

Transport Assessment

Gavray Drive, Bicester

20 September 2021

Prepared for

L&Q Estates, Charles Brown & Simon Digby and London &
Metropolitan International Developments



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1. Introduction

1.1 Preamble

- 1.1.1 Markides Associates (MA) have been instructed by L&Q Estates, Charles Brown and Simon Digby and London & Metropolitan International Developments (the Applicants) to prepare a Transport Assessment (TA) in support of their outline planning application for a residential development proposal on an undeveloped site located north of Gavray Drive, Bicester (the Site).
- 1.1.2 The Site is located in Cherwell District Council (CDC), with Oxfordshire County Council (OCC) being the relevant local highway authority.

1.2 Development Proposals Summary

- 1.2.1 The development proposals are for a residential development proposal described as follows:
- Residential development for up to 250 dwellings including affordable housing and ancillary uses including retained Local Wildlife Site, public open space, play areas, localised land remodelling, compensatory flood storage, structural planting and access.*
- 1.2.2 For the purpose of this assessment, a maximum provision of 250 residential dwellings has been tested.
- 1.2.3 Vehicular and pedestrian access to the Site will be taken from Gavray Drive, with full completion of the development estimated as occurring by 2026, which has been adopted as the future year assessment within the subsequent traffic impact analysis.
- 1.2.4 As an outline application, the proposals are accompanied by a masterplan and parameter plan detailing land uses, building heights, density and access, which is attached as Appendix A. The proposals are not sufficiently detailed at this stage to identify an accommodation schedule or car parking and cycle parking provision etc. These aspects of the proposals will be the subject of subsequent reserved matter applications. The TA, therefore, focusses on establishing that the principle of residential development is acceptable for this location and that the potential traffic impact associated with the scale of development can be accommodated.

1.3 Planning History and Scope of Work

- 1.3.1 In terms of the most recent planning history, following a public inquiry between 14th March 2006 and 24th March 2006 into the Applicant's appeal against non-determination, outline planning consent was granted in July 2006 (reference 04/02797/F) for a development proposal on the Site. The description of that development proposal was 'residential development (including affordable housing) incorporating a County Wildlife Site, together with land reserved for a primary school, community facilities, public open space, rail chord and structure planting on land north of Gavray Drive Bicester.' The scale of proposed

development was for up to 500 new dwellings and a primary school with capacity to accommodate approximately 210 pupils.

- 1.3.2 With regards to sustainability, the Inspectors Report summarised that the Site is located in a *'relatively sustainable location, with good links to the town centre and other facilities, such as the town's railway stations, by means other than the private car.'* The Inspector concluded that, *'taking into account the financial contributions to be made via the legal agreement, to help improve public transport services in the locality, I am satisfied that the scheme would constitute a sustainable form of development in accord with national guidance, regional strategy and strategic/local planning policies.'* The Inspector continued and concluded that, *'residential development on this site would not give rise to an unacceptable increase in the need to travel, including by private car, particularly when compared to the alternative of mainly B1 employment use.'*
- 1.3.3 It is readily apparent, therefore, that the Inspector concluded that the Site location and levels of accessibility were appropriate for residential development and the scale of development could be accommodated within the local highway network, with mitigation deliverable where necessary.
- 1.3.4 The consented scheme was not implemented with the time limit identified by the consent. An application to extend the life of that permission, (reference 10/01667/OUT), was approved by CDC in February 2012.
- 1.3.5 However, following a judicial review, CDC's decision to approve this extension was quashed by the High Court in January 2013. The application remains with CDC to determine. It should be noted, however, that the judicial review was not related to transport impact, which was considered as being acceptable by CDC/OCC.
- 1.3.6 Subsequent to this, in February 2014, the Applicant submitted a request for a Scoping Opinion (reference 14/00001/SCOP) for a new outline planning application with a revised masterplan and up to date Environmental Statement (ES) for the Site. CDC's response, referred to within this TA as the Previous Scoping Opinion Response (reference RH/14/00001/SCOP), detailed both their and OCC's expectations with regards to transport related submissions for any subsequent planning application. The Previous Scoping Opinion Response also identified that any application should be supported by a Travel Plan (TP).
- 1.3.7 Subsequent to this, in September 2014, the Applicant submitted two requests for Scoping Opinions for two separate outline planning applications, with the Site being divided into two distinct land parcels, Gavray Drive East (reference 14/00008/SCOP) and Gavray Drive West (14/00009/SCOP).
- 1.3.8 In early November 2014, a response to the Scoping Opinions was issued by CDC, which confirmed that an ES would be a requirement of a planning application. With regards to transport, the response stated that, *'Any application for planning permission must be accompanied by an appropriate Transport Assessment, as detailed but not necessarily limited to that outlined within the submission.'*

- 1.3.9 The subsequent outline planning application (reference 15/00837/OUT) was submitted for *‘Residential development including affordable housing, public open space, localised land remodelling, compensatory flood storage and structure planting.’*
- 1.3.10 CDC determined, at the 15th June 2017 Planning Committee, that the application should be refused. The Council concluded that the proposed development *‘was in conflict with the Development Plan’*, although it should be noted that there were no highway related matters associated with the refusal decision. Applicant’s appeal against refusal (reference 17/00074/REFAPP) was dismissed on 16th July 2018.
- 1.3.11 As part of this planning application MA have consulted with OCC as the Local Highway Authority for the Bicester area to discuss and agree the scope and form of the assessment required. The discussions confirmed that the assessment should follow the same methodology as previous planning applications. It was also requested that the updated SATURN model data are used to assess the future impact of the proposals.

1.4 Report Aims, Objectives and Structure

- 1.4.1 The TA provides an appraisal of the traffic and transportation issues associated with the Proposed Development. The TA describes the accessibility of the Site and the potential to promote sustainable travel amongst future occupants. The TA estimates the travel demands generated by the development and assesses how these demands can be accommodated within the existing transport infrastructure, using up to date traffic survey information and identifying a mitigation strategy where necessary.
- 1.4.2 The TA ensures that the proposals reflect relevant transport related planning policy and guidance, including policies detailed within the Adopted Local Plan. Where relevant, the TA adopts the methodologies that were included within the previously approved TA that was prepared in support of the renewal application (reference 10/01667/OUT) and subsequent TA submitted with 2015 planning application (reference 15/00837/OUT) and TA Addendum providing an update to the aforementioned TA.
- 1.4.3 The remainder of the TA is structured as follows:
- **Section 2** identifies relevant planning policy and guidance against which the development proposals will be assessed;
 - **Section 3** describes pedestrian and cycling accessibility, local bus provision, rail accessibility and describes the existing highway network around the site;
 - **Section 4** provides junction capacity tests using 2014 turning count data,
 - **Section 5** identifies the level of traffic impact associated with the scale of development proposed, compared with the baseline scenario.
 - **Section 6** details proposed transport mitigation measures; and
 - **Section 7** provides a summary and conclusion.

2. Relevant Planning Policy Review and Committed Development Proposals

2.1 Introduction

2.1.1 This section outlines relevant transport related planning policy at national, regional and local levels to ensure they are complemented by the development proposals.

2.2 National Planning Policy Framework (2019)

2.2.1 The NPPF sets out Government planning policy, provides a framework within which local planning policies should be produced and is a material consideration in planning decisions.

2.2.2 The NPPF sets out that *“significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes,”* (Paragraph 103).

2.2.3 The paragraph continues, however, by acknowledging that such a requirement should be seen in the context of the Site location, stating *‘However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making.’*

2.2.4 In assessing specific applications for development, the NPPF states that it should be ensured that:

- *“appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- *safe and suitable access to the site can be achieved for all users; and*
- *any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree, (Paragraph 108).”*

2.2.5 The NPPF outlines that *“development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe,”* (Paragraph 109).

2.2.6 With regards to car parking, the NPPF does not include any standards and recommends that local planning authorities should set standards based on the accessibility of the development, the type, mix and use of development, the availability of public transport and local car ownership levels.

2.3 Oxfordshire County Council Policy

Local Transport Plan 4 - Connecting Oxfordshire (2015-2031)

2.3.1 To ensure that the county’s transport systems are fit to support population and economic growth, Oxfordshire County Council has developed a new Local Transport Plan. Connecting

Oxfordshire, the Local Transport Plan 4 for Oxfordshire, was adopted in September 2015. It sets out the transport vision, goals and objectives, to ensure that they support the Local Enterprise Partnership's Strategic Economic Plan as well as District Council Local Plans and other council strategies.

2.3.2 The four goals that previous Local Plan referred to, have now consolidated into three:

- Support jobs and housing growth and economic vitality;
- Reduce transport emissions, enhance air quality and support the transition to a low carbon economy; and
- Protect and enhance Oxfordshire's environment and improve quality of life (including public health, safety and individual wellbeing).

2.3.3 Policies that are included in the new LTP4 and are related to the new developments are:

- **Policy 01:** Oxfordshire County Council will work to ensure that the transport network supports sustainable economic and housing growth in the county, whilst protecting and where possible enhancing its environmental and heritage assets and supporting the health and wellbeing of its residents.
- **Policy 02:** Oxfordshire County Council will manage and, where appropriate, develop the county's road network to reduce congestion and minimise disruption and delays, prioritising strategic routes.
- **Policy 03:** Oxfordshire County Council will support measures and innovation that make more efficient use of transport network capacity by reducing the proportion of single occupancy car journeys and encouraging a greater proportion of journeys to be made on foot, by bicycle, and/or by public transport.
- **Policy 04:** Oxfordshire County Council will prioritise the needs of different types of users in developing transport schemes or considering development proposals, taking into account road classification and function/purpose, the characteristics and function of the place and the need to make efficient use of transport network capacity.

2.3.4 The main differences between the LTP3 and LTP4 is that LTP4 is more positive about progressing workplace parking charges in Oxford, gives strengthened emphasis on Air Quality including plans for Clean Air Zones and Oxford Zero Emission Zone, including cycling, walking and Door to Door policies. Furthermore, changes are noted on the way in which transport improvements can be funded.

2.3.5 Therefore, OCC's policies highlight that development should be located in areas that are accessible by sustainable modes of travel, with proposed site layouts supporting pedestrian and cyclist movement, thereby reducing the reliance on travel by private car. Also, where additional vehicular movements are generated, and these materially impact upon the performance of the existing local highway network, this impact should be mitigated, including the adoption of routeing arrangements for construction vehicle access.

2.3.6 The Site development proposals satisfy the above-mentioned policies. The accessibility of the Site has been previously tested at appeal, with the inspector concluding that the Site is

readily accessible by sustainable forms of travel and within reasonable proximity of the town centre. Sustainable travel will be further promoted by the implementation of a TP. As an outline application, supported by parameter plans, detailed consideration of the internal pedestrian and cycle routes within the Site will be addressed through subsequent reserved matter applications.

2.3.7 The Bicester Area Strategy has been also updated as a part of the new LTP4.

2.3.8 Policies that are included in the new Bicester Strategy are described below.

- **BIC1:** Improve access and connections between key employment and residential sites and the strategic transport system. This will be achieved by improving connectivity to the strategic highway, including future proposals for the A34, Junctions 9 and 10 of the M40. Also, improvements on eastern peripheral corridor such as upgrading the link to dual carriageway on the A4421 between the Buckingham Road and Gavray Drive are also mentioned within the Strategy.
- **BIC2:** Reduce the proportion of journeys made by private car by implementing a Sustainable Transport Strategy. This will be achieved by implementing Bicester town centre highway modifications, enhancing pedestrian, cycle and public transport links to the Bicester Village Station and Bicester North Station and key employment sites, improving Bicester's bus services along key routes, providing bus priority where feasible to ease movements, significantly improving public transport connectivity with other key areas of economic growth within Oxfordshire, providing improved public transport infrastructure, improving access to Bicester Village, providing new sections of urban pedestrian and cycle routes to better connect residential developments with the town centre and key employment destinations
- **BIC3:** Increase people's awareness of the travel choices available in Bicester, which should improve public health and wellbeing. One of the actions that help this to be achieved is by discouraging undesirable routing of traffic by developing a signage strategy

2.3.9 The main changes between the previous Bicester Area Strategy and the new are related to:

- **Infrastructure Improvements:** 1) Investigating Options for infrastructure improvements and bus priority on A41. 2) Progressing Way finding Project for Bicester with the aim of improving signage across the town.
- **Sustainable Transport Strategy:** 1) Better support of the Cherwell District Council's Sustainable Transport Strategy, including schemes such as Central Corridor Cycle Improvements 2) Cycle friendly measures must be incorporated into all new road schemes and new housing developments 3) References to improve walking facilities 4) Options for relaxing the cycle ban on Sheep Street 5) Secure sustainable transport measures in all major new development
- **Traffic management:** 1) A strategic system of Variable Message Signs for Bicester
- **Scheme delivery:** 1) Intention to provide a detailed delivery plan for future infrastructure programmes.

2.4 Cherwell District Council Planning Policy

Adopted Cherwell Local Plan 2011-2031

- 2.4.1 Planning policy for the area is set out in the Adopted Cherwell Local Plan 2011-2031 Part 1 (incorporating Policy Bicester 13 re-adopted on 19 December 2016).
- 2.4.2 The Cherwell Local Plan 2011-2031 - Part 1 provides the strategic planning policy framework for the District to 2031. Its vision is that by 2031, Cherwell District will be an area where all residents enjoy a good quality of life and it will be more prosperous than it is today. Those who live and work there will be happier, healthier and feel safer.
- 2.4.3 The Local Plan 2011-2031 – Part 1 replaced a number of the ‘saved’ policies of the adopted Cherwell Local Plan 1996 though many of its policies are retained and remain part of the development plan.
- 2.4.4 The main transport related policy within the Adopted Plan is Policy SLE4:

‘Policy SLE4: Improved Transport and Connections

The Council will support the implementation of the proposals in the Movement Strategies and the Local Transport Plan to deliver key connections, to support modal shift and to support more sustainable locations for employment and housing growth.

We will support key transport proposals including:

- *Transport Improvements at Banbury, Bicester and at the Former RAF Upper Heyford in accordance with the County Council’s Local Transport Plan and Movement Strategies*
- *Projects associated with East-West rail including new stations at Bicester Town and Water Eaton*
- *Rail freight associated development at Graven Hill, Bicester*
- *Improvements to M40 junctions.*

Consultation on options for new link and relief roads at Bicester and Banbury will be undertaken through the Local Transport Plan (LTP) review process. Routes identified following the strategic options appraisal work for LTP4 will be confirmed by the County Council and will be incorporated in Local Plan Part 2.

New development in the District will be required to provide financial and / or in-kind contributions to mitigate the transport impacts of development.

All development where reasonable to do so, should facilitate the use of sustainable modes of transport to make the fullest possible use of public transport, walking and cycling. Encouragement will be given to solutions which support reductions in greenhouse gas emissions and reduce congestion. Development which is not suitable for the roads that serve the development and which have a severe traffic impact will not be supported.’

2.4.5 In addition to the general transport policy, the development site forms part of the Site covered by Policy Bicester 13. This includes the following specific transport related items:

- Retention of Public Rights of Way and a layout that affords good access to the countryside.
- New footpaths and cycleways should be provided that link with existing networks, the wider urban area and schools and community facilities. Access should be provided over the railway to the town centre.
- A linked network of footways which cross the central open space, and connect Langford Village, Stream Walk and Bicester Distribution Park.
- A layout that maximises the potential for walkable neighbourhoods and enables a high degree of integration and connectivity between new and existing communities.
- A legible hierarchy of routes to encourage sustainable modes of travel. Good accessibility to public transport services with local bus stops provided. Provision of a transport assessment and Travel Plan.
- Additional bus stops on the A4421 Charbridge Lane will be provided, with connecting footpaths from the development. The developer will contribute to the cost of improving local bus services.

OCC March 2014 Guidance Document ‘Transport Assessments and Travel Plans’

2.4.6 OCC’s March 2014 Guidance Document, ‘Transport Assessments and Travel Plans,’ details that a TA is required for development proposals of 80 dwellings and over, which this development proposal clearly exceeds.

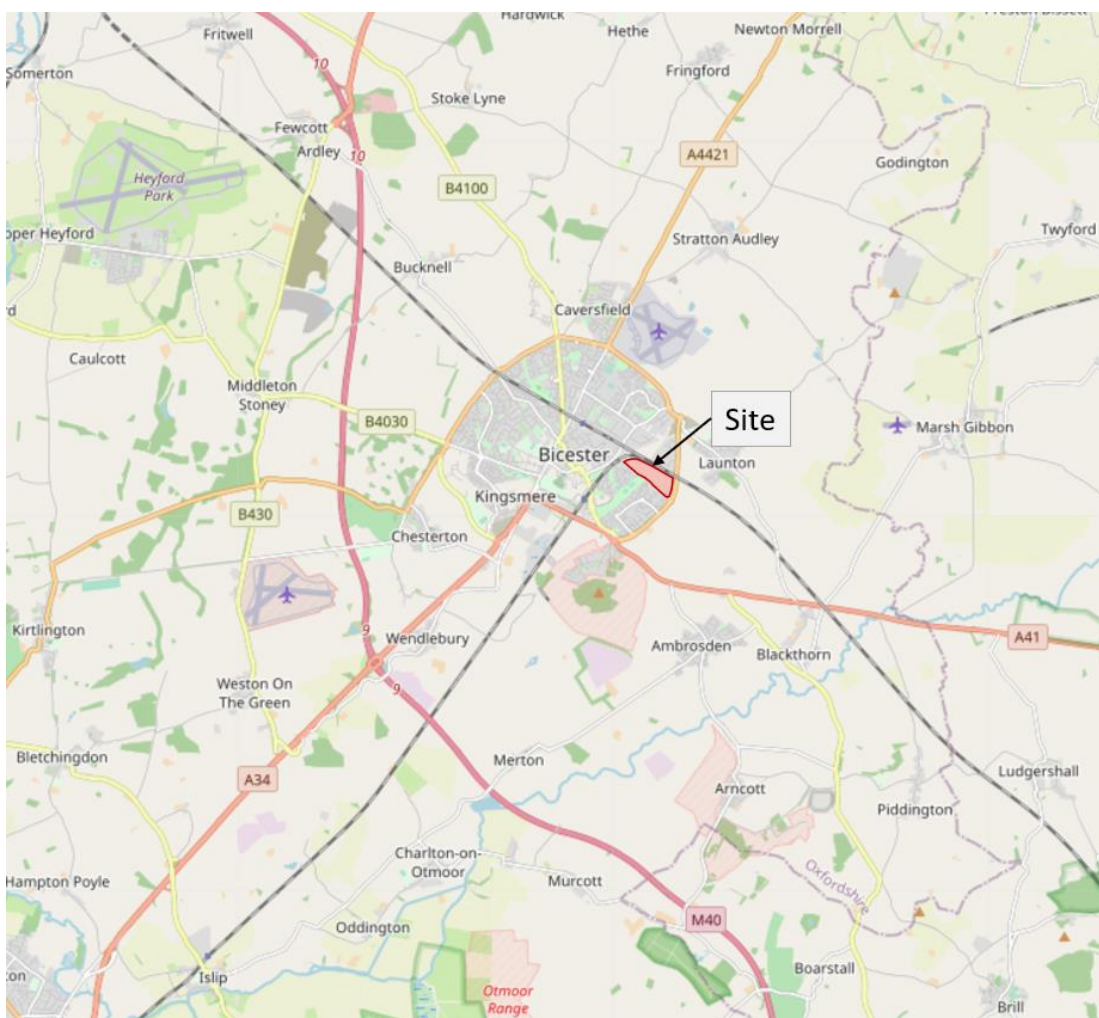
3. Baseline Conditions

3.1 Site Location

3.1.1 The Site comprises of agricultural land and is situated to the north of Gavray Drive. North of the Site is Bicester Distribution Park, which provides large footprint B8 distribution units. There is existing housing south of Gavray Drive comprising Langford village. To the east is the A4421, which is part of the Bicester Eastern Distributor Route. Beyond this lies the strategic housing allocation of South West Bicester.

3.1.2 A site location plan showing the application boundary is shown in **Figure 3.1**.

Figure 3.1 Site Location



3.1.3 Bicester town centre is located approximately 1.3km to the west of the site offering a full range of retail, commercial, employment and residential uses. There are good existing pedestrian and cycle connections that will ensure that residents have safe and convenient access to Bicester Town Centre and Langford Village Centre.

3.2 Existing Access

- 3.2.1 There are four accesses to the Site along Gavray Drive between Wretchwick Way and Mallards Way. Each access forms a priority T-junction with Gavray Drive approximately 100m, 300m, 450m and 750m west of Wretchwick Way, as presented in **Figure 3.2**.

Figure 3.2 Existing Site Accesses



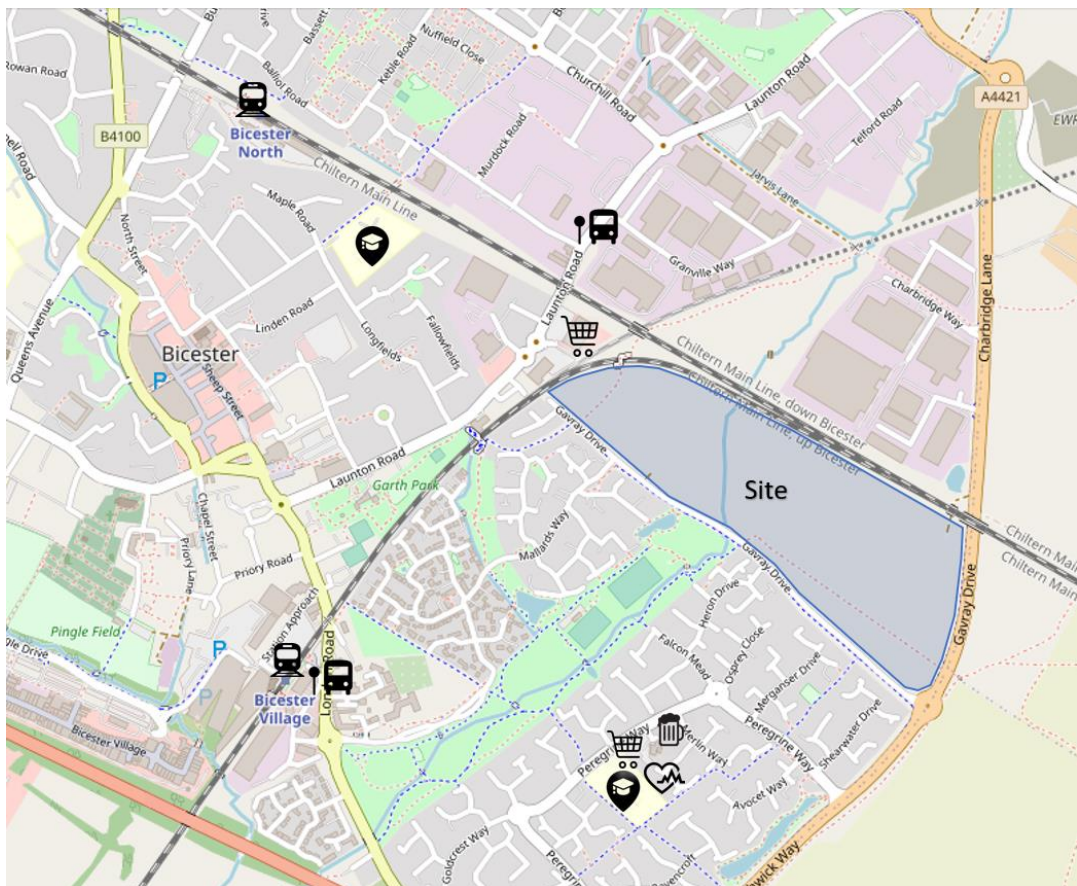
3.3 Local Amenities

- 3.3.1 The decision to choose walking as the mode of travel is dependent on many factors including; personal safety/security, road congestion, weather, gradients, parking, health, direction of route, and purpose of journey. However, it is widely accepted that walking has the greatest potential to replace car journeys for distances less than 2km and although withdrawn, 'Planning Policy Guidance 13' (PPG13) identifies cycling as having a potential to substitute for short car trips, particularly those under 5km.
- 3.3.2 A summary of the nearest local amenities is shown in **Table 3.1** and **Figure 3.3** illustrates their location.

Table 3.1 Local Facilities

	Facility	Distance	Travel Time (mins)	
			Walk	Cycle
Retail	Local shops	650m	8	2
GP	Langford Medical Practice	650m	8	2
Local Pub	The Nightingale	650m	8	2
Education	Langford Primary School	750m	10	3
Employment	Launton Road Industrial Estate	850m	11	3
Employment, Retail, Leisure	Town Centre	1200m	15	4
Public Transport	Bicester Village Rail Station	1150m	15	4
Public Transport	Bicester North Rail Station	2000m	24	7
Education	Cooper Secondary School	2200m	27	8
Education	Bicester Community College	2200m	27	8
Healthcare	Kings End Hospital	1700m	22	6

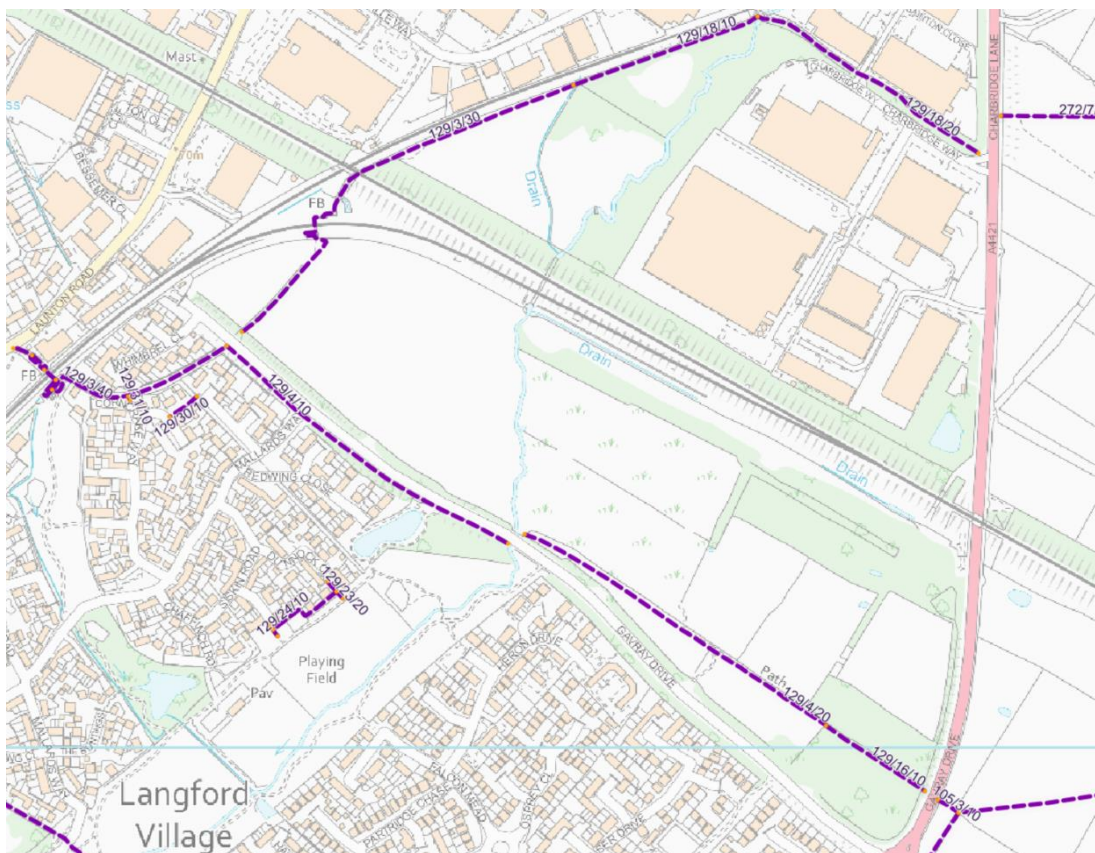
Figure 3.3 Local Facilities



3.4 Pedestrian and Cycle Site Accessibility

- 3.4.1 Gavray Drive is a 7.3m wide single carriageway road with a 2m wide footway on the northern side of the carriageway and a 3m shared use footway/cycleway on the southern side, which forms part of the National Cycle Network Route 51 between Oxford and Milton Keynes.
- 3.4.2 Gavray Drive terminates to the west at the rail line and there is no link across the railway provided at this point. However, the shared footpath cycleway continues from Gavray Drive and on to Laughton Road via a DDA compliant footbridge over the north/south railway line. This link benefits from street lighting along its length. The bridge is already well used by pedestrians walking from the Banbury Fields and Langford Village. The northern section is less well used, but usage would increase as a result of the development proposals.
- 3.4.3 Immediately to the north of where this footpath connects to Laughton Road there is a toucan crossing provided to give access for pedestrian and cyclists using the shared footway/cycleway on the western side of Laughton Road. The footway on the western side of Laughton Road is generally 3m wide, but as it approaches the town centre, it narrows in places to less than 2m and cyclist dismount markings are provided to improve safety.
- 3.4.4 This route will form an important link from the site to the centre of Bicester, which is approximately 1.2km from the development site.
- 3.4.5 To the east of the site, Wretchwick Way is a busy road and forms part of the Eastern Distributor Road around Bicester. It is well lit and a 3 metre wide footway/cycleway runs along the length of the western side of the carriageway.
- 3.4.6 There are also several shared use pedestrian/cycle links from Gavray Drive running to the south through Langford Village and the open space then runs along the watercourse. These are generally for use by pedestrians and cyclists, although most have a thermoplastic marking running along the centre to segregate the two user groups. These routes provide good access to the local centre and primary school in Langford Village and beyond into the town centre and Bicester Town Station to the south.
- 3.4.7 In addition, there is a Public Rights of Way (PRoW) network running through and around the Site as shown in **Figure 3.4**. Footpath 129/3/30 runs northeast from Gavray Drive and across the footbridge over the railway, then under the railway. The path continuous towards Charbridge Lane. Footpath 129/4/20 runs southeast along the southern side of the Gavray Drive and then continuous southeast through the site towards A4421 Charbridge Lane. These footpaths are proposed to be retained and incorporated within development masterplan.

Figure 3.4 Public Right of Way



Source: <https://publicrightsofway.oxfordshire.gov.uk>

3.4.8 Cycle distances of up to 5km are generally considered as reasonable by most members of the cycling community and such journeys would take up to 27.5 minutes. On this basis, the whole of Bicester, Ambrosden, Middleton Stony, Upper Arcott and Marsh Gibbon are all accessible within a 30 minute cycle ride.

3.5 Local Bus Network

3.5.1 In the recent years there has been a reduction in the number of routes served across the County. Following the cancellation of the Bicester Circular bus service (22 and 23) the closest bus stops to the site are Bicester Village Station and Granville Way bus stops.

3.5.2 Bicester Village Station bus stop is located approximately 1km (12 mins' walk) from the site on London Road and provides access to bus services 27, 29, H5 and 505.

3.5.3 Granville Way bus stop is located on Launton Road, approximately 1km (12 mins' walk) from the site. The bus stop provides access to route 28 bus services.

3.5.4 In addition to these locally accessible services, there are also a number of services that can be accessed from the town centre.

3.5.5 Local bus services are summarized in **Table 3.2** and a Bicester bus map is provided in **Appendix B**.

Table 3.2 Local Bus Services

Service	Bus Stop	Route	Mon - Sat Frequency
28	Granville Way	Bicester - Launton	Hourly
27	Bicester Village Station	Bicester - Langford - Bicester	8 services per day
29		Bicester - Graven Hill - Ambrosden - Bullingdon Prison	Hourly
H5		Bicester - Graven Hill - Ambrosden - Islip - Barton - Headington	Hourly
505		Bicester - Elmsbrook - Brackley	8 services per day

3.5.6 There is an opportunity to provide additional bus stop on Launton Road in the vicinity of Longfields and the footbridge over the north/south railway line. The bus stop, if implemented, would provide access to bus services within 300m of the Site. Similarly, the introduction of new services on the A4421 could bring buses closer to the site, with the provision of stops on the A4421 south of Gavray Drive potentially being provided as part of this development.

3.6 Rail Services

3.6.1 Bicester benefits from having two national railway stations, Bicester North and Bicester Village Station.

3.6.2 Bicester North, which acts as the main station for the town, is operated by Chiltern Railways and provides access to Birmingham, Stratford-upon-Avon, Banbury, and London Marylebone. The station is located approximately 2km from the Site via a pedestrian route via Gavray Drive and a footpath toward Laughton Road over the railway line and then via Longfields and another pedestrian route over the Chiltern mainline to access the station from Queens Avenue via the north.

3.6.3 In terms of service frequency, there are two services during peak hours to London Marylebone, with a journey time of just below 1 hour, 1 service to Birmingham with a journey time between 45 minutes and 1 hour, and 1 service to Banbury with a journey time of 16 minutes.

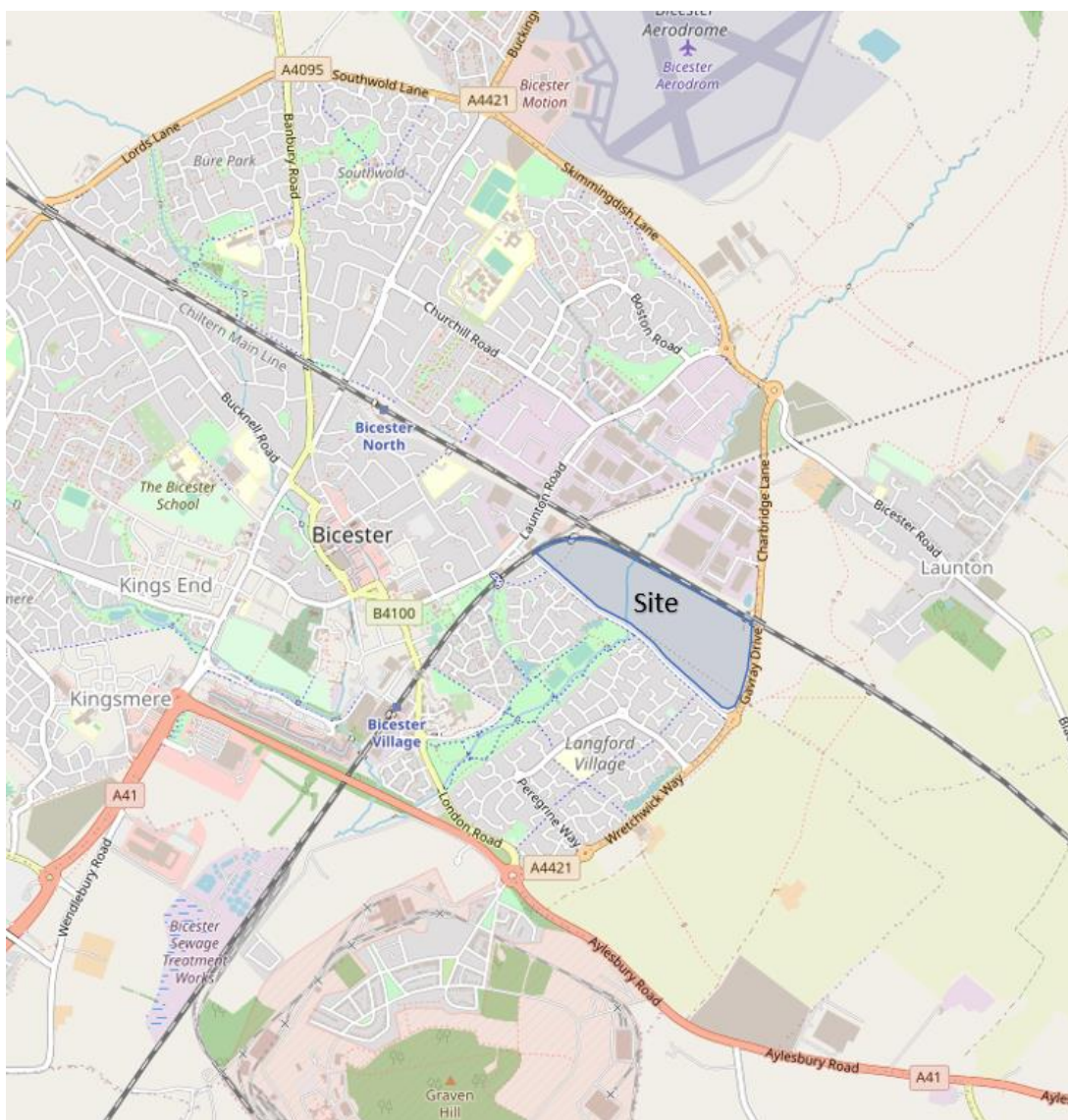
3.6.4 Bicester Village Station, previously called Bicester Town and also operated by Chiltern Railways, is located approximately 1.1km from the Site via the residential estates to the south. The station provides two services during peak hours to London Marylebone, with a journey time of just below 1 hour and two services to Oxford with a journey time below 20 minutes.

- 3.6.5 The station has two car parks; between them they provide 230 standard spaces, plus 18 spaces for passengers with reduced mobility. The station also has parking for 60 pedal cycles and 18 motorcycles.
- 3.6.6 The East West Rail scheme will re-establish a rail link between Cambridge and Oxford. Phase 2 of the project will upgrade and reconstruct sections of line that link Bicester to Bletchley and Milton Keynes. Main construction work started in Spring 2020 and is due for completion in Spring 2024.

3.7 Local Highway Network

- 3.7.1 The highway network study area is shown in **Figure 3.5**.

Figure 3.5 Existing Highway Network



3.7.2 This study area includes the following junctions:

- Gavray Drive / Mallards Way priority junction
- Gavray Drive / A4421 Wretchwick Way roundabout junction
- Peregrine Way / A4421 Wretchwick Way priority junction
- Peregrine Way / A4421 Wretchwick Way / A4421 Neunkirchen Way roundabout junction
- A41/B4100 London Road / A4421 Seelscheid Way / Gravenhill Road roundabout junction

3.7.3 Gavray Drive, which forms the Site's southern boundary and from which it is accessed, is a single carriageway road, subject to a 30mph speed limit, providing access to residential development to the south via Mallards Way and Whimbrel Close. A number of bell mouth junctions have been constructed along the northern side of Gavray Drive to enable future development of the Site, even though the area is currently open grassland. Gavray Drive terminates just short of the rail line.

3.7.4 The A4421 Wretchwick Way forms part of Bicester's Eastern Distributor Route, connecting the A41 in the south to the A421 to the north, and is subject to a 50mph speed limit. Where it passes the Site it is a wide single carriageway. The junction between Gavray Drive and Wretchwick Way is located at the south-east corner of the Site and takes the form of a normal three-armed roundabout.

3.7.5 To the south of Gavray Drive, Wretchwick Way provides access to Peregrine Way, which is effectively a large crescent acting as the main spine road to the Langford Village development. The northern connection between Peregrine Way and Wretchwick Road takes the form of a ghost island priority junction, whilst the southern junction is a normal three arm roundabout.

3.7.6 To the south of this roundabout the A4421 is dualled before joining the A41 at a large five-arm roundabout. As well as the A41, this roundabout also gives access to the town centre via the B4100 London Road. The fifth arm provides access to the emerging Graven Hill development.

3.8 Accident Analysis

3.8.1 Accident data has been obtained from Oxfordshire Road Safety covering the period 01/01/2016 to 31/03/2021. Full accident data is presented in **Appendix C**, with a summary provided in the following paragraphs.

3.8.2 The accident data identifies that the following personal injury accidents have been recorded:

- Gavray Drive / Mallards Way priority junction – no accidents recorded;
- Gavray Drive / A4421 Wretchwick Way roundabout – no accidents recorded;
- Peregrine Way / A4421 Wretchwick Way priority junction – 1 accident resulting in 1 slight injury;

- Peregrine Way / A4421 Wretchwick Way/ A4421 Neunkirchen Way roundabout junction – 1 accident resulting in 1 slight injury;
 - A41 / B4100 London Road / A4421 Seelscheid Way / Gravenhill Road roundabout junction – 6 accidents resulting in 9 slight and 1 serious injury.
- 3.8.3 The only accident recorded at A4421 / Peregrine Way priority junction involved vehicle turning right from Peregrine Way that failed to give way to the motorcycle approaching from the south. The accident record indicates that this junction is not a high risk location for road traffic accidents.
- 3.8.4 The accident that occurred on Peregrine Way / A4421 Wretchwick Way / Neunkirchen Way roundabout involved a vehicle approaching from Peregrine Way that failed to give way to the pedal cycle, possibly due to dazzling sun. The accident record indicates that this junction is not a high risk location for road traffic accidents.
- 3.8.5 At the A41 / London Road / A4421 Seelscheid Way / Gravenhill Road roundabout a total of nine accidents occurred. It is noticeable that three of them involved motorcycles, of which one resulted in one slight and one severe casualty.
- 3.8.6 In summary, this review has shown that the number of accidents (8) that have recorded in the most recent 63 months (01/01/2016 - 31/03/2021) is significantly lower than the number of accidents recorded in the previous years. This is indicative of an improvement in road safety in the area around the site.

4. Traffic Flows and Junction Performance

4.1 Junction Capacity Assessment – Existing Scenario

- 4.1.1 Having described the existing local highway layout, it is necessary to assess the capacity of each of the aforementioned junctions. Industry standard modelling software has been used, including Junctions 9 and LinSig.
- 4.1.2 Within Junctions 9 the modelling results for each arm are presented with reference to the 'Ratio of Flow to Capacity' (RFC) and Maximum Queues during the modelled period. For signalised junctions modelled in LinSig the results for each arm are presented with reference to Degree of Saturation (DoS) for the modelled period.
- 4.1.3 RFC values below 0.85 and DoS values below 90% generally indicate that an approach to the junction is operating below its practical reserve capacity (PRC), while RFC and DoS values over 1.0 or 100% respectively indicate that an approach to the junction is operating over its theoretical capacity and as a result significant queuing and delay is likely to occur.
- 4.1.4 The approved junction models that were prepared in support of the renewal application have been utilised, informed by the 2014 turning counts. The raw turning count data collected on Wednesday 14th May 2014 is attached in **Appendix D**. **Appendix D** also include Automatic Traffic Count data, collected between 10th-16th May 2014, which in particular has been used to inform the ES transport chapter. **Appendix E** show turning movements (PCUs) during traditional AM Peak (08.00-09.00) and PM peak (17.00-18.00) peak periods.

Gavray Drive / Mallards Way Priority Junction

- 4.1.5 Gavray Drive / Mallards Way is a three-arm simple priority junction, with junction layout shown in **Figure 4.1**.

Figure 4.1 Gavray Drive / Mallards Way Priority Junction



Source: Google Earth

4.1.6 The 2014 flows (PCUs) have been input into the traffic model and the results obtained in terms of ratios of flow to capacity (RFC) and queue lengths are presented in **Table 4.1**, with full outputs included as **Appendix F**.

Table 4.1 Gavray Drive / Mallards Way Priority Junction –Existing Scenario

Location	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Mallards Way – left	0.002	0	0.007	0.01
Mallards Way – right	0.059	0.08	0.035	0.04
Gavray Drive - right	0.006	0.01	0.003	0

4.1.7 The junction operates well within capacity under 2014 flows (PCUs), with the RFC on all arms being less than 0.85 with no queuing.

Gavray Drive / A4421 Wretchwick Way Roundabout

4.1.8 Gavray Drive / A4421 Wretchwick Way junction is a normal three-arm roundabout with junction layout shown in **Figure 4.4**.

Figure 4.2 Gavray Drive / A4421 Wretchwick Way Roundabout



Source: Google Earth

4.1.9 The 2014 flows (PCUs) have been input into the traffic model and the results obtained in terms of RFC and queue lengths are presented in **Table 4.2**.

Table 4.2 Gavray Drive / Wretchwick Way Roundabout – Existing Scenario

Location	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Wretchwick Way	0.251	0.22	0.358	0.35
Gavray Drive	0.071	0.08	0.047	0.05
Charbridge Road	0.372	0.47	0.298	0.34

4.1.10 The junction operates well within capacity under 2014 flows (PCUs), with the RFC on all arms being less than 0.85 with no queuing.

Peregrine Way / A4421 Wretchwick Way Priority Junction

4.1.11 Peregrine Way / A4421 Wretchwick Way is a ghost island priority junction, with junction layout shown in **Figure 4.3**.

Figure 4.3 Peregrine Way / A4421 Wretchwick Way Priority Junction



Source: Google Earth

4.1.12 The 2014 traffic flows have been input into the traffic model and the results obtained in terms of RFC and queue lengths are presented in **Table 4.3**.

Table 4.3 Peregrine Way / A4421 Wretchwick Way Priority Junction – Existing Scenario

Location	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Peregrine Way – left	0.204	0.25	0.144	0.17
Peregrine Way – right	0.246	0.32	0.150	0.17
A4421 Wretchwick Way – right	0.134	0.15	0.244	0.32

4.1.13 The junction operates well within capacity under 2014 flows (PCUs), with the RFC on all arms being less than 0.85 with no queuing.

Peregrine Way / A4421 Wretchwick Way / A4421 Neunkirchen Way Roundabout

4.1.14 Peregrine Way / A4421 Wretchwick Way / A4421 Neunkirchen Way junction is a standard three-arm roundabout, with junction layout shown in **Figure 4.4**.

Figure 4.4 Peregrine Way / A4421 Wretchwick Way / A4421 Neunkirchen Way Roundabout



Source: Google Earth

4.1.15 The 2014 traffic flows have therefore been input into the traffic model and the results obtained in terms of RFC and queue lengths are presented in **Table 4.4**.

Table 4.4 Peregrine Way / A4421 Wretchwick Way / A4421 Neunkirchen Way Roundabout – Existing Scenario

Location	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A4421 Neunkirchen Way	0.185	0.23	0.326	0.48
Peregrine Way	0.188	0.25	0.169	0.20
A4421 Wretchwick Way	0.347	0.53	0.222	0.29

- 4.1.16 The junction operates well within capacity under 2014 flows (PCUs), with the RFC on all arms being less than 0.85 with no queuing.

A41 / B4100 London Road / A4421 Seelscheid Way / Gravenhill Road – Rodney House Roundabout

- 4.1.17 Rodney House Roundabout is a large five-arm roundabout connecting the A41 with the A4421, with additional arms serving London Road toward the town centre and Gravenhill Road which provides access to the Graven Hill site. The junction has been recently improved and signalised to increase its capacity. A junction layout in the time of traffic surveys is shown in **Figure 4.5** and the current junction layout is shown in **Figure 4.6**.

Figure 4.5 A41 / B4100 London Road / A4421 Seelscheid Way / Gravenhill Road Roundabout – 2014 Layout



Source: Google Earth

Figure 4.6 A41 / B4100 London Road / A4421 Seelscheid Way / Gravenhill Road Roundabout – Current Layout



Source: Google Earth

4.1.18 The 2014 traffic flows have been input into the 2014 junction model i.e. without the recent improvements in place and the results obtained in terms of RFC and queue lengths are presented in **Table 4.5**.

Table 4.5 A41 / London Road / A4421 Seelscheid Way Roundabout – Existing Performance

Location	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A4421 Seelscheid Way	0.64	1.73	0.401	0.66
A41 East	0.606	1.58	0.631	1.68
Gravenhill Road North	0.097	0.11	0.04	0.04
A41 West	0.574	1.34	0.688	2.15
B4100 London Road	0.323	0.48	0.572	1.35

4.1.19 **Table 4.5** indicates that in 2014 prior to the junction improvements there was some minor queueing at the junction during each of the peak periods.

5. Development Proposals

5.1.1 The development proposals are for a residential development proposal described as follows:

Residential development for up to 250 dwellings including affordable housing and ancillary uses including retained Local Wildlife Site, public open space, play areas, localised land remodelling, compensatory flood storage, structural planting and access.

5.1.2 For the purpose of this assessment, a maximum provision of 250 residential dwellings has been tested.

5.1.3 Vehicular and pedestrian access to the site will be achieved from Gavray Drive. Access is via two of the existing bellmouths on Gavray Drive, as shown in Drg No's 20095-MA-XX-XX-DR-C-0001 and 0002.

5.1.4 Full occupation of the development is estimated as occurring in 2026.

5.1.5 As an outline application, whilst the proposals are supported by a masterplan and parameter plan detailing land uses, building heights density and access, which is attached as **Appendix A**, they are not sufficiently detailed at this stage to identify accommodation schedule or car parking and cycle parking provision etc. These aspects of the proposals will be the subject of subsequent reserve matter applications.

6. Future Year Assessment

- 6.1.1 OCC have an up to date strategic SATURN model of the Bicester area that they now require to be used to assess the impact of development on traffic in the town. Therefore, to ensure the assessment of traffic impact was robust, the SATURN model has been used to obtain traffic flows for 2026 and these would be used to assess the impact of the development.
- 6.1.2 The SATURN model already includes traffic generation associated with committed development in Bicester, including the sites that are allocated within the Adopted Local Plan. The model therefore includes traffic associated with the development of 300 residential units on Gavray Drive. To derive 2026 baseline traffic flows, the trips associated with a 300 residential unit development have been manually subtracted from the SATURN flows.
- 6.1.3 The development traffic generation for the site has been calculated using the trip rates that were previously agreed and utilized for previous TAs. The distribution of traffic for the site has been taken from a SATURN select link analysis for the site provided by OCC. The SATURN output provided by OCC can be seen in full in **Appendix G**.
- 6.1.4 The resultant traffic flows used in the assessment are set out in **Appendix H** as follows:
- 2026 Baseline Flows;
 - 2026 with 250 Residential Units Flows.

Percentage Change in Flows

- 6.1.5 In order to check that the geographic scope of the assessment remains reasonable, the percentage change in traffic flow as a result of the development in each of the peaks has been checked on the A4421, London Road and the A41 as set out in **Table 6.1**.

Table 6.1 Percentage Change in Traffic Flows in 2026 as a Result of 250 Residential Units on Gavray Drive

Location	AM Peak			PM Peak		
	Baseline	Development	Change	Baseline	Development	Change
A4421 North of Gavray Drive	2072	70	3.36%	2142	76	3.55%
A4421 South of Gavray Drive	1111	36	3.23%	1107	38	3.39%
London Road	627	32	5.07%	873	24	2.72%
A41 East	1854	0	0.00%	1966	0	0.00%
A41 West	2774	60	2.15%	2875	44	1.52%

- 6.1.6 It can be seen that the change in traffic flow in all locations is up to 5% and therefore the geographic scope applied in the original TA remains appropriate.

6.2 2026 Baseline Scenario

The junction models utilised in the original TA have been re-run using the traffic flows set out in **Appendix H** to obtain their 2026 baseline performance. The results of these assessments are summarised in **Table 6.2** to **Table 6.5** and the full outputs are provided in full in **Appendix I**.

Table 6.2 Gavray Drive / Mallards Way Priority Junction – 2026 Baseline

Location	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Mallards Way – left	0.04	0	0.05	0.1
Mallards Way – right	0.04	0	0.03	0
Gavray Drive – right	0.05	0.1	0.04	0

Table 6.3 Gavray Drive / Wretchwick Way Roundabout – 2026 Baseline

Location	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Wretchwick Way	0.42	0.7	0.40	0.7
Gavray Drive	0.05	0.1	0.05	0
Charbridge Road	0.55	1.2	0.54	1.2
Wretchwick Avenue	0.37	0.6	0.60	1.5

Table 6.4 Peregrine Way / A4421 Wretchwick Way Priority Junction – 2026 Baseline

Location	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Peregrine Way – left	0.21	0.3	0.12	0.1
Peregrine Way – right	0.13	0.1	0.11	0.1
A4421 Wretchwick Way – right	0.20	0.3	0.29	0.4

Table 6.5 Peregrine Way / A4421 Wretchwick Way / A4421 Neunkirchen Way Roundabout – 2026 Baseline

Location	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A4421 Neunkirchen Way	0.20	0.2	0.33	0.5
Peregrine Way	0.70	0.7	0.22	0.3
A4421 Wretchwick Way	0.20	0.2	0.18	0.2

- 6.2.1 As part of the approved Graven Hill development, a significant improvement scheme for this junction has been implemented for Rodney House Roundabout. This improvement introduced the signalisation of the roundabout and introduction of pedestrian crossing facilities on each arm.
- 6.2.2 The TA that was submitted in support of that application demonstrated that the proposed signal scheme would be sufficient to accommodate the Graven Hill development traffic and other committed development proposals, including the previously approved development of 500 units at Gavray Drive.
- 6.2.3 Nevertheless, to assess the development impact on the junction performance a LinSig model of the improved junction has been set up. The results of the 2026 Baseline assessment is summarized **Table 6.6** and the full outputs are provided in full in **Appendix I**.

Table 6.6 A41 / London Road / A4421 Seelscheid Way Roundabout – 2026 Baseline

Location	AM Peak		PM Peak	
	DoS [%]	MMQ [PCU]	DoS [%]	MMQ [PCU]
A4421 Seelscheid Way	47.4	3.0	48.4	2.7
A41 East	55.2	4.1	48.8	3.5
Gravenhill Road North	59.1	3.2	41.2	2.0
A41 West	47.4	3.8	57.9	5.1
B4100 London Road	29.3	1.5	56.3	2.7
Overall PRC	34.3%		35.7%	

- 6.2.4 As demonstrated above all junctions are expected to operate well within their capacity in 2026 Baseline scenario.
- 6.2.5 The A41 / A4421 roundabout, which was close to its-capacity in 2014 is expected to operate well within its capacity with the implemented junction improvement scheme.

6.3 2026 with Development Scenario

- 6.3.1 Having established the performance of each of the junctions within the immediate highway network under the baseline scenario, it is necessary to test the impact of the additional traffic that would be generated by the development proposals.
- 6.3.2 The individual junction models have been re-run using the ‘2026 with Development’ traffic flows set out in **Appendix H**. The results are summarised in **Table 6.7** to **Table 6.11** and can be seen in full **Appendix I**.

Table 6.7 Gavray Drive / Mallards Way Priority Junction –2026 with Development

Location	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Mallards Way – left	0.04	0	0.06	0.1
Mallards Way – right	0.07	0.1	0.08	0.1
Gavray Drive - right	0.05	0.1	0.04	0

Table 6.8 Gavray Drive / Wretchwick Way Roundabout – 2026 with Development

Location	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Wretchwick Way	0.43	0.8	0.43	0.7
Gavray Drive	0.14	0.2	0.14	0.2
Charbridge Road	0.57	1.3	0.57	1.3
Wretchwick Avenue	0.38	0.6	0.63	1.7

Table 6.9 Peregrine Way / A4421 Wretchwick Way Priority Junction – 2026 with Development

Location	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Peregrine Way – left	0.21	0.3	0.12	0.1
Peregrine Way – right	0.13	0.2	0.11	0.1
A4421 Wretchwick Way – right	0.21	0.3	0.29	0.4

Table 6.10 Peregrine Way / A4421 Wretchwick Way / A4421 Neunkirchen Way Roundabout – 2026 with Development

Location	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
A4421 Neunkirchen Way	0.21	0.3	0.12	0.1
Peregrine Way	0.13	0.2	0.11	0.1
A4421 Wretchwick Way	0.21	0.3	0.29	0.4

Table 6.11 A41 / London Road / A4421 Seelscheid Way Roundabout – 2026 with Development

Location	AM Peak		PM Peak	
	DoS [%]	MMQ (PCU)	DoS [%]	MMQ (PCU)
A4421 Seelscheid Way	48.8	3.1	54.8	3.0
A41 East	55.2	4.1	48.8	3.5
Gravenhill Road North	59.1	3.2	41.2	2.0
A41 West	48.7	3.9	57.6	5.0
B4100 London Road	29.8	1.6	57.2	2.7
Overall PRC	34.3%		36%	

6.3.3 With the proposed development in place, all junctions remain within capacity with RFC's below 0.85 and DoS below 90%. As can be seen from the tables above the impact of the proposed development traffic is expected to be negligible.

7. Transport Mitigation Measures

7.1 Travel Plan

7.1.1 A Travel Plan for the proposed development was submitted as one of the planning application documents. The Travel Plan is the start of a long-term management strategy that seeks to deliver sustainable transport objectives for the site. It is a living document that once implemented will be regularly monitored and reviewed.

7.1.2 The Travel Plan included a strategy for implementation, marketing, monitoring and reporting. It also identified a range of measures to encourage sustainable travel and set interim targets for mode shift, against which the TP can be monitored.

7.1.3 The measures that will be implemented as part of the Travel Plan include:

- A Travel Plan Co-ordinator (TPC) will be appointed 3 months before the initial occupation of the residential units, followed by the formation of a Travel Plan Steering Group.
- A Sustainable Travel Information Pack will be provided to all households on first occupation. This will include information on routes to key local destinations by foot, bicycle and public transport, site specific public transport information, TPC contact details and journey planner website information
- Personalised travel planning sessions will be offered by the TPC to each household.
- The TPC will organise a 'walking bus' between the site and the local primary school.
- Cycle parking will be provided on site and cycle information will be provided to each household.
- The TPC will organise the formation of a Bicycle User Group for the development.
- The TPC will form a Car Sharing Database for the site.

7.2 S106 Financial Contributions and S278 Highway Works

7.2.1 For the previous application for development on Gavray Drive the Highway Authority requested a number of financial contributions and measures:

- Contributions towards the strategy to increase capacity on the A4421 north of Gavray Drive;
- £1000 per dwellings towards the procurement of additional bus services;
- £18000 towards bus stop infrastructure;
- A Travel Plan monitoring fee;
- A contribution towards safety improvement at the Peregrine Way / Wretchwick Way junction;
- Works on Gavray Drive including a raised crossing at Mallards Way and safe crossing points on Gavray Drive; and
- Signalised crossing of Wretchwick Way and hardstanding for bus stops.

- 7.2.2 A discussion with OCC has indicated that things have moved on from the previous application in relation to a number of these items. The Peregrine Way / Wretchwick Way junction is to be improved as part of the Wretchwick Green proposals. No capacity improvements are identified as being required as part of these proposals and the latest accident data does not reflect the right turn accident problems that was previously identified. It is therefore no longer proposed to make this contribution.
- 7.2.3 The Wretchwick Green development will be implementing a crossing and bus stops to the north of Gavray Drive as bus services have changed in this area. Stops and a crossing to the south of Gavray Drive are therefore no longer needed. Should the Gavray Drive development come forward ahead of Wretchwick Green then there is the scope for the proposals to deliver the bus stop and crossing infrastructure to the north of Gavray Drive if this is required.
- 7.2.4 The works on Gavray Drive have been extended to include a raised crossing over each of the site accesses and to widen the footway on the northern side of Gavray Drive from the roundabout with the A4421 to the easternmost site access point. These measures are shown in Drg No's 20095-MA-XX-XX-DR-CC-0001 to 0003.

8. Summary and Conclusion

- 8.1.1 MA have been instructed by L&Q Estates, Charles Brown and Simon Digby and London & Metropolitan International Developments (the Applicants) to prepare a TA in support of the outline planning application for a residential development proposal at an undeveloped site located north of Gavray Drive, Bicester, referred to as Gavray Drive West.
- 8.1.2 The development proposals are described as follows:
- Residential development for up to 250 dwellings including affordable housing and ancillary uses including retained Local Wildlife Site, public open space, play areas, localised land remodelling, compensatory flood storage, structural planting and access.*
- 8.1.3 For the purpose of this assessment, a provision of 250 residential units has been tested.
- 8.1.4 Vehicular, pedestrian and cycle access to the site will be achieved from Gavray Drive. As an outline application the proposals are not sufficiently detailed to identify an accommodation schedule or car parking and cycle parking provision etc. These aspects of the proposals will be the subject of subsequent reserved matter applications. The TA has otherwise focused on identifying that residential development of the Site is acceptable in principle, based on accessibility and assessment of traffic impact.
- 8.1.5 The TA demonstrates that the site is in a location that can be accessed by sustainable modes and has local social infrastructure available within reasonable walking and cycling distance.
- 8.1.6 Assessment of the impact of the development on the surrounding road network has been carried out using data from the most recent SATURN model of Bicester and a methodology agreed with OCC. This has shown that the Proposed Development has no material impact on the capacity performance of the surrounding road network.
- 8.1.7 In addition to this TA, a Full TP has also been prepared in support of the application, which sets out a number of measures and management strategies that will be implemented to encourage sustainable travel amongst future residents.
- 8.1.8 The TA therefore concludes that there are no transport related reasons to prevent outline planning consent being granted for the proposed development, with detailed matters being the subject of further reserved matter applications.

DRAWINGS

20095-MA-XX-XX-DR-C-0001 Proposed Site Access 1

20095-MA-XX-XX-DR-C-0002 Proposed Site Access 2

20095-MA-XX-XX-DR-C-0003 Proposed S278 Works

20095-MA-XX-XX-DR-C-0004 Proposed Site Access 2 - Tracking

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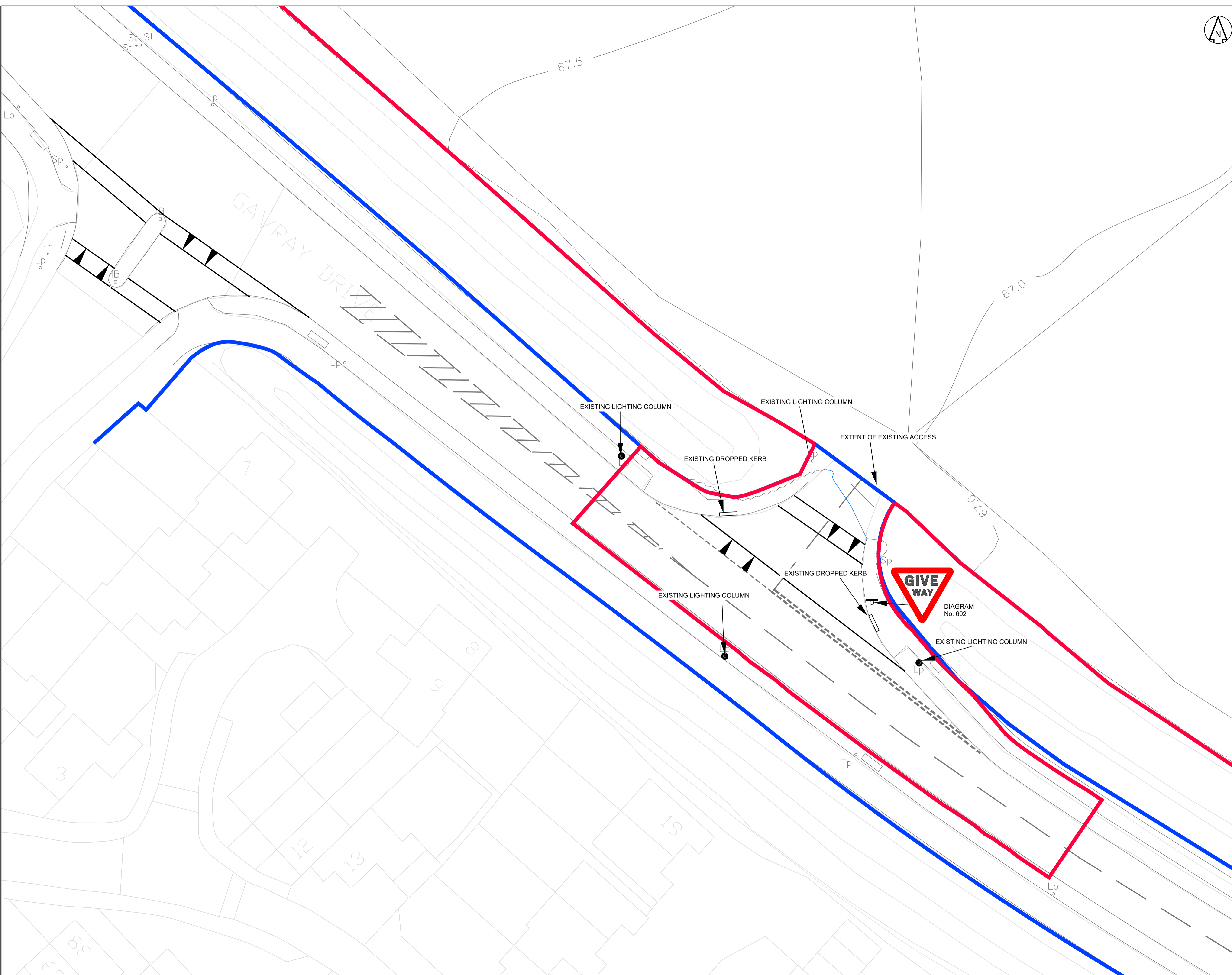


NOTES:

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2. ALL LEVELS AND CHAINAGES ARE IN METRES UNLESS NOTED OTHERWISE.
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4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH PLAN DRAWINGS 20095-MA-XX-XX-DR-C-0002-0003.

KEY:

- SITE BOUNDARY
- HIGHWAY BOUNDARY



Revision History

Rev	Comment	By	Chkd	Appr	Date
P04	FOR INFORMATION	CDT	JB	JB	20.09.21
P03	FOR INFORMATION	CDT	JB	JB	14.07.21
P02	FOR INFORMATION	CDT	JB	JB	26.04.21
P01	FOR INFORMATION	CDT	JB	JB	23.04.21
Current Revision					
P04	FOR INFORMATION	CDT	JB	JB	20.09.21
Rev	Comment	By	Chkd	Appr	Date

S2 - FOR INFORMATION
L&Q ESTATES



Project
GAVRAY DRIVE, BICESTER

Drawing Title
PROPOSED SITE ACCESS 1

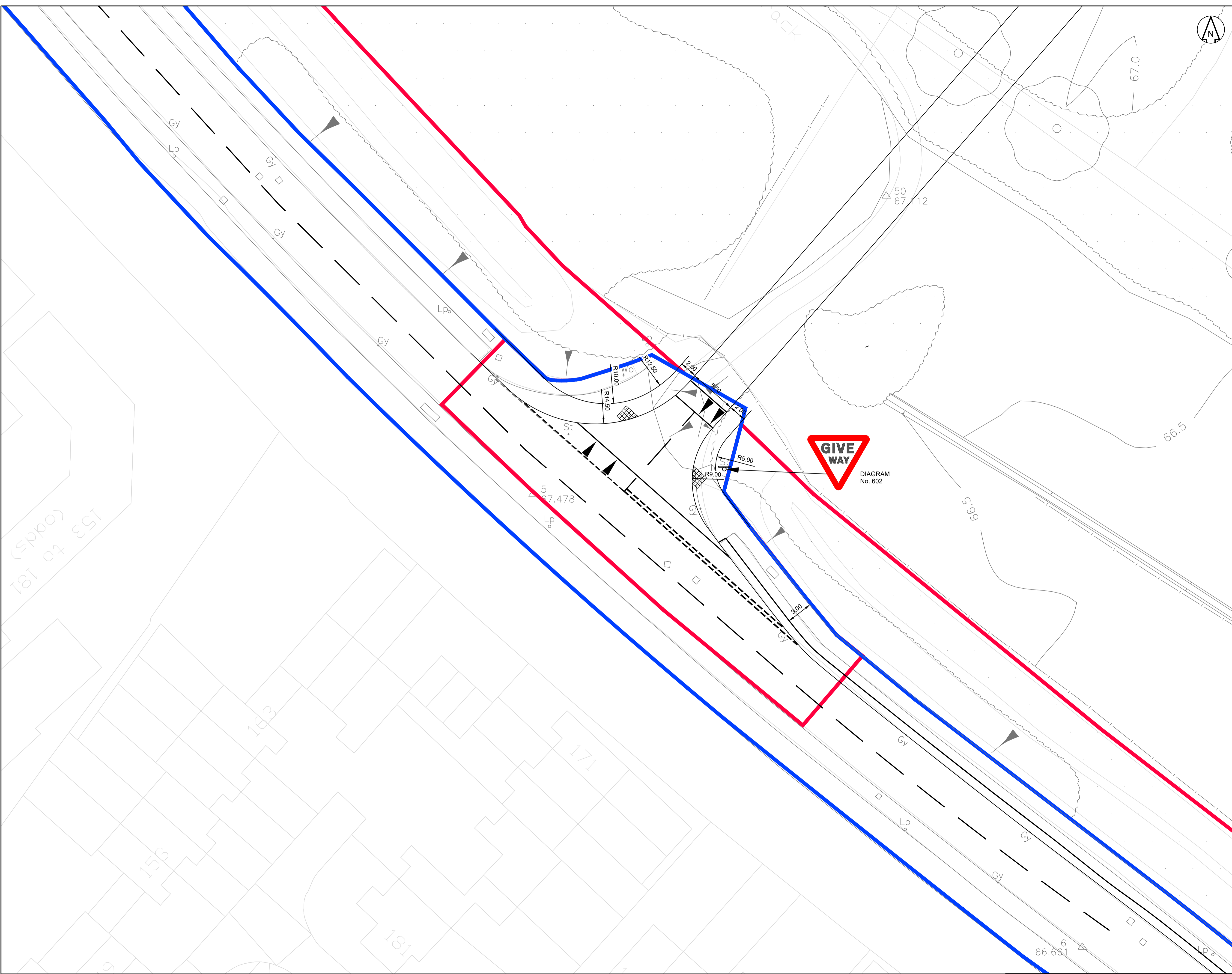
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- SITE BOUNDARY
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Revision History					
Rev	Comment	By	Chkd	Appr	Date
P05	FOR INFORMATION	CDT	JB	JB	20.09.21
P04	UPDATED SITE BOUNDARY	LB	JB	JB	31.08.21
P03	FOR INFORMATION	CDT	JB	JB	14.07.21
P02	FOR INFORMATION	CDT	JB	JB	26.04.21
P01	FOR INFORMATION	CDT	JB	JB	23.04.21
Rev	Comment	By	Chkd	Appr	Date

S2 - FOR INFORMATION

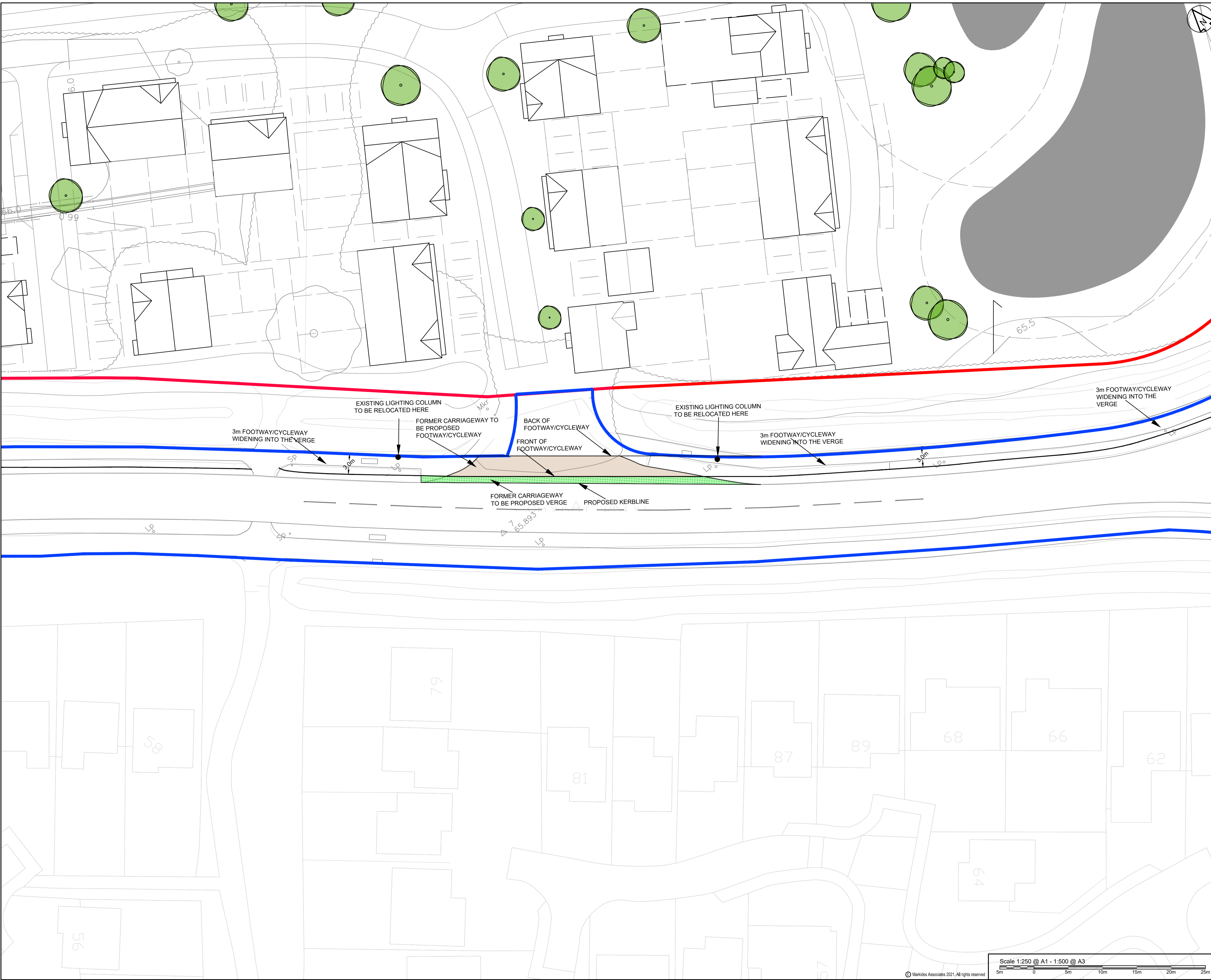
L&Q ESTATES



MARKIDES ASSOCIATES
TRANSPORT PLANNING AND ENGINEERING

Project: **GAVRAY DRIVE, BICESTER**

Drawing Title: **PROPOSED SITE ACCESS 2**



DO NOT SCALE OFF THIS DRAWING

- NOTES:
1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
 2. ALL LEVELS AND CHAINAGES ARE IN METRES UNLESS NOTED OTHERWISE.
 3. DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.
 4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH PLAN DRAWINGS 20095-MA-XX-XX-DR-C-0002-0003.

- KEY:
- SITE BOUNDARY
 - HIGHWAY BOUNDARY

EXISTING LIGHTING COLUMN TO BE RELOCATED HERE

FORMER CARRIAGEWAY TO BE PROPOSED FOOTWAY/CYCLEWAY

BACK OF FOOTWAY/CYCLEWAY

FRONT OF FOOTWAY/CYCLEWAY

EXISTING LIGHTING COLUMN TO BE RELOCATED HERE

3m FOOTWAY/CYCLEWAY WIDENING INTO THE VERGE

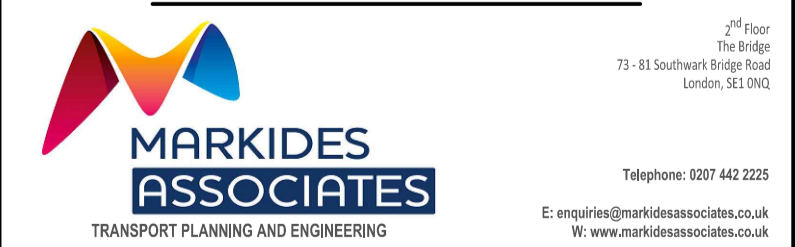
FORMER CARRIAGEWAY TO BE PROPOSED VERGE

PROPOSED KERBLINE

Revision History					
Rev	Comment	By	Chkd	Appr	Date
P02	FOR INFORMATION	CDT	JB	JB	20.09.21
P01	FOR INFORMATION	CDT	JB	JB	23.04.21
Current Revision					
P02	FOR INFORMATION	CDT	JB	JB	20.09.21
Rev	Comment	By	Chkd	Appr	Date

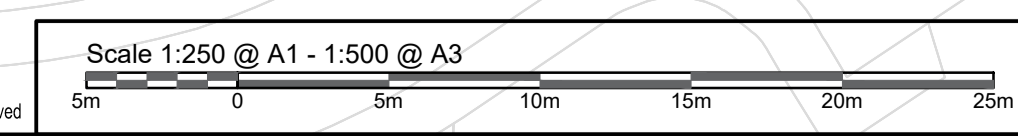
S2 - FOR INFORMATION

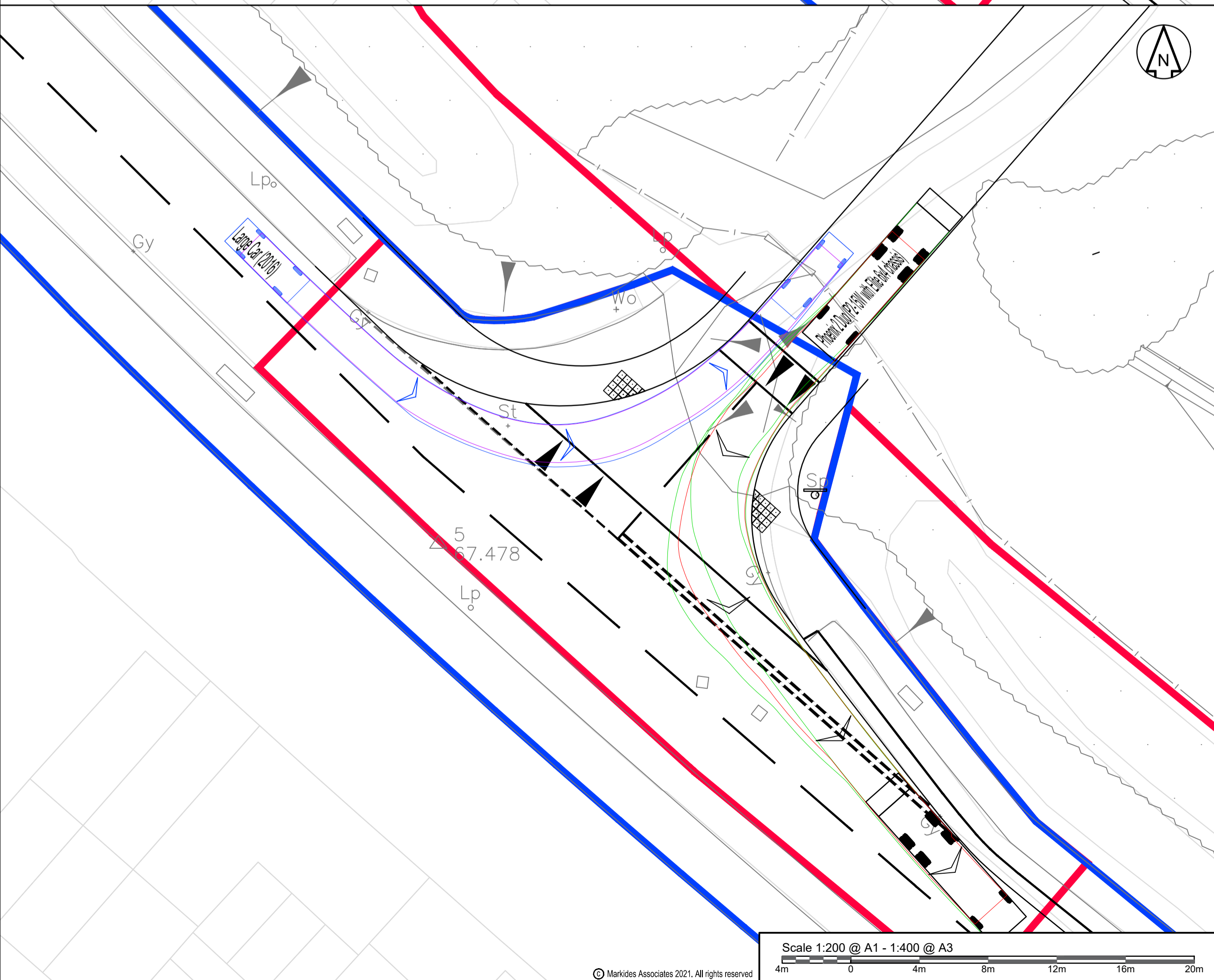
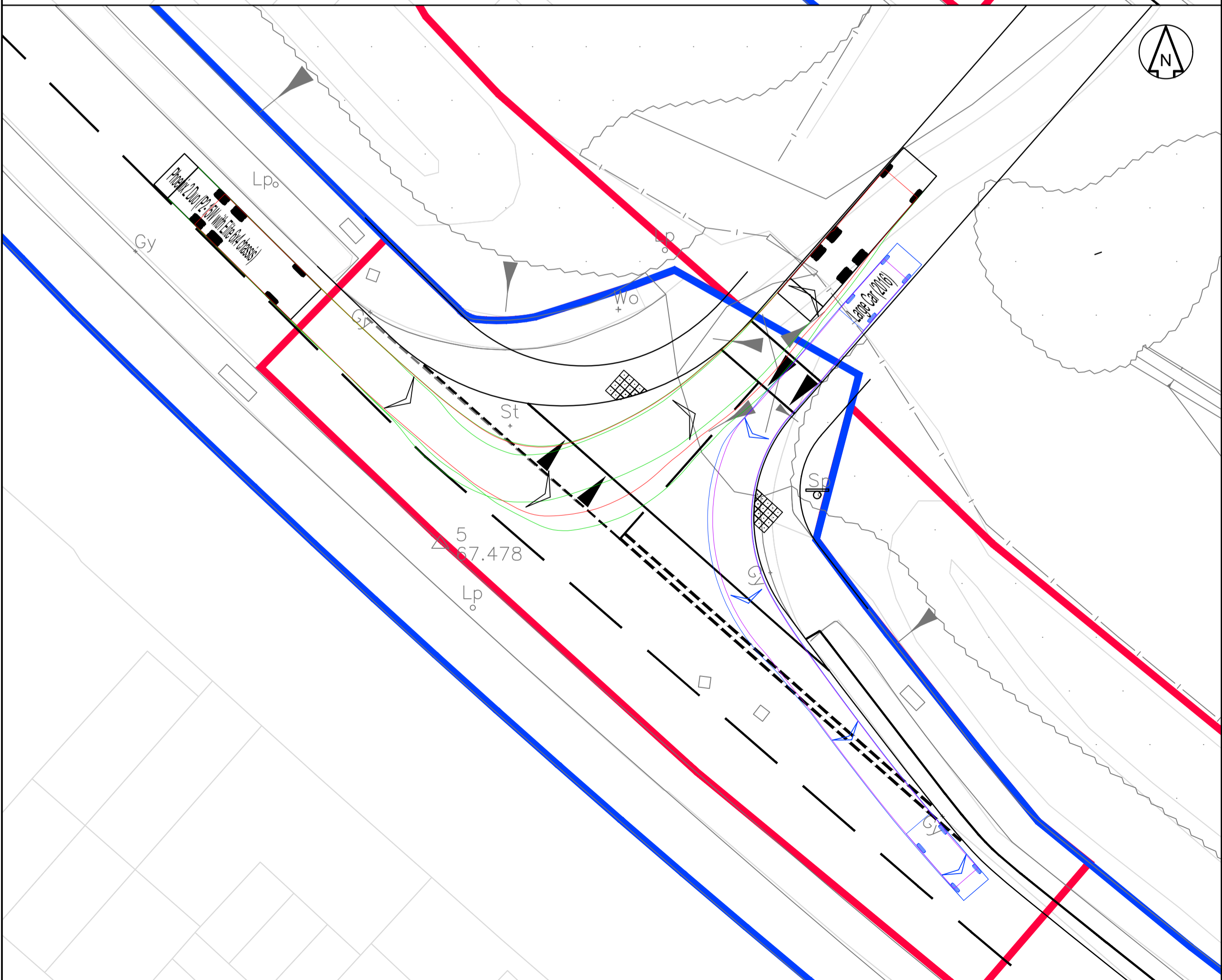
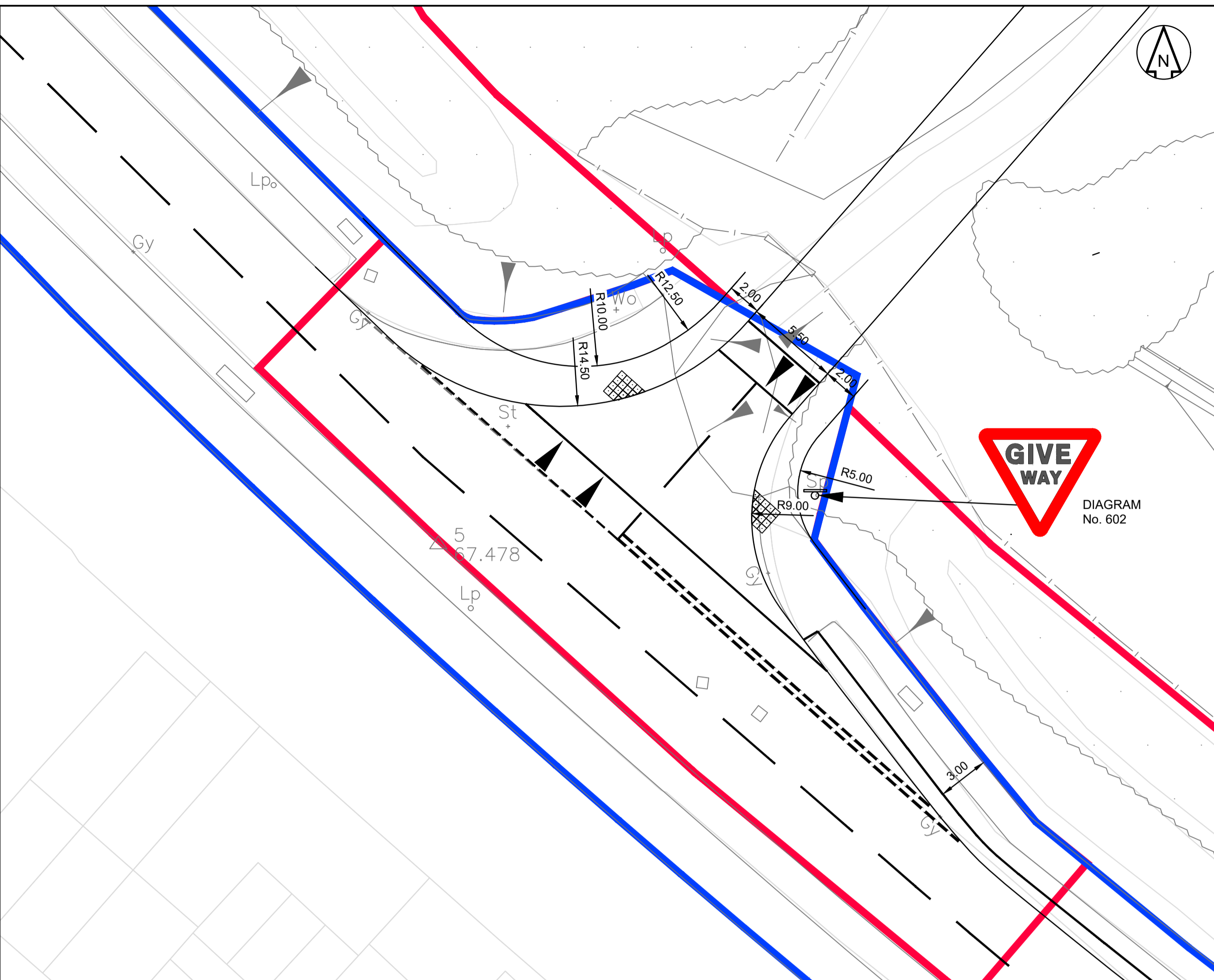
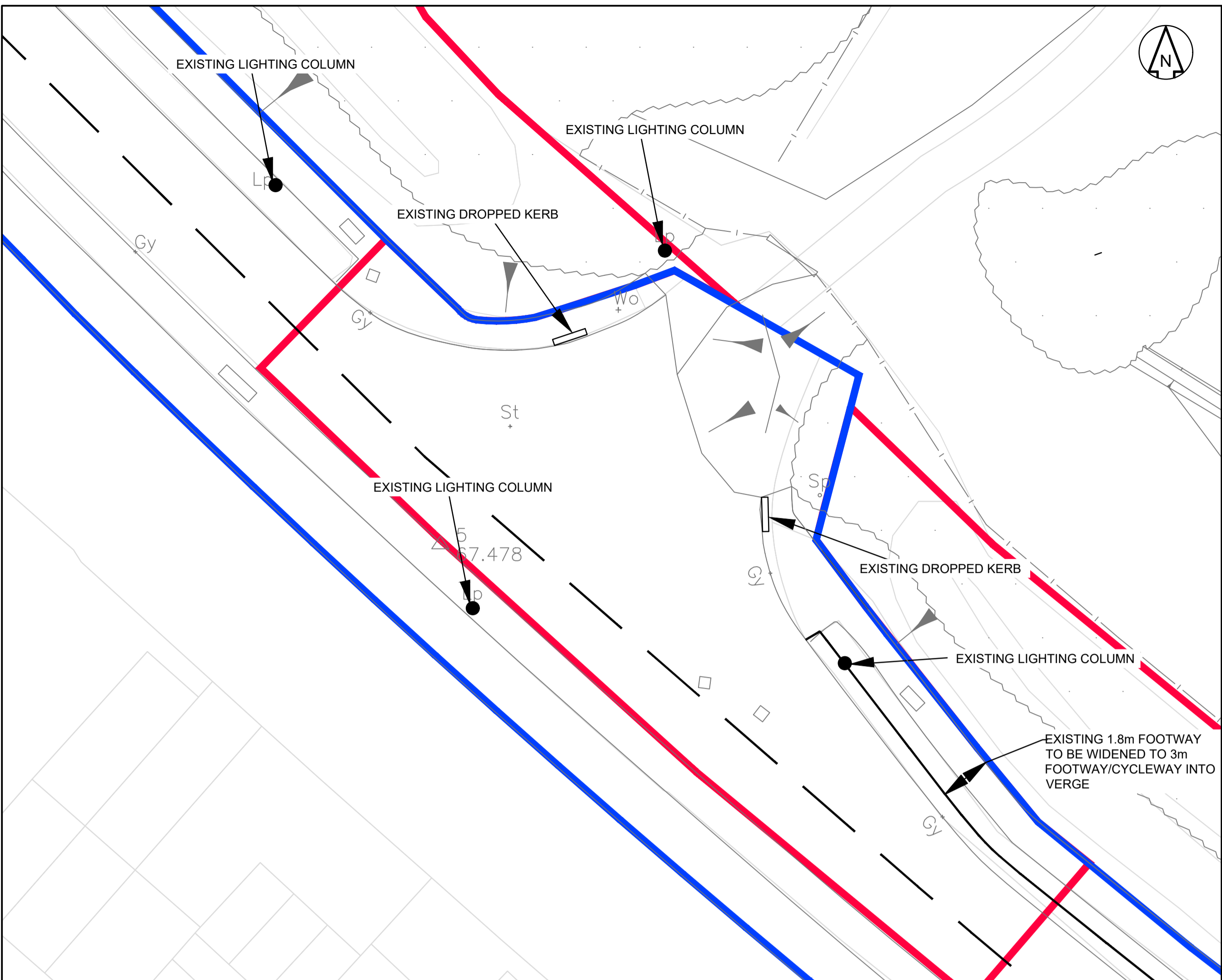
L&Q ESTATES



Project
GAVRAY DRIVE, BICESTER

Drawing Title
PROPOSED S278 WORKS

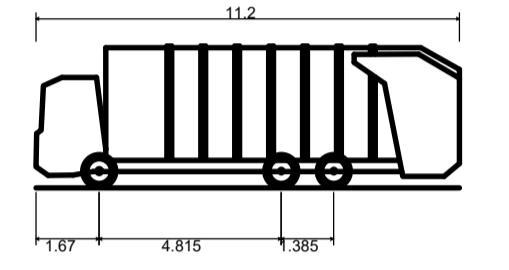




DO NOT SCALE OFF THIS DRAWING

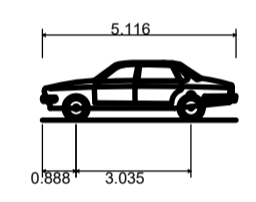
- NOTES:**
1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
 2. ALL LEVELS AND CHAINAGES ARE IN METRES UNLESS NOTED OTHERWISE.
 3. DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.
 4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH PLAN DRAWINGS 20095-MA-XX-XX-DR-C-0002-0003.

- KEY:**
- SITE BOUNDARY
 - HIGHWAY BOUNDARY
 - EXISTING LAYOUT
 - VEHICLE WHEEL OUTLINE
 - VEHICLE BODY OUTLINE
 - VEHICLE WHEEL OUTLINE
 - VEHICLE BODY OUTLINE
- VEHICLE FORWARD SPEED: 5KM/H
 VEHICLE REVERSE SPEED: 2.5KM/H
 NO DRY STEERING HAS BEEN USED.



Phoenix 2 Duo (P2-15W with Elite 6x4 chassis)

Overall Length	11.200m
Overall Width	2.530m
Overall Body Height	3.751m
Min Body Ground Clearance	0.304m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.500m



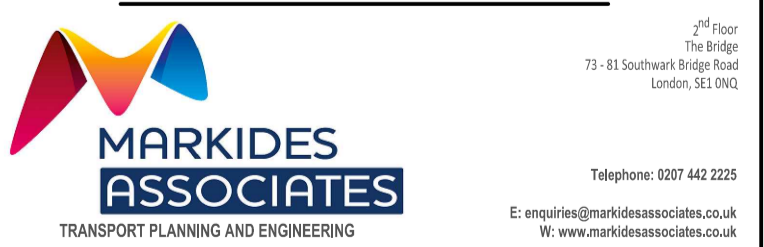
Large Car (2016)

Overall Length	5.116m
Overall Width	1.899m
Overall Body Height	1.526m
Min Body Ground Clearance	0.311m
Track Width	1.834m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	6.150m

Revision History

Rev	By	Chkd	Appr	Date		
P02	FOR INFORMATION		CDT	JB	20.09.21	
P01	FOR INFORMATION		LB	JB	28.08.21	
Rev	Comment		By	Chkd	Appr	Date
Current Revision						
P02	FOR INFORMATION		CDT	JB	20.09.21	
Rev	Comment		By	Chkd	Appr	Date

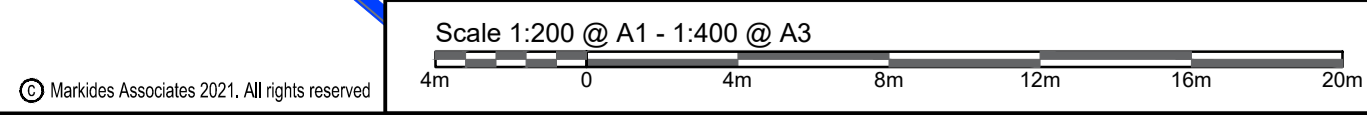
S2 - FOR INFORMATION
L&Q ESTATES



Project: **GAVRAY DRIVE, BICESTER**

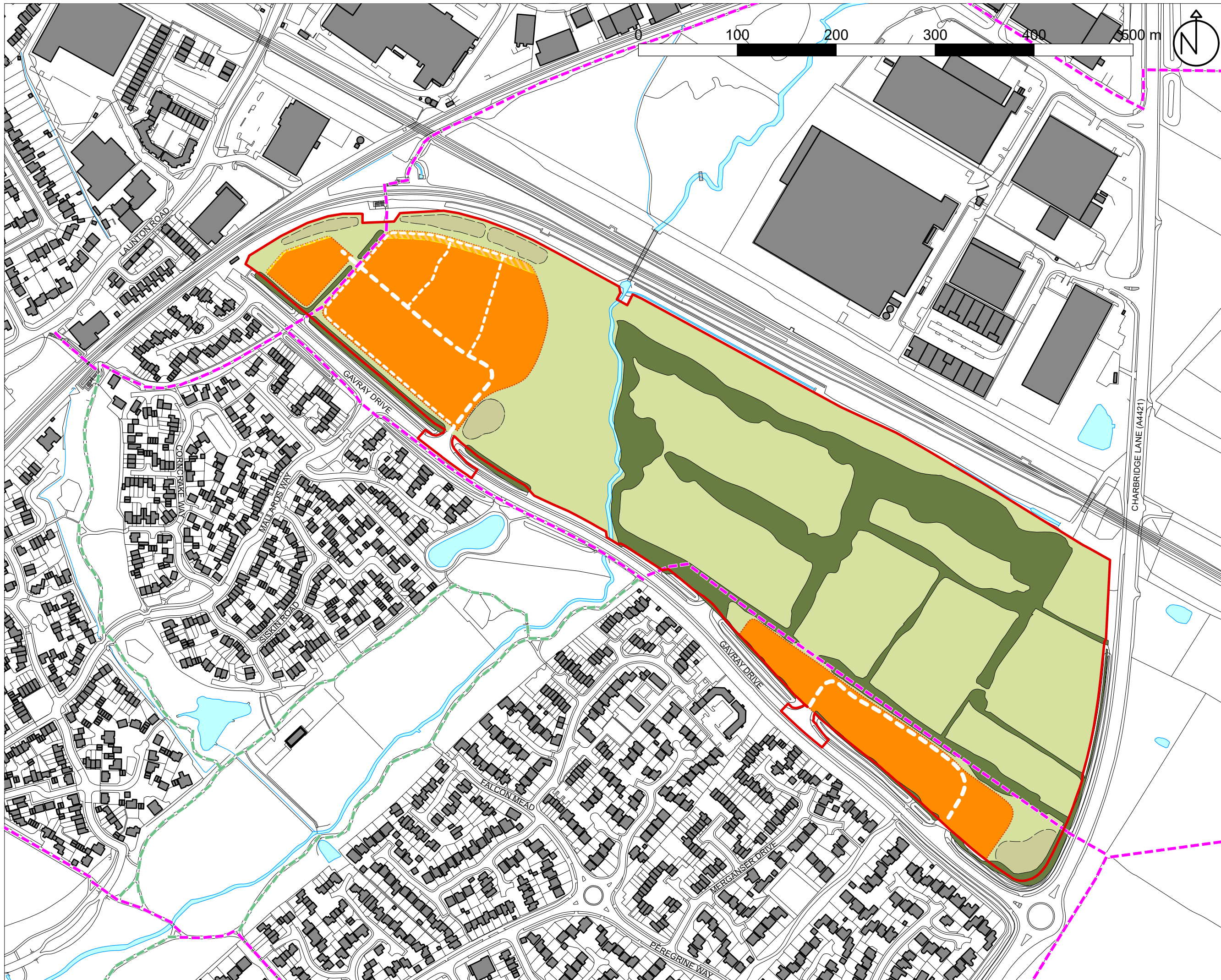
Drawing Title: **SWEPT PATH ANALYSIS
 REFUSED VEHICLE
 NORTH WEST PLOT**

Markides Associates reference: 20095/01 1:1000 @ A1
 20095-MA-XX-XX-DR-C-0004 - P02



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APPENDIX A – SITE MASTERPLAN



Do not scale from this drawing.
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PLANNING

- Site boundary (22.49ha)
- Residential development area (4.8ha)
- No building zone (built frontage set back from railway to ensure adequate noise mitigation can be achieved; area suitable for infrastructure, roads etc. and/or landscaping)
- Green space (17.7ha incl. existing vegetation and areas reserved for attenuation)
- SuDS feature (top of bank shown)
- Existing trees/hedgerows/scrub to be retained
- Existing watercourses/waterbodies
- Existing Public Rights of Way
- Existing recreational routes/footpaths

Rev.	Date	Description
		Land north of Gavray Drive BICESTER
Land Use Parameter Plan		
Job ref: 239	Drawing number: P10	Revision: -
Scale: 1:3,500 @ A3		Date: September 2021



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