

M3 Junction 9 Improvement

Scheme Number: TR010055

6.3 Environmental Statement Appendix 3.3 - Non-motorised User Route Options

APFP Regulation 5(2)(a)

Planning Act 2008

**Infrastructure Planning (Applications: Prescribed Forms and
Procedure) Regulations 2009**

Volume 6

November 2022

Infrastructure Planning

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

M3 Junction 9 Improvement
Development Consent Order 202[x]

6.3 ENVIRONMENTAL STATEMENT- APPENDIX 3.3: NON- MOTORISED USER ROUTE OPTIONS

Regulation Number:	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference:	TR010055
Application Document Reference:	6.3
BIM Document Reference:	HE551511-VFK-HGN-X-XXXX-XX-TN-CH-0002
Author:	M3 Junction 9 Improvement Project Team, Highways England

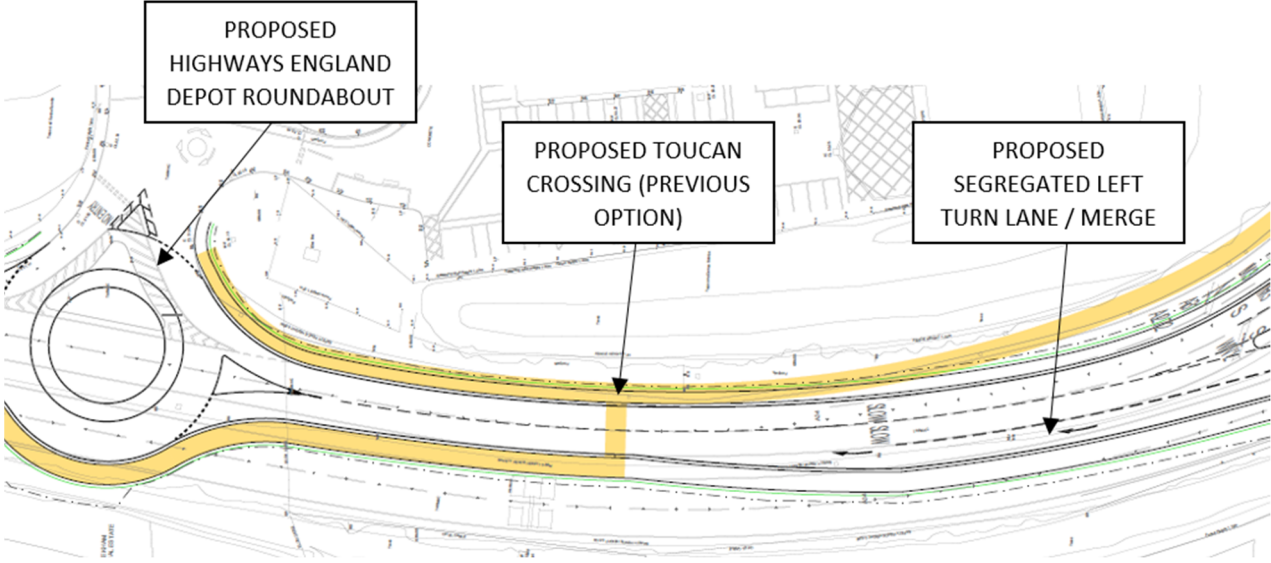
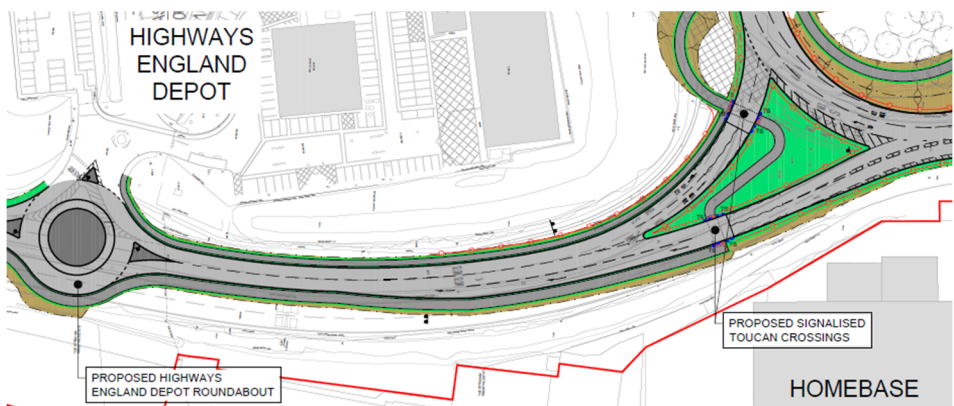
Version	Date	Status of Version
Rev 0	November 2022	Application Submission

TECHNICAL NOTE

Job Name: M3 Junction 9 Improvements
Job No: 48176
Note No: HE551511-VFK-HGN-X_XXXX_XX-TN-CH-0002 (P02)
Date: 8th January 2021
Prepared By: Lee Cuddington
Checked By: Tim Allen
Subject: **Non-Motorised User Route Options – From A33 / B3047 Junction to National Cycle Route 23 (NCN23) – SECOND ADDENDUM**

Item	Subject
1.	<p><u>Introduction</u></p> <p>Stantec have been appointed through the DIP framework to undertake the Stage 5 design of the M3 Junction 9 Improvement scheme. The scheme is located in South East England within the county of Hampshire. M3 Junction 9 is a key strategic route interchange which connects South Hampshire and the ports of Southampton and Portsmouth with the wider sub region. It also connects the region to London and the north-west via the M3, and the Midlands and the North via the A34. The A34 also provides a connection to the principal east-west corridor of the A303.</p> <p>Technical Note ref. HE551511-VFK-HGN-X_XXXX_XX-TN-CH-0002 Addendum (Appendix A) presented three options previously considered for the Non-Motorised User (NMU) link from the A33 / B3047 Junction to National Cycle Route 23 (NCN23). Option 2 was deemed the preferred option to be taken forward to the wider design team and upon agreement to be developed within the Stage 3B preliminary design.</p> <p>This Technical Note forms a Second Addendum to the aforementioned Technical Note (ref. HE551511-VFK-HGN-X_XXXX_XX-TN-CH-0002) and highlights amendments to the NMU route as a result of further design development.</p> <p>A revised Option 2 NMU route will then be discussed.</p>
2.	<p><u>NMU Route Option 2 (as previously presented)</u></p> <p>The previous NMU Route Option 2 (subject to the first Addendum to this Technical Note) is shown on drawing number HE551511-VFK-HFK-W_XXXX_XX-DR-CH-0002 within Appendix A.</p> <p>As a result of design progress, the following issue has become apparent, which will require a localised revision to the route choice for the NMU route:</p> <p>2.1 Requirement for Segregated Left Turn Lane (Easton Lane to Proposed realigned A33)</p> <p>Traffic modelling has demonstrated the need for a Segregated Left Turn Lane (SLTL) from Easton Lane to the proposed realigned A33 link road. In developing the design for the SLTL, it was noted that the originally proposed location for the Toucan Crossing clashed with the merge length within the SLTL as shown in Figure 1.</p>

TECHNICAL NOTE

Item	Subject
	 <p data-bbox="295 907 1556 963"><i>Figure 1 – Clash with the originally proposed toucan crossing location / NMU route (yellow hatch) and the proposed SLTL</i></p> <p data-bbox="284 996 1567 1153">It can be noted that the proposed Toucan Crossing (yellow hatch) would be located at the end of the SLTL merge. At this point motorists would be looking in their mirrors to merge and there is a potential safety issue that the signals and the crossing could be missed, due to this possible conflict area. As a result, the location of the proposed toucan crossing has been reviewed and developed to avoid potential safety concerns.</p>
3.	<p data-bbox="284 1198 614 1232">Revised Option 2 NMU Route</p> <p data-bbox="284 1265 1567 1422">Based on the constraints outlined within Section 2 of this Technical Note, a revised option 2 NMU route has been developed, as shown on drawing number HE551511-VFK-HGN-X_XXXX_XX-DR-CH-0012 (Appendix B) and Figure 2. Please note that the revision to the Option 2 NMU route is localised between the proposed Highways England Depot Roundabout and the M3 Junction 9 Gyratory. All other aspects of the Option 2 NMU route remain unchanged from the previous Technical Note ref. HE551511-VFK-HGN-X_XXXX_XX-TN-CH-0002 Addendum (Appendix A).</p>  <p data-bbox="343 1859 1508 1892"><i>Figure 2 – Revised Option 2 NMU route (proposed Highways England Depot roundabout to M3 J9 Gyratory)</i></p> <p data-bbox="284 1926 1567 2016">Route description: The revised NMU route provides a route running along the western side of the proposed A33 link road. A toucan crossing is then proposed across the northbound A33 to the roundabout gyratory splitter island. The location of the toucan crossing has been positioned prior to the start of the merge lane from the SLTL to avoid any</p>

TECHNICAL NOTE

Item	Subject
	<p>potential safety conflicts as highlighted in Section 2 of this Technical Note. The route then utilises the splitter island and a second toucan crossing is proposed across the southbound A33 (located 20m from the roundabout gyratory in accordance with DMRB standards). The NMU route then continues to the proposed underpass beneath the M3 J9 gyratory, whereby the route remains unchanged from the previous Technical Note ref. HE551511-VFK-HGN-X_XXXX_XX-TN-CH-0002 Addendum (Appendix A).</p> <p>A 1.8m wide footway route is proposed on the eastern side of the A33 to cater for Highways England depot workers and provides direct connectivity to the gyratory.</p>
4.	<p><u>Summary</u></p> <p>The localised amendment to NMU Option 2 is therefore the preferred option to be taken forward to the wider design team and upon agreement be developed within the Stage 3B preliminary design.</p>

DOCUMENT ISSUE RECORD

Technical Note No	Rev	Date	Prepared	Checked	Reviewed (Discipline Lead)	Approved (Project Director)
HE551511-VFK-HGN-X_XXXX_XX-TN-CH-0002	P02	08/01/21	LC	TA	TA	MF

This report has been prepared by Stantec UK Limited ('Stantec') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client. This report is not intended for and should not be relied on by any third party (i.e. parties other than the Client). Stantec accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this report.

TECHNICAL NOTE

TECHNICAL NOTE

Appendix A

TECHNICAL NOTE

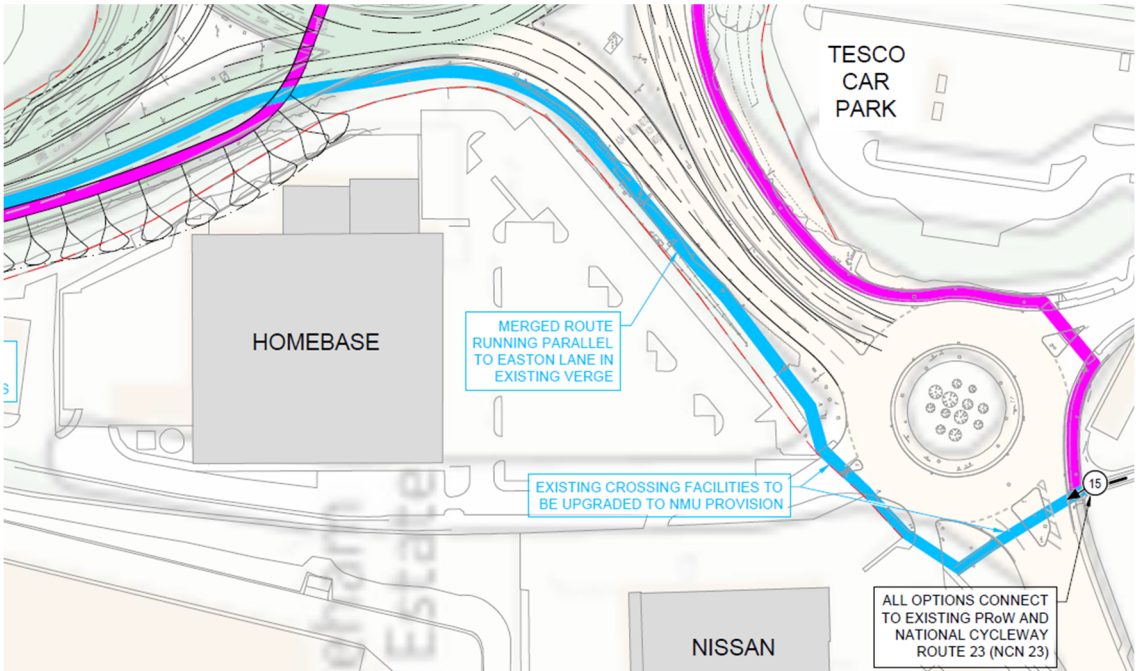
Job Name: M3 Junction 9 Improvements
Job No: 48176
Note No: HE551511-VFK-HGN-X_XXXX_XX-TN-CH-0002
Date: 22nd October 2020
Prepared By: Lee Cuddington
Checked By: Tim Allen
Subject: **Non-Motorised User Route Options – From A33 / B3047 Junction to National Cycle Route 23 (NCN23) - ADDENDUM**

Item	Subject
1.	<p><u>Introduction</u></p> <p>Stantec have been appointed through the DIP framework to undertake the Stage 5 design of the M3 Junction 9 Improvement scheme. The scheme is located in South East England within the county of Hampshire. M3 Junction 9 is a key strategic route interchange which connects South Hampshire and the ports of Southampton and Portsmouth with the wider sub region. It also connects the region to London and the north-west via the M3, and the Midlands and the North via the A34. The A34 also provides a connection to the principal east-west corridor of the A303.</p> <p>Technical Note ref. HE551511-VFK-HGN-X_XXXX_XX-TN-CH-0001 (Appendix A) presented three options previously considered for the Non-Motorised User (NMU) link from the A33 / B3047 Junction to National Cycle Route 23 (NCN23). Option 2 was deemed the preferred option to be taken forward to the wider design team and upon agreement to be developed within the Stage 3B preliminary design.</p> <p>This Technical Note forms an Addendum to the aforementioned Technical Note (ref. HE551511-VFK-HGN-X_XXXX_XX-TN-CH-0001) and highlights amendments to the NMU route as a result of design development and buildability workshops with Volker Fitzpatrick.</p> <p>A revised Option 2 NMU route will then be discussed.</p>
2.	<p><u>NMU Route Option 2 (as previously presented)</u></p> <p>The original NMU Route Option 2 is shown on drawing number HE551511-VFK-HFK-W_XXXX_XX-DR-CH-0001 within Appendix A.</p> <p>As a result of design progress, the following issues have become apparent, which have affected the route choice for the NMU route:</p> <p>2.1 Flood Extents</p> <p>The previous Technical Note stated that updated flood data was required to determine whether the Option 2 NMU route fell within surface water and fluvial flood areas, particularly the area beneath the A34 overbridge as shown in Figure 1.</p>

TECHNICAL NOTE

Item	Subject
	<div data-bbox="523 360 1267 779" data-label="Image"> </div> <p data-bbox="603 779 1190 810" style="text-align: center;"><i>Figure 1 – Previous NMU Option 2 (Solid Green Route)</i></p> <p data-bbox="284 846 1513 943">Analysis of flood data received indicates that the area beneath the A34 overbridge is subjected to flooding during 1 in 5, 1 in 10 and 1 in 100 + climate change storm events as plotted on drawing numbers HE551515-VFK-HKF-W_XXXX_XX-DR-CH-0005 to 0007 within Appendix B and shown in Figure 2.</p> <div data-bbox="579 969 1214 1417" data-label="Image"> </div> <p data-bbox="523 1417 1267 1449" style="text-align: center;"><i>Figure 2 – River Itchen 1 in 5 Flood Extents (Shown by blue hatching)</i></p> <p data-bbox="284 1485 671 1516">The flood levels are approximately:</p> <ul data-bbox="331 1516 951 1644" style="list-style-type: none"> ➤ 1 in 5-year storm event North bank = 37.81m AOD. ➤ 1 in 5-year storm event South bank = 37.80m AOD. ➤ 1 in 10-year storm event North bank = 37.91m AOD. ➤ 1 in 10-year storm event South bank = 37.90m AOD. <p data-bbox="284 1680 1513 1740">Due to the nature of the River Itchen, it is understood that any of the above flood events are expected to prevent accessibility for NMU's beneath the A34 overbridge for weeks (not hours) until flood water subsides.</p> <p data-bbox="284 1778 836 1809">2.2 Easton Lane Interface / Tesco Roundabout</p> <p data-bbox="284 1845 1513 1906">The previous Technical Note indicated the NMU alignment running parallel to the western Easton Lane verge, whereby the existing Tesco roundabout crossing facilities would need to be upgraded (see Figure 3).</p>

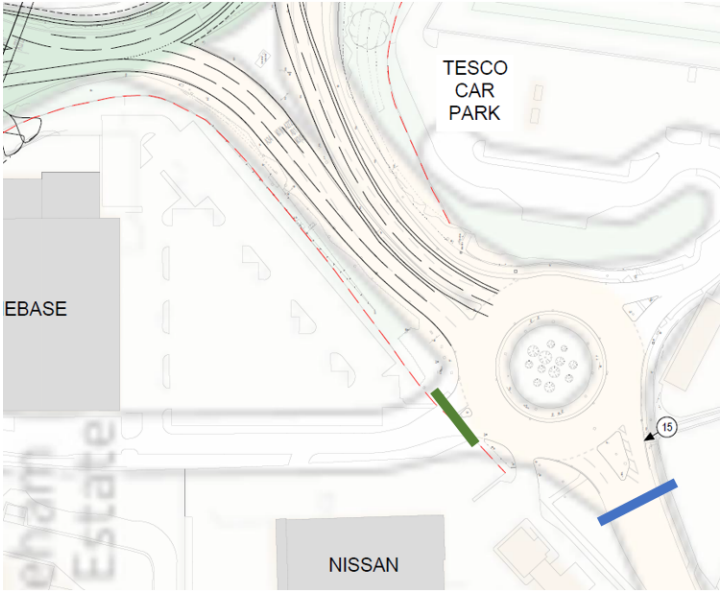
TECHNICAL NOTE

Item	Subject
	 <p data-bbox="427 1003 1369 1032"><i>Figure 3 – Previous NMU Option 2 running parallel with Easton Lane (Light Blue Route)</i></p> <p data-bbox="284 1070 1513 1128">A review of existing constraints and design standards (in relation to the upgrades required to the Tesco Roundabout) has been undertaken as summarised below:</p> <p data-bbox="284 1167 552 1196">2.3 Design Standards</p> <p data-bbox="284 1234 1513 1451">The Design Manual for Roads and Bridges (DMRB) document CD 116 ‘<i>Geometric Design of Roundabouts</i>’ para. 3.10 states ‘<i>Traffic islands shall be used on each arm of a normal or compact roundabout, located and shaped so as to separate and direct traffic entering and leaving the roundabout</i>’. Therefore, the removal of the traffic island on the industrial estate arm (creating a single crossing) would be a departure from standards. Providing an NMU crossing point further down the industrial estate access road would require works outside of Highways England land. In addition, visibility would be a concern and the crossing would be located away from the current crossing desire line.</p> <p data-bbox="284 1489 1513 1592">CD 116 para. 3.10.1 states ‘<i>Traffic islands should be kerbed physical islands, note kerbed islands can act as WCHR refuges</i>’. Therefore, all upgrades to existing roundabout splitter islands would require kerbs to maximise NMU safety.</p> <p data-bbox="284 1630 1513 1720">CD 116 para. 8.1 states ‘<i>Where there is demand or desire to encourage pedestrians, cyclists, and/or equestrians at roundabouts, these users shall be provided for</i>’. As the scheme is encouraging NMUs to use the roundabout there shall be provision for them.</p> <p data-bbox="284 1758 1513 1921">CD 116 para. 8.1.1. states ‘<i>Where the speed limit within 100 metres of the give way line is greater than 40mph on any approach, and the traffic flow on any approach is greater than 8,000 two-way AADT, any pedestrian crossing facilities provided should be either signal controlled or grade-separated</i>’. The existing roundabout is within a 30mph speed limit, and the 50mph speed limit of the circulatory area of the M3 junction 9 is 60m from the roundabout.</p>



TECHNICAL NOTE

Item	Subject																	
	<p>The intention is to reduce the speed limit on the main M3 junction 9 gyratory to 40mph, which would also affect the type of crossing provided. This is outlined in Figure 4.</p> <p>8.1.3 Where the speed limit within 100 metres of the give way line on all approaches is less than or equal to 40 mph, Table 8.1.3 below provides suggestions on what crossing facilities may be provided for pedestrians.</p> <p>Table 8.1.3 Suggested pedestrian crossing facilities on roundabouts where the approach roads have a speed limit of 40 mph or less</p> <table border="1" data-bbox="432 562 1473 864"> <thead> <tr> <th>Highest class of road on any approach</th> <th>Highest two-way AADT on any approach</th> <th>Suggested pedestrian crossing provision</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Single</td> <td>< 8000</td> <td>Uncontrolled</td> </tr> <tr> <td>8000 - 12000</td> <td>Uncontrolled / Zebra</td> </tr> <tr> <td>> 12000</td> <td>Zebra</td> </tr> <tr> <td rowspan="3">Dual</td> <td>< 16000</td> <td>Uncontrolled / Zebra</td> </tr> <tr> <td>16000 - 25000</td> <td>Zebra / Signal-controlled</td> </tr> <tr> <td>> 25000</td> <td>Signal-controlled</td> </tr> </tbody> </table> <p><i>NOTE In LTN 1/95 [Ref 7.], zebra crossings are not recommended to be installed on roads with an 85th percentile speed of 35 mph or above.</i></p> <p><i>Figure 4 – Table 8.1.3 from DMRB CD116 – Suggested pedestrian crossing facilities on roundabouts where the approach roads have a speed limit of 40mph or less</i></p> <p>The highest-class road on the approach to the Tesco roundabout is a dual carriageway. With a traffic flow of approximately 15000 AADT. Therefore, it is recommended that either an uncontrolled crossing or Zebra crossing is provided. The two-way traffic flow based on 15000 vehicles in a 12-hour period gives a flow of approx. 20 vehicles a minute, the gap acceptance and opportunity for NMUs to cross the corridor is likely to deter users.</p> <p>Within DMRB CD 195 ‘Designing for Cycle Traffic’ advice differs from that of CD116 with the requirement for speed limits of 30 mph or less with >8000 vehicle shall be grade separated or signal controlled (see Figure 5). This would be the case on the approach from the east although subject to confirmation of flows this may be the same case although this may be below <8000 where a parallel signalised crossing would be acceptable over a grade separated crossing.</p>	Highest class of road on any approach	Highest two-way AADT on any approach	Suggested pedestrian crossing provision	Single	< 8000	Uncontrolled	8000 - 12000	Uncontrolled / Zebra	> 12000	Zebra	Dual	< 16000	Uncontrolled / Zebra	16000 - 25000	Zebra / Signal-controlled	> 25000	Signal-controlled
Highest class of road on any approach	Highest two-way AADT on any approach	Suggested pedestrian crossing provision																
Single	< 8000	Uncontrolled																
	8000 - 12000	Uncontrolled / Zebra																
	> 12000	Zebra																
Dual	< 16000	Uncontrolled / Zebra																
	16000 - 25000	Zebra / Signal-controlled																
	> 25000	Signal-controlled																

TECHNICAL NOTE

Item	Subject																																																																						
	<p data-bbox="448 304 719 322">Table E/4.1 Suitable types of cycle crossing</p> <table border="1" data-bbox="448 322 1362 891"> <thead> <tr> <th>Speed limit</th> <th>Location type</th> <th>Two-way traffic flow on carriageway to be crossed, AADT</th> <th>Maximum number of lanes to be crossed in one movement</th> <th>Preferred cycle crossing type</th> <th>Other possible cycle crossing type(s) in order of preference</th> </tr> </thead> <tbody> <tr> <td rowspan="2">≥60 mph</td> <td rowspan="2">All</td> <td>Any</td> <td>Any</td> <td>Grade separated</td> <td>No alternative</td> </tr> <tr> <td>>10000</td> <td>Any</td> <td>Grade separated</td> <td>Signal controlled cycle crossing</td> </tr> <tr> <td rowspan="4">40 mph and 50 mph</td> <td rowspan="4">All</td> <td>6000-10000</td> <td>2 or more</td> <td>Grade separated</td> <td>Signal controlled cycle crossing</td> </tr> <tr> <td>0-10000</td> <td>1</td> <td>Uncontrolled: cycle traffic gives way</td> <td>Grade separated or signal controlled cycle crossing</td> </tr> <tr> <td>0-6000</td> <td>2</td> <td>Uncontrolled: cycle traffic gives way</td> <td>Grade separated or signal controlled cycle crossing</td> </tr> <tr> <td>>8000</td> <td>Any</td> <td>Grade separated</td> <td>Signal controlled cycle crossing</td> </tr> <tr> <td rowspan="8">≤30 mph</td> <td rowspan="3">Links</td> <td>0-8000</td> <td>2</td> <td>Parallel pedestrian/cyclist crossing</td> <td>Signal controlled cycle crossing or grade separated</td> </tr> <tr> <td>0-4000</td> <td>1</td> <td>Uncontrolled: cycle traffic has priority</td> <td>Signal controlled cycle crossing or grade separated</td> </tr> <tr> <td>>8000</td> <td>Any</td> <td>Grade separated</td> <td>Signal controlled cycle crossing</td> </tr> <tr> <td rowspan="3">Roundabout entries</td> <td>0-8000</td> <td>2</td> <td>Parallel pedestrian/cyclist crossing</td> <td>Signal controlled cycle crossing or grade separated</td> </tr> <tr> <td>0-4000</td> <td>1</td> <td>Uncontrolled: cycle traffic gives way</td> <td>Signal controlled cycle crossing or grade separated</td> </tr> <tr> <td>>8000</td> <td>Any</td> <td>Grade separated</td> <td>Signal controlled cycle crossing</td> </tr> <tr> <td rowspan="2">Roundabout exits</td> <td>0-8000</td> <td>1</td> <td>Parallel pedestrian/cyclist crossing</td> <td>Signal controlled cycle crossing or grade separated</td> </tr> <tr> <td>0-4000</td> <td>1</td> <td>Uncontrolled: cycle traffic gives way</td> <td>Signal controlled cycle crossing or grade separated</td> </tr> </tbody> </table>	Speed limit	Location type	Two-way traffic flow on carriageway to be crossed, AADT	Maximum number of lanes to be crossed in one movement	Preferred cycle crossing type	Other possible cycle crossing type(s) in order of preference	≥60 mph	All	Any	Any	Grade separated	No alternative	>10000	Any	Grade separated	Signal controlled cycle crossing	40 mph and 50 mph	All	6000-10000	2 or more	Grade separated	Signal controlled cycle crossing	0-10000	1	Uncontrolled: cycle traffic gives way	Grade separated or signal controlled cycle crossing	0-6000	2	Uncontrolled: cycle traffic gives way	Grade separated or signal controlled cycle crossing	>8000	Any	Grade separated	Signal controlled cycle crossing	≤30 mph	Links	0-8000	2	Parallel pedestrian/cyclist crossing	Signal controlled cycle crossing or grade separated	0-4000	1	Uncontrolled: cycle traffic has priority	Signal controlled cycle crossing or grade separated	>8000	Any	Grade separated	Signal controlled cycle crossing	Roundabout entries	0-8000	2	Parallel pedestrian/cyclist crossing	Signal controlled cycle crossing or grade separated	0-4000	1	Uncontrolled: cycle traffic gives way	Signal controlled cycle crossing or grade separated	>8000	Any	Grade separated	Signal controlled cycle crossing	Roundabout exits	0-8000	1	Parallel pedestrian/cyclist crossing	Signal controlled cycle crossing or grade separated	0-4000	1	Uncontrolled: cycle traffic gives way	Signal controlled cycle crossing or grade separated
Speed limit	Location type	Two-way traffic flow on carriageway to be crossed, AADT	Maximum number of lanes to be crossed in one movement	Preferred cycle crossing type	Other possible cycle crossing type(s) in order of preference																																																																		
≥60 mph	All	Any	Any	Grade separated	No alternative																																																																		
		>10000	Any	Grade separated	Signal controlled cycle crossing																																																																		
40 mph and 50 mph	All	6000-10000	2 or more	Grade separated	Signal controlled cycle crossing																																																																		
		0-10000	1	Uncontrolled: cycle traffic gives way	Grade separated or signal controlled cycle crossing																																																																		
		0-6000	2	Uncontrolled: cycle traffic gives way	Grade separated or signal controlled cycle crossing																																																																		
		>8000	Any	Grade separated	Signal controlled cycle crossing																																																																		
≤30 mph	Links	0-8000	2	Parallel pedestrian/cyclist crossing	Signal controlled cycle crossing or grade separated																																																																		
		0-4000	1	Uncontrolled: cycle traffic has priority	Signal controlled cycle crossing or grade separated																																																																		
		>8000	Any	Grade separated	Signal controlled cycle crossing																																																																		
	Roundabout entries	0-8000	2	Parallel pedestrian/cyclist crossing	Signal controlled cycle crossing or grade separated																																																																		
		0-4000	1	Uncontrolled: cycle traffic gives way	Signal controlled cycle crossing or grade separated																																																																		
		>8000	Any	Grade separated	Signal controlled cycle crossing																																																																		
	Roundabout exits	0-8000	1	Parallel pedestrian/cyclist crossing	Signal controlled cycle crossing or grade separated																																																																		
		0-4000	1	Uncontrolled: cycle traffic gives way	Signal controlled cycle crossing or grade separated																																																																		
	<p data-bbox="488 920 1307 952">Figure 5 – Table E/4.1 from DMRB CD195 – Suitable Types of Cycle Crossing</p>																																																																						
	<p data-bbox="284 981 1158 1012">2.4 Review of Upgrades required for existing crossings at Tesco roundabout</p>																																																																						
	<p data-bbox="284 1034 1513 1099">The existing crossings (via the splitter islands) at the Tesco roundabout (shown in Figure 6) would require upgrading to facilitate the NMU Option 2 route.</p>																																																																						
																																																																							
	<p data-bbox="499 1742 1297 1774">Figure 6 – Existing crossings requiring upgrades at the Tesco Roundabout</p>																																																																						
	<p data-bbox="284 1803 1123 1834">2.4.1 Crossing provision Easton Lane (Blue crossing as shown in Figure 6)</p>																																																																						
	<p data-bbox="284 1856 1513 1989">The provision of a formal crossing would need to be set back from the roundabout flare length, approximately 20m from the circulatory area of the roundabout. It could be argued that the flare length includes the length of approach where the east bound lane flares to two lanes which would push the crossing adjacent to the service station entrance approx. 50m from the circulatory area of the roundabout (see Photographs 1 and 2)</p>																																																																						


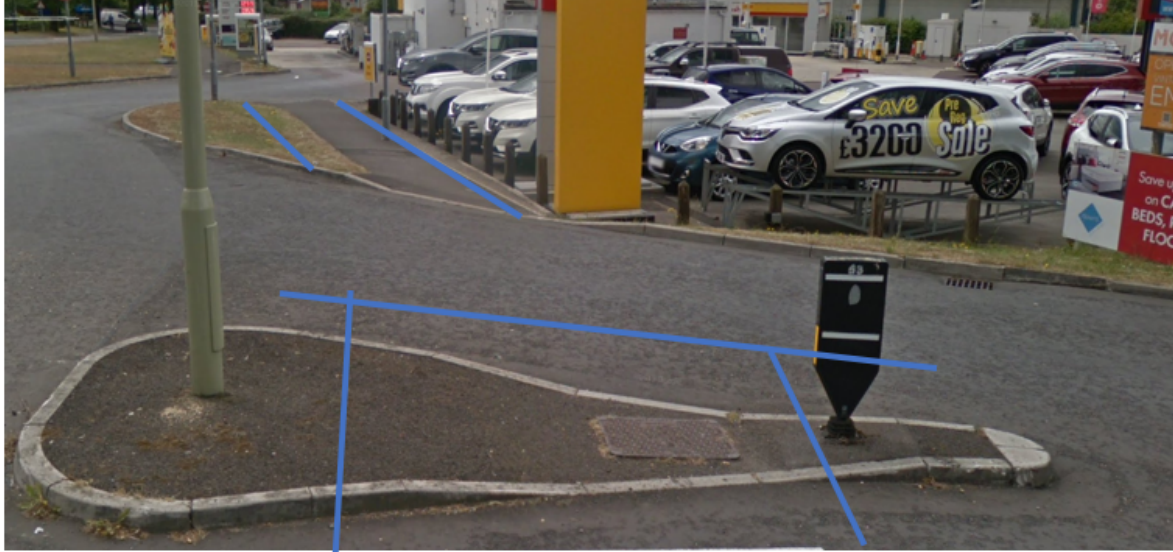
TECHNICAL NOTE

Item	Subject
	 <p data-bbox="582 795 1220 828"><i>Photograph 1 – Looking North towards Tesco Roundabout</i></p>  <p data-bbox="351 1438 1444 1471"><i>Photograph 2 – Looking north towards Tesco Roundabout showing close proximity of service station</i></p> <p data-bbox="284 1496 1525 1601">The provision of the crossing would require the upgrading of the NMU route to 3.5m width to accommodate a 3m wide NMU route and 0.5m wide carriageway offset. This would ideally be needed between the new crossing and the M3 junction underpass and at a minimum between the crossing and NCN23 as shown in Photograph 3.</p>


TECHNICAL NOTE

Item	Subject
	<div data-bbox="300 302 1501 835" data-label="Image"> </div> <div data-bbox="432 853 1362 918" data-label="Caption"> <p><i>Photograph 3 - Potential new kerb line to increase NMU route width to 3m with 0.5m offset (shown by blue line)</i></p> </div> <div data-bbox="284 952 1254 983" data-label="Section-Header"> <h3>2.4.2 Crossing provision Industrial Estate Road (Green crossing as shown in Figure 6)</h3> </div> <div data-bbox="284 1008 1484 1144" data-label="Text"> <p>The need to provide an island is established (see Section 2.3 of this Technical Note) unless there is an agreed departure from standard. The existing island will require an increase in width to a minimum of 3m to accommodate cycles and an increase in length to accommodate the minimum width of 3m for the cycle route as per the requirements in DMRB CD 195 (see Figure 7).</p> </div> <div data-bbox="443 1158 798 1184" data-label="Section-Header"> <h4>Refuges at cycle traffic crossings</h4> </div> <div data-bbox="320 1198 1436 1279" data-label="Text"> <p>E/4.5 Where a refuge is to be provided at a cycle traffic crossing, the width of the refuge shall provide space for cycle traffic at least equal to the width of the cycle track connecting to the crossing point either side of the carriageway (see Figure E/4.6).</p> </div> <div data-bbox="320 1290 1436 1346" data-label="Text"> <p>NOTE Refuges allow cycle traffic to cross carriageways in two or more separate movements. At uncontrolled crossings they improve safety and comfort and reduce delay where cycle traffic does not have priority.</p> </div> <div data-bbox="320 1357 1385 1413" data-label="Text"> <p>E/4.6 The depth of the refuge measured in the direction of cyclists' travel shall be a minimum of 3m (as shown in Figure E/4.6).</p> </div> <div data-bbox="507 1462 1286 1494" data-label="Caption"> <p><i>Figure 7 – Extract from DMRB CD 195 Refuges at Cycle Traffic Crossings</i></p> </div> <div data-bbox="284 1518 1513 1621" data-label="Text"> <p>Increasing the width of the splitter island also has an effect on vehicular access (HGV's) via the industrial estate access road and would require widening of the industrial estate road on the approach and departure to the roundabout, again within third party land.</p> </div> <div data-bbox="284 1646 1513 1816" data-label="Text"> <p>The existing footway fronting the Nissan garage is approx. 2m wide and would need to be increased in width. In order to avoid third party land take, the footway width would need to increase towards the carriageway side. However, this would compromise the alignment of the path with the roundabout splitter island. The back of highway appears to align with the back of the refuge, therefore any extension of the island into the industrial estate road looks to be on third party land as shown in Photographs 4 and 5.</p> </div>

TECHNICAL NOTE

Item	Subject
	 <p data-bbox="325 770 1473 835"><i>Photograph 4 - Potential new kerb lines to increase NMU route width to 3m with 0.5m carriageway offset (shown by blue lines)</i></p>  <p data-bbox="330 1460 1468 1494"><i>Photograph 5 - Potential new kerb line to increase NMU route width to 3m with 0.5m carriageway offset</i></p> <p data-bbox="285 1523 1513 1585">The current island on the Tesco's arm of the roundabout also has a substandard width to accommodate cyclists as the width tapers to approximately 1.6m where the minimum width should be 3m wide.</p> <p data-bbox="285 1615 1513 1783">Due to the current predicted traffic flows, the provision of a grade separated crossing of the eastern arm of the Tesco roundabout would need to be provided. In the case of the provision of a crossing on the western arm current traffic predictions show this to be marginally below the 8000 threshold, although there is a potential for this to be in the region of 10000 requiring a grade separated crossing. If refinement to traffic predictions show this to be under 8000 vehicles an at grade signalised parallel crossing will need to be provided.</p> <p data-bbox="285 1812 1513 1942">In the case of the southern link on Easton Lane, the provision of a formal crossing would need the upgrade of the existing NMU route between the crossing and the M3 junction to provide a consistent and usable route. This would need the widening of the route to 3m minimum and the increase in size of the refuge island at the entrance to Tesco.</p>

TECHNICAL NOTE

Item	Subject
	<p data-bbox="284 302 451 331">2.5 Utilities</p> <p data-bbox="284 358 1513 456">A review of the existing utilities within the western verge of Easton Lane has also been undertaken. This indicates the presence of Electricity, BT and Water, which would all potentially be affected by the provision of an NMU route as shown in Figure 8.</p>  <p data-bbox="676 1267 1118 1299"><i>Figure 8 – Existing Utilities (Easton Lane)</i></p> <p data-bbox="284 1326 1513 1451">Another constraint to consider is the need to provide direction signs on the approach to the M3 Junction 9 gyratory, which will either need to be set back clear of the NMU route or raised up to provide NMU clearance under the signs. The existing western verge is particularly constrained at the entry to the M3 Junction 9 gyratory, which may compromise usable width and required carriageway offsets.</p> <p data-bbox="284 1487 1513 1554">It can be noted that the provision of an NMU route running within the western verge of Easton Lane, would require significant works to the Tesco Roundabout and the purchase of third-party land.</p>
3.	<p data-bbox="284 1585 616 1617"><u>Revised Option 2 NMU Route</u></p> <p data-bbox="284 1644 1513 1711">Based on the constraints outlined within Section 2 of this Technical Note, a revised option 2 NMU route has been developed as shown on drawing number HE551511-VFK-HKF-W_XXXX_XX-DR-CH-0003 (Appendix C).</p> <p data-bbox="284 1742 1513 1998">Route description: Revised NMU option 2 commences at the A33 / B3047 junction. The route runs parallel to the west of the A33 with the route to be constructed within the existing verge. The route will then utilise the existing A33 carriageway which is to be abandoned as part of the scheme. The existing informal link to the existing Public Right of Way will also be upgraded from its connection to the A33. For the first River Itchen crossing, the route follows the existing A33 and is accommodated on the existing bridge deck abandoned carriageway. For the second river crossing, a new footbridge is to be constructed. The route then runs within the proposed central reserve between the A34 North and Southbound carriageways. An underpass is then proposed beneath the A34 northbound carriageway, whereby the route then follows the exiting A34 southbound carriageway which is to be</p>

TECHNICAL NOTE

Item	Subject																																																																						
	<p>abandoned. The route then follows the alignment of the proposed Highways England depot roundabout whereby a Signalised (Toucan) Crossing is proposed. The route then follows the A33 alignment prior to a proposed underpass beneath the M3 J9 gyratory. The route then connects to the proposed eastern NMU route and again an underpass is proposed beneath the south western side of the M3 J9 gyratory whereby the route links with the existing Public Right of Way and National Cycle Route 23 (NCN23).</p> <p>Route length = approx. 2600m.</p> <p><u>Proposed Signalised (Toucan) Crossing</u></p> <p>As stated, for the revised Option 2 NMU route an NMU crossing is proposed across the A33 (adjacent to the Highways England Depot).</p> <p>Traffic flow data shows AADT for the A33 (adjacent to Highways England Depot) is 15951.</p> <table border="1" data-bbox="284 786 1497 994"> <thead> <tr> <th>Road</th> <th>AM Peak Total Flow</th> <th>AM Peak HGV Flow</th> <th>AM Peak Cruise Speed</th> <th>IP Peak Total Flow</th> <th>IP Peak HGV Flow</th> <th>IP Peak Cruise Speed</th> <th>PM Peak Total Flow</th> <th>PM Peak HGV Flow</th> <th>PM Peak Cruise Speed</th> <th>12 Hour</th> <th>AADT Avg Speed</th> <th>%HGV AADT</th> <th>AADT</th> </tr> </thead> <tbody> <tr> <td>A33 SB South of Cart and Horse</td> <td>456</td> <td>59</td> <td>62</td> <td>458</td> <td>38</td> <td>62</td> <td>586</td> <td>29</td> <td>59</td> <td>5616</td> <td>61</td> <td>8%</td> <td>6908</td> </tr> <tr> <td>A33 NB South of Cart and Horse</td> <td>681</td> <td>52</td> <td>57</td> <td>387</td> <td>23</td> <td>63</td> <td>527</td> <td>24</td> <td>60</td> <td>5635</td> <td>61</td> <td>6%</td> <td>3754</td> </tr> <tr> <td>M3/A33 link SB</td> <td>456</td> <td>59</td> <td>62</td> <td>412</td> <td>38</td> <td>63</td> <td>519</td> <td>29</td> <td>61</td> <td>5156</td> <td>62</td> <td>9%</td> <td>6032</td> </tr> <tr> <td>M3/A33 link NB</td> <td>934</td> <td>100</td> <td>48</td> <td>604</td> <td>66</td> <td>59</td> <td>834</td> <td>47</td> <td>52</td> <td>8477</td> <td>54</td> <td>9%</td> <td>9919</td> </tr> </tbody> </table> <p style="text-align: center;"><i>Figure 9 – AADT Traffic Data</i></p> <p>In terms of crossings the site is considered as a 'link' and there is a need to provide the crossing downstream from the proposed Highways England Depot Roundabout.</p> <p>Depot Roundabout - 15951 AADT</p> <p>From DMRB CD116 table. 8.1.3 – The suggested crossing provision to be provided is a Zebra (as the approaches to the proposed roundabout are single carriageway, with an AADT flow >12000). Within DMRB CD195 – there are several ways to utilise the information although interpolating the standards, suggests the crossing provision should be a Signal Controlled crossing</p> <p>Due to the nature of the A33 and close proximity to the M3 J9 Gyratory, a Zebra crossing at this location is not deemed appropriate as this form of crossing is primarily more suited to built-up urban / residential areas. The advantage with a Signal Controlled crossing is there is greater visibility on the approach due to the presence of signals.</p> <p>As such, the provision of a Signalised Crossing (Toucan) is proposed for the crossing of the A33 (adjacent to Highways England Depot).</p>	Road	AM Peak Total Flow	AM Peak HGV Flow	AM Peak Cruise Speed	IP Peak Total Flow	IP Peak HGV Flow	IP Peak Cruise Speed	PM Peak Total Flow	PM Peak HGV Flow	PM Peak Cruise Speed	12 Hour	AADT Avg Speed	%HGV AADT	AADT	A33 SB South of Cart and Horse	456	59	62	458	38	62	586	29	59	5616	61	8%	6908	A33 NB South of Cart and Horse	681	52	57	387	23	63	527	24	60	5635	61	6%	3754	M3/A33 link SB	456	59	62	412	38	63	519	29	61	5156	62	9%	6032	M3/A33 link NB	934	100	48	604	66	59	834	47	52	8477	54	9%	9919
Road	AM Peak Total Flow	AM Peak HGV Flow	AM Peak Cruise Speed	IP Peak Total Flow	IP Peak HGV Flow	IP Peak Cruise Speed	PM Peak Total Flow	PM Peak HGV Flow	PM Peak Cruise Speed	12 Hour	AADT Avg Speed	%HGV AADT	AADT																																																										
A33 SB South of Cart and Horse	456	59	62	458	38	62	586	29	59	5616	61	8%	6908																																																										
A33 NB South of Cart and Horse	681	52	57	387	23	63	527	24	60	5635	61	6%	3754																																																										
M3/A33 link SB	456	59	62	412	38	63	519	29	61	5156	62	9%	6032																																																										
M3/A33 link NB	934	100	48	604	66	59	834	47	52	8477	54	9%	9919																																																										
4.	<p><u>Summary</u></p> <p>The revised Option 2 is therefore the preferred option to be taken forward to the wider design team and upon agreement to be developed within the Stage 3B preliminary design, with a Signalised (Toucan) Crossing proposed across the A33 (adjacent to the Highways England Depot).</p> <p>In summary, the main benefits to this alignment are:</p> <ul style="list-style-type: none"> ➤ The NMU Route is clear of flood areas, providing an all year-round accessible route for NMU's. ➤ Minimal works required at Easton Lane / Tesco Roundabout. 																																																																						

TECHNICAL NOTE

Item	Subject
	<p>The alignment also offers the following:</p> <ul style="list-style-type: none"> ➤ Re-using the abandoned carriageways (A33 and A34) presents a potential benefit if appropriate landscaping and public art features integrated into route. ➤ The majority of the route follows the existing highway and is unlikely to substantially impact upon archaeological remains, dependent on extent of previous disturbance being established.

DOCUMENT ISSUE RECORD

Technical Note No	Rev	Date	Prepared	Checked	Reviewed (Discipline Lead)	Approved (Project Director)
HE551511-VFK-HGN-X_XXXX_XX-TN-CH-0002	P01	22.10.20	LC	TA	TA	MF

This report has been prepared by Stantec UK Limited ('Stantec') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client. This report is not intended for and should not be relied on by any third party (i.e. parties other than the Client). Stantec accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this report.

Appendix A

TECHNICAL NOTE

Job Name: M3 Junction 9 Improvements

Job No: 48176


Note No: TN0001

Date: 28th August 2020

Prepared By: Lee Cuddington

Checked By: Tim Allen

Subject: **Non-Motorised User Route Options – From A33 / B3047 Junction to National Cycle Route 23 (NCN23)**

Item	Subject
1.	<p><u>Introduction</u></p> <p>Stantec have been appointed through the DIP framework to undertake the Stage 5 design of the M3 Junction 9 Improvement scheme.</p> <p>The scheme is located in South East England within the county of Hampshire. M3 Junction 9 is a key strategic route interchange which connects South Hampshire and the ports of Southampton and Portsmouth with the wider sub region. It also connects the region to London and the north-west via the M3, and the Midlands and the North via the A34. The A34 also provides a connection to the principal east-west corridor of the A303 as shown in Figure 1.</p>  <p style="text-align: center;">Figure 1 – M3 Junction 9</p> <p>The proposed scheme involves the complete reconfiguration of the junction and A34 / A33 connections, with new dedicated slip roads, etc. to improve capacity and journey times.</p>

TECHNICAL NOTE

Item	Subject
	<p>The purpose of this Technical Note is to present options considered for the Non-Motorised User (NMU) link from the A33 / B3047 Junction to National Cycle Route 23 (NCN23). Three options have been considered as shown on drawing number HE551511-VFK-HFK-W-XXXX-XX-DR-CH-0001 within Appendix A.</p> <p>This Technical Note will summarise each option (each of which has been subjected to a scoring matrix) and present the preferred NMU route for consideration within the wider design team. All proposed NMU options have been measured within AutoCAD to provide the minimum and maximum route distance along that option, considering any alternative routes.</p> <p>It should be noted that for all three options, an at-grade uncontrolled crossing point is proposed across the realigned A33, for Highways England Depot workers. This crossing point will utilise the splitter island of the proposed Highways England Depot roundabout.</p> <p>Please note: The options presented within this Technical Note are currently at concept stage and are subject to detailed design which may alter the current route shown, due to unforeseen constraints.</p>
2.	<p><u>Existing Public Rights of Way and NMU Provision</u></p> <p>The existing Public Rights of Way and NMU provision are shown on drawing number HE551511-VFK-HFK-W-XXXX-XX-DR-CH-0002 within Appendix B.</p> <p>It can be noted that an existing (sub-standard) NMU route exists between the A33 / B3047 Junction and Public Right of Way (PRoW) / National Cycle Route 23 (NCN23). The route is substandard in terms of; width, unmade section within close proximity to the Highways England Depot and an at grade uncontrolled crossing point across the Junction 9 gyratory which has safety concerns on usage & visibility.</p>
3.	<p><u>Stage 3 - NMU proposal</u></p> <p>The Stage 3 preliminary design was undertaken by Jacobs Engineering Group. Two options were presented for the NMU route as shown on drawing number HE551511-JAC-HGN-0_00_00-DR-C-1100. It should be noted that connectivity was not shown to the existing A33 / B3047 Junction for these options.</p> <ul style="list-style-type: none"> ➤ Option 1 runs parallel with the realigned A34 northbound carriageway and via a proposed NMU route running west of the existing Highways England maintenance depot. ➤ Option 2 runs parallel with the realigned A33 carriageway. A new subway is proposed beneath the realigned A33 (adjacent to the proposed A33 / M3 roundabout) prior to linking with the option 1 route west of the Highways England depot. <p>These options have been considered and a further option added, in developing the revised three NMU proposals.</p> <p>It is understood that a Walking, Cycling and Horse Rider Workshop was held during the Stage 3 process and the following issues / suggestions were raised:</p> <ol style="list-style-type: none"> 1. Support for the WCH linking Winnall Roundabout to Kings Worthy, although noted that while this route may be useful for cyclists and pedestrian commuting, it was unlikely to be used by recreational walkers. HE confirmed a bid for Designated funds has been made for part of the facility to Kings Worthy (on the north-east side of A34). 2. A suggestion to provide a path on the west side of A34 was also discussed but most stakeholders preferred the current proposal (east side).

TECHNICAL NOTE

Item	Subject
	<ol style="list-style-type: none"> 3. Stakeholders suggested a ramped path from the proposed facility on the east side of the A34 to link to the existing path on the east side of the River Itchen. 4. Support expressed for the use of an at-grade controlled crossing in Easton Lane for HE depot / Kings Worthy to Tesco users (rather than the subway proposed) provided suitable geometry and space for users can be achieved – As stated in Section 2 of this Technical Note, an at grade uncontrolled crossing is to be provided for HE depot workers. The use of a controlled crossing has been considered across Easton Lane. However, the close proximity to the main gyratory, Tesco roundabout, visibility and existing central reserve width (within available highways land) forms major constraints on the ability to provide such crossing facility. 5. Footpath route should be more direct to encourage active travel and recreation. 6. Introduce a cycle route between the A34 Northbound and the Winnal Moors nature reserve linking to the roads in the industrial estate, with a solid barrier between the A34 and the cycle route. <p>These issues / suggestions have been considered whilst developing the options contained within this Technical Note. Where incorporated within an NMU option, italic text has been used to highlight the suggestion.</p>
4.	<p><u>Stage 3b – NMU Option 1</u></p> <p><u>Route description:</u></p> <p>NMU option 1 commences at the A33 / B3047 junction. To provide connectivity, NMUs will be required to cross the A33. The existing uncontrolled crossing point will need to be upgraded for NMU provision and the requirement for a signalised (Toucan) crossing will be subject to review. The route then runs parallel to the east of the A33, whereby localised narrowing of the route is required to stay within available highway land (localised embankment reprofiling also required). As the route crosses the first River Itchen crossing, it is accommodated on the existing bridge deck verge. At the second crossing of the River Itchen, a proposed footbridge is required. The route then runs along the realigned A33 (either offset or parallel) whereby either a new subway is provided beneath the A33 (at the proposed A33 / M3 roundabout) or an at grade uncontrolled crossing utilised. The route then continues along the western side of the proposed realigned A33 and Easton Lane where it meets the existing Tesco Roundabout. At this point, the existing at grade uncontrolled crossing facilities will be upgraded for NMU provision. The proposed NMU route then connects to the existing Public Right of Way and National Cycle Route 23 (NCN23).</p> <p><i>This provides a link on the east side of the A34 as per the Stakeholder suggestion ref. 2 - see Section 3 of this Technical Note</i></p> <p>Route length: Min. length 2495m, Max. length = 2650m.</p> <p><u>Summary of Comments:</u></p> <p><u>Scheme Objectives</u></p> <ul style="list-style-type: none"> ➤ Improved connectivity: Route mainly follows proposed carriageway alignments - suitable for all year-round usage. <p><u>Highways</u></p> <ul style="list-style-type: none"> ➤ Available highway land constraints (NMU route width will be constrained locally (below 2.5m wide)). ➤ Route mainly follows proposed carriageway alignments, therefore cut / fill balance negligible. ➤ Engineering solution is apparent although this involves embankment reprofiling, which will have an adverse effect on the existing trees / vegetation.

TECHNICAL NOTE

Item	Subject
	<p><u>Structures</u></p> <ul style="list-style-type: none"> ➤ Challenges building to the east of the live southbound A34 / A33 on-slip. ➤ Access for construction plant - piling rig, craneage for reinforcement / formwork, concrete pump and wagons, backfilling / compaction operations, etc. ➤ Felling of Category A and / or Category B trees to provide working space. ➤ Overnight road closure for installation (craneage) for footbridge superstructure - same for all route options. ➤ Approval to permanently impact on areas of SSSI and floodplain zone 3 designations may not be granted. ➤ New subway under the A33 Link required, unless alternative option to run NMU parallel to two-way A33 extension is accepted. ➤ The existing embankment to the east of the A34 / A33 verge may require a retaining structure to create the wide foot / cycleway in particular on the approach to the proposed footbridge north abutment. ➤ Temporary and permanent works footprints in SSSI and floodplain zone 3 designations. ➤ Existing Irrigation Stream A34 Underbridge (6120) - has sufficient space available on the existing verge to accommodate proposed route. ➤ New A33 Link Bridge over the new A34 Northbound can be designed to accommodate proposed route. ➤ Materials and finishes used in the construction of the proposed structure to be chosen to minimise future maintenance requirements. <p><u>Safety</u></p> <ul style="list-style-type: none"> ➤ Potential gradient issues, width of route and at grade crossing A33 and M3 northbound roundabout. ➤ Offset from carriageway and may be restricted by pinch points on route. <p><u>Environmental</u></p> <ul style="list-style-type: none"> ➤ The proposed bridge over the River Itchen may result in significant effects to Itchen SAC and SSSI. ➤ The extent of earthworks at bridge abutments appears to be more than other bridge options and likely to result in significant habitat loss / disturbance to riverbanks. ➤ Embankment reprofiling / widening along the A33 is likely to encroach into SSSI (the designation includes low-lying wet woodland habitat in this area adjacent to the existing carriageway). ➤ Given the current alignment of the route and need for embankment reprofiling to allow for the NMU route, there will be a loss of existing boundary trees / vegetation adjacent to the River Itchen SSSI, which at present provide visual screening of the road in views from the SDNP. Works to embankments within SDNP (although on boundary along A33 section) will require consultation with SDNPA. There would need to be appropriate mitigation planting on the embankment following installation to reinstate the screening. ➤ Further clarity needed as to whether design would require any visually intrusive works to upgrade / re-use existing River Itchen crossing but assumed localised vegetation clearance. ➤ Additional earthworks needed in SDNP land near proposed smaller roundabout, which will need appropriate mitigation to lessen visual intrusion. ➤ This option will not directly impact upon any nationally designated heritage asset. Route initially follows the carriageway but then passes through a currently undeveloped area between the existing carriageways. ➤ A geophysical survey shows few significant archaeological features in this area, but the survey was 'noisy' due to the proximity of the roads and this 'noise' may have masked any archaeological remains that might be present. ➤ Option requires the construction of a bridge across the River Itchen. Piling or the excavation of foundations for the bridge could upon paleoenvironmental remains of archaeological interest. ➤ Majority of the route appears to follow an embankment along the edge of the exiting carriageway. There will not be an impact upon archaeological remains where the embankment needs 'reprofiling' as this

TECHNICAL NOTE

Item	Subject
	<p>requires building the bank up to create space wide enough for the new footpath, unless intrusive works e.g. soil strip and excavation at the toe of the embankment are required where previously undisturbed deposits may exist.</p> <ul style="list-style-type: none"> ➤ Runs through floodplain and / or immediately adjacent to it. If it is at grade this will be at risk of flooding and expected that durations are weeks not hours due to nature of this watercourse. Anything raised or widened within floodplain would require compensation flood storage. Duration of flooding likely to be long. New bridge crossings would require FRAPs. Open SuDS features may be difficult to deliver adjacent to floodplain.
5.	<p><u>Stage 3b - NMU Option 2</u></p> <p>Route description: NMU option 2 commences at the A33 / B3047 junction. The route runs parallel to the west of the A33 with the route to be constructed within the existing verge (exact extents within the verge TBC, based upon proposed A33 two-way highway layout). The route will then utilise the existing A33 carriageway which is to be abandoned as part of the scheme (dependent upon A33 two-way re-design). The existing informal link to the existing Public Right of Way will also be upgraded from its connection to the A33. For the first River Itchen crossing, the route follows the existing A33 and is accommodated on the existing bridge deck abandoned carriageway. For the second river crossing, the preferred option would be a footbridge constructed across the River Itchen with a spiral ramp leading down to the existing footpath link beneath the existing A34 northbound bridge. An alternative would be a footbridge over the A34 Northbound carriageway with very long approach ramps.</p> <p><i>This provides a link to the existing path on the east side of the River Itchen as per the Stakeholder suggestion ref. 3 - see Section 3 of this Technical Note.</i></p> <p>The route then merges with the A34 Northbound carriageway (to be abandoned) before continuing as per the NMU Option 1 route.</p> <p><i>This provides a link on the east side of the A34 as per the Stakeholder suggestion ref. 2 - see Section 3 of this Technical Note</i></p> <p>Route length: Min. length 2466m, Max. length = 2652m.</p> <p><u>Summary of Comments:</u></p> <p><u>Scheme Objectives</u></p> <ul style="list-style-type: none"> ➤ Improves connectivity. Makes use of proposed abandoned sections of A33 / A34 which provides greater scope / flexibility in design approach. <p><u>Highways</u></p> <ul style="list-style-type: none"> ➤ Engineering solution apparent within available highway land. Route veers away from mainline carriageways, which creates an additional 'area' of construction. ➤ Makes use of abandoned section of A33 / A34, so minimum cut required. <p><u>Structures</u></p> <ul style="list-style-type: none"> ➤ Similar buildability issues to Option 1. Key difference is that the A34 and the strip of land between the northbound and southbound carriageways appears not to be in either the SSSI or floodplain zone 3 designation making it more viable to fell trees and create the working space required to build the new footbridge over the river. ➤ Existing Barton Carrier West A34 Underbridge (7280) has sufficient space available to accommodate proposed route utilising the redundant A33 off-slip.

TECHNICAL NOTE

Item	Subject
	<ul style="list-style-type: none"> ➤ Footprint of new bridge and spiral ramp - this option has a new footbridge crossing the river east of existing Itchen Bridge (7279) which would then spiral anti-clockwise in the area between the northbound and southbound A34. The pedestrian / cycling route would then continue under the existing Itchen Bridge. This area is not considered within the SSSI or flood zone 3 (to be confirmed upon receipt of updated flood model) so a earthworks ramp can be accommodated. If flooding is an issue the ramp could be an elevated steelwork structure to provide flooding volume. ➤ If geometric space for a spiral ramp down under existing Itchen Bridge is not achievable, it would be possible to utilise a zig-zag ramp instead. ➤ Headroom under existing A34 northbound Itchen Bridge is just less than desirable minimum of 2.4m, but 2.4m can be achieved with minor improvement works. ➤ Materials and finishes used in the construction of the proposed structures to minimise future maintenance requirements. ➤ No subway required at A33 link as this route uses the redundant A34 northbound - better than route 1. <p><u>Safety</u></p> <ul style="list-style-type: none"> ➤ No steep gradients, although remote from traffic corridor in some areas making it less attractive at night. <p><u>Environmental</u></p> <ul style="list-style-type: none"> ➤ The proposed bridge over Itchen has potential to result in significant effects to Itchen SAC and SSSI. However, the longer bridge over the A34 Northbound would minimise adverse effects from shading to the Itchen and associated habitats, compared to other options. ➤ The option of a raised footbridge over the A34 Northbound will introduce a new vertical structure into the composition of views from within SDNP potentially detracting from the scenic qualities (noting St Swithen's Way and Itchen Way long distance routes lie south-west of the proposed route). Works to raised footbridge within SDNP at this location thus early consultation with SDNPA needed. ➤ Likely localised loss of trees / vegetation to facilitate new footbridge structure, which at present provides visual screening of existing road infrastructure. However, option with spiral ramp less likely to visually intrusive connecting to ground level route, requiring localised tree/vegetation clearance. ➤ Re-using the abandoned northbound carriageway presents a potential benefit if appropriate landscaping and public art features integrated into route. ➤ This option will not directly impact upon any nationally designated heritage asset. Will require the construction of a new bridge elevated above the new carriageway. The piling or digging of foundations for the new bridge could impact upon waterlogged paleoenvironmental and archaeological remains and deposits of interest. ➤ Alternative option to construct a pedestrian bridge over the Itchen and a spiral ramp up to a subway under the A34 could involve groundworks with a large footprint and therefore have a greater impact upon unknown archaeological remains. ➤ The majority of the route follows the existing highway and is unlikely to substantially impact upon archaeological remains, dependent on extent of previous disturbance being established.
6.	<p><u>Stage 3b - NMU Option 3</u></p> <p>Route description: NMU option 3 commences at the A33 / B3047 junction. As per Option 2, the route runs parallel to the west of the A33 with the route to be constructed within the existing verge. The route will then utilise the existing A33 carriageway which is to be abandoned as part of the scheme (dependent upon future A33 two-way re-design). The route then connects to the existing Public Right of Way and utilises existing subways (2 No.) beneath the A34 Northbound and Southbound carriageways, again still following the existing Public Right of Way. The route then runs to the west of the A34, where two footbridges are then required to cross both points of the River Itchen. The NMU route will be within the existing flood plain (Flood Zone 3). Upon exiting the second river crossing footbridge, the route re-joins the existing Public Right of Way, whereby it joins the alignment as proposed for NMU Option 2.</p>

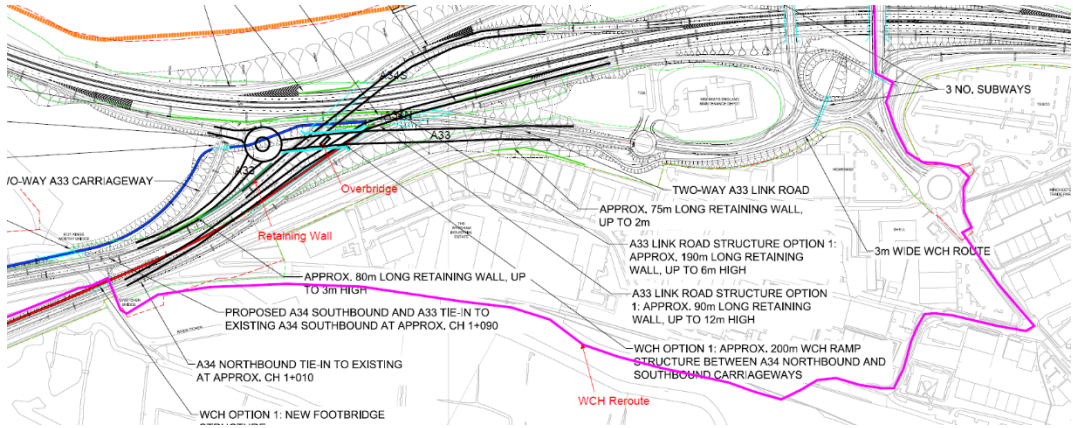
TECHNICAL NOTE

Item	Subject
	<p>Route length: Min. length 2547m, Max. length = 2773m.</p> <p><u>Summary of Comments:</u></p> <p><u>Scheme Objectives</u></p> <ul style="list-style-type: none"> ➤ 2 No. footbridges required. Possible improvements to subways required. ➤ Route runs through existing flood plain (Flood Zone 3). ➤ Not suitable for all year-round usage due to flood plain. <p><u>Highways</u></p> <ul style="list-style-type: none"> ➤ Not within adoptable highway land. ➤ The existing A34 Northbound subway is substandard / desirable minimum (width / height) and currently unlit. ➤ Route is low level (in comparison to the adjacent highway) and is isolated. <p><u>Structures</u></p> <ul style="list-style-type: none"> ➤ Structures can be built more offline compared to routes 1 & 2. ➤ Reduced impact on existing trees compared to routes 1 & 2. ➤ Shorter span footbridge and simple to build approach ramps compared to routes 1 & 2. ➤ Temporary and permanent works footprints in SSSI and floodplain zone 3 designations. ➤ Approval to permanently impact on areas of SSSI and floodplain zone 3 designations may not be granted. ➤ Existing A34 northbound subway headroom is 2.15m, less than the 2.2m absolute minimum. Width is 2.2m, less than 3.5m required. Risk existing geometry not acceptable to HE technical approval authority for a new foot / cycle route. ➤ Replacement subway of the correct geometry would be required. ➤ Temporary and permanent works footprints in SSSI and floodplain zone 3 designations. ➤ Provides connectivity to both PRoW - Allan King Way and the Itchen Way ➤ Materials and finishes used in the construction of the proposed structures to minimise future maintenance requirements. <p><u>Safety</u></p> <ul style="list-style-type: none"> ➤ No steep gradients, although remote from traffic corridor making the alignment less attractive. <p><u>Environmental</u></p> <ul style="list-style-type: none"> ➤ A significant length of this option, including the northern bridge, are located wholly within the River Itchen SSSI (the designation includes low-lying marsh habitats through which this option passes). Construction likely to result in significant loss of habitat from this protected site. ➤ Bridge over Itchen also has potential to result in significant effects to Itchen SAC. ➤ Proposals introduce two new bridge crossings thus increasing influence of urbanising elements in SDNP at this location. ➤ Works require two new footbridges within SDNP at this location thus early consultation with SDNPA needed. Potential to detract from scenic quality of views within SDNP (noting the two LDRs south-west of location) depending on extent of vegetation clearance and bridge materials. ➤ However, the proposed route would improve accessibility to the SDNP by creating a new connection between St Swithen's Way and Itchen Way LDRs. Re-using the abandoned northbound carriageway presents a potential benefit if appropriate landscaping and public art features integrated into route.

TECHNICAL NOTE

Item	Subject
	<ul style="list-style-type: none"> ➤ The route appears to use an existing track / path along the Itchen floodplain. Where this requires widening / improving groundworks and any landscaping or planting could impact upon archaeological remains. ➤ Piling or the excavation of foundations for the two new bridges across the river has the potential to impact upon waterlogged paleoenvironmental and archaeological remains and deposits of interest. ➤ Encroachment into floodplain on west side, would need mitigation and / or route will be inundated. Duration of flooding likely to be long. New bridge crossings would require FRAPs. Open SuDS features may be difficult to deliver adjacent to floodplain.
7.	<p><u>Stage 3b – NMU (All Options Combined (Alternative Link to National Cycle Route 23 (NCN23))</u></p> <p>As all proposed routes approach the M3 J9 Gyratory, there are two options proposed as shown on drawing number HE551511-VFK-HFK-W-XXXX-XX-DR-CH-0001, within Appendix A:</p> <p>Option 1 (Pink Route) – This route follows the Stage 3 proposals to provide an NMU route within the proposed roundabout gyratory central island. A subway would be required beneath the M3 Junction 9 Gyratory. The NMU route will then connect with the proposed route within the gyratory itself. An existing subway is then utilised providing connectivity to the existing Public Right of Way and National Cycle Route 23 (NCN23).</p> <p>Option 2 (Blue Route) – This route would run parallel to Easton Lane within the northern verge. Existing crossing facilities at the Tesco’s roundabout on both the northern and western arms would require upgrading for NMU provision, which would then provide connectivity to the existing Public Right of Way and National Cycle Route 23 (NCN23).</p> <p><u>Summary of Comments:</u></p> <p><u>Scheme Objectives</u></p> <ul style="list-style-type: none"> ➤ Pink Route - Improved route, slightly longer than other options. New subway required and utilising existing subway. <p><u>Highways</u></p> <ul style="list-style-type: none"> ➤ Pink Route - Subway required - additional TM of for mainline gyratory. <p><u>Structures</u></p> <ul style="list-style-type: none"> ➤ Pink Route - Requirement for subway. ➤ Pink Route - Challenging construction phasing on gyratory to keep traffic flowing - building subway in two sections. Close proximity to live traffic. ➤ Pink Route - Challenge of building retaining wall to create cutting behind Homebase down into subway. ➤ Blue route: <ul style="list-style-type: none"> ➤ Only one subway needed. ➤ At grade so no cutting / retaining wall required. ➤ Much easier to build. <p><u>Safety</u></p> <ul style="list-style-type: none"> ➤ Pink Route - Route more direct with less points of conflict between NMUs and traffic. <p><u>Environmental</u></p> <ul style="list-style-type: none"> ➤ Similar impacts to all options combined.

TECHNICAL NOTE

Item	Subject
	<ul style="list-style-type: none"> ➤ Pink Route - Likely localised vegetation / tree loss as a result of proposed subway, which is unlikely to be replaceable in immediate area due to structures. ➤ Earthworks at present to west of carriageway appear to encroach on curtilage of Homebase building. ➤ Pink Route - New subway required to provide access under A34 and roundabout. At this point the M3 is in a cutting which was subjected to archaeological excavations during the construction of the motorway. Despite this, there is the potential for archaeological remains to survive at top of the cutting and could be impacted upon by groundworks associated with the construction of this option. <p>Based on the above, the Blue route is the preference.</p>
8.	<p><u>Alternative Option via. Itchen Way Public Right of Way</u></p> <p>An alternative option was also considered utilising the existing Itchen Way (Public Right of Way) as shown in Figure 2.</p> <p>Whilst this option was considered, it is felt that this route deviates too far away from the mainline carriageway and would not be desirable for NMUs during early evenings (winter months) - personal safety concerns. <i>This route also goes against the Stakeholder suggestion ref. 5 that the footpath route should be more direct to encourage active travel and recreation.</i></p> <p>Whilst this option is not preferred, NMU Options 2 and 3 presented within this Technical Note will provide a link to this Public Right of Way, providing a route choice for NMUs. <i>This provides a direct link as per the Stakeholder suggestion ref. 6 - see Section 3 of this Technical Note.</i></p>  <p>Figure 2 – Alternative Route Via. Itchen Way Path Public Right of Way (shown by magenta coloured line)</p>
9.	<p><u>Scoring Matrix</u></p> <p>A scoring matrix was established as shown in Figure 3. Each NMU option was scored against six key topics:</p> <ul style="list-style-type: none"> • Scheme Objectives, • Environment, • Highway, • Structures, • Safety, • Buildability (scored by Volker's).

TECHNICAL NOTE

Item	Subject																																															
	<table border="1"> <thead> <tr> <th>Topic</th> <th>Item</th> </tr> </thead> <tbody> <tr> <td>Cost</td> <td>Infrastructure costs against other route options</td> </tr> <tr> <td rowspan="6">Scheme Objectives</td> <td>To improve the existing link from B3047/A33 junction to Easton Lane with a NMU provision to tie into Route 23 NMU</td> </tr> <tr> <td>Direct desire line - Improves journey time, improves traveller experience</td> </tr> <tr> <td>To reduce requirements for future maintenance</td> </tr> <tr> <td>To improve local connectivity and the local network for all users</td> </tr> <tr> <td>Mobility and Access: Reduces or removes barriers to severance, increases access to local services, provides appropriate gradients, etc. for cyclists</td> </tr> <tr> <td>Durability for all round-year usage</td> </tr> <tr> <td rowspan="8">Environment</td> <td>Biodiversity & HRA</td> </tr> <tr> <td>Climate</td> </tr> <tr> <td>Road Drainage and the Water Environment</td> </tr> <tr> <td>Noise and Vibration</td> </tr> <tr> <td>Geology and soils</td> </tr> <tr> <td>Landscape and Visual Effects</td> </tr> <tr> <td>Cultural heritage</td> </tr> <tr> <td>Air Quality</td> </tr> <tr> <td rowspan="7">Highway</td> <td>Buildability / Standards</td> </tr> <tr> <td>Cut / fill balance</td> </tr> <tr> <td>Property impact (inc demolition)</td> </tr> <tr> <td>Risks within the design</td> </tr> <tr> <td>Constraints within the design</td> </tr> <tr> <td>Deliverability of scheme: an achievable Highways engineering solution apparent, with defined objectives and clear outcomes</td> </tr> <tr> <td>Safety (Pedestrian & cycle users)</td> </tr> <tr> <td rowspan="3">Structures</td> <td>Buildability / Standards</td> </tr> <tr> <td>Risks within the design</td> </tr> <tr> <td>Constraints within the design</td> </tr> <tr> <td rowspan="5">Safety</td> <td>Overall option concept</td> </tr> <tr> <td>Connectivity and the local network for all users</td> </tr> <tr> <td>Reduces the fear of crime, reduces conflicts with mainline carriageways</td> </tr> <tr> <td>Crossing facilities</td> </tr> <tr> <td>User Comfort</td> </tr> <tr> <td rowspan="3">Accessibility for Construction</td> <td>Plant required</td> </tr> <tr> <td>Space for any temporary platforms</td> </tr> <tr> <td>Access routes impact on local area</td> </tr> <tr> <td rowspan="2">Temporary Diversion Routes</td> <td>Impact of alternative temporary route - distance</td> </tr> <tr> <td>Impact of alternative temporary route - duration</td> </tr> <tr> <td>Relative cost to other options</td> <td>Zero is estimated as the cheapest and 4 as the most expensive</td> </tr> </tbody> </table>	Topic	Item	Cost	Infrastructure costs against other route options	Scheme Objectives	To improve the existing link from B3047/A33 junction to Easton Lane with a NMU provision to tie into Route 23 NMU	Direct desire line - Improves journey time, improves traveller experience	To reduce requirements for future maintenance	To improve local connectivity and the local network for all users	Mobility and Access: Reduces or removes barriers to severance, increases access to local services, provides appropriate gradients, etc. for cyclists	Durability for all round-year usage	Environment	Biodiversity & HRA	Climate	Road Drainage and the Water Environment	Noise and Vibration	Geology and soils	Landscape and Visual Effects	Cultural heritage	Air Quality	Highway	Buildability / Standards	Cut / fill balance	Property impact (inc demolition)	Risks within the design	Constraints within the design	Deliverability of scheme: an achievable Highways engineering solution apparent, with defined objectives and clear outcomes	Safety (Pedestrian & cycle users)	Structures	Buildability / Standards	Risks within the design	Constraints within the design	Safety	Overall option concept	Connectivity and the local network for all users	Reduces the fear of crime, reduces conflicts with mainline carriageways	Crossing facilities	User Comfort	Accessibility for Construction	Plant required	Space for any temporary platforms	Access routes impact on local area	Temporary Diversion Routes	Impact of alternative temporary route - distance	Impact of alternative temporary route - duration	Relative cost to other options	Zero is estimated as the cheapest and 4 as the most expensive
Topic	Item																																															
Cost	Infrastructure costs against other route options																																															
Scheme Objectives	To improve the existing link from B3047/A33 junction to Easton Lane with a NMU provision to tie into Route 23 NMU																																															
	Direct desire line - Improves journey time, improves traveller experience																																															
	To reduce requirements for future maintenance																																															
	To improve local connectivity and the local network for all users																																															
	Mobility and Access: Reduces or removes barriers to severance, increases access to local services, provides appropriate gradients, etc. for cyclists																																															
	Durability for all round-year usage																																															
Environment	Biodiversity & HRA																																															
	Climate																																															
	Road Drainage and the Water Environment																																															
	Noise and Vibration																																															
	Geology and soils																																															
	Landscape and Visual Effects																																															
	Cultural heritage																																															
	Air Quality																																															
Highway	Buildability / Standards																																															
	Cut / fill balance																																															
	Property impact (inc demolition)																																															
	Risks within the design																																															
	Constraints within the design																																															
	Deliverability of scheme: an achievable Highways engineering solution apparent, with defined objectives and clear outcomes																																															
	Safety (Pedestrian & cycle users)																																															
Structures	Buildability / Standards																																															
	Risks within the design																																															
	Constraints within the design																																															
Safety	Overall option concept																																															
	Connectivity and the local network for all users																																															
	Reduces the fear of crime, reduces conflicts with mainline carriageways																																															
	Crossing facilities																																															
	User Comfort																																															
Accessibility for Construction	Plant required																																															
	Space for any temporary platforms																																															
	Access routes impact on local area																																															
Temporary Diversion Routes	Impact of alternative temporary route - distance																																															
	Impact of alternative temporary route - duration																																															
Relative cost to other options	Zero is estimated as the cheapest and 4 as the most expensive																																															

Figure 3 – NMU Scoring Matrix

Each sub-item was then scored from +3 to -3 and comments noted:

- 3 = Overall – Substantial benefits,
- 2 = Overall – Moderate benefits,
- 1 = Overall – Minor benefit,
- 0 = Overall – Neutral impact,
- -1 = Overall – Small impact to constraints,
- -2 = Overall – Moderate impact to constraints,
- -3 = Overall – Substantial negative impacts – potentially undeliverable design.

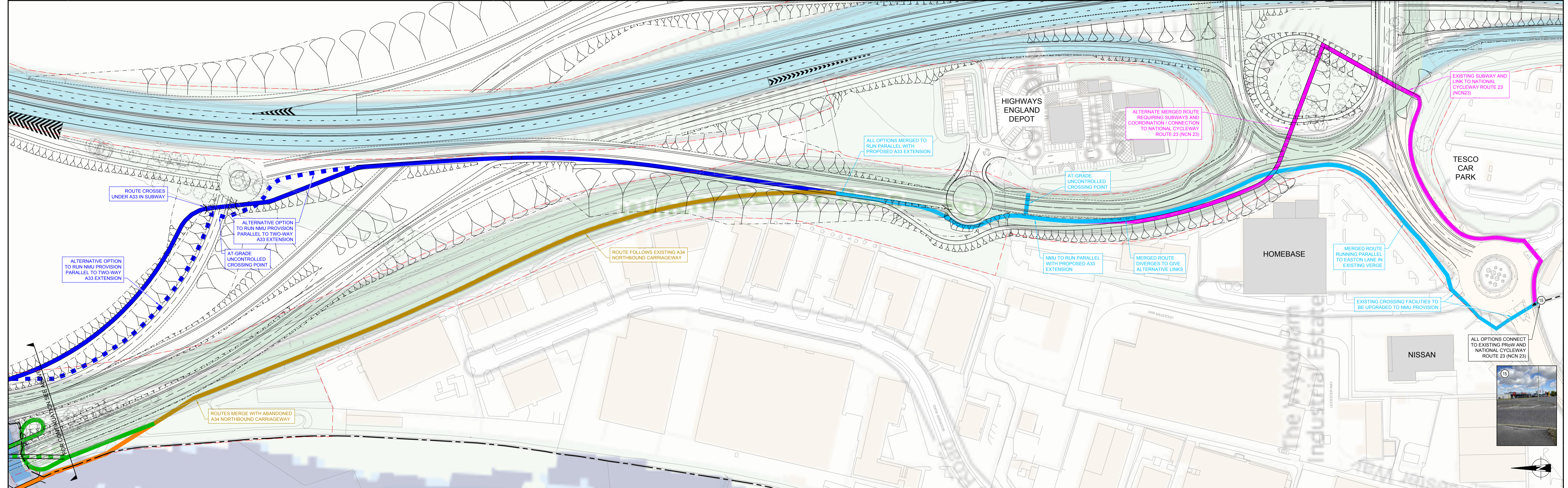
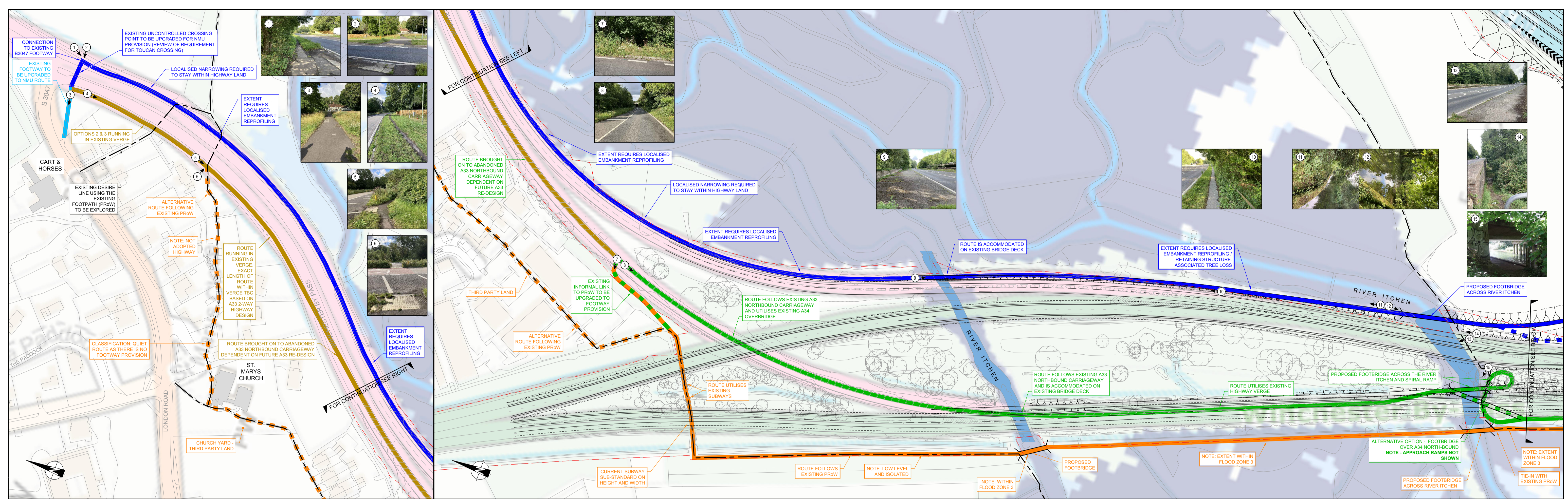
TECHNICAL NOTE

Item	Subject								
	<p>The NMU route with the highest score is deemed the 'preferred option'.</p> <p>The completed scoring matrices are contained with Appendix C.</p>								
10.	<p><u>Preferred Option</u></p> <p>Based on the options considered within this Technical Note (and associated scoring matrix), the NMU options were scored as follows:</p> <table border="1" data-bbox="533 622 1275 761"> <thead> <tr> <th>NMU Option</th> <th>Matrix Score</th> </tr> </thead> <tbody> <tr> <td>Option 1</td> <td>1</td> </tr> <tr> <td>Option 2</td> <td>22</td> </tr> <tr> <td>Option 3</td> <td>-29</td> </tr> </tbody> </table> <p>Option 2 is therefore the preferred option to be taken forward to the wider design team and upon agreement to be developed within the Stage 3B preliminary design.</p> <p>In summary, the main benefits to this alignment are the utilisation of existing carriageways to be abandoned (A33 and A34), providing greater scope / flexibility in design approach and the avoidance on the least constraints.</p> <p>The alignment also offers the following:</p> <ul style="list-style-type: none"> ➤ Footprint of new bridge and spiral ramp. This area is not considered within the SSSI or flood zone 3 so a earthworks ramp can be accommodated. ➤ No steep gradients. ➤ Re-using the abandoned carriageways (A33 and A34) presents a potential benefit if appropriate landscaping and public art features integrated into route. ➤ The majority of the route follows the existing highway and is unlikely to substantially impact upon archaeological remains, dependent on extent of previous disturbance being established. 	NMU Option	Matrix Score	Option 1	1	Option 2	22	Option 3	-29
NMU Option	Matrix Score								
Option 1	1								
Option 2	22								
Option 3	-29								

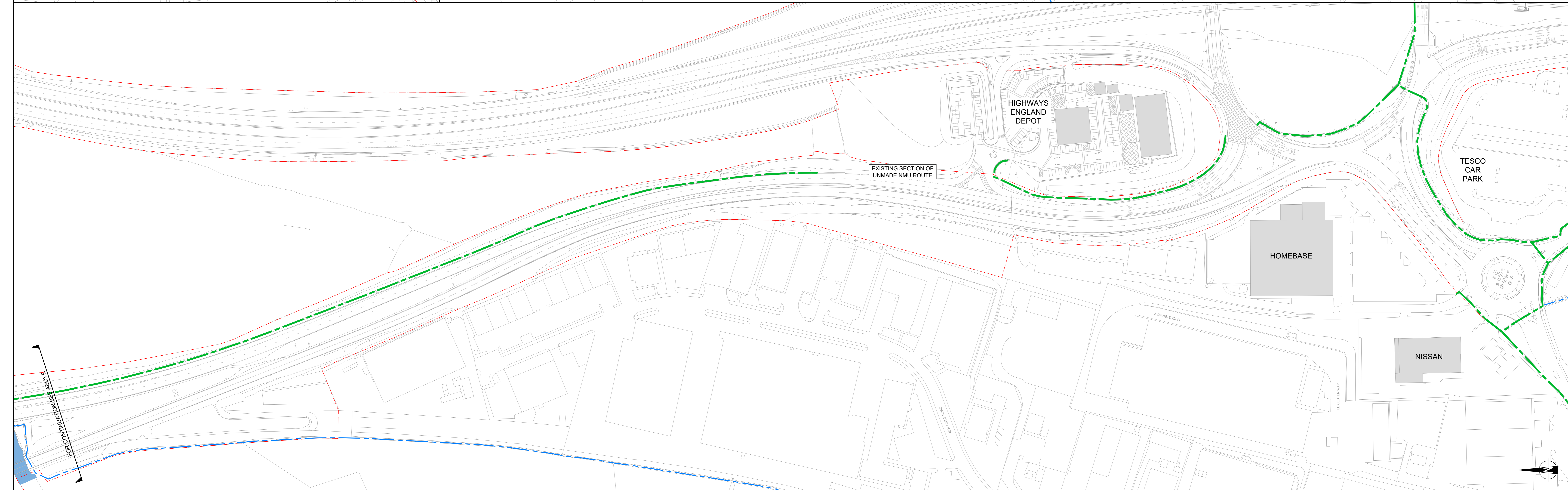
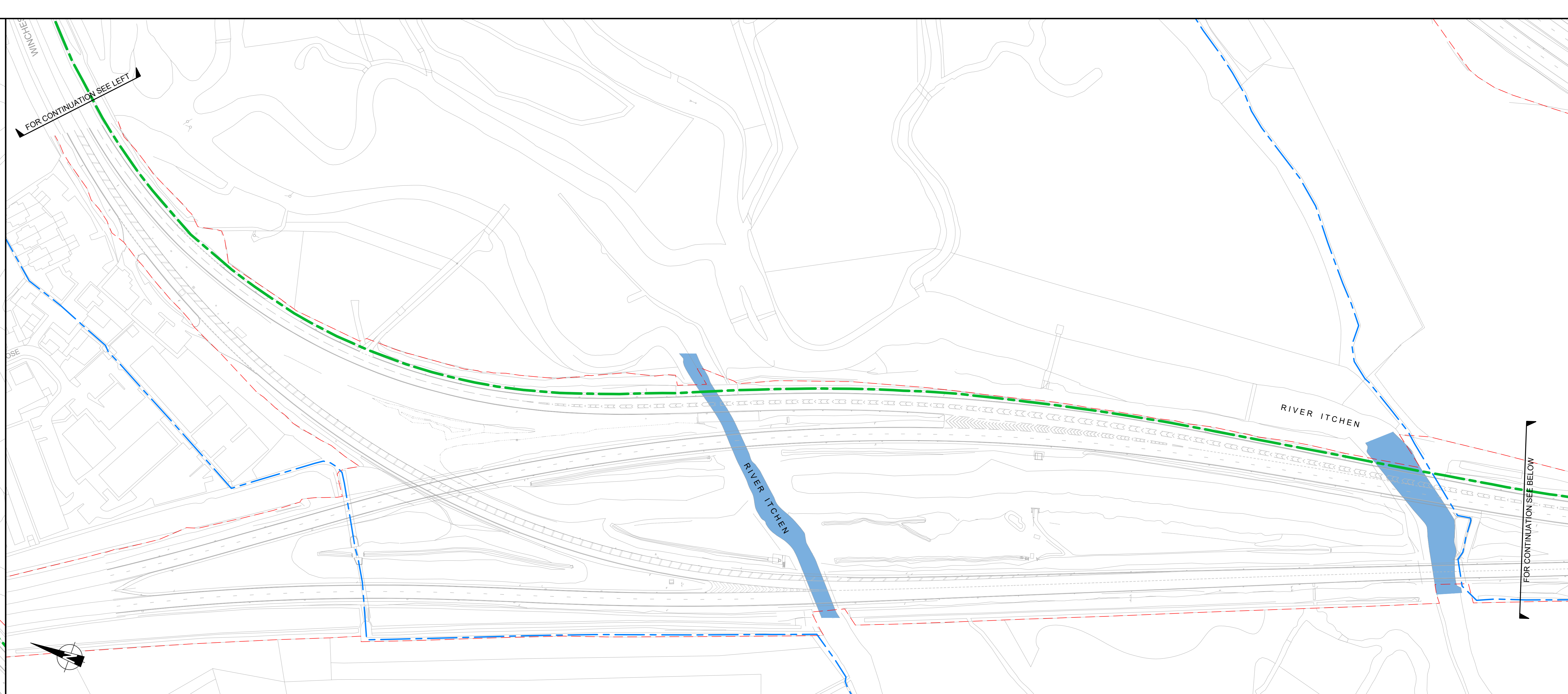
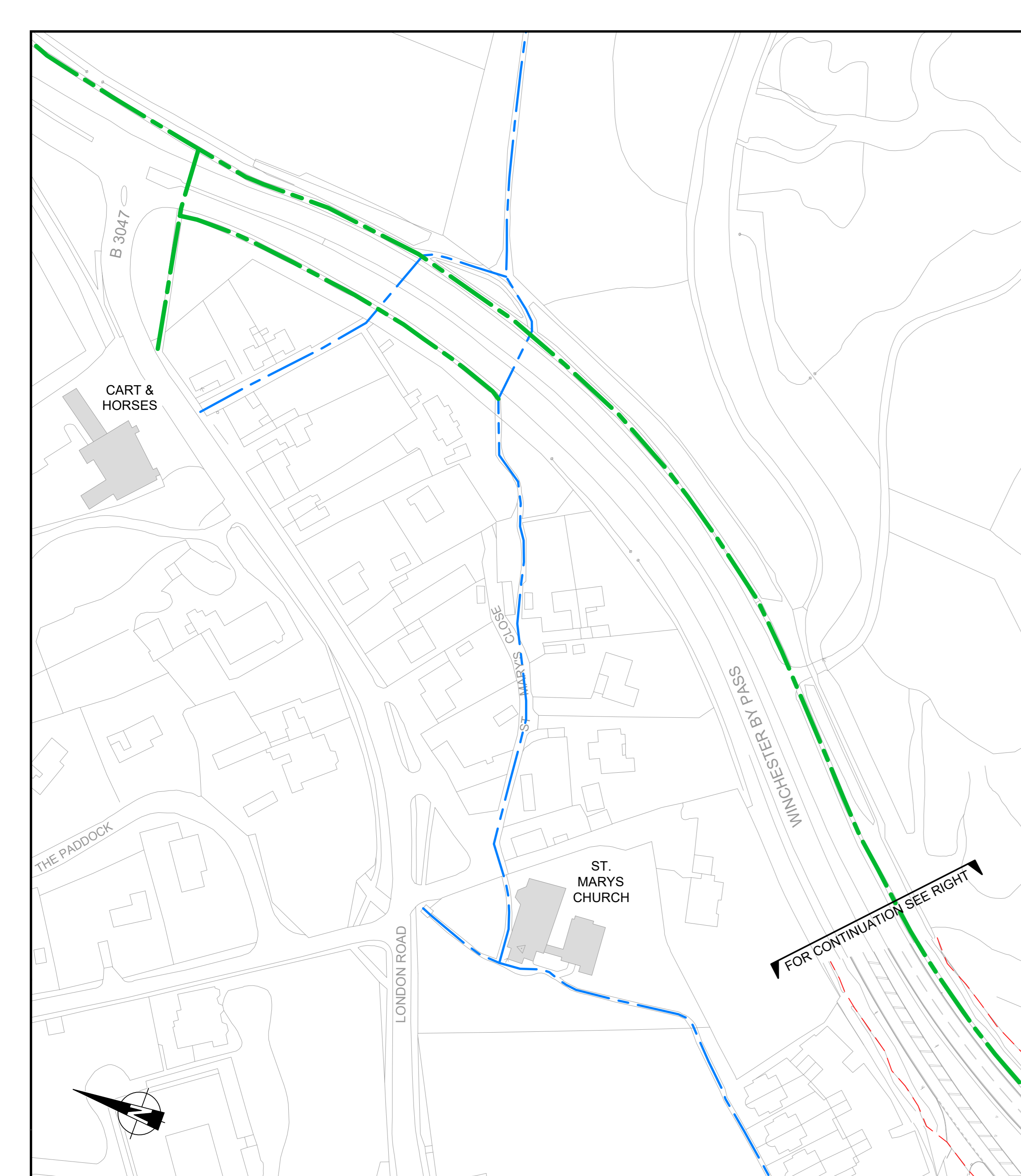
DOCUMENT ISSUE RECORD

Technical Note No	Rev	Date	Prepared	Checked	Reviewed (Discipline Lead)	Approved (Project Director)
48176-T0001	P01	28.08.20	LC	TA	TA	MF

This report has been prepared by Stantec UK Limited ('Stantec') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client. This report is not intended for and should not be relied on by any third party (i.e. parties other than the Client). Stantec accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this report.



KEY - - - EXISTING HIGHWAY BOUNDARY - - - EXISTING PUBLIC RIGHT OF WAY LOCATION AND DIRECTION OF PHOTOGRAPH OPTION 1 - MIN. LENGTH 2495m; MAX. LENGTH 2650m OPTION 2 - MIN. LENGTH 2466m; MAX. LENGTH 2652m OPTION 3 - MIN. LENGTH 2547m; MAX. LENGTH 2773m OPTION 2 & 3 COMBINED ALL OPTIONS COMBINED ALL OPTIONS COMBINED (ALTERNATIVE LINK TO NATIONAL CYCLEWAY ROUTE 23 (NCN23))		NOTES 1. IMPORTANT: OPTIONS SHOWN ARE INDICATIVE AND SUBJECT TO DETAILED DESIGN. 2. BACKGROUND IMAGE SHOWS FLOODPLAIN. 3. OPTION LENGTHS ARE THE MINIMUM AND MAXIMUM DISTANCES ALONG THAT OPTION TAKING INTO ACCOUNT ANY ALTERNATIVE ROUTES.		Drawing Status: FOR COMMENT 		Project Title: M3 JUNCTION 9 IMPROVEMENTS Drawing Title: WEST OF M3 NMU ROUTE OPTIONS FROM A33 / B3047 JUNCTION TO NATIONAL CYCLEWAY ROUTE 23 (NCN23) Scale: 1:1000 Original Size: A0 Drawing Number: HE551511- VFK - HFK - W_XXXX_XX - DR - CH - 0001 Project Ref No: 48176 Revision: P02	
P02 18.08.20 AMENDMENTS TO ROUTES 1 AND 3 P01 31.07.20 FIRST ISSUE		Designer: [] Drawn: [] Checked: [] Date: 28.07.20 Date: 28.07.20 Date: 31.07.20 Date: 31.07.20		Approved: [] Date: 31.07.20			



- KEY**
- EXISTING HIGHWAY BOUNDARY
 - EXISTING PUBLIC RIGHT OF WAY
 - EXISTING NMU ROUTE

Drawing Status: FOR COMMENT		Project Title: M3 JUNCTION 9 IMPROVEMENTS	
		Drawing Title: WEST OF M3 EXISTING NMU ROUTES FROM A33 / B3047 JUNCTION TO BYWAY R23	
Scale: 1:1000 Original Size: A0	Designed: <input type="checkbox"/> Date:	Drawn: <input type="checkbox"/> Date:	Checked: <input type="checkbox"/> Date:
		Drawing Number: HE551511 - VFK - HFK - W_XXXX_XX - DR - CH - 0002 <small>Location Type Mile Number</small>	Project Ref: 48176 Revision: P01
FIRST ISSUE	Drawn: <input type="checkbox"/> Chk'd: <input type="checkbox"/> App'd: <input type="checkbox"/>	Client:	

NMU route - Option 1

Topic	Item	Score	Comment
Cost	Infrastructure costs against other route options	2	1 No. footbridge required, 1 No. subway required.
Scheme Objectives	To improve the existing link from B3047/A33 junction to Easton Lane with a NMU provision to tie into Route 23 NMU	2	Link improved. Formal crossing required across A33 (possibly signalised), 1 No. footbridge required across River Itchen, 1 No. subway required.
	Direct desire line - Improves journey time, improves traveller experience	2	2nd longest route: 2495m to 2650m.
	To reduce requirements for future maintenance	3	Route mainly follows proposed carriageway alignments - ease of maintenance.
	To improve local connectivity and the local network for all users	2	Improves connectivity.
	Mobility and Access: Reduces or removes barriers to severance, increases access to local services, provides appropriate gradients, etc. for cyclists	2	Subway required which will require appropriate headroom / width and approach gradients for NMU's.
	Durability for all round-year usage	2	Route mainly follows proposed carriageway alignments - suitable for all year round usage.
Environment	Biodiversity & HRA	-3	Bridge over Itchen may result in significant effects to Itchen SAC and SSSI. Extent of earthworks at bridge abutments appears to be more than other bridge options, and likely to result in significant habitat loss/disturbance to river banks. Embankment reprofiling/widening along the A33 likely to encroach into SSSI (the designation includes low-lying wet woodland habitat in this area adjacent to the existing carriageway).
	Climate	0	Route options will differ very slightly in terms of emitting GHGs but not have an overall negative/positive effect. Flood risk covered below
	Road Drainage and the Water Environment	-2	Runs immediately adjacent to floodplain. If it is at grade this will be at risk of flooding and expected that durations are weeks not hours due to nature of this watercourse. Anything raised or widened within floodplain would require compensation flood storage. Duration of flooding likely to be long. New bridge crossings would require FRAPs. Open SuDS features may be difficult to deliver adjacent to floodplain.
	Noise and Vibration	-1	Less distance from carriageway for northern section and therefore marginally higher noise exposure.
	Geology and soils	1	Uses existing carriageways and slightly widened embankments but also requires additional footbridge and subway
	Landscape and Visual Effects	-2	Given the current alignment of the route and need for embankment reprofiling to allow for the path there will be a loss of existing boundary trees/vegetation adjacent to the River Itchen SSSI, which at present provide visual screening of the road in views from the SDNP. Works to embankments within SDNP (although on boundary along A33 section) thus early consultation with SDNPA needed. There would need to be appropriate mitigation planting on the embankment following installation to reinstate the screening. Further clarity needed as to whether design would require any visually intrusive works to upgrade/re-use existing River Itchen crossing but assumed localised vegetation clearance. Additional earthworks needed in SDNP land near proposed smaller roundabout, which will need appropriate mitigation to lessen visual intrusion.
	Cultural heritage	-1	This option will not directly impact upon any nationally designated heritage asset. Route initially follows the carriageway but then passes through a currently undeveloped area between the existing carriageways. A geophysical survey shows few significant archaeological features in this area but the survey was 'noisy' due to the proximity of the roads and this 'noise' may have masked any archaeological remains that might be present. Option requires the construction of a bridge across the River Itchen. Piling or the excavation of foundations for the bridge could upon palaeoenvironmental remains of archaeological interest. Alternative route uses existing footbridge but may involve minor groundworks on the flood plain which could also impact upon waterlogged palaeoenvironmental and archaeological remains and deposits of interest. Majority of the route appears to follow an embankment along the edge of the exiting carriage. There will not be an impact upon archaeological remains where the embankment needs 'reprofiling' as this requires building the bank up to create space wide enough for the new footpath, unless intrusive works e.g. soil strip and excavation at the toe of the embankment are required where previously undisturbed deposits may exist.
	Air Quality	-1	In close proximity to A33 through length and therefore slightly higher exposure to air pollution
Highway	Buildability / Standards	1	Available highway land constraints (NMU route width will be constrained locally (below 2.5m wide)).
	Cut / fill balance	3	Route mainly follows proposed carriageway alignments, therefore cut/fill balance negligible
	Property impact (inc demolition)	0	No adverse effect.
	Risks within the design	-1	Availability of highway land / embankment reprofiling.
	Constraints within the design	-1	Available highway land.
	Deliverability of scheme: an achievable Highways engineering solution apparent, with defined objectives and clear outcomes	-1	Engineering solution is apparent although this involves embankment reprofiling, which will have an adverse effect on the existing trees / vegetation.
	Safety (Pedestrian & cycle users)	2	Main line crossings at uncontrolled crossing points.
Structures	Buildability / Standards	-2	Challenges building to the east of the live southbound A34 / A33 on-slip. Access for construction plant - piling rig, craneage for reinforcement/formwork, concrete pump and wagons, backfilling/compaction operations etc. Felling of Category A and/or Category B trees to provide working space Overnight road closure for installation (craneage) for footbridge superstructure - same for all route options.
	Risks within the design	-3	Approval to permanently impact on areas of SSSI and floodplain zone 3 designations may not be granted. New subway under the A33 Link required, unless alternative option to run NMU parallel to two-way A33 extension is accepted.
	Constraints within the design	-2	The existing embankment to the east of the A34 / A33 verge may require a retaining structure to create the wide foot/cycleway in particular on the approach to the proposed footbridge north abutment. Temporary and permanent works footprints in SSSI and floodplain zone 3 designations. Existing Irrigation Stream A34 Underbridge (6120) - has sufficient space available on the existing verge to accommodate proposed route. New A33 Link Bridge over the new A34 Northbound can be designed to accommodate proposed route. Materials and finishes used in the construction of the proposed structure to minimise future maintenance requirements.
Safety	Overall option concept	2	Acceptable, continues route.
	Connectivity and the local network for all users	2	Unclear as connectivity with ProW not shown.
	Reduces the fear of crime, reduces conflicts with mainline carriageways	2	Some main line conflict at crossing points, adjacent to carriageway so good reduction in fear of crime.
	Crossing facilities	2	Potential of crossing issues at Cart and Horses junction. Dependent on option crossing or underpass a M3 north bound roundabout on slip.
	User Comfort	1	Potential gradient issues, width of route, and at grade crossing A33 and M3 north bound roundabout. Off set from carriageway may be restricted and pinch points on route.
Accessibility for Construction	Plant required	-2	Most construction work required with this option
	Space for any temporary platforms	-2	A33 Link road build more onerous
	Access routes impact on local area	-1	
Temporary Diversion Routes	Impact of alternative temporary route - distance	-1	
	Impact of alternative temporary route - duration	-1	
Relative cost to other options	Zero is estimated as the cheapest and 4 as the most expensive	-3	
Total		1	

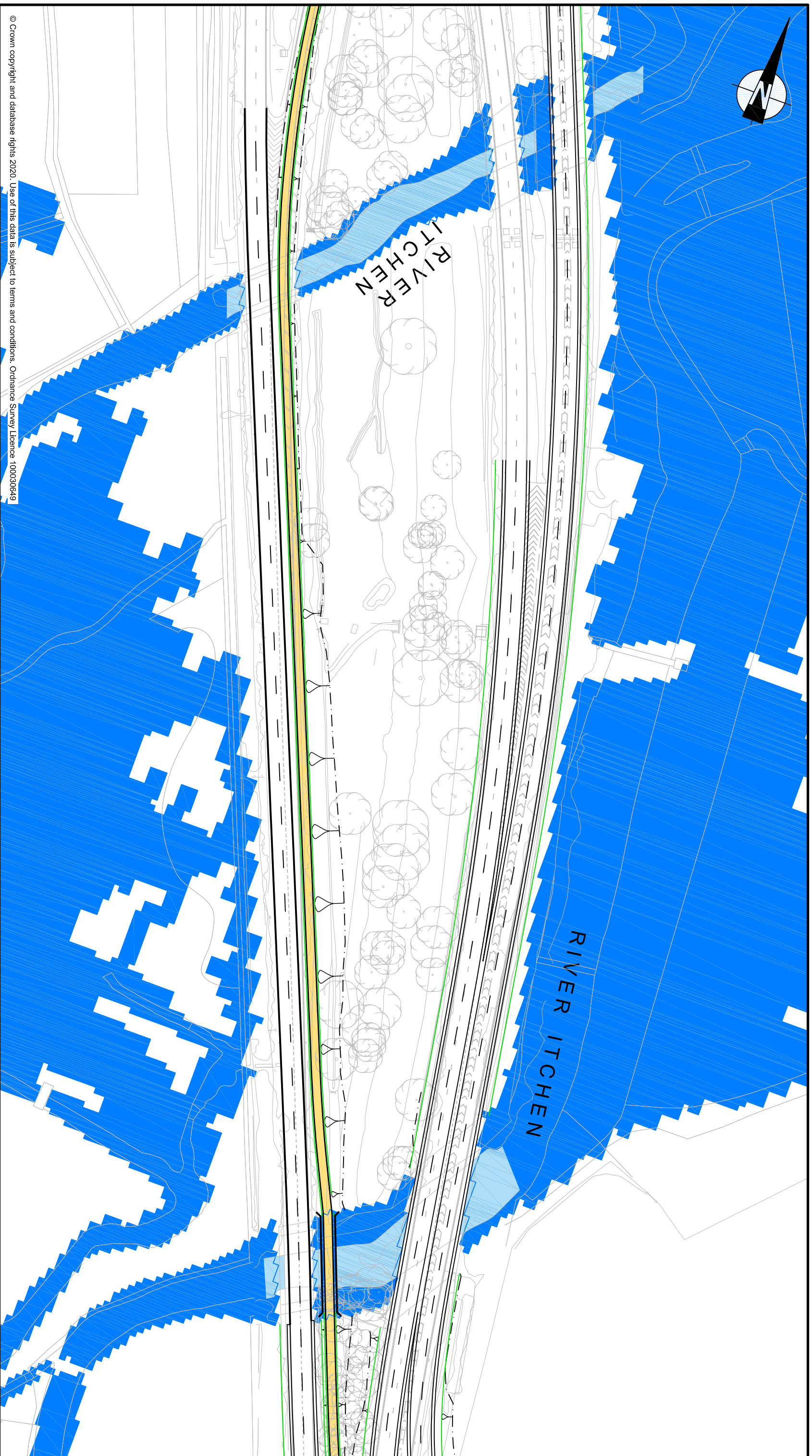
NMU route - Option 2

Topic	Item	Score	Comment
Cost	Infrastructure costs against other route options	2	1 No. footbridge required. 1 No. subway possibly required.
Scheme Objectives	To improve the existing link from B3047/A33 junction to Easton Lane with a NMU provision to tie into Route 23 NMU	2	Link improved. 1 No. footbridge required across River Itchen / A34, 1 No. subway possibly required.
	Direct desire line - Improves journey time, improves traveller experience	3	Shortest route: 2466m to 2652m.
	To reduce requirements for future maintenance	3	Route mainly follows proposed carriageway alignments - ease of maintenance. Section within abandoned A34 which will be offline and require maintenance provision.
	To improve local connectivity and the local network for all users	3	Improves connectivity. Makes use of proposed abandoned sections of A33 / A34 which provides greater scope / flexibility in design approach.
	Mobility and Access: Reduces or removes barriers to severance, increases access to local services, provides appropriate gradients, etc. for cyclists	2	Subway possibly required which will require appropriate headroom / width and approach gradients for NMU's.
	Durability for all round-year usage	2	Route mainly follows proposed carriageway alignments - albeit the abandoned A34 - suitable for all year round usage. Outside of flood plain (Flood Zone 3).
Environment	Biodiversity & HRA	-2	Bridge over Itchen has potential to result in significant effects to Itchen SAC and SSSI. However the longer 'diagonal' bridge over the existing structure would minimise adverse effects from shading to the Itchen and associated habitats, compared to other options.
	Climate	0	Route options will differ very slightly in terms of emitting GHGs but not have an overall negative/positive effect. Flood risk covered below.
	Road Drainage and the Water Environment	0	Relatively low impact as utilising existing infrastructure and crossings.
	Noise and Vibration	-1	Less distance from carriageway for northern section and therefore marginally higher noise exposure.
	Geology and soils	2	Predominantly uses existing carriageways.
	Landscape and Visual Effects	-2	Option including raised footbridge over carriageway will introduce a new vertical structure into the composition of views from within SDNP potentially detracting from the scenic qualities (noting St Swithen's Way and Itchen Way long distance routes lie south-west of the proposed route). Works to raised footbridge within SDNP at this location thus early consultation with SDNPA needed. Likely localised loss of trees/vegetation to facilitate new footbridge structure, which at present provides visual screening of existing road infrastructure. However, option with spiral ramp less likely to visually intrusive connecting to ground level route thus could reduce score to -1 based on requiring localised tree/vegetation clearance. Re-using the abandoned northbound carriageway presents a potential benefit if appropriate landscaping and public art features integrated into route.
	Cultural heritage	-1	This option will not directly impact upon any nationally designated heritage asset. Will require the construction of a new bridge elevated above the new carriageway. The piling or digging of foundations for the new bridge could impact upon waterlogged palaeoenvironmental and archaeological remains and deposits of interest. Alternative option to construct a pedestrian bridge over the Itchen and a spiral ramp up to an underpass under the A34 could involve groundworks with a large footprint and therefore have a greater impact upon unknown archaeological remains. The majority of the route follows the existing highway and is unlikely to substantially impact upon archaeological remains, dependent on extent of previous disturbance being established.
Air Quality	-1	In close proximity to A33/A34 through length and therefore slightly higher exposure to air pollution.	
Highway	Buildability / Standards	3	Good - Makes use of abandoned section of A33 / A34 scope for improvement works / provides greater flexibility
	Cut / fill balance	3	Good - Makes use of abandoned section of A33 / A34, so minimum cut required.
	Property impact (inc demolition)	0	No adverse effect.
	Risks within the design	2	Minimal.
	Constraints within the design	-2	Route veers away from mainline carriageways.
	Deliverability of scheme: an achievable Highways engineering solution apparent, with defined objectives and clear outcomes	-1	Engineering solution apparent within available highway land. Route veers away from mainline carriageways, which creates an additional 'area' of construction.
	Safety (Pedestrian & cycle users)	2	Continues route with minimal crossing points
Structures	Buildability / Standards	-1	Similar buildability issues to Option 1. Key difference is that it the A34 and the strip of land between the northbound and southbound carriageways appears not to be in either the SSSI of floodplain zone 3 designation making it more viable to fell trees and create the working space required to build the new footbridge over the river. Potential need for a retaining wall to create the foot/cycleway between the new bridge and the A33 off-slip.
	Risks within the design	-1	Geometric space for a spiral ramp down under existing Itchen Bridge. If not achievable possible zig-zag ramp instead? Headroom under existing Itchen Bridge is less than desirable minimum of 2.4m - not measured but estimated to be at least 2.4m Alternative would be a footbridge over the A34 Northbound with the following issues that make this alternative undesirable: - 5.7m min. headroom over the A34 Northbound. - 120m ramps with a 1:20 gradient required on each approach to the structure to come up from road level and over A34. - Structure vulnerable to vehicular impact. Headroom compliant with current standards required.
	Constraints within the design	-1	Footprint of new bridge and spiral ramp - this option has a new footbridge crossing the river east of existing Itchen Bridge (7279) which would then spiral anti-clockwise in the area between the northbound and southbound A34. The pedestrian / cycling route would then continue under the existing Itchen Bridge. It is estimated that sufficient headroom is provided for cycling. This area is not considered within the SSSI or flood zone 3 so a earthworks ramp can be accommodated. If flooding is an issue the ramp could be an elevated steelwork structure to provide flooding volume. Existing Barton Carrier West A34 Underbridge (7280) has sufficient space available to accommodate proposed route utilising the redundant A33 off-slip. Materials and finishes used in the construction of the proposed structures to minimise future maintenance requirements. No subway required at A33 link as this route uses the redundant A34 northbound - better than route 1.
Safety	Overall option concept	2	Acceptable continues route.
	Connectivity and the local network for all users	2	Potential connectivity to adjacent PRow - details not shown.
	Reduces the fear of crime, reduces conflicts with mainline carriageways	1	No main line conflicts, remote underpass potential making the route unattractive.
	Crossing facilities	2	Minimal crossing facilities.
	User Comfort	2	No steep gradients, although remote from traffic corridor in some areas making it less attractive at night.
Accessibility for Construction	Plant required	-1	New bridge across Itchen
	Space for any temporary platforms	0	Minimal if construction if left until end of road switches
	Access routes impact on local area	-1	Minimal impact
Temporary Diversion Routes	Impact of alternative temporary route - distance	-1	
	Impact of alternative temporary route - duration	-1	
Relative cost to other options	Zero is estimated as the cheapest and 4 as the most expensive	1	Least amount of new structures required.
Total		22	

NMU route - Option 3

Topic	Item	Score	Comment
Cost	Infrastructure costs against other route options	-3	2 No. footbridges required. Improvement works to subways required (existing A34 northbound subway is below absolute min. standard headroom).
Scheme Objectives	To improve the existing link from B3047/A33 junction to Easton Lane with a NMU provision to tie into Route 23 NMU	-2	2 No. footbridge required. Improvements to subways required. Route is at a low level and isolated. Route runs through existing flood plain (Flood Zone 3).
	Direct desire line - Improves journey time, improves traveller experience	-1	Longest route: 2547m to 2773m.
	To reduce requirements for future maintenance	-1	Route is offline and at a lower level than adjacent carriageways - future maintenance issue.
	To improve local connectivity and the local network for all users	-1	Route is isolated and runs through existing flood plain.
	Mobility and Access: Reduces or removes barriers to severance, increases access to local services, provides appropriate gradients, etc. for cyclists	-2	Substantial works required to convert existing unmade route.
	Durability for all round-year usage	-2	Not suitable for all year round usage due to flood plain.
Environment	Biodiversity & HRA	-3	Significant length of this option, including the northern bridge, are located wholly within the River Itchen SSSI (the designation includes low-lying marsh habitats through which this option passes). Construction likely to result in significant loss of habitat from this protect site. Bridge over Itchen also has potential to result in significant effects to Itchen SAC.
	Climate	0	Route options will differ very slightly in terms of emitting GHGs but not have an overall negative/positive effect. Flood risk covered below.
	Road Drainage and the Water Environment	-1	Encroachment into floodplain on west side, would need mitigation and/or route will be inundated. Duration of flooding likely to be long. New bridge crossings would require FRAPs. Open SuDS features may be difficult to deliver adjacent to floodplain.
	Noise and Vibration	1	Greater distance from carriageway for northern section and therefore marginally lower noise exposure.
	Geology and soils	-2	Predominantly off existing carriageway and requires several new footbridges and underpasses plus upgrade of other existing structures.
	Landscape and Visual Effects	-2	Proposals introduce two new bridges crossings thus increasing influence of urbanising elements in SDNP at this location. Works to x2 new footbridges within SDNP at this location thus early consultation with SDNPA needed. Potential to detract from scenic quality of views within SDNP (noting the two LDRs south-west of location) depending on extent of vegetation clearance and bridge materials. However, the proposed route would improve accessibility to the SDNP by creating a new connection between St Swithen's Way and Itchen Way LDRs. Re-using the abandoned northbound carriageway presents a potential benefit if appropriate landscaping and public art features integrated into route.
	Cultural heritage	-2	The route appears to use an existing track/ path along the Itchen floodplain. Where this needs widening/ improving groundworks and any landscaping or planting could impact upon archaeological remains. Piling or the excavation of foundations for the two new bridges across the river has the potential to impact upon waterlogged palaeoenvironmental and archaeological remains and deposits of interest.
	Air Quality	1	Greater distance from carriageway for northern section and therefore slightly lower exposure to air pollution from traffic.
Highway	Buildability / Standards	-2	The route is currently below the minimum width (2.5m). The existing underpasses are substandard in terms of width and headroom for cyclists.
	Cut / fill balance	-1	Additional excavation required as majority of route is offline from mainline carriageways.
	Property impact (inc demolition)	0	No adverse effect.
	Risks within the design	-2	Not within adoptable highway land. Route is low level (in comparison to the adjacent highway) and is isolated.
	Constraints within the design	-2	Existing subways require upgrading. 3rd Party land and adoptable highway land constraints. Floodplain.
	Deliverability of scheme: an achievable Highways engineering solution apparent, with defined objectives and clear outcomes	-2	Highways engineering solution apparent, although extensive works would be required. Existing PRoW is narrow and unmade, so will require hardening and widening. This will require extensive vegetation clearance.
	Safety (Pedestrian & cycle users)	2	User safety appears acceptable subject to detail design with minimal crossings.
Structures	Buildability / Standards	1	Structures can be built more offline compared to routes 1 & 2. Reduced impact on existing trees compared to routes 1 & 2. Shorter span footbridge and simple to build approach ramps compared to routes 1 & 2. Temporary and permanent works footprints in SSSI and floodplain zone 3 designations.
	Risks within the design	-3	Approval to permanently impact on areas of SSSI and floodplain zone 3 designations may not be granted. Existing A34 northbound subway headroom is below absolute minimum. Width less than 3.5m. Risk existing geometry not acceptable to HE technical approval authority for a new foot/cycle route. Replacement underpass of the correct geometry may be required.
	Constraints within the design	-1	Existing A34 northbound underpass width and headroom clearance issues. Temporary and permanent works footprints in SSSI and floodplain zone 3 designations. Provides connectivity to both PRoW - Allan King Way and the Itchen Way Materials and finishes used in the construction of the proposed structures to minimise future maintenance requirements.
Safety	Overall option concept	2	Acceptable continues route.
	Connectivity and the local network for all users	2	Potential connectivity to adjacent PRoW - details not shown.
	Reduces the fear of crime, reduces conflicts with mainline carriageways	1	No main line conflicts, remote underpass potential making the route unattractive.
	Crossing facilities	2	Minimal crossing facilities.
Accessibility for Construction	User Comfort	2	No steep gradients, although remote from traffic corridor making the alignment less attractive.
	Plant required	-2	2 No. New bridges across Itchen required
	Space for any temporary platforms	-1	
Temporary Diversion Routes	Access routes impact on local area	-1	Minimal impact.
	Impact of alternative temporary route - distance	-1	
Relative cost to other options	Impact of alternative temporary route - duration	-1	
	Zero is estimated as the cheapest and 4 as the most expensive	-2	
Total		-29	

Appendix B



© Crown copyright and database rights 2020. Use of this data is subject to terms and conditions. Ordnance Survey Licence 100030649

KEY

- TOPOGRAPHICAL SURVEY & OS MAPPING
- PROPOSED NMU ROUTE
- HIGHWAY PROPOSALS
- APPROXIMATE EXTENT OF EARTHWORKS
- 1 IN 5 YEAR STORM EVENT FLOOD EXTENTS

Rev.	Date	Description	Drawn	Chk'd	App'd
P01	19.10.20	FIRST ISSUE	LC	LC	TRA

Drawing Status
FOR INFORMATION

Project Title
M3 JUNCTION 9 IMPROVEMENTS



Drawing Title
**WEST OF M3
NMU REVISED ROUTE OPTION 2
WITH 1 IN 5 YEAR STORM EVENT FLOOD
EXTENTS PLOTTED**

Scale	Original Size	Date	Designed	Drawn	Checked	Approved
1:1250	A3	13.10.20	jjf	LC	LC	TRA

Drawing Number	HE PIN	Operator	Volume	Project Ref. No.
HE551511 -	VFK	-HKF-		48176
W_XXXX	XX - DR	CH - 0005		P01



© Crown copyright and database rights 2020. Use of this data is subject to terms and conditions. Ordnance Survey Licence 100030649

KEY

- TOPOGRAPHICAL SURVEY & OS MAPPING
- PROPOSED NMU ROUTE
- HIGHWAY PROPOSALS
- APPROXIMATE EXTENT OF EARTHWORKS
- 1 IN 10 YEAR STORM EVENT FLOOD EXTENTS

Rev.	Date	Description	Drawn	Chk'd	App'd
P01	19.10.20	FIRST ISSUE	LC	LC	TRA

Drawing Status
FOR INFORMATION

Project Title
M3 JUNCTION 9 IMPROVEMENTS



Drawing Title
**WEST OF M3
NMU REVISED ROUTE OPTION 2
WITH 1 IN 10 YEAR STORM EVENT FLOOD
EXTENTS PLOTTED**

Scale	Original Size	Date	Designed	Drawn	Checked	Approved
1:1250	A3	13.10.20	jjf	LC	LC	TRA

Drawing Number
HE551511 - VFK -HKF-

Client
highways england

Project Ref. No.
W_XXXX_XX-DR-CH-0006

Revision
P01



© Crown copyright and database rights 2020. Use of this data is subject to terms and conditions. Ordnance Survey Licence 100030649

KEY

TOPOGRAPHICAL SURVEY & OS MAPPING

PROPOSED NMU ROUTE

HIGHWAY PROPOSALS

APPROXIMATE EXTENT OF EARTHWORKS



1 IN 100 YEAR + 105% CLIMATE CHANGE STORM
EVENT FLOOD EXTENTS

Rev.	Date	Description	Drawn	Chk'd	App'd
P01	19.10.20	FIRST ISSUE	LC	LC	TRA

Drawing Status
FOR INFORMATION

Project Title
M3 JUNCTION 9 IMPROVEMENTS

Drawing Title
**WEST OF M3
NMU REVISED ROUTE OPTION 2
WITH 1 IN 100 + 105% CLIMATE CHANGE STORM
EVENT FLOOD EXTENTS PLOTTED**

Scale: 1:1250

Original Size: A3

Design	Drawn	Checked	Approved
jj	LC	LC	TRA

Date: 13.10.20

Date: 19.10.20

Date: 19.10.20

Date: 19.10.20

Drawing Number: HE551511 - VFK -HKF-

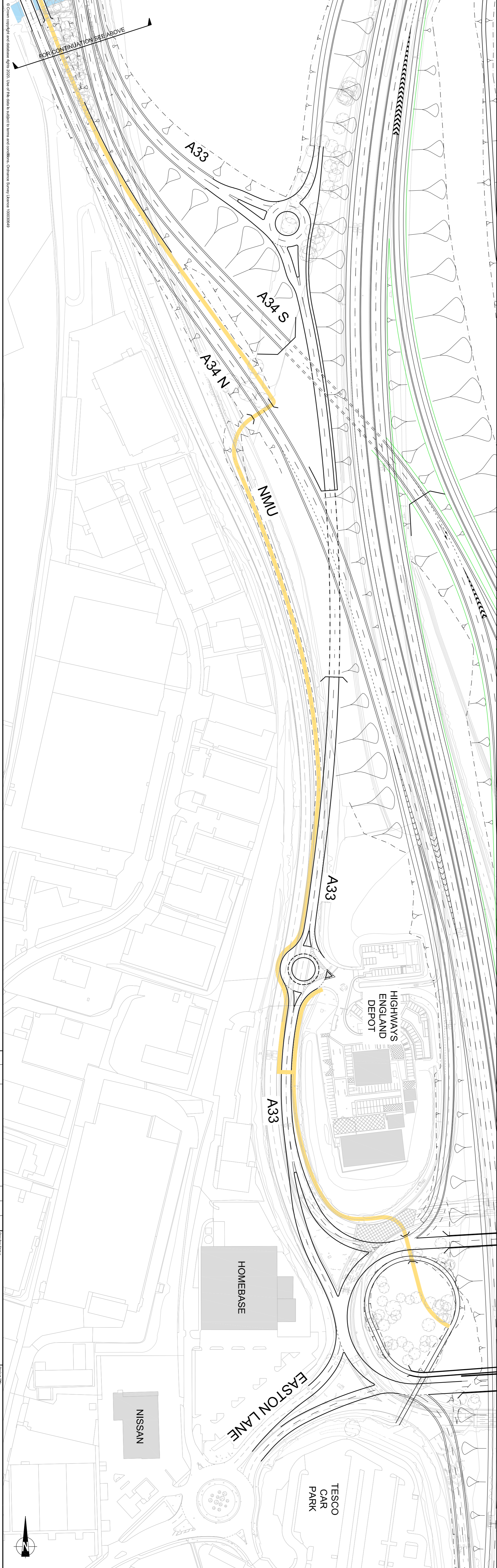
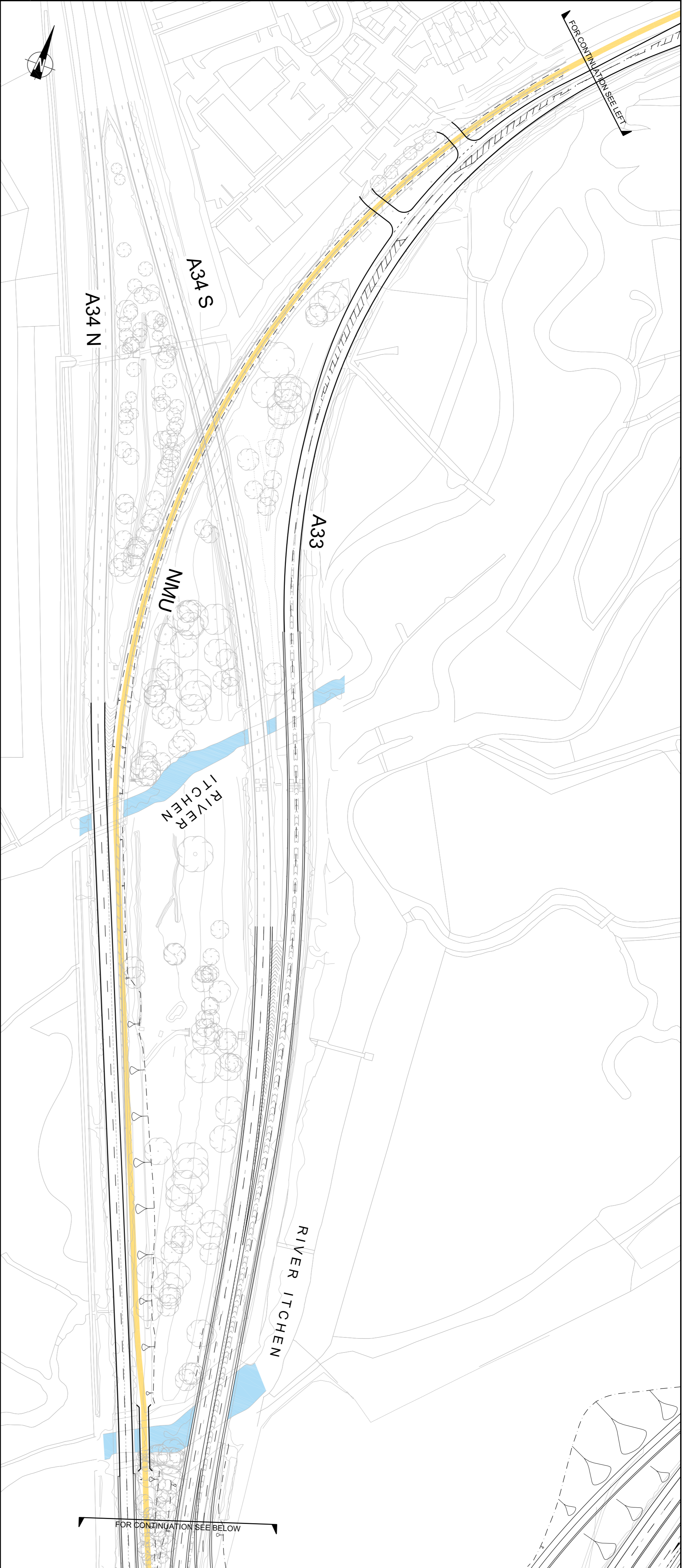
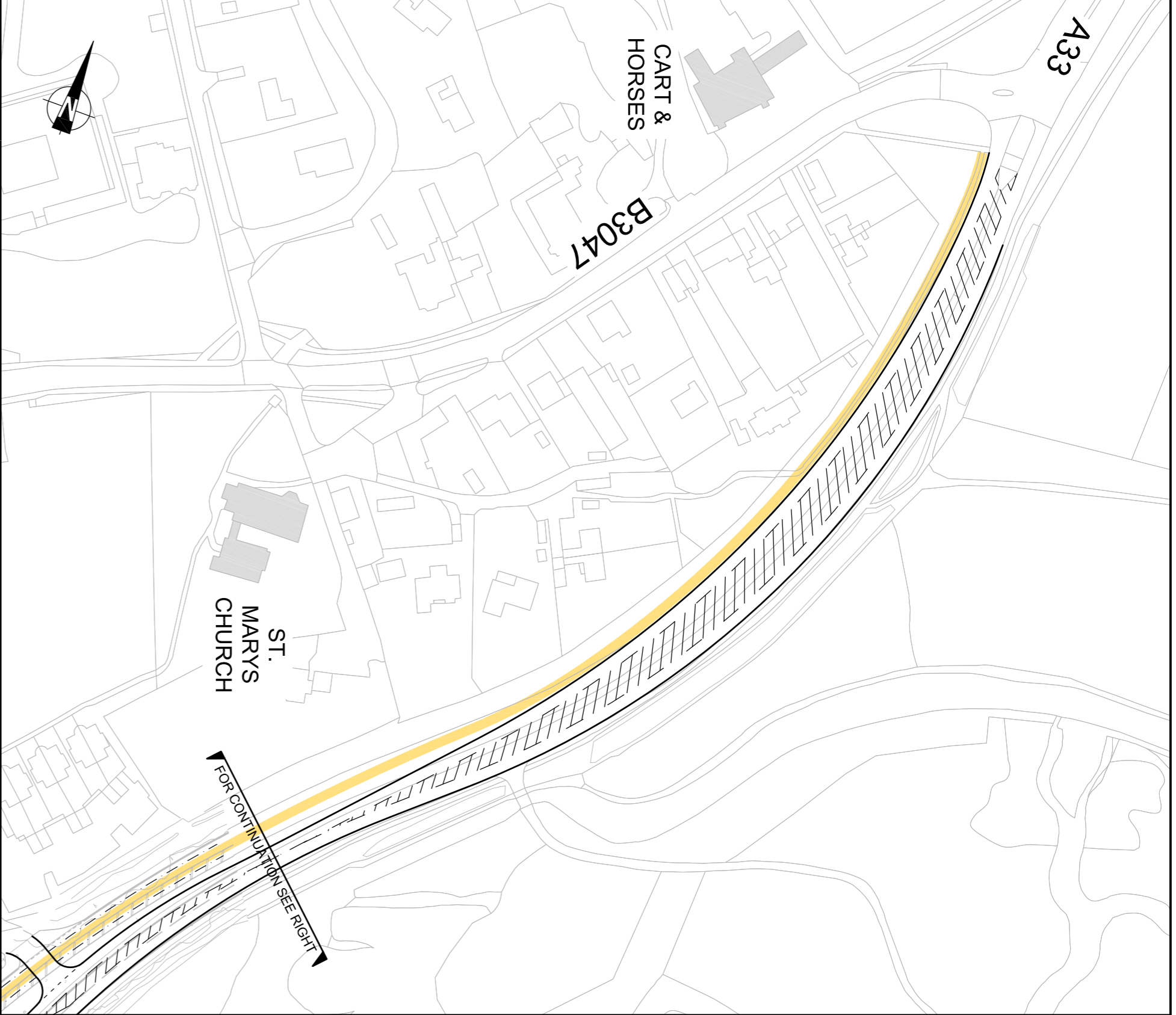
HE551511 - VFK -HKF- W_XXXX_XX - DR - CH -0007

Location: Type: Role: Number

Project Ref. No. 48176

Revision P01

Appendix C



KEY

TOPOGRAPHICAL SURVEY & OS MAPPING

NMU ROUTE

HIGHWAY PROPOSALS

APPROXIMATE EXTENT OF EARTHWORKS

INDICATIVE STRUCTURE

POI	POI ID	POI NAME	POI TYPE	POI STATUS	POI DATE
PO1	15.0230	INDICATED AT PROPERTY AGENT ACCESS	IC	LC	TRM
PO2	15.0230	INDICATED AT PROPERTY AGENT ACCESS	IC	LC	TRM

FOR INFORMATION

highways england

VolkerFitzpatrick

M3 JUNCTION 9 IMPROVEMENTS

WEST OF M3
NMU REVISED ROUTE OPTION 2
FROM A33 / B3047 JUNCTION TO
NATIONAL CYCLE ROUTE 23 (INC23)

HE551511 - VFK - HKF -
W_XXXX-XX-DR - CH - 0003

48176

PO2

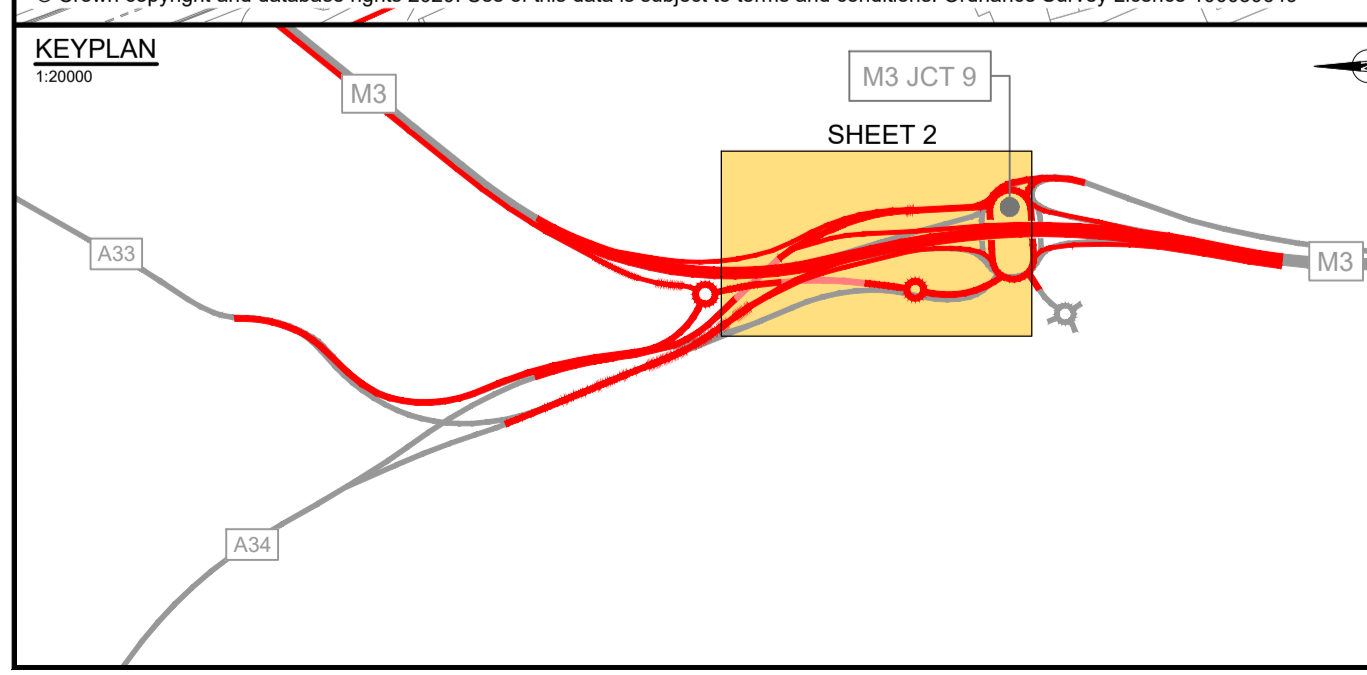
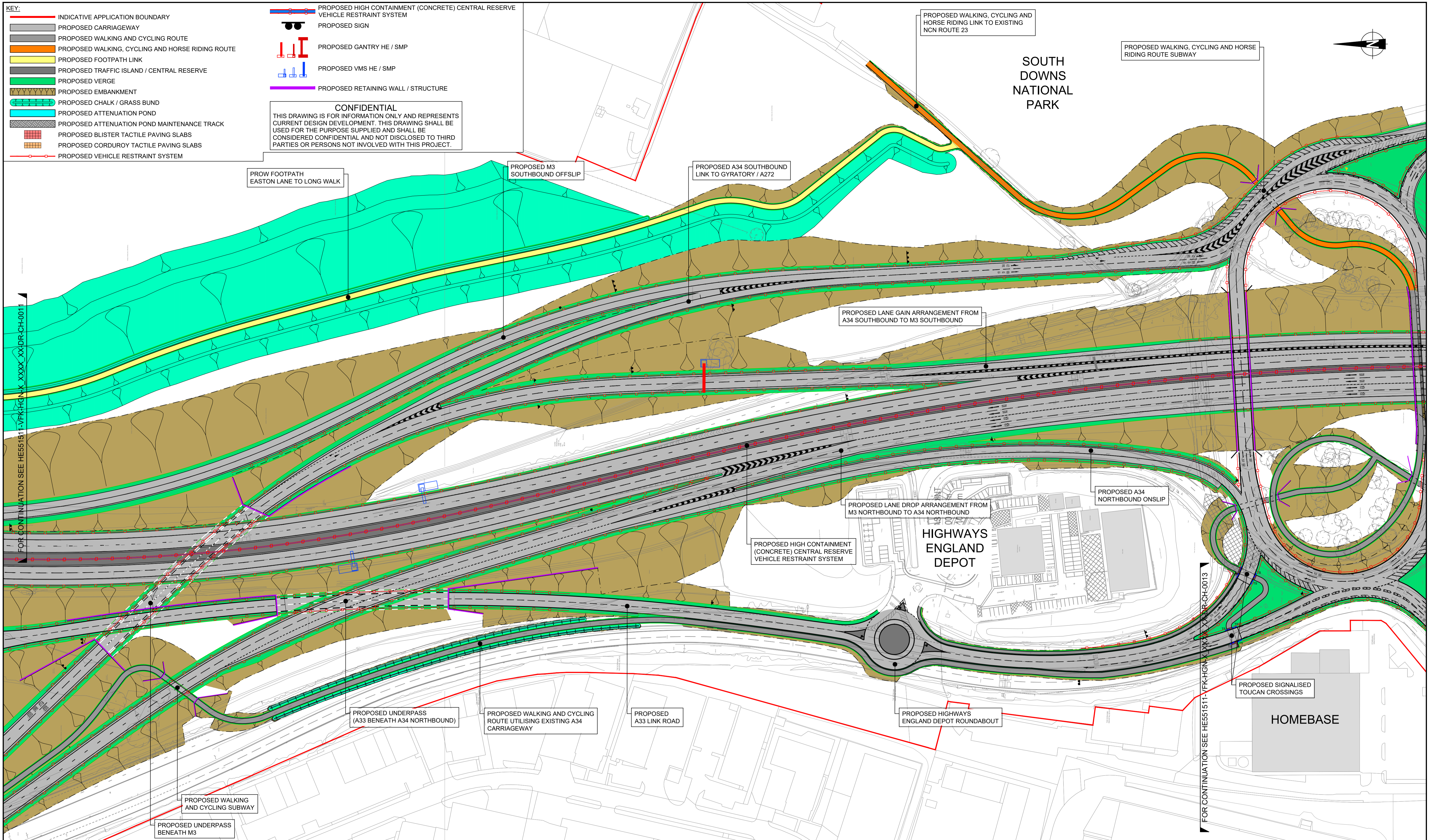
TECHNICAL NOTE

Appendix B

- KEY:**
- INDICATIVE APPLICATION BOUNDARY
 - PROPOSED CARRIAGEWAY
 - PROPOSED WALKING AND CYCLING ROUTE
 - PROPOSED WALKING, CYCLING AND HORSE RIDING ROUTE
 - PROPOSED FOOTPATH LINK
 - PROPOSED TRAFFIC ISLAND / CENTRAL RESERVE
 - PROPOSED VERGE
 - PROPOSED EMBANKMENT
 - PROPOSED CHALK / GRASS BUND
 - PROPOSED ATTENUATION POND
 - PROPOSED ATTENUATION POND MAINTENANCE TRACK
 - PROPOSED BLISTER TACTILE PAVING SLABS
 - PROPOSED CORDUROY TACTILE PAVING SLABS
 - PROPOSED VEHICLE RESTRAINT SYSTEM

- PROPOSED HIGH CONTAINMENT (CONCRETE) CENTRAL RESERVE VEHICLE RESTRAINT SYSTEM
- ☞ PROPOSED SIGN
- ⌈ PROPOSED GANTRY HE / SMP
- ⌈ PROPOSED VMS HE / SMP
- PROPOSED RETAINING WALL / STRUCTURE

CONFIDENTIAL
 THIS DRAWING IS FOR INFORMATION ONLY AND REPRESENTS CURRENT DESIGN DEVELOPMENT. THIS DRAWING SHALL BE USED FOR THE PURPOSE SUPPLIED AND SHALL BE CONSIDERED CONFIDENTIAL AND NOT DISCLOSED TO THIRD PARTIES OR PERSONS NOT INVOLVED WITH THIS PROJECT.



- NOTES:**
1. THIS DRAWING SHOULD BE PRINTED IN COLOUR.
 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER CONTRACT DRAWINGS AND DOCUMENTS.
 3. ALL WORKS TO BE IN ACCORDANCE WITH THE HIGHWAYS ENGLAND SPECIFICATION FOR HIGHWAY WORKS VOLUME 1 AND CONTRACT SPECIFIC APPENDICES.
 4. THE LAYOUT SHOWN IS PRELIMINARY AND SUBJECT TO DETAILED DESIGN.

Rev.	Date	Description	Drawn	Chk'd	App'd

FOR INFORMATION

Project Title M3 JUNCTION 9 IMPROVEMENTS					
Drawing Title SITE WIDE GENERAL ARRANGEMENT PLAN (FOR CONSULTATION) SHEET 2 OF 5					
Scale	1:1000	Designed	LC	Drawn	ATC
Original Size	A1	Date	11.12.20	Date	11.12.20
Checked	TRA	Approved	MF		
Date	11.12.20	Date	11.12.20		
Drawing Number	HE551511	Originator	VFK HGN	Volume	CH 0012
Project Ref. No.	48176	Location	X_XXXX_XX	Type	DR
Revision	P01.1	Role	CH	Number	0012

© Crown copyright and database rights 2020. Use of this data is subject to terms and conditions. Ordnance Survey Licence 100030649