APPENDIX F: TECHNICAL NOTE 22 (VICARAGE ROAD JUNCTION)

WEST MIDLANDS INTERCHANGE

SUBJECT: Technical Note 22 – Review of Vicarage Road Junction

DATE: 07 November 2017

Client	Four Ashes Ltd
Project Number	70001979
Version	1
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1 Introduction

1.1 This Technical Note (TN) has been produced following responses from South Staffordshire Council (SSC) members during the DCO Stage Two public consultation period which commenced in July 2017.

1.2 Concern has been expressed that the WMI roundabout on Vicarage Road will enable WMI traffic to use Vicarage Road and Station Drive to access the A449 to the west, resulting in a signficant increase in traffic on these roads.

1.3 Reference has been made to a junction in Walsall which restricts movements to one direction and this principle could be utilised at WMI.

1.4 This TN first considers the level of traffic using Vicarage Road (W) and Station Drive and its impact. The junction in Walsall is examined in order to identify whether the relevant features can be applied to WMI or whether any other form of junction is desirable.

2 Traffic Flows

2.1 The Transport Assessment sets out in detail the derivation of traffic flows due to WMI. These traffic flows have been extracted from the Highways England South Staffordshire VISSIM model and take account of the full WMI development, a roundabout access junction on Vicarage Road permitting all turning movements, the low bridge which restricts HGVs and the proposed traffic mitigation measures including the northbound right turn ban from the A449 into Station Drive together with the A449/A5 Link Road. The modelling and subsequent measures consider the whole local road network, including through traffic which may be using inappropriate roads, most notably Station Drive and Vicarage Road instead on the A449 and A5, and thereby produces an overall assessment of the highway network serving WMI rather than a limited view on one road.

2.2 In summary, it is forecast that there will be small increases in westbound traffic (between 43 in the AM peak hour and 79 in the PM peak) but greater decreases eastbound (between 140 and 250 respectively in the AM and PM peak hours). It can therefore be concluded that it is not necessary to restrict WMI vehicles travelling west from the site as the overall strategy already provides a benefit along these roads.

2.3 Comment has been made that providing an alternative access arrangement from Vicarage Road may remove the need for the banned right turn for traffic travelling northbound on the A449. However, the right turning movements from the A449 generally consist of through traffic travelling towards the A5. Therefore if the ban was not implemented then this through traffic would still remain on the Station Drive / Vicarage Road link.

3 Bentley Mill Way Junction, Walsall

3.1 The junction of the Black Country Route and Bentley Mill Way, near M6 J10, has been identified as a possible form of junction which could restrict traffic to and from one direction only. This junction is shown in Figure 1 attached.

3.2 The identified junction has a number of characteristics which differ from the circumstances at Vicarage Road. The main difference is that the Black Country Route (BCR) is a purpose built dual carriageway from the late 1980s. In the area of this junction it is grade separated which means that there are no junctions which impede the traffic flow. Existing roads in the area are maintained by the provision of bridges over the BCR, and one of these roads is Bentley Mill Way. As a continuous dual carriageway there is no ability for vehicles to perform a U turn, with this movement only facilitated by continuing to the nearest roundabout.

3.3 There is a single slip road for westbound traffic from J10 to leave the BCR and join Bentley Mill Way, from where they can turn left or right. In contrast there is no similar slip road for eastbound traffic travelling to J10. This movement is accommodated by travelling to the B4464 Wolverhampton Road West and then J10. This arrangement is shown at Figure 1.

4 Restricted Vicarage Road Junctions

4.1 As a result of the Stage 1 Consultation and during the master planning process the possible use of a restricted junction at Vicarage Road was considered but after some analysis it was deemed inappropriate. Nevertheless the issue has been considered again and particularly with reference to the Bentley Mill Way (BMW) junction.

4.2 As described above, the BMW junction requires a bridge and a dual carriageway in order to ensure that the single movement available is enforced. A bridge could be provided over Vicarage Road in order to connect the two areas of WMI and two associated east facing slip roads could be included, see Drawing 70001979-SK-078 Option 1. This form of junction would be a more complex junction than the currently proposed simple roundabout. It would need to be at least 6m above the existing road in order to ensure clearance is maintained for all vehicles using Vicarage Road to gain access to the industrial estate. The use of the bridge with uphill gradients will also result in some additional noise and vehicle emissions.

4.3 As Vicarage Road is not a dual carriageway road it means that any vehicle which is determined to travel to or from the west will consider undertaking a U turn in Vicarage Road. As Vicarage Road is relatively wide and straight this dangerous manoeuvre is likely to be more attractive than at other more restricted locations. It is possible to seek to minimise the potential for U turns by providing a central reservation around the junction. This solution would not be very effective because vehicles will only seek to try and perform U turns at either end of the central reservation. Hence the only effective means of preventing inappropriate U turns is to dual a long length of Vicarage Road. This would not only create restrictions for existing residents and employees it is also likely to result in increased traffic speeds.

4.4 Given the potential disruption and consequences of the bridge option an alternative has been considered which does not include a bridge but seeks to restrict vehicles using Vicarage Road (W) and Station Drive.

4.5 Drawing 70001979-SK-078 Option 2 shows a diagrammatic layout for a layout which avoids a bridge and is more compact. This layout requires the introduction of traffic signals on Vicarage Road combined with 90 degree corners which make turning to and from the west more difficult. This junction would also require the implementation of four traffic regulation orders banning the following turns:

- WMI north to Vicarage Road (W)
- WMI south to Vicarage Road (W)
- Vicarage Road (W) to WMI north
- Vicarage Road (W) to WMI south

4.6 This form of junction becomes quite complex in design terms as it needs additional measures, signs and markings to try and prevent the banned turns. These measures will also need to be designed around the pedestrian and cycle facilities. There would still however be the potential for abuse because the junction needs to be designed to accommodate the permitted movements safely, the knock on effect being that some banned movements can still be made physically by cars and vans, sometimes by mounting the kerb, which are then able to pass under the rail bridge. This creates the potential for more dangerous movements at the junction.

4.7 Similar to the bridge option, even if vehicles did not make the illegal turns at the junction, they could still be attracted to undertake a legal U turn away from the junction unless the road is made a dual carriageway.

4.8 Finally, it is considered that a more complex access arrangement may force WMI traffic onto other local routes which are not designed to accommodate significant traffic movements. With the arrangement shown in Option 2, it is considered that there is the potential for traffic from the east to use inappropriate routes such as Woodlands Lane and Stable Lane to enable them to approach the junction from the north.

5 Preferred Layout

5.1 Having reviewed the best possible options for an alternative layout at Vicarage Road it is considered that the current roundabout design is the optimum layout for the following reasons:

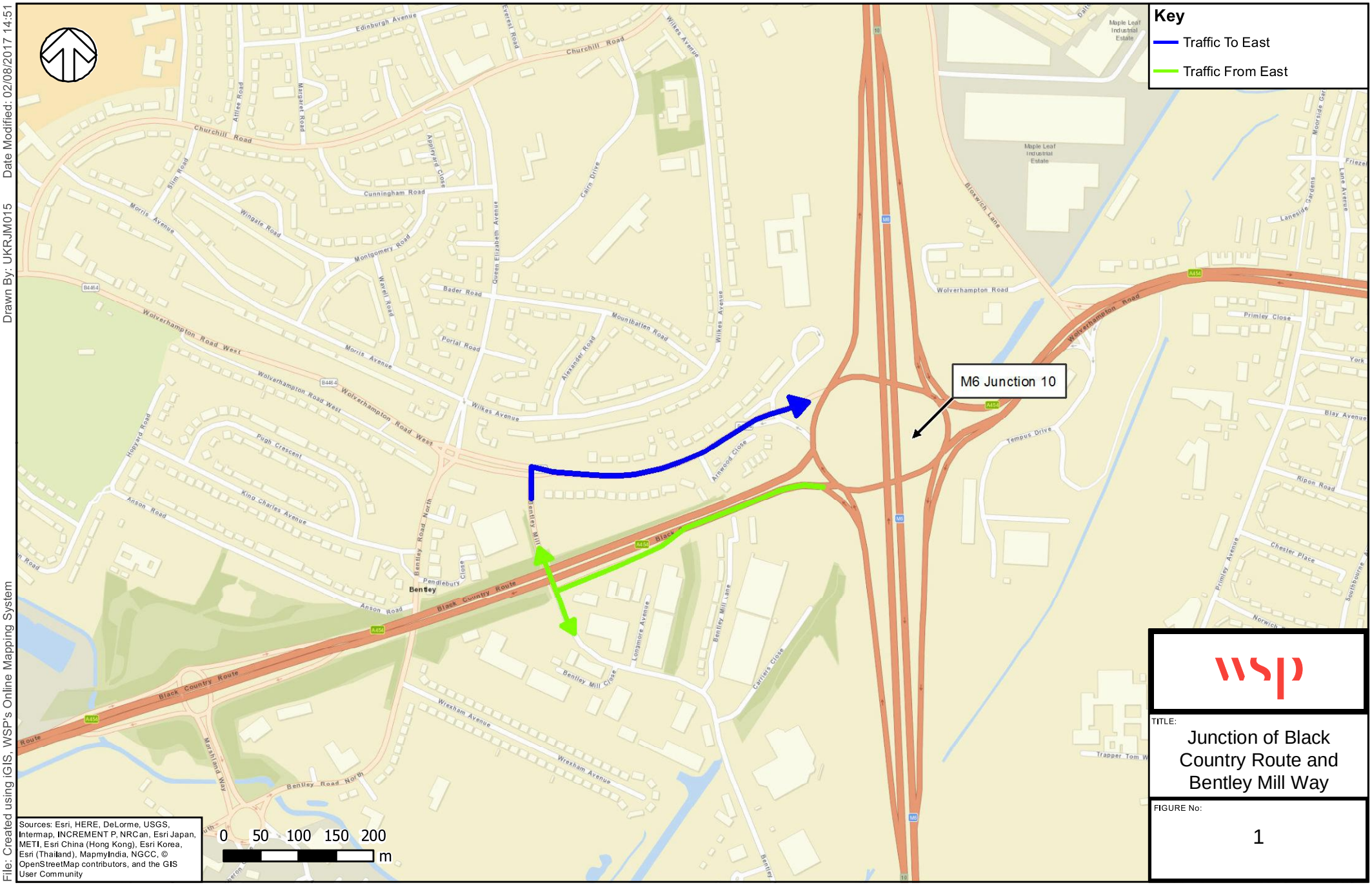
- It is a conventional and logical design which is clearly understood by all motorists,
- Staffordshire County Council as Highway Authority have not raised any issues with the principle of the use of a roundabout junction to provide access to the Site via Vicarage Road;
- It will be the least intrusive visually as it is all on a single level with least associated signs and markings,
- It would not force traffic to use inappropriate routes in order to reach the site from the east;
- Although directions and guidance can be given about preferred access arrangements to the east (see Framework HGV Management Plan) it permits all vehicle movements and thereby avoids the potential for dangerous or prohibited movements on a 60mph road,
- With the combined traffic measures the traffic flow is predicted to reduce on Vicarage Road (W) and Station Drive, and thereby the need to provide a contrived or complex junction is negated.

6 Summary

6.1 At the request of SSC members alternative layouts for the WMI / Vicarage Road junction have been considered, including a suggested layout based on a junction in Walsall.

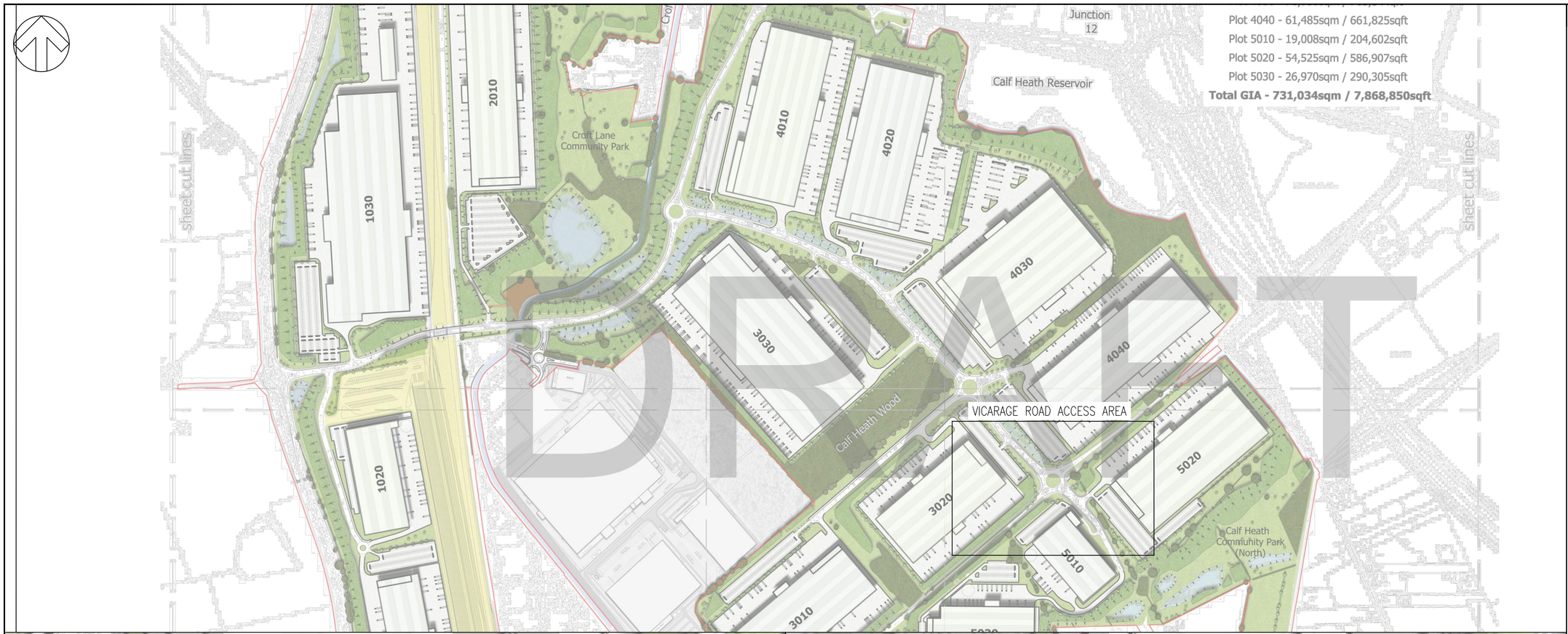
6.2 The current layout is still considered the optimum arrangement as it would negate the need or desire for motorists to undertake dangerous movements on a high speed road and forms part of the resilient access strategy that is proposed to serve WMI.

6.3 A more complex junction which prevents the use of Vicarage Road (W) / Station Drive is unnecessary as the transport mitigation strategy for WMI is forecast to reduce traffic on Station Drive.

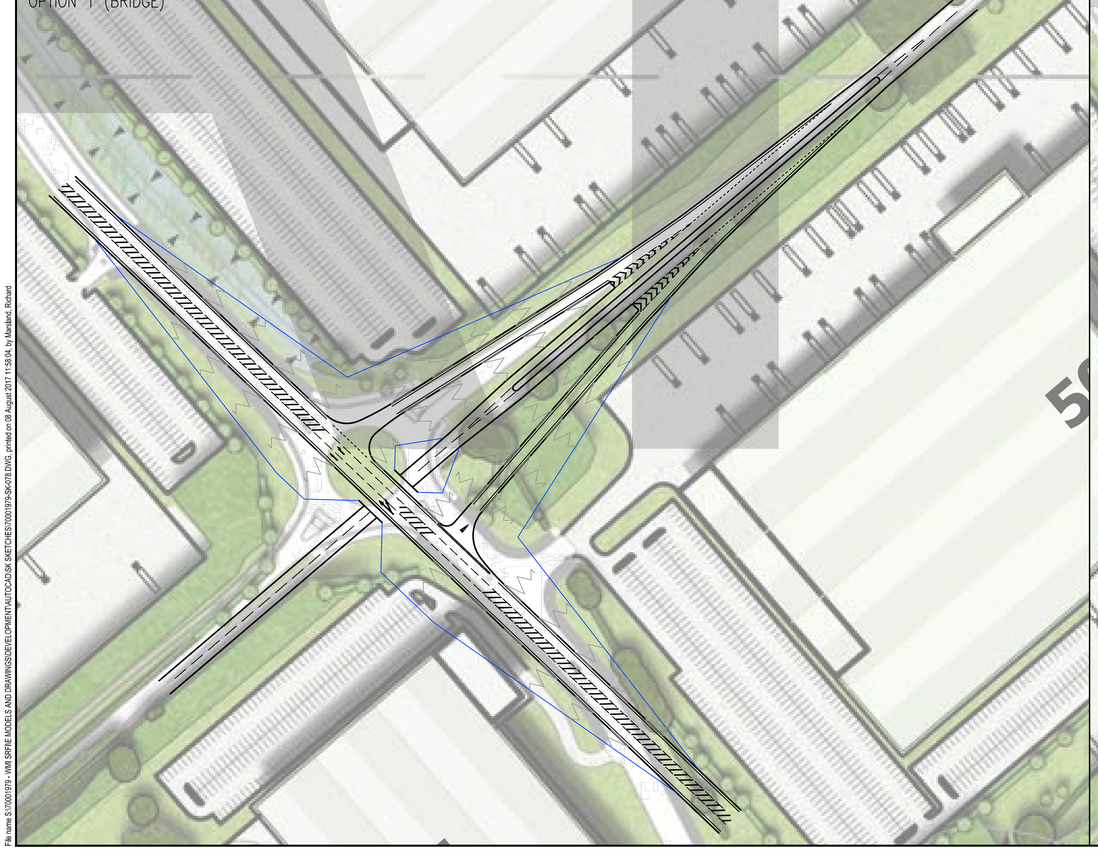

Key
Traffic To East
Traffic From East
M6 Junction 10
Bentley
Black Country Route
Wolverhampton Road West
Churchill Road
Bentley Mill Way
Bentley Road North
Wolverhampton Road
Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community
0 50 100 150 200
m
TITLE:
Junction of Black Country Route and Bentley Mill Way
FIGURE No:
1
File: Created using iGIS, WSP's Online Mapping System
Drawn By: UKRJM015
Date Modified: 02/08/2017 14:51

Plot 4040 - 61,485sqm / 661,825sqft
Plot 5010 - 19,008sqm / 204,602sqft
Plot 5020 - 54,525sqm / 586,907sqft
Plot 5030 - 26,970sqm / 290,305sqft
Total GIA - 731,034sqm / 7,868,850sqft

DO NOT SCALE



OPTION 1 (BRIDGE)



OPTION 2 (SIGNALS)

REV	DATE	BY	DESCRIPTION	CHK	APP
A	08/08/2017	RJM	FIRST ISSUE	NF	NF

DRAWING STATUS:
S0 - WORK IN PROGRESS

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ARCHITECT:

SITE/PROJECT:
WMI SRFI

TITLE:
VACARAGE ROAD ACCESS
ALTERNATIVE OPTIONS

SCALE @ A1:	CHECKED:		APPROVED:
1:5000	NF		NF
PROJECT NO:	DESIGNED:	DRAWN:	DATE:
70001979	RJM	RJM	August 17

DRAWING No:	REV:
70001979-SK-078	A

File name S:\70001979 - WMI SRFI\E MODELS AND DRAWINGS\SD\DEVELOPMENT\AUTOCAD\SK SKETCHES\70001979-SK-078.DWG, printed on 08 August 2017 11:58:04, by Mendana, Richard