

	DMRB COMPLIANCE WITH TD 42/95					
	Corner Radii (m)	Approach Lane Width (m)	Taper for Ghost Island (m)	Direct Taper for Ghost Island (m)	Design Speed (mph)	Deceleration Length (m)
Barrack Square (West)	15	3.5	1 in 20	N/A	30	N/A
Gloster Road	15	3.65	N/A	N/A	30	N/A
Barrack Square (East)	N/A	3.5	1 in 20	5	30	25

5 Traffic Signs

Advance Direction Signs (ADS) shall be provided on the approaches to the roundabout, as well as Flag type directional signs on the exit arms as prescribed in the Traffic Signs Regulations and General Directions (TRSGD). Care has been taken with the positioning and the size of these signs so that they do not interfere with driver's visibility requirements. A 2m mounting height will be provided to Flag type signs to ensure visibility is not restricted (Mandatory Item 8.2).

Guidance on the design of directional traffic signs is given in the Traffic Signs Manual (Chapter 7) and LTN 1/94 – 'The Design and Use of Directional Informatory Signs', particularly Appendix A. The 'x' heights for these directional sign have been informed by the existing 70 mph and 30 mph speed limits on the highway.

Road Markings

The existing road markings along the A12 Dual Carriageway, Eagle Way, Barrack Square and Gloster Road have been provided in response to the current speed limits. All road markings have been informed by Traffic Signs Manual Chapter 5.

6 Highway Boundary

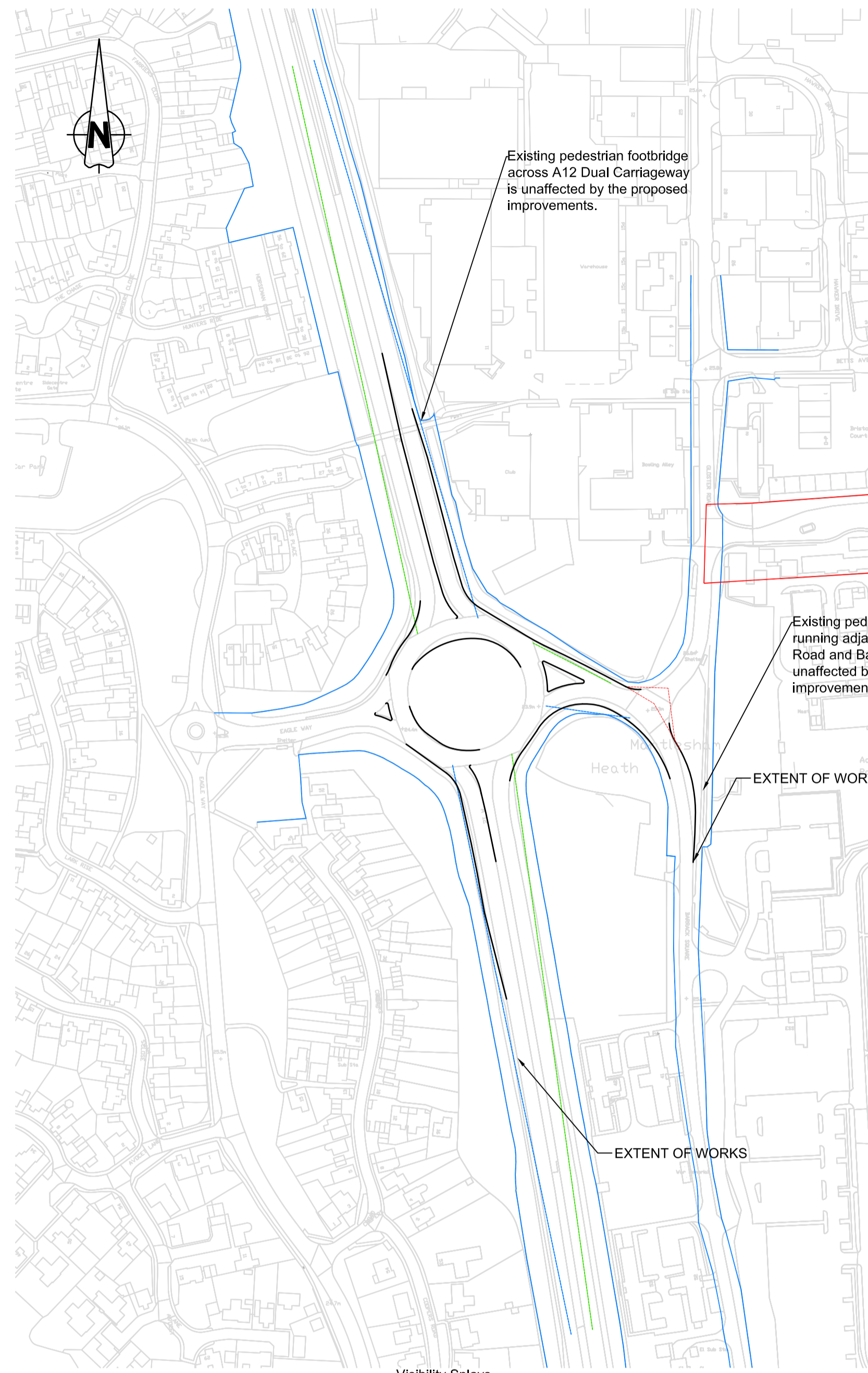
The location of the existing highway boundary has been determined using plans provided by Suffolk County Council which has been transferred onto survey data.

It has been confirmed by Suffolk County Council that the Highway Boundary is located as indicated on the drawings.

The design of this roundabout requires additional carriageway width in order to accommodate the infrastructure. The roundabout will be constructed slightly off line to the existing carriageway so that no works encroach onto 3rd party land not within the control of the Developer or Highway Authority.

7 Street Lighting

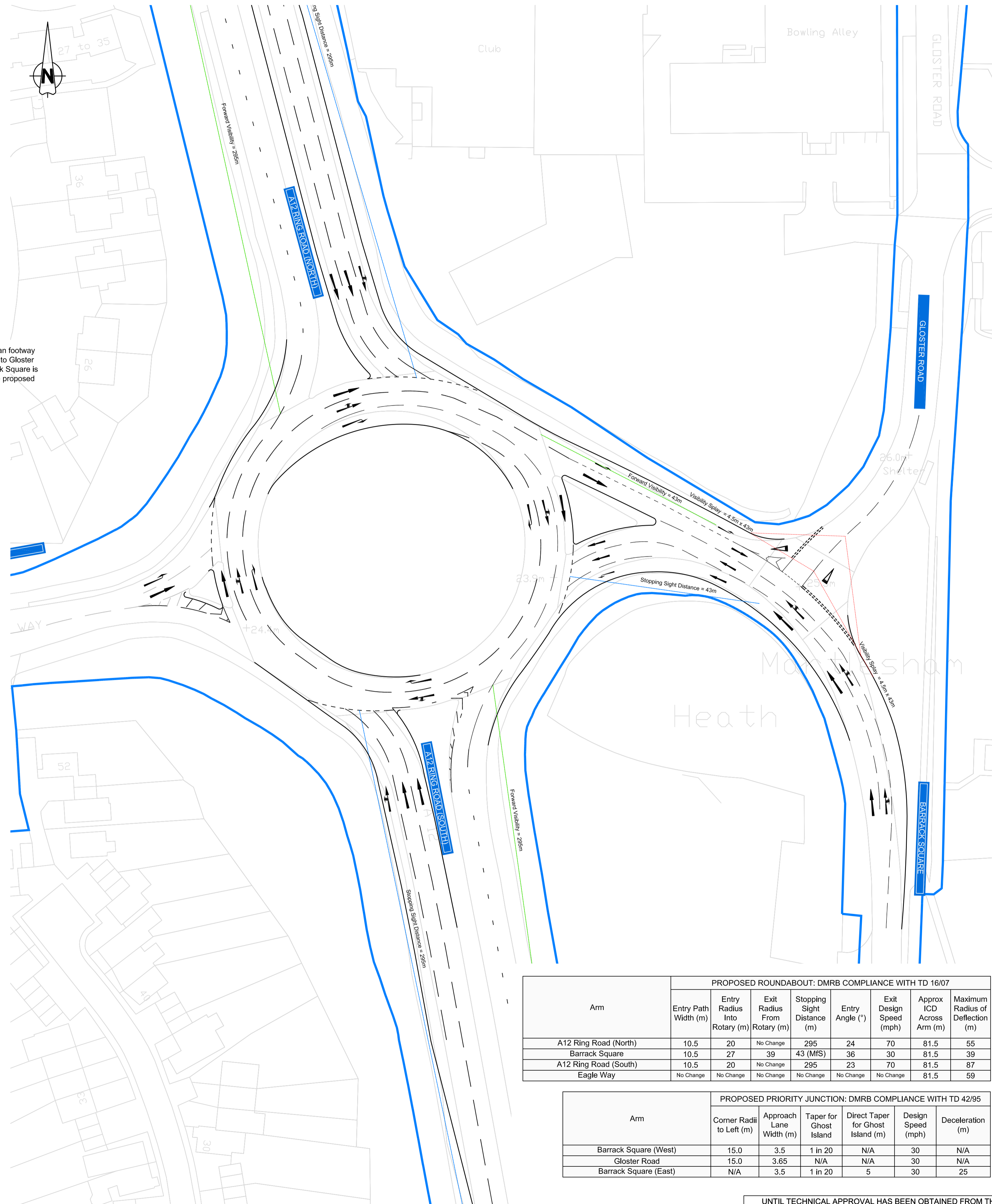
The proposed junction already has a system of street lighting in place. However, the proposed roundabout improvements are recommended to be illuminated by an appropriate system of street lighting. The extent and classification of lighting will be determined by Suffolk County Council.



Visibility Splays
Scale: 1:2000



Context Plan
Scale: 1:10000



Indicative Junction Layout
Scale: 1:500

Construction Design and Management (CDM)
Key Residual Risks
 Contractors entering the site should gain permission from the relevant land owners and/or principle contractor working on site at the time of entry. Contractors shall be responsible for carrying out their own risk assessments and for liaising with the relevant services companies and authorities. Listed below are Site Specific key risks associated with the project.
 1) Overhead and underground services
 2) Street Lighting Cables
 3) Working adjacent to water courses and flood plain
 4) Soft ground conditions
 5) Working adjacent to live highways and railway line
 6) Unchartered services
 7) Existing buildings with potential asbestos hazards

NOTES:

- Do not scale from this drawing
- All dimensions are in metres unless otherwise stated.
- Brookbanks Consulting Ltd has prepared this drawing for the sole use of the client. The drawing may not be relied upon by any other party without the express agreement of the client and Brookbanks Consulting Ltd. Where any data supplied by the client or from other sources has been used, it has been assumed that the information is correct. No responsibility can be accepted by Brookbanks Consulting Ltd for inaccuracies in the data supplied by any other party. The drawing has been produced based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.
- No part of this drawing may be copied or duplicated without the express permission of Brookbanks Consulting.
- The junctions, roundabouts and links have been designed in accordance with the following DMRB standards:
 - TA 23/81: Junctions and Accesses - Determination of Size of Roundabouts and Major-Minor Junctions
 - TD 9/93: Highway Link Design;
 - TD 16/07: The Geometric Design of Roundabouts.
 - TD 42/95: The Geometric Design of Major-Minor Priority Junctions.

KEY:

- Site Boundary
- Highway Boundary
- Stopping Sight Distance on Approach
- Forward Visibility on Exit
- Visibility Splay across Junction

D Amendments to circulatory carriageway and barack square junction	GG DN DN 13.09.17
C Amendments for traffic modelling.	MDM LW PAB 26.06.17
B Further amendments for deflection.	MDM DN PAB 15.06.17
A Amendments as per client's requests.	MDM LW PAB 03.03.17
- First Issue	- - - 28.02.17

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Carlyle Land Ltd and
 Commercial Estates Group
 Land South and East of
 Aداstral Park, Ipswich

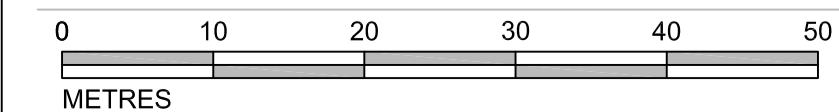
Off-site Highway Mitigation:
 Aداstral Park Roundabout
 and Gloster Road Mitigation

Arm	PROPOSED ROUNDABOUT: DMRB COMPLIANCE WITH TD 16/07							
	Entry Path Width (m)	Entry Radius Into Rotary (m)	Exit Radius From Rotary (m)	Stopping Sight Distance (m)	Entry Angle (°)	Exit Design Speed (mph)	Approx ICD Across Arm (m)	Maximum Radius of Deflection (m)
A12 Ring Road (North)	10.5	20	No Change	295	24	70	81.5	55
Barrack Square	10.5	27	39	43 (MFS)	36	30	81.5	39
A12 Ring Road (South)	10.5	20	No Change	295	23	70	81.5	87
Eagle Way	No Change	No Change	No Change	No Change	No Change	No Change	81.5	59

Arm	PROPOSED PRIORITY JUNCTION: DMRB COMPLIANCE WITH TD 42/95					
	Corner Radii to Left (m)	Approach Lane Width (m)	Taper for Ghost Island	Direct Taper for Ghost Island (m)	Design Speed (mph)	Deceleration (m)
Barrack Square (West)	15.0	3.5	1 in 20	N/A	30	N/A
Gloster Road	15.0	3.65	N/A	N/A	30	N/A
Barrack Square (East)	N/A	3.5	1 in 20	5	30	25



UNTIL TECHNICAL APPROVAL HAS BEEN OBTAINED FROM THE RELEVANT LOCAL AUTHORITIES, IT SHOULD BE UNDERSTOOD THAT ALL DRAWINGS ARE ISSUED AS PRELIMINARY AND NOT FOR CONSTRUCTION. SHOULD THE CONTRACTOR COMMENCE SITE WORK PRIOR TO APPROVAL BEING GIVEN, IT IS ENTIRELY AT HIS OWN RISK.

Status	Approval	Checked	LW	Date	Feb 2017
Drawn	MDM	Number	10391-HL-23	Rev	28.02.2017
Scale	As Shown	Number	D	Rev	



Technical Note for Design Strategy

Project Name: Land South and East of Adastral Park, Ipswich, Suffolk
Project Number: 10391
Client Name: Carlyle Land Ltd and Commercial Estates Group
Note Number: 24
Date: June 2017
Prepared By: Matthew Moss
Checked By: Lee Witts
Subject/Topic: Proposed Martlesham Roundabout Mitigation Measures

Item	Subject
1	<p>Brookbanks Consulting Limited is appointed by CEG to provide transportation advice for a proposed mixed-use development on land at Adastral Park near Ipswich in Suffolk.</p> <p>The aim is that by lengthening the additional queuing lane on the A12 Southbound approach to the roundabout, this will mitigate the additional traffic caused by the development to minimize congestion at this junction. This note should be read in conjunction with drawing no: 10391-HL-24. The existing lengths of roads affected by this scheme are:</p> <ul style="list-style-type: none"> • Approximate carriageway and footway dimensions: 10.95m Carriageways, 3-5m Central Reservation. No footways. • Local Vegetation/Existing Constraints: The approach will need vegetation to be cropped back. • Local Speed Limits: National Speed Limit. • Street Lighting: Junction is fully lit. • Local water courses that may constrain the site: None. • Local Accesses that must be maintained: None. <p>No discussions have taken place with the Local Authority or Highways England at the time of writing.</p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="260 1458 711 1785">  <p>Figure 1: A12 (North) looking South</p> </div> <div data-bbox="837 1458 1273 1785">  <p>Figure 2: A12 (North) looking North</p> </div> </div>
2	<p>Design Standards:</p> <p>The design parameters of the proposed junction have been determined following a review of the following documents:-</p>

- Design Manual for Roads and Bridges:
 - TA 23/81: Junctions and Accesses – Determination of Size of Roundabouts and Major-Minor Junctions;
 - TD 9/93: Highway Link Design;
 - TD 16/07: The Geometric Design of Roundabouts
- Traffic Signs Manual Design Standard: Chapter 5 Road Markings

3 Site Surveys:

No surveys were carried out for the site at the time of writing.

4 2D Design Elements:

- Northern Arm (Major): A12 Ring Road (North) 70 mph
- Design Speed for the Major Road = 120 kph (TD 9/93, Table 2);
- Desirable Minimum Stopping Sight Distance Major Road = 295m (TD 9/93, Table 3. TD 16/07 Item 8.3 and Figure 8/1.);
- Visibility Distance for a roundabout with an Inscribed Circle Diameter of over 100m = 70m (TD 16/07, Table 8/1);
- Forward Visibility at Entry (TD 16/07, Item 8.4 and Figure 8/2) = 70m;
- Visibility to the Right (TD 16/07, Items 8.5 to 8.7 and Figures 8/3 and 8/4) = 70m;
- Circulatory Visibility (TD 16/07, Item 8.9 and Figure 8/5) = 70m.

The definition of a Normal Roundabout as described in Items 3.1 and 3.2 of TD 16/07 is as follows:-

3.1 A Normal Roundabout has a kerbed central island at least 4 metres in diameter (Figure 3/1). Its approaches may be dual or single carriageway roads. Usually, a Normal Roundabout has flared entries and exits to allow two or three vehicles to enter or leave the roundabout on a given arm at the same time. If so, its circulatory carriageway needs to be wide enough for two or three vehicles to travel alongside each other on the roundabout itself.

3.2 If a Normal Roundabout has more than four arms, it becomes large with the probability that higher circulatory speeds will result. Either a Double Roundabout or a Signalised Roundabout is a potential solution in these circumstances.

DMRB COMPLIANCE WITH TD 50/04									
	Entry Width (m)	Entry Radius into Rotary (m)	Exit Radius from Rotary (m)	Stopping Sight Distance (m)	Entry Angle (degrees)	Entry/Exit Design Speed (mph)	Approx. Indicative Circular Diameter (m)	Maximum Radius of Deflection (m)	
A12 Ring Road (North)	10.5	20	No change	295	28	70	No change	83	
Anson Road	No change	No change	No change	No change	No change	No change	No change	No change	No change
A12 Ring Road (South)	No change	No change	No change	No change	No change	No change	No change	No change	No change
Eagle Way	No change	No change	No change	No change	No change	No change	No change	No change	No change

5	<p>Traffic Signs</p> <p>Advance Direction Signs (ADS) shall be provided on the approaches to the roundabout, as well as Flag type directional signs on the exit arms as prescribed in the Traffic Signs Regulations and General Directions (TRSGD). Care has been taken with the positioning and the size of these signs so that they do not interfere with driver’s visibility requirements. A 2m mounting height will be provided to Flag type signs to ensure visibility is not restricted (Mandatory Item 8.2).</p> <p>Guidance on the design of directional traffic signs is given in the Traffic Signs Manual (Chapter 7) and LTN 1/94 – ‘The Design and Use of Directional Informatory Signs’, particularly Appendix A. The ‘x’ heights for these directional sign have been informed by the existing speed limits.</p> <p>Road Markings</p> <p>The existing road markings along the A12 Dual Carriageway have been provided in response to the current speed limit of 70 mph. All road markings have been informed by Traffic Signs Manual Chapter 5.</p>
6	<p>Highway Boundary</p> <p>The location of the existing highway boundary has been determined using plans provided by Suffolk County Council which has been transferred onto survey data.</p> <p>It has been confirmed by Suffolk County Council that the Highway Boundary is located as indicated on the drawings.</p> <p>The design of this carriageway widening requires additional carriageway width in order to accommodate the infrastructure. The roundabout will be constructed slightly off line to the existing carriageway so that no works encroach onto 3rd party land not within the control of the Developer or Highway Authority.</p>
7	<p>Street Lighting</p> <p>The proposed junction already has a system of street lighting in place. However, the proposed improvements are recommended to be illuminated by an appropriate system of street lighting. The extent and classification of lighting will be determined by Suffolk County Council.</p>