 @7am

5% Modal Shift

Existing Mode Share	82%
8-5 Day Shift	68
Mode Share	82%
Parking Requirement	55
Proposed Car Park	57
Total	57
Remaining	2 @8am
Needs Met	

Travel Plan Mode Share	78%
7-7 Night Shift	18
Night	9
Mode Share	78%
Parking Requirement	21
Proposed Car Park	72
Total	72
Remaining	5 @8am
Needs Met	
7-7 Day Shift	18
Mode Share	78%
Parking Requirement	14
Proposed Car Park	51
Total	51
Remaining	-37 @7am

10% Modal Shift

Stretch Target Mode Share	74%
7-7 Night Shift	18
Night	9
Mode Share	74%
Parking Requirement	20
Proposed Car Park	58
Total	58
Remaining	5 @8am
Needs Met	
7-7 Day Shift	18
Mode Share	74%
Parking Requirement	13
Proposed Car Park	52
Total	52
Remaining	-39 @7am

Stretch Target Mode Share	74%
8-5 Day Shift	68
Mode Share	74%
Parking Requirement	50
Proposed Car Park	59
Total	59
Remaining	3 @8am
Needs Met	

Shifts - Existing

24/7 7-7	61 Per Shift	5 day 8-5	71 Per Shift
----------	--------------	-----------	--------------

Full Capacity		325 (Excludes Visitors - On Site Only)																				
		Mon			Tue			Wed			Thu			Fri			Sat			Sun		
Start	End	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site
0:00	1:00			61			61			61			61			61			61			61
1:00	2:00			61			61			61			61			61			61			61
2:00	3:00			61			61			61			61			61			61			61
3:00	4:00			61			61			61			61			61			61			61
4:00	5:00			61			61			61			61			61			61			61
5:00	6:00			61			61			61			61			61			61			61
6:00	7:00	61		122	61		122	61		122	61		122	61		122	61		122	61		122
7:00	8:00	71	61	132	71	61	132	71	61	132	71	61	132	71	61	132	61		61	61		61
8:00	9:00			132			132			132			132			132			61			61
9:00	10:00			132			132			132			132			132			61			61
10:00	11:00			132			132			132			132			132			61			61
11:00	12:00			132			132			132			132			132			61			61
12:00	13:00			132			132			132			132			132			61			61
13:00	14:00			132			132			132			132		71	61			61			61
14:00	15:00			132			132			132			132			61			61			61
15:00	16:00			132			132			132			132			61			61			61
16:00	17:00			132			132			132			132			61			61			61
17:00	18:00		71	61		71	61			71	61		71	61		61			61			61
18:00	19:00	61		122	61		122	61		122	61		122	61		122	61		122	61		122
19:00	20:00		61	61		61	61		61	61		61	61		61	61		61	61		61	61
20:00	21:00		61	61		61	61		61	61		61	61		61	61		61	61		61	61
21:00	22:00		61	61		61	61		61	61		61	61		61	61		61	61		61	61
22:00	23:00		61	61		61	61		61	61		61	61		61	61		61	61		61	61
23:00	0:00			61			61			61			61			61			61			61
Total		193	193		193	193		193	193		193	193		193	193		122	122		122	122	

Adjust for holidays, absences and working not on site 10% (25 days holiday vs 254 working days - excludes bank holidays)

Standard Capacity		293																							
		Mon			Tue			Wed			Thu			Fri			Sat			Sun					
Hour	End	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site	Arrive	Depart	On Site			
0:00	1:00	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55			
1:00	2:00	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55			
2:00	3:00	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55			
3:00	4:00	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55			
4:00	5:00	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55			
5:00	6:00	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55	0	0	55			
6:00	7:00	55	0	110	55	0	110	55	0	110	55	0	110	55	0	110	55	0	110	55	0	110			
7:00	8:00	64	55	119	64	55	119	64	55	119	64	55	119	64	55	119	0	55	55	0	55	55			
8:00	9:00	0	0	119	0	0	119	0	0	119	0	0	119	0	0	119	0	0	55	0	0	55			
9:00	10:00	0	0	119	0	0	119	0	0	119	0	0	119	0	0	119	0	0	55	0	0	55			
10:00	11:00	0	0	119	0	0	119	0	0	119	0	0	119	0	0	119	0	0	55	0	0	55			
11:00	12:00	0	0	119	0	0	119	0	0	119	0	0	119	0	0	119	0	0	55	0	0	55			
12:00	13:00	0	0	119	0	0	119	0	0	119	0	0	119	0	0	119	0	0	55	0	0	55			
13:00	14:00	0	0	119	0	0	119	0	0	119	0	0	119	0	0	64	55	0	0	55	0	55			
14:00	15:00	0	0	119	0	0	119	0	0	119	0	0	119	0	0	55	0	0	55	0	0	55			
15:00	16:00	0	0	119	0	0	119	0	0	119	0	0	119	0	0	55	0	0	55	0	0	55			
16:00	17:00	0	0	119	0	0	119	0	0	119	0	0	119	0	0	55	0	0	55	0	0	55			
17:00	18:00	0	64	55	0	64	55	0	64	55	0	64	55	0	64	55	0	0	55	0	0	55			
18:00	19:00	55	0	110	55	0	110	55	0	110	55	0	110	55	0	110	55	0	110	55	0	110			
19:00	20:00	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55			
20:00	21:00	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55			
21:00	22:00	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55			
22:00	23:00	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55			
23:00	0:00	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55	0	55	55			
Total		174	174	0	174	174	0	174	174	0	174	174	0	174	174	0	110	110	0	110	110	0			

Peak Staff Demand (Excludes Visitors)					
	Night	7-7 Leaving	7-7 Arrival/ Working	Day	Total
7:00	0	61	61	0	122
8:00	0	0	61	71	132

Production	61
Other	71

Car Parking Availability	
Main Car Park	72 Spaces
Front Car Park	41 Spaces
Treatment Area	10 Spaces
Total	123 Spaces

Existing Mode Share

Existing Mode Share	82%
7-7 Night Shift	61
Mode Share	82%
Parking Requirement	50

Front Car Park	41
Treatment Area	10
Main Car Park	22
Total	73

Remaining	-1
Main Car Park	72
Available Spaces	71

7-7 Day Shift	61
Mode Share	82%
Parking Requirement	50

Main Car Park	71
Total	73

Remaining	23 @ 7am
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Average Staff Demand (Excludes Visitors)					
	Night	7-7 Leaving	7-7 Arrival/ Working	Day	Total
7:00	0	55	55	0	110
8:00	0	0	55	64	119

Existing Mode Share

Existing Mode Share	82%
7-7 Night Shift	55
Mode Share	82%
Parking Requirement	45

Front Car Park	41
Treatment Area	10
Main Car Park	27
Total	78

Remaining	-4
Main Car Park	72
Available Spaces	78

7-7 Day Shift	55
Mode Share	82%
Parking Requirement	45

Main Car Park	78
Total	78

Remaining	33 @ 7am
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5% Modal Shift

Travel Plan Mode Share	78%
7-7 Night Shift	61
Mode Share	78%
Parking Requirement	48

Front Car Park	41
Treatment Area	10
Main Car Park	22
Total	73

Remaining	-1
Main Car Park	72
Available Spaces	71

7-7 Day Shift	61
Mode Share	78%
Parking Requirement	48

Main Car Park	71
Total	73

Remaining	23 @ 7am
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10% Modal Shift

Stretch Target Mode Share	74%
7-7 Night Shift	61
Mode Share	74%
Parking Requirement	45

Front Car Park	41
Treatment Area	10
Main Car Park	24
Total	75

Remaining	-4
Main Car Park	72
Available Spaces	78

7-7 Day Shift	61
Mode Share	74%
Parking Requirement	45

Main Car Park	78
Total	78

Remaining	33 @ 7am
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Stretch Target Mode Share	74%
7-7 Night Shift	61
Mode Share	74%
Parking Requirement	52

Front Car Park	41
Treatment Area	10
Main Car Park	27
Total	78

Remaining	23 @ 8am
Needs Met	

7-7 Day Shift	61
Mode Share	74%
Parking Requirement	45

Main Car Park	78
Total	78

Remaining	33 @ 7am
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Current Shifts

(24/7, 7-7)	Treatment	Structures	Quality			Half	Half						
Production	140	90	14	244	Total	122	61	Per Shift					
(8-5)	CI	Finance	Engineering	HR	HSE	IT	Maint	Mgt	Prod Control	Planning	Quality		
Other	3	8	18	8	2	2	7	11	3	0	9	71	Per Shift
												315	Total
												15	Offsite
												330	Employees



A CARBON NEUTRAL COMPANY
FOR THE PLANET AND FOR THE FUTURE