

M5 Junction 10 Improvements Scheme

Departures from Standard Report

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Rule 8 (k)

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Departures from Standard Report

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M5J10 Departure from Standards Report

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1. Introduction

1.1. Scheme Background

1.1.1. Gloucestershire faces significant challenges to achieve its vision for economic growth. A Joint Core Strategy (JCS) – a partnership between Gloucester City Council (GCC), Cheltenham Borough Council and Tewkesbury Borough Council was formed to produce a co-ordinated strategic development plan to show how the region will develop during the period up to 2031. This includes a shared spatial vision targeting 35,175 new homes and 39,500 new jobs by 2031. Major development of new housing (c.9,000 homes) and employment land (c.100ha) is proposed in strategic and safeguarded allocations in the West and North West of Cheltenham, much of which lies within Tewkesbury BC. This, in turn, is linked to wider economic investment, including a government supported and nationally significant Cyber Park 2 adjacent to GCHQ, predicted to generate c.7,000 jobs.

1.1.2. However, to unlock the housing and job opportunities, a highways network is needed that has the capacity to accommodate the increased traffic it will generate, within a sustainable transport context. A Business Case for was submitted in March 2019 to the Housing Infrastructure Fund, wherein an investment case was made for the following infrastructure improvements, which together make up the M5 Junction 10 Improvement Scheme:

- An all-movements junction at M5 Junction 10;
- A new Link Road from J10 to West Cheltenham Cyber Park;
- Dualling of the A4019 to the East of the Link Road;
- A38/A4019 junction improvements at Coombe Hill; and
- Extension to Arle Court Park and Interchange.

1.2. Purpose of the report

1.2.1. This Departures from Standard report has been prepared for the M5 Junction 10 Improvement Scheme, which is in the Preliminary Design Stage (Design Fix 3). It supplements the Departures from Standard Checklist and provides additional information and assessment for the departures identified on GGC's network.

1.2.2. This report does not include any departures identified on the M5, as these have been covered separately through National Highways' DAS (Departures Approval System).

1.3. Location of the scheme

1.3.1. M5 Junction 10 is located 48 miles to the south of Birmingham, five miles to the south of Tewkesbury, four miles to the north-west of Cheltenham, and eight miles to the north-east of Gloucester. It is the northernmost of four junctions serving the Gloucester and Cheltenham urban areas.

1.3.2. This places the junction in a strategically important location for the region, particularly as northern and western Cheltenham are the sites of a number of large retail parks and employment areas, and the location of planned future housing and nationally-significant business development.

2. Proposed GCC Network Departures from Standard

2.1. Introduction

2.1.1. The following sections of the report outline the details of the Departures from Standard proposed on GCC's road network as part of the M5 J10 Improvements scheme.

2.1.2. A summary list of the departures detailed in the following sections is provided below:

- [DFS.05](#) – Cycle track gradient in excess of 5%
- [DFS.06](#) – Separation between carriageway and SUP is reduced below 1.5m
- [DFS.07](#) – Footway width less than 2m on The Green
- [DFS.08](#) – Footway width less than 2m on Homecroft Drive
- [DFS.10](#) – Rate of change of cross section is less than 1:35
- [DFS.12](#) – Visibility from Hayden Hill Farm access is below 120m
- [DFS.13](#) – SSD on B4634 approach to Hayden Lane junction is below 120m
- [DFS.14](#) – Visibility from Hayden Lane junction is below 120m
- [DFS.15](#) – Access road horizontal radii less than 44m
- [DFS.16](#) – Non-typical junction arrangement with service road junctions close to proposed stop line on The Green

3. DFS.05 – Cycle track gradient in excess of 5%

3.1. Submission for Departure from Standards

- 3.1.1. As part of the M5 J10 Improvements scheme, a new cycle track is proposed on the northern side of the A4019 for the majority of the extents of the scheme. The proposed cycling facilities at the A4019 west of M5 J10 run adjacent to the proposed carriageway, which has a gradient exceeding 5% for approximately 60m in length. Within this length a maximum gradient of 5.9% is present for 6m.
- 3.1.2. The maximum gradient for a cycle track within CD 195 and LTN 1/20 is 5% at a maximum length of 30m. CD 195 and LTN 1/20 also set-out maximum lengths of cycle tracks at gradients 2% and above. For the section of the A4019 being considered the gradient exceeds 2% for approximately 300m without any level sections which exceeds the lengths specified.
- 3.1.3. This carriageway gradient is required to reduce the level of the proposed A4019 in advance of the Stanboro Lane junction and hence avoid the need for departures to steepen the Stanboro Link and impact upon existing vegetation which would be desirable to retain.
- 3.1.4. Submission for departure to CD 195 CI E/3.9 and LTN 1/20 CI 5.9.7 to exceed the specified maximum gradient of 5% for a cycle track.

3.2. Project Details

- 3.2.1. Project details for this departure are provided in the table below.

Table 3-1 – DFS.05 Project Details

A	Description	New cycle track on the northern side of the A4019 as part of M5 J10 Improvements scheme
B	Location	A4019 West Approach to M5 Junction 10
C	Road category and type	Single (S2) carriageway
D	Design speed and speed limit	85 kph Design Speed 50 mph Speed Limit (proposed)
E	Traffic flows	<p>2025 Do Minimum Scenario AADT Flows</p> <ul style="list-style-type: none"> A4019 eastbound = 5,345 veh/day A4019 westbound = 5,822 veh/day <p>2041 Do Minimum Scenario AADT Flows</p> <ul style="list-style-type: none"> A4019 eastbound = 5,124 veh/day A4019 westbound = 6,028 veh/day <p>2025 Do Something Scenario AADT Flows</p> <ul style="list-style-type: none"> A4019 eastbound = 8,199 veh/day A4019 westbound = 9,473 veh/day <p>2041 Do Something Scenario AADT Flows</p> <ul style="list-style-type: none"> A4019 eastbound = 8,889 veh/day A4019 westbound = 10,935 veh/day

3.3. Departure Details

3.3.1. Departure details are provided in the table below.

Table 3-2 – DFS.05 Departure Details

A	Discipline	Highways
	Type	Cycle track gradient
B	Relevant Standard(s)	DMRB CD 195 and LTN 1/20
	Clause	E/3.9 and 5.9.7 respectively
C	Difference between Standard(s) and Proposed Design	The maximum gradient for a cycle track within CD 195 and LTN 1/20 is 5% at a maximum length of 30m. The proposed cycling facilities at the A4019 west of M5 J10 run adjacent to the proposed carriageway, which has a gradient exceeding 5% for approximately 60m in length. Within this length a maximum gradient of 5.9% is present for 6m.
D	Reason for Departure (overview)	This gradient is required in order to reduce the level of the proposed A4019 in advance of the Stanboro Lane junction and hence avoid the need for departures to steepen the Stanboro Link and impact upon existing vegetation which would be desirable to retain.
E	Associated Project Departures	N/A
F	Other Options Considered	<p>To provide a cycle facility that follows the level of the adjacent A4019 carriageway at a compliant gradient for a cycle track, would require the carriageway to be designed at a gradient less than 2%. In accordance with CD 195 and LTN 1/20, only cycle track gradients at 2% and above have recommended maximum lengths. Therefore, an option was considered with the vertical alignment on the A4019 west approach to M5J10 designed at 1.99%. This option would however result in the gradient of Stanboro Lane approach to its junction with the A4019 to be in excess of 16% and as such require a separate departure. Alternative locations for the Stanboro Lane junction to mitigate the steepened gradient were considered but were deemed inappropriate due to proximity to adjacent junctions, proximity to properties, potential visibility issues, whilst also still presenting gradient issues at Stanboro Lane. In addition, this option would require additional earthworks extending beyond the A4019 junction with Stoke Road, which would impact on property boundaries and require the removal of existing vegetation that would be desirable to retain.</p> <p>An alternative option to use ramps (either structural or retained earth) to provide a compliant cycle track gradient with level sections at the recommended lengths was also considered. However, this would require a significant length in order to tie-in to the levels at the M5 J10 roundabout. A number of switchbacks would need to be provided which reduce the directness of the route and are undesirable for cyclists. To construct ramps (either structural or retained earth) within the embankments proposed for the A4019 would increase construction costs and may result in buildability issues. This option was therefore ruled out.</p>

3.4. Justification (Potential Positive & Negative Impacts)

3.4.1. Potential impacts of this departure are provided in the table below.

Table 3-3 – DFS.05 Justification

A	Safety	A steeper gradient increases the likelihood of higher speeds for descending cyclists or low speeds for climbing cyclists, which can create hazards for all users. The steeper downhill gradient may result in cyclists travelling at higher speeds on the approach to the crossing point across Stanboro Lane. This has been partially mitigated by
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		ensuring the stopping sight distance on the cycle track is in excess of the minimum 47m required for a 40kph design speed (LTN 1/20 Table 5-5). Warning signage and 'slow' markings could also be provided to encourage cyclists to reduce their speed on the downhill section.
B	Congestion/delay	No positive or negative impact.
C	Environmental/ Sustainability	Providing a carriageway gradient that would allow for the adjacent cycle track to be at a compliant gradient would require significant additional earthworks and the removal of additional vegetation which would be desirable to retain. The alternative compliant solution would therefore have a greater negative impact on the environment compared to the proposed design.
D	Capital and Whole Life Cost/Value	Providing a carriageway gradient that would allow for the adjacent cycle track to be at a compliant gradient would require significant additional earthworks and as such increased construction costs. The alternative compliant solution would therefore have a greater negative impact on costs compared to the proposed design.
E	Accessibility	A steeper gradient can reduce user comfort and may be more difficult for some users so has a negative impact on accessibility for users of the cycle track. However, the alternative option of designing the A4019 at a compliant gradient for a cycle track would result in an excessively steep gradient for Stanboro Lane. Therefore the proposed design ensures that access for Stanboro Lane to/from the A4019 is retained and a compliant junction layout provided.
F	Integration	N/A
G	Structural	Although deemed unfeasible the alternative option of providing ramps (via steel or earth-retaining structures) to provide a compliant cycle gradient would significantly increase construction costs.
H	Network Resilience & Maintenance	N/A

3.5. Compensatory Measures

3.5.1. Compensatory measures where relevant have been included in the table below.

Table 3-4 – DFS.05 Compensatory Measures

A	Included Measures	Warning signage and 'slow' markings could be provided to encourage cyclists to reduce their speed on the downhill section.
B	Rejected Options	N/A

3.6. Design Organisation's Concluding Remarks

- 3.6.1. A departure is required for the gradient of the proposed cycle facility running adjacent to the A4019 to the west of M5 J10. The proposed alignment of the A4019 rises to the M5 J10 roundabout resulting the cycle track gradient exceeding the maximum lengths recommended in CD 195 and LTN 1/20.
- 3.6.2. This carriageway gradient is required to reduce the level of the proposed A4019 in advance of the Stanboro Lane junction and hence avoid the need for departures to steepen the Stanboro Link and avoid impact upon existing vegetation which would be desirable to retain.
- 3.6.3. Alternate options that considered compliant cycle gradients were rejected due to the impact on the Stanboro Lane, increased construction costs and increased impact on existing vegetation.
- 3.6.4. The potential safety implications caused by a steeper cycle gradient and increased speed of users is partially mitigated by providing a stopping sight distance on the cycle track in excess of the minimum 47m required for a 40kph design speed in LTN 1/20. Additional

mitigation measures in the form of warning signage and markings could also be provided to help reduce user speeds.

3.7. Attachments & Other Information

3.7.1. Details of attachments and other information included as part of this departure submission are included in the table below.

Table 3-5 – DFS.05 Attachments & Other Information

A	List of Attachments	Departures from Standards (Sheet 2 of 4): GCCM5J10-ATK-HGN-ZZ-DR-CH-000062_C03 General Arrangement Layout M5 Junction 10 (Sheet 3 & 13 of 17): GCCM5J10-ATK-HGN-J1_JN-DR-CH-000001_C06 GCCM5J10-ATK-HGN-J1_JN-DR-CH-000002_C06 Departure from Standard - DFS.05 Compliant & Non-Compliant Cycle Gradient along A4019: GCCM5J10-ATK-HML-J1-SK-CH-000014_P01.1
B	Consultations	N/A
C	Other Information	N/A

3.8. Decision

3.8.1. The decision summary for this departure is provided in the table below.

Table 3-6 – DFS.05 Decision

Name 1		Role		Signed		Date	
Name 2		Role		Signed		Date	
Tick One Box	APPROVED		APPROVED WITH COMMENTS		✓	REJECTED	
COMMENTS	Departure accepted in principle as part of preliminary design.						

4. DFS.06 – Separation between carriageway and SUP is reduced below 1.5m

4.1. Submission for Departure from Standards

- 4.1.1. As part of the M5 J10 Improvements scheme, a new 2m wide shared use path (SUP) is proposed on the northern side of the A4019 between its junction with Stanboro Lane and its junction with Stoke Road.
- 4.1.2. DMRB CD 143 Cl E/3.5.1 requires a minimum 1.5m separation from the edge of carriageway to the SUP where the speed limit is greater than 40mph. Due to constraints such as the existing verge width and a formal property boundary at the back of the verge, a reduced separation of minimum 1m is required for a 14m length.
- 4.1.3. Submission for departure to DMRB CD 143 Cl E/3.5.1 to provide a reduced separation of 1m from the edge of carriageway to the SUP.

4.2. Project Details

- 4.2.1. Project details for this departure are provided in the table below.

Table 4-1 – DFS.06 Project Details

A	Description	New shared use path (SUP) on the northern side of the A4019 between it Stanboro Lane and Stoke Road, as part of the M5J10 Improvements scheme
B	Location	A4019 West Approach to M5 Junction 10
C	Road category and type	Single (S2) carriageway
D	Design speed and speed limit	85 kph Design Speed 50 mph Speed Limit (proposed)
E	Traffic flows	<p>2025 Do Minimum Scenario AADT Flows</p> <ul style="list-style-type: none"> A4019 eastbound = 5,345 veh/day A4019 westbound = 5,822 veh/day <p>2041 Do Minimum Scenario AADT Flows</p> <ul style="list-style-type: none"> A4019 eastbound = 5,124 veh/day A4019 westbound = 6,028 veh/day <p>2025 Do Something Scenario AADT Flows</p> <ul style="list-style-type: none"> A4019 eastbound = 8,199 veh/day A4019 westbound = 9,473 veh/day <p>2041 Do Something Scenario AADT Flows</p> <ul style="list-style-type: none"> A4019 eastbound = 8,889 veh/day A4019 westbound = 10,935 veh/day

4.3. Departure Details

- 4.3.1. Departure details are provided in the table below.

Table 4-2 – DFS.06 Departure Details

A	Discipline	Highways
	Type	Separation between SUP and carriageway
B	Relevant Standard(s)	DMRB CD 143
	Clause	E/3.5.1

C	Difference between Standard(s) and Proposed Design	A minimum separation from carriageway for a shared use route should be 1.5m where the speed limit is greater than 40mph. The speed limit in this location is 50mph. Where the proposed 2m wide SUP has been extended to the Stoke Road junction there is a 14m length where the proposed separation is reduced below 1.5m. The minimum separation provided over this length is 1m.
D	Reason for Departure (overview)	The existing verge width and a formal property boundary at the back of verge prevents compliance with requirements. Realigning the carriageway to the south in order to provide a wider verge on the north would be expensive and possibly introduce the need for land acquisition along the southern boundary in order to reinstate a southern verge.
E	Associated Project Departures	None
F	Other Options Considered	Realigning the A4019 carriageway to the south to provide a wider verge on the north and as such be able to provide a 1.5m separation from the carriageway was considered. However, this option would be expensive and may introduce the need for additional land acquisition along the southern boundary in order to reinstate a southern verge. The option to reduce the existing carriageway to provide a compliant separation to the SUP was also considered. At the location of the reduced separation between the SUP and carriageway, the existing carriageway width is approximately 8.4m, which includes a ghost island junction for the right turn onto Stoke Road. The width of the through lanes are 3m and the width of the right turn lane is approximately 2.4m (widening to 2.6m at Stoke Road junction). DMRB CD 123 requires a minimum 3m width for a through lane at a ghost island junction and a minimum 2.5m width for the right turning lane. Therefore, there is no scope to reduce the carriageway width without requiring a departure from CD 123. Having a reduced separation for a short length was therefore considered more appropriate than reducing the carriageway width.

4.4. Justification (Potential Positive & Negative Impacts)

4.4.1. Potential impacts of this departure are provided in the table below.

Table 4-3 – DFS.06 Justification

A	Safety	The length over which the separation is reduced is 14m and as such is considered a short, localised section. A minimum 1m separation will still be provided between users of the SUP and the carriageway, therefore it is considered that there would be no notable impact to the safety of cyclists and pedestrians.
B	Congestion/delay	No positive or negative impact.
C	Environmental/ Sustainability	A reduced separation strip for a short section avoids the need for carriageway realignment and additional land take and as such the associated environmental impacts of these works.
D	Capital and Whole Life Cost/Value	A reduced separation strip for a short section avoids the need for carriageway realignment and the associated costs of these works including additional land purchase.
E	Accessibility	No positive or negative impact.
F	Integration	No positive or negative impact.
G	Structural	No positive or negative impact.
H	Network Resilience & Maintenance	No positive or negative impact.

4.5. Compensatory Measures

4.5.1. Compensatory measures where relevant have been included in the table below.

Table 4-4 – DFS.06 Compensatory Measures

A	Included Measures	N/A
B	Rejected Options	Measures to provide warning to users of the reduced separation to carriageway such as signage or bollards rejected as these may introduce other hazards to SUP and road users. A minimum 1m separation will still be provided and the reduction is only over a short length so additional warning is not considered necessary.

4.6. Design Organisation’s Concluding Remarks

4.6.1. A reduced separation of 1m between the proposed SUP and A4019 carriageway is proposed for a 14m length to avoid the need to realign the A4019 and as such avoid the associated additional costs and land take impacts.

4.6.2. A minimum 1m separation between SUP users and the carriageway is proposed for a relatively short length and as such is not considered to have a notable impact on safety.

4.7. Attachments & Other Information

4.7.1. Details of attachments and other information included as part of this departure submission are included in the table below.

Table 4-5 – DFS.06 Attachments & Other Information

A	List of Attachments	Departures from Standards (Sheet 3 of 4): GCCM5J10-ATK-HGN-ZZ-DR-CH-000063_C03 General Arrangement Layout M5 Junction 10 (Sheet 13 of 17): GCCM5J10-ATK-HGN-J1_JN-DR-CH-000002_C06
B	Consultations	N/A
C	Other Information	N/A

4.8. Decision

4.8.1. The decision summary for this departure is provided in the table below.

Table 4-6 – DFS.06 Decision

Name 1		Role		Signed		Date	
Name 2		Role		Signed		Date	
Tick One Box	APPROVED		APPROVED WITH COMMENTS	✓		REJECTED	
COMMENTS	Departure accepted in principle as part of preliminary design.						

5. DFS.07 – Footway width less than 2m on The Green

5.1. Submission for Departure from Standards

- 5.1.1. As part of the M5 J10 Improvements scheme, short lengths of footway are proposed from the service roads on the northern side of the A4019 to the existing footways on The Green where the proposed footway width is less than 2m.
- 5.1.2. DMRB CD 143 Cl E/1.2 requires an absolute minimum width of 2m for walking routes (footways and footpaths) where no vertical features are present either side. The Department of Transport Manual for Streets (MfS) also states that the minimum unobstructed width of a footway should be 2m. DMRB CD 143 also requires an additional 0.5m width where a vertical feature on one side is greater than or equal 1.2m height and a 0.5m separation from the carriageway.
- 5.1.3. Footways proposed for the service road to the north of the A4019 are DMRB compliant. However, where the proposed footways connect to the existing footway on The Green, the footway width is less than 2m in order to connect to the existing footway provision.
- 5.1.4. Submission for departure to DMRB CD 143 Cl E/1.2 and MfS to provide a footway width less than 2.0m between the existing footway provision on The Green and the footways on the proposed service roads to the north of the A4019.

5.2. Project Details

- 5.2.1. Project details for this departure are provided in the table below.

Table 5-1 – DFS.07 Project Details

A	Description	New footways from the service roads on the northern side of the A4019 to the existing footways on The Green proposed as part of the M5 J10 Improvements scheme.
B	Location	The Green, Uckington
C	Road category and type	Single carriageway
D	Design speed and speed limit	50 kph Design Speed 30 mph Speed Limit
E	Traffic flows	Flows not available for The Green

5.3. Departure Details

- 5.3.1. Departure details are provided in the table below.

Table 5-2 – DFS.07 Departure Details

A	Discipline	Highways
	Type	Footway width
B	Relevant Standard(s)	DMRB CD 143 & MfS
	Clause	E/1.2
C	Difference between Standard(s) and Proposed Design	An absolute minimum width of 2m is required for walking routes (footways and footpaths) where no vertical features are present either side. DMRB requires an additional 0.5m width where a vertical feature on one side is greater than or equal 1.2m height and a 0.5m separation from the carriageway (neither are a requirement of Manual for Streets (MfS)). Where short lengths of footway are proposed from the service roads on the northern side of the A4019 to the existing footways on The Green the proposed footway width is less than 2m.
D	Reason for Departure (overview)	Existing formal property boundaries and hedges at back of verge prevents compliance with requirements. Land requisition and impact

		<p>on boundaries to achieve compliant footway width not deemed justifiable to provide relatively short length of wider footway to extent of scheme on The Green. In addition, even if compliant footways were provided to the extent of the scheme, the existing narrow footway (and associated departure from standard) would continue beyond the extent of the scheme.</p> <p>The lengths of footway at reduced width is limited to 25m on both the western and eastern sides of The Green. The proposed width matches the width of the existing footway provision (approx. 1.5m) on The Green so does not worsen the current provision.</p> <p>DfT Inclusive Mobility states that if it is not feasible to provide 2m wide footway due to physical constraints, then a minimum width of 1.5m could be regarded as the minimum acceptable under most circumstances as this should enable a wheelchair user and a walker to pass each other.</p>
E	Associated Project Departures	DFS.08
F	Other Options Considered	<p>Widening footway into existing properties would permanently impact boundary features and reduce frontages to properties which would likely receive objection from the property owners affected. Land requisition and impact on boundaries to achieve compliant footway width not deemed justifiable to provide relatively short length of wider footway to extent of scheme on The Green.</p> <p>Alternative option to narrow carriageway on The Green to provide compliant footway width rejected as it would reduce carriageway width below 5.5m.</p>

5.4. Justification (Potential Positive & Negative Impacts)

5.4.1. Potential impacts of this departure are provided in the table below.

Table 5-3 – DFS.07 Justification

A	Safety	The lengths of footway at reduced width connecting The Green and the proposed fully compliant footways on the service roads are relatively short in length (approximately 25m). In addition, the proposed width matches the existing footway width (approximately 1.5m) currently provided on The Green, which is considered in DfT Inclusive Mobility as the minimum acceptable width where physical constraints are present. Traffic flows on The Green are anticipated to be low and vehicles are expected to be travelling at lower speeds due to the residential nature of the road and the 30mph speed limit. As the proposals do not worsen the current provision and the reduced width footways are for a relatively short length on a low traffic and low speed road, it is considered that there would be no notable impact to the safety of pedestrians.
B	Congestion/delay	No positive or negative impact.
C	Environmental/Sustainability	A reduced footway width for a short length avoids the need for additional land take and permanent impact to existing property boundaries and as such avoids the associated negative environmental impacts of these works.
D	Capital and Whole Life Cost/Value	A reduced footway width for a short length avoids the need for additional land take and permanent impact to existing property boundaries and as such avoids the associated costs of these works.
E	Accessibility	DfT Inclusive Mobility states that if it is not feasible to provide 2m wide footway due to physical constraints, then a minimum width of 1.5m could be regarded as the minimum acceptable under most circumstances as this should enable a wheelchair user and a walker to

		pass each other. The proposed footway is a minimum width of 1.5m (to match the existing provision) so would not have a notable impact on accessibility for footway users.
F	Integration	No positive or negative impact.
G	Structural	No positive or negative impact.
H	Network Resilience & Maintenance	No positive or negative impact.

5.5. Compensatory Measures

5.5.1. Compensatory measures where relevant have been included in the table below.

Table 5-4 – DFS.07 Compensatory Measures

A	Included Measures	The existing 30mph is to be retained on The Green. Traffic flows on The Green are anticipated to be low and vehicles are expected to be travelling at lower speeds due to the residential nature of the road and the 30mph speed limit. As the proposals do not worsen the current provision and the reduced width footways are for a relatively short length on a low traffic and low speed road, it is considered that there would be no notable impact to the safety of pedestrians.
B	Rejected Options	N/A

5.6. Design Organisation’s Concluding Remarks

- 5.6.1. Short lengths of footway at reduced width (1.5m minimum) are proposed connecting existing footways on The Green and the proposed fully compliant footways on the service roads. This departs from the DMRB and MfS requirement that a minimum 2m width is provided for footways.
- 5.6.2. The departure is proposed to avoid the need to widen the footway into adjacent properties and as such avoid the associated additional costs, land take requirements and permanent impact on existing boundary features.
- 5.6.3. A minimum 1.5m footway width is proposed for a relatively short length which complies with DfT Inclusive Mobility guidance and does not worsen the existing footway provision. Therefore the proposal is not considered to have a notable impact on user safety or accessibility.

5.7. Attachments & Other Information

5.7.1. Details of attachments and other information included as part of this departure submission are included in the table below.

Table 5-5 – DFS.07 Attachments & Other Information

A	List of Attachments	Departures from Standards (Sheet 4 of 4): GCCM5J10-ATK-HGN-ZZ-DR-CH-000064_C03 General Arrangement Layout M5 Junction 10 (Sheet 7 of 17): GCCM5J10-ATK-HGN-L1_ML-DR-CH-000001_C06
B	Consultations	N/A
C	Other Information	N/A

5.8. Decision

5.8.1. The decision summary for this departure is provided in the table below.

Table 5-6 – DFS.07 Decision

Name 1	Role	Signed	Date
Name 2	Role	Signed	Date
Tick One Box	APPROVED	APPROVED WITH COMMENTS	REJECTED
COMMENTS	Departure accepted in principle as part of preliminary design.		

6. DFS.08 – Footway width less than 2m on Homecroft Drive

6.1. Submission for Departure from Standards

- 6.1.1. As part of the M5 J10 Improvements scheme, short lengths of footway are proposed from the service roads on the southern side of the A4019 to the existing footways on Homecroft Drive where the proposed footway width is less than 2m.
- 6.1.2. DMRB CD 143 Cl E/1.2 requires an absolute minimum width of 2m for walking routes (footways and footpaths) where no vertical features are present either side and MfS states that the minimum unobstructed width of a footway should be 2m. DMRB CD 143 also requires an additional 0.5m width where a vertical feature on one side is greater than or equal 1.2m height and a 0.5m separation from the carriageway.
- 6.1.3. Footways proposed for the service road to the south of the A4019 are DMRB compliant. However, where the proposed footways connect to the existing footways on Homecroft Drive, the footway width is less than 2m in order to connect to the existing footway provision.
- 6.1.4. Submission for departure to DMRB CD 143 Cl E/1.2 and MfS to provide a footway width less than 2.0m between the existing footway provision on Homecroft Drive and the footways on the proposed service roads to the south of the A4019.

6.2. Project Details

- 6.2.1. Project details for this departure are provided in the table below.

Table 6-1 – DFS.08 Project Details

A	Description	New footways from the service roads on the southern side of the A4019 to the existing footways on Homecroft Drive proposed as part of the M5 J10 Improvements scheme.
B	Location	Homecroft Drive
C	Road category and type	Single carriageway
D	Design speed and speed limit	50 kph Design Speed 30 mph Speed Limit
E	Traffic flows	Flows not available for Homecroft Drive

6.3. Departure Details

- 6.3.1. Departure details are provided in the table below.

Table 6-2 – DFS.08 Departure Details

A	Discipline	Highways
	Type	Footway width
B	Relevant Standard(s)	DMRB CD 143 & MfS
	Clause	E/1.2
C	Difference between Standard(s) and Proposed Design	An absolute minimum width of 2m is required for walking routes (footways and footpaths) where no vertical features are present either side. DMRB requires an additional 0.5m width where a vertical feature on one side is greater than or equal 1.2m height and a 0.5m separation from the carriageway (neither a requirement of MfS). Where short lengths of footway are proposed from the service roads on the southern side of the A4019 to the existing footways on Homecroft Drive the proposed footway width is less than 2m.
D	Reason for Departure (overview)	Existing formal property boundaries and hedges at back of verge prevents compliance with requirements. Land requisition and impact

		<p>on boundaries to achieve compliant footway width not deemed justifiable to provide relatively short length of wider footway to extent of scheme on Homecroft Drive. In addition, even if compliant footways were provided to the extent of the scheme, the existing narrow footway (and associated departure from standard) would continue beyond the extent of the scheme.</p> <p>The lengths of footway at reduced width are limited to 8m on the western side and immediately at tie in on the eastern side of Homecroft Drive. The proposed width matches the width of the existing footway provisions (approx. 1.6m) on Homecroft Drive so does not worsen the current provision.</p> <p>DfT Inclusive Mobility states that if it is not feasible to provide 2m wide footway due to physical constraints, then a minimum width of 1.5m could be regarded as the minimum acceptable under most circumstances as this should enable a wheelchair user and a walker to pass each other.</p>
E	Associated Project Departures	DFS.07
F	Other Options Considered	<p>Widening footway into existing properties would permanently impact boundary features and reduce frontages to properties which would likely receive objection from the property owners affected. Land requisition and impact on boundaries to achieve compliant footway width not deemed justifiable to provide short length of wider footway to existing provision on Homecroft Drive.</p> <p>Alternative option to narrow carriageway on Homecroft Drive to provide compliant footway width rejected as not justifiable for such a minor length of footway.</p>

6.4. Justification (Potential Positive & Negative Impacts)

6.4.1. Potential impacts of this departure are provided in the table below.

Table 6-3 – DFS.08 Justification

A	Safety	The lengths of footway at reduced width connecting Homecroft Drive and the proposed fully compliant footways on the service roads are short in length (approximately 8m and at tie-in point to existing provision). In addition, the proposed width matches the existing footway width (approximately 1.6m) currently provided on Homecroft Drive, which is above the minimum acceptable width of 1.5m where physical constraints are present recommended in DfT Inclusive Mobility. Traffic flows on Homecroft Drive are anticipated to be low and vehicles are expected to be travelling at lower speeds due to the residential nature of the road and the proposed 30mph speed limit. As the proposals do not worsen the current provision and the reduced width footways are for a relatively short length on a low traffic and low speed road, it is considered that there would be no notable impact to the safety of pedestrians.
B	Congestion/delay	No positive or negative impact.
C	Environmental/Sustainability	A reduced footway width for a short length avoids the need for additional land take and permanent impact to existing property boundaries and as such avoids the associated negative environmental impacts of these works.
D	Capital and Whole Life Cost/Value	A reduced footway width for a short length avoids the need for additional land take and permanent impact to existing property boundaries and as such avoids the associated costs of these works.
E	Accessibility	DfT Inclusive Mobility states that if it is not feasible to provide 2m wide footway due to physical constraints, then a minimum width of 1.5m

		could be regarded as the minimum acceptable under most circumstances as this should enable a wheelchair user and a walker to pass each other. The proposed footway is a minimum width of 1.6m so would not have a notable impact on accessibility for footway users.
F	Integration	No positive or negative impact.
G	Structural	No positive or negative impact.
H	Network Resilience & Maintenance	No positive or negative impact.

6.5. Compensatory Measures

6.5.1. Compensatory measures where relevant have been included in the table below.

Table 6-4 – DFS.08 Compensatory Measures

A	Included Measures	A 30mph speed limit is proposed for Homecroft Drive and the new service road on the southern side of the A4019. Currently Homecroft Drive is subject to National Speed Limit. Traffic flows on Homecroft Drive are anticipated to be low and vehicles are expected to be travelling at lower speeds due to the residential nature of the road and the proposed 30mph speed limit. As the proposals do not worsen the current footway provision and the reduced width footways are for a relatively short length on a low traffic and low speed road, it is considered that there would be no notable impact to the safety of pedestrians.
B	Rejected Options	N/A

6.6. Design Organisation’s Concluding Remarks

- 6.6.1. Short lengths of footway at reduced width (1.6m minimum) are proposed connecting existing footways on Homecroft Drive and the proposed fully compliant footways on the service roads. This departs from the DMRB and MfS requirement that a minimum 2m width is provided for footways.
- 6.6.2. The departure is proposed to avoid the need to widen the footway into adjacent properties and as such avoid the associated additional costs, land take requirements and permanent impact on existing boundary features.
- 6.6.3. A minimum 1.6m footway width is proposed for a relatively short length which complies with DfT Inclusive Mobility guidance and does not worsen the existing footway provision. Therefore the proposal is not considered to have a notable impact on user safety or accessibility.

6.7. Attachments & Other Information

6.7.1. Details of attachments and other information included as part of this departure submission are included in the table below.

Table 6-5 – DFS.08 Attachments & Other Information

A	List of Attachments	Departures from Standards (Sheet 4 of 4): GCCM5J10-ATK-HGN-ZZ-DR-CH-000064_C03 General Arrangement Layout M5 Junction 10 (Sheet 8 of 17): GCCM5J10-ATK-HGN-L1_ML-DR-CH-000002_C06 Traffic Regulation Order Plans (Sheet 6 of 6): GCCM5J10-ATK-HGN-ZZ-DR-CH-000060_C03
B	Consultations	N/A
C	Other Information	N/A

6.8. Decision

6.8.1. The decision summary for this departure is provided in the table below.

Table 6-6 – DFS.08 Decision

Name 1		Role		Signed		Date	
Name 2		Role		Signed		Date	
Tick One Box	APPROVED			APPROVED WITH COMMENTS	✓	REJECTED	
COMMENTS	Departure accepted in principle as part of preliminary design.						

7. DFS.10 – Rate of change of cross section is less than 1:35

7.1. Submission for Departure from Standards

- 7.1.1. Based on traffic modelling carried out for the M5 J10 Improvements scheme, an additional lane was required on the A4019 westbound approach to Gallagher Junction. To create space for the additional lane required the A4019 eastbound alignment to be adjusted to the north.
- 7.1.2. The minimum transition tapers for the rate of change in the cross-section width of mainline lanes are set out in DMRB CD 127 Table 2.28. For a 70kph design speed the minimum transition taper is 1:35.
- 7.1.3. Providing the required rate of change of cross section on the new eastbound alignment would require the additional acquisition of land currently occupied by a Sainsbury's store and require the demolition of part of the existing store. This would introduce further costs and likely receive objections.
- 7.1.4. The design proposes a reduced rate of change of cross-section (1:14 taper) to minimise the land requirements and avoid the impacts on the existing Sainsbury's store and the existing junction to the east, which sits outside the scheme extents.
- 7.1.5. Submission for departure to DMRB CD 127 Table 2.28 to provide a rate of change in the cross-section width less than the minimum 1:35 transition taper required for a 70kph design speed.

7.2. Project Details

- 7.2.1. Project details for this departure are provided in the table below.

Table 7-1 – DFS.10 Project Details

A	Description	Due to constraints reducing the available space, a transition taper below the minimum 1:35 is required to develop an additional lane on the A4019 westbound approach to Gallagher Junction to increase capacity at the junction.
B	Location	A4019 Gallagher Junction
C	Road category and type	Dual 2 Lane (D2UAP) carriageway
D	Design speed and speed limit	70 kph Design Speed 40 mph Speed Limit (proposed)
E	Traffic flows	<p>2025 Do Minimum Scenario AADT Flows</p> <ul style="list-style-type: none"> A4019 eastbound = 16,951 veh/day A4019 westbound = 16,189 veh/day <p>2041 Do Minimum Scenario AADT Flows</p> <ul style="list-style-type: none"> A4019 eastbound = 16,707 veh/day A4019 westbound = 15,982 veh/day <p>2025 Do Something Scenario AADT Flows</p> <ul style="list-style-type: none"> A4019 eastbound = 18,927 veh/day A4019 westbound = 17,671 veh/day <p>2041 Do Something Scenario AADT Flows</p> <ul style="list-style-type: none"> A4019 eastbound = 24,952 veh/day A4019 westbound = 23,377 veh/day

7.3. Departure Details

7.3.1. Departure details are provided in the table below.

Table 7-2 – DFS.10 Departure Details

A	Discipline	Highways
	Type	Rate of change of cross-section width
B	Relevant Standard(s)	DMRB CD 127
	Clause	Table 2.28
C	Difference between Standard(s) and Proposed Design	The rate of change of cross section width of the central reserve of the eastern arm of the junction is 1:14 which is less than the required rate of 1:35 as required by CD 127.
D	Reason for Departure (overview)	<p>Providing the required rate of cross section width would require additional land on the northern side of the eastern arm which is constrained by the presence of an existing Sainsbury's store. It would also affect the road geometry of the next junction which is outside the extents of the scheme.</p> <p>Based on the traffic modelling, an additional lane was required on the A4019 westbound approach to the junction, so required the A4019 eastbound alignment to be adjusted to the north to create the space for this. Providing the required rate of change of cross section on the new eastbound alignment would require the additional acquisition of land currently occupied by a Sainsbury's store, which would introduce further costs and likely receive objections. The proposed reduced rate of change minimises the additional land requirement and avoids the need to demolish part of the existing store.</p>
E	Associated Project Departures	N/A
F	Other Options Considered	An alternative option of providing a direct taper was considered, similar to that provided for the right turn lane on this arm of the junction. DMRB CD 123 Clause 7.10 specifies that dedicated lane for left or right-turning traffic shall be developed with taper of 1 in 5. However, the proposed taper (1 in 14) was favoured as it maximises the available space to limit the taper rate.

7.4. Justification (Potential Positive & Negative Impacts)

7.4.1. Potential impacts of this departure are provided in the table below.

Table 7-3 – DFS.10 Justification

A	Safety	Although the proposed taper is less than the minimum required, the potential rise of any safety issues is mitigated by the fact that it is a diverging taper in order to develop an additional lane in the westbound carriageway. As such, additional space is provided within the cross-section for vehicles so it is less likely to increase the risk of collisions.
B	Congestion/delay	Based on the traffic modelling, an additional lane was required on the A4019 westbound approach to the junction, so required the A4019 eastbound alignment to be adjusted to the north to create the space for this. Not providing the additional lane would likely rise to increased congestion and delay at the junction.
C	Environmental/Sustainability	The proposed design minimises the impacts on the existing junction to the east (which is located outside the extents of the scheme) and on the existing Sainsbury's store on the northern side of the A4019 in this location. To provide a compliant rate of change of cross section on the new eastbound alignment would require the additional acquisition of land currently occupied by a Sainsbury's store and would require demolition of part of the existing store. The proposed design therefore

		avoids the additional impacts on the environment and sustainability associated with the items raised above.
D	Capital and Whole Life Cost/Value	The proposed design minimises the impacts on the existing junction to the east (which is located outside the extents of the scheme) and on the existing Sainsbury's store on the northern side of the A4019 in this location. To provide a compliant rate of change of cross section on the new eastbound alignment would require the additional acquisition of land currently occupied by a Sainsbury's store and would require demolition of part of the existing store. The proposed design therefore avoids the additional costs associated with the items raised above.
E	Accessibility	No positive or negative impact.
F	Integration	No positive or negative impact.
G	Structural	No positive or negative impact.
H	Network Resilience & Maintenance	No positive or negative impact.

7.5. Compensatory Measures

7.5.1. Compensatory measures where relevant have been included in the table below.

Table 7-4 – DFS.10 Compensatory Measures

A	Included Measures	N/A
B	Rejected Options	N/A

7.6. Design Organisation's Concluding Remarks

- 7.6.1. Due to constraints reducing the available space, a transition taper below the minimum 1:35 is required to develop an additional lane on the A4019 westbound approach to Gallagher Junction to increase capacity at the junction.
- 7.6.2. The departure is proposed to minimise the impacts on the existing junction to the east (which is located outside the extents of the scheme) and on the existing Sainsbury's store on the northern side of the A4019 in this location. To provide a compliant rate of change of cross section on the new eastbound alignment would require the additional acquisition of land currently occupied by a Sainsbury's store and would require demolition of part of the existing store.
- 7.6.3. The proposed taper is a diverging taper, in order to create an additional lane, so is therefore unlikely to present safety issues. The reduced taper would also avoid the additional scheme costs and likely objections of acquiring additional land to the north of the A4019 currently occupied by a Sainsbury's store.

7.7. Attachments & Other Information

7.7.1. Details of attachments and other information included as part of this departure submission are included in the table below.

Table 7-5 – DFS.10 Attachments & Other Information

A	List of Attachments	Departures from Standards (Sheet 4 of 4): GCCM5J10-ATK-HGN-ZZ-DR-CH-000064_C03 General Arrangement Layout M5 Junction 10 (Sheet 9 of 17): GCCM5J10-ATK-HGN-J4_JN-DR-CH-000001_C06
B	Consultations	N/A
C	Other Information	N/A

7.8. Decision

7.8.1. The decision summary for this departure is provided in the table below.

Table 7-6 – DFS.10 Decision

Name 1		Role		Signed		Date	
Name 2		Role		Signed		Date	
Tick One Box	APPROVED			APPROVED WITH COMMENTS	✓	REJECTED	
COMMENTS	It was agreed to keep this on the departure list for now and review at detailed design stage.						

8. DFS.12 – Visibility from Hayden Hill Farm access is below 120m

8.1. Submission for Departure from Standards

- 8.1.1. As part of the M5 J10 Improvements scheme, a new signalised junction is proposed on the B4634 to the west of Hayden Hill Farm access. To accommodate the new junction, carriageway widening and realignment of the B4634 is required which extends beyond the access to Hayden Hill Farm before tying into the existing B4634 approximately 32m to the east of the access.
- 8.1.2. DMRB CD 123 Clause 3.4 requires that from a setback of 2m into the access, visibility corresponding to the desirable minimum SSD for the speed of the major road shall be provided. For a 70kph design speed the desirable minimum SSD is 120m. This is achieved to the west of the access but not to the east, where visibility is limited to 95m.
- 8.1.3. The position of the existing access and visibility to the east is not affected by the proposed scheme. This is an existing departure where the visibility splay is obstructed by an existing boundary hedge.
- 8.1.4. Submission for departure to CD 123 Cl 3.4 for the existing reduced visibility to the east from the access to Hayden Hill Farm.

8.2. Project Details

- 8.2.1. Project details for this departure are provided in the table below.

Table 8-1 – DFS.12 Project Details

A	Description	Hayden Hill Farm access located on the B4634 falls within the extents of the new link road junction proposed as part of the M5 J10 Improvements scheme. Visibility to the east from the access is below the desirable minimum SSD of 120m for the speed of the major road (70 kph).
B	Location	B4634 Hayden Hill Farm Access
C	Road category and type	Single carriageway
D	Design speed and speed limit	70 kph Design speed 40 mph Speed limit (proposed)
E	Traffic flows	<p>2025 Do Minimum Scenario AADT Flows</p> <ul style="list-style-type: none"> B4634 eastbound = 4,464 veh/day B4634 westbound = 4,546 veh/day <p>2041 Do Minimum Scenario AADT Flows</p> <ul style="list-style-type: none"> B4634 eastbound = 4,285 veh/day B4634 westbound = 4,618 veh/day <p>2025 Do Something Scenario AADT Flows</p> <ul style="list-style-type: none"> B4634 eastbound = 3,638 veh/day B4634 westbound = 3,387 veh/day <p>2041 Do Something Scenario AADT Flows</p> <ul style="list-style-type: none"> B4634 eastbound = 5,855 veh/day B4634 westbound = 6,704 veh/day

8.3. Departure Details

8.3.1. Departure details are provided in the table below.

Table 8-2 – DFS.12 Departure Details

A	Discipline	Highways
	Type	Visibility
B	Relevant Standard(s)	DMRB CD 123
	Clause	3.4
C	Difference between Standard(s) and Proposed Design	CD 123 Clause 3.4 requires that from a setback of 2m into the access, visibility corresponding to the desirable minimum SSD for the speed of the major road (70kph – 120m) shall be provided. This is achieved to the west of the access but to the east, where visibility is limited to 95m.
D	Reason for Departure (overview)	The position of the existing access and visibility to the east is not affected by the proposed scheme. This is an existing departure where the visibility splay is obstructed by an existing boundary hedge. The introduction of the proposed signalised junction between the Link Road and B4634 to the west of the access and associated signing should assist with speed control at this location. In addition, the scheme proposes a reduction in speed limit from 50mph to 40mph for the lengths of the B4634 either side of the proposed signalised junction, which includes the access to Hayden Hill Farm.
E	Associated Project Departures	DFS.14
F	Other Options Considered	To achieve the required visibility, the option of widening the existing verge to the east of the access could be considered. However, this would require additional land purchase to the north of the B4634 and removal/relocation of an existing hedge along the existing boundary. This would result in additional scheme costs and environmental impacts. It may also result in objections from affected landowner/s.

8.4. Justification (Potential Positive & Negative Impacts)

8.4.1. Potential impacts of this departure are provided in the table below.

Table 8-3 – DFS.12 Justification

A	Safety	The visibility from the access to the east is 95m. This exceeds the one step below desirable minimum SSD (90m) for a 70kph design speed specified in CD 109 Table 2.10. The existing position of the access and existing visibility would remain unchanged as part of the scheme. The scheme therefore does not worsen the existing provision. In addition, the introduction of the proposed signalised junction to the west of the access and associated signing should assist with speed control at this location. The scheme also proposes a reduction in speed limit from 50mph to 40mph for the lengths of the B4634 either side of the proposed signalised junction, which includes the access to Hayden Hill Farm. As such, it is considered that the reduced visibility from the access would not have a notable impact on safety.
B	Congestion/delay	No positive or negative impact.
C	Environmental/Sustainability	Retaining the existing access location and existing visibility to the east would avoid the need to widen the northern verge and the negative environmental impact of removing/relocating an existing hedge.
D	Capital and Whole Life Cost/Value	Retaining the existing access location and existing visibility to the east would avoid the need to widen the northern verge which would require additional land requisition and as such increase scheme costs.

E	Accessibility	The existing position of the access and existing visibility would remain unchanged as part of the scheme. Therefore there would be no notable impact on accessibility.
F	Integration	No positive or negative impact.
G	Structural	No positive or negative impact.
H	Network Resilience & Maintenance	No positive or negative impact.

8.5. Compensatory Measures

8.5.1. Compensatory measures where relevant have been included in the table below.

Table 8-4 – DFS.12 Compensatory Measures

A	Included Measures	A 40mph speed limit is proposed for the B4634 Old Gloucester Road either side of the proposed new signalised junction. The existing speed limit along the B4634 is 50mph. The proposed reduction in speed limit extends beyond the access to Hayden Hill Farm. The reduced speed limit should encourage slower vehicle speeds approaching the access compared to the existing situation which should assist drivers entering the B4634 from the access.
B	Rejected Options	N/A

8.6. Design Organisation’s Concluding Remarks

- 8.6.1. To accommodate a new signalised junction proposed on the B4634, carriageway widening and realignment of the B4634 is required which extends beyond the access to Hayden Hill Farm before tying into the existing B4634 approximately 32m to the east of the access.
- 8.6.2. The visibility to the east from the access to Hayden Hill Farm is below the desirable minimum SSD required for the design speed as specified in DMRB CD 123 CI 3.4.
- 8.6.3. The departure is required for the existing reduced visibility from the access.
- 8.6.4. To achieve the required visibility would require the scheme to be extended, additional land requisition and the removal of a hedge bank to provide a widened verge. This would result in additional costs and environmental impacts.
- 8.6.5. The existing position of the access and existing visibility would not be changed by the scheme. The introduction of a reduced speed limit from 50mph to 40mph and the introduction of signalised junction to the west of the access and associated signage would assist with speed control at this location. Therefore the proposal is not considered to have a notable impact on user safety or accessibility.

8.7. Attachments & Other Information

8.7.1. Details of attachments and other information included as part of this departure submission are included in the table below.

Table 8-5 – DFS.12 Attachments & Other Information

A	List of Attachments	Departures from Standards (Sheet 1 of 4): GCCM5J10-ATK-HGN-ZZ-DR-CH-000061_C04 General Arrangement Layout M5 Junction 10 (Sheet 12 of 17): GCCM5J10-ATK-HGN-J3_JN-DR-CH-000001_C06 Traffic Regulation Order Plans (Sheet 2 of 6): GCCM5J10-ATK-HGN-ZZ-DR-CH-000056_C03
B	Consultations	N/A

C | Other Information | N/A

8.8. Decision

8.8.1. The decision summary for this departure is provided in the table below.

Table 8-6 – DFS.12 Decision

Name 1		Role		Signed		Date	
Name 2		Role		Signed		Date	
Tick One Box	APPROVED			APPROVED WITH COMMENTS	✓	REJECTED	
COMMENTS	Confirmed that design is not worsening current visibility, which is non-standard, but that mitigation by way of reduced speed limit from 50 to 40 mph is included plus the introduction of a traffic signal junction, both of which will manage vehicle speeds. Panel considered whether the increase in traffic volumes could increase risk but accepted that there is no additional space within the red line boundary for the scheme. However, it was suggested that junction treatments were considered to further mitigate.						

9. DFS.13 – SSD on B4634 approach to Hayden Lane junction is below 120m

9.1. Submission for Departure from Standards

- 9.1.1. As part of the M5 J10 Improvements scheme, a new signalised junction is proposed on the B4634 to the east of Withybridge Lane. To accommodate the new junction, carriageway widening and realignment of the B4634 is required between Withybridge Lane and the new signalised junction. A new SUP is also proposed on the northern side of the B4634.
- 9.1.2. Hayden Lane is located to the west of Withybridge Lane so is outside the scheme extents. However, stopping sight distance (SSD) from the B4634 to the Hayden Lane is obstructed by an existing boundary fence and vegetation and as such is below the desirable minimum required.
- 9.1.3. DMRB CD 109 Clause 2.13 requires that relaxations below desirable minimum in stopping sight distance (SSD) shall not be used on the immediate approaches to junctions. For the proposed 70kph design speed, desirable minimum SSD is 120m. On the B4634 westbound approach to the Hayden Lane junction, SSD is reduced to 90m.
- 9.1.4. Submission for departure to CD 109 Cl 2.13 for the existing reduced SSD to Hayden Lane junction from the B4634 westbound.

9.2. Project Details

- 9.2.1. Project details for this departure are provided in the table below.

Table 9-1 – DFS.13 Project Details

A	Description	Realignment and widening of the B4634 is proposed from its junction with Withybridge Lane to a new signalised junction to the east. The B4634 junction with Hayden Lane is located to the west of Withybridge Lane and as such is outside the extent of the scheme. However, the desirable minimum SSD from the B4634 westbound (within the scheme extents) to the Hayden Lane junction is not achieved due to an existing boundary fence and vegetation.
B	Location	B4634
C	Road category and type	Single carriageway
D	Design speed and speed limit	70 kph Design speed 40 mph Speed limit (proposed)
E	Traffic flows	<p>2025 Do Minimum Scenario AADT Flows</p> <ul style="list-style-type: none"> • B4634 eastbound = 4,464 veh/day • B4634 westbound = 4,546 veh/day • Hayden Lane northbound = 2,000 veh/day • Hayden Lane southbound = 2,297 veh/day <p>2041 Do Minimum Scenario AADT Flows</p> <ul style="list-style-type: none"> • B4634 eastbound = 4,285 veh/day • B4634 westbound = 4,618 veh/day • Hayden Lane northbound = 2,177 veh/day • Hayden Lane southbound = 2,661 veh/day <p>2025 Do Something Scenario AADT Flows</p> <ul style="list-style-type: none"> • B4634 eastbound = 3,709 veh/day

	<ul style="list-style-type: none"> • B4634 westbound = 4,493 veh/day • Hayden Lane northbound = 582 veh/day • Hayden Lane southbound = 657 veh/day <p>2041 Do Something Scenario AADT Flows</p> <ul style="list-style-type: none"> • B4634 eastbound = 5,225 veh/day • B4634 westbound = 5,510 veh/day • Hayden Lane northbound = 1,226 veh/day • Hayden Lane southbound = 1,680 veh/day
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9.3. Departure Details

9.3.1. Departure details are provided in the table below.

Table 9-2 – DFS.13 Departure Details

A	Discipline	Highways
	Type	Visibility
B	Relevant Standard(s)	DMRB CD 109
	Clause	2.13
C	Difference between Standard(s) and Proposed Design	CD 109 Clause 2.13 requires that relaxations below desirable minimum in stopping sight distance shall not be used on the immediate approaches to junctions. For the proposed 70kph design speed, SSD is 120m. On the westbound approach to the Hayden Lane junction, SSD is reduced to 90m.
D	Reason for Departure (overview)	<p>This is an existing departure where the visibility splay is obstructed by an existing boundary fence and vegetation belonging to Orchard House.</p> <p>The proposed alignment slightly reduces the current level of visibility at this location due to the slight curvature of the proposed route to the south of the existing road in order to provide a SUP in the proposed northern verge without impacting the existing boundary of the property Elm Cottage.</p> <p>The introduction of the proposed signalised junction and associated signing should assist with speed control at this location. The scheme also proposes a reduction in speed limit from 50mph to 40mph for the lengths of the B4634 either side of the proposed signalised junction, which includes the westbound approach to Hayden Lane junction and beyond the junction.</p>
E	Associated Project Departures	DFS.14
F	Other Options Considered	To achieve the required SSD, the option of widening the southern verge of the B4634 on approach to Hayden Lane junction could be considered. However, this would require the scheme to be extended further west along the B4634 towards Hayden Lane. It would also require additional land purchase to the south of the B4634 and the removal and relocation of an existing boundary fence and vegetation along the existing boundary. This would result in additional scheme costs and potential environmental impacts. It may also result in objections from affected landowner/s.

9.4. Justification (Potential Positive & Negative Impacts)

9.4.1. Potential impacts of this departure are provided in the table below.

Table 9-3 – DFS.13 Justification

A	Safety	The existing SSD to the junction is below the desirable minimum. The proposed alignment of the B4634 slightly reduces the current level of visibility at this location to 90m.
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		<p>However, the introduction of the proposed signalised junction to the east of the junction and associated signing should assist with speed control at this location. The scheme also proposes a reduction in speed limit from 50mph to 40mph for the lengths of the B4634 either side of the proposed signalised junction, which includes the westbound approach to Hayden Lane junction.</p> <p>As such, it is considered that the reduced SSD to Hayden Lane junction would not have a notable impact on safety.</p>
B	Congestion/delay	No positive or negative impact.
C	Environmental/ Sustainability	The alternative option of widening the southern verge to achieve the desirable minimum SSD would require additional land requisition and the removal of existing vegetation which may have a negative environmental impact of removing/relocating an existing hedge.
D	Capital and Whole Life Cost/Value	The alternative option of widening the southern verge to achieve the desirable minimum SSD would require additional land requisition and the removal and relocation of an existing boundary fence, which would increase scheme costs.
E	Accessibility	No positive or negative impact.
F	Integration	No positive or negative impact.
G	Structural	No positive or negative impact.
H	Network Resilience & Maintenance	No positive or negative impact.

9.5. Compensatory Measures

9.5.1. Compensatory measures where relevant have been included in the table below.

Table 9-4 – DFS.13 Compensatory Measures

A	Included Measures	<p>A 40mph speed limit is proposed for the B4634 Old Gloucester Road either side of the proposed new signalised junction and extends beyond the junction for Hayden Lane. The existing speed limit along the B4634 is 50mph. The reduced speed limit should encourage slower vehicle speeds approaching the Hayden Lane junction compared to the existing situation.</p> <p>Existing directional signs provided on the B4634 approach to the Hayden Lane junction will be retained/renewed as part of the scheme which will provide advance warning to drivers of the upcoming junction.</p>
B	Rejected Options	N/A

9.6. Design Organisation's Concluding Remarks

- 9.6.1. The existing SSD from the B4634 westbound to Hayden Lane junction is below the desirable minimum for the design speed.
- 9.6.2. Realignment and widening of the B4634 is proposed to accommodate a new signalised junction to the east of Withybridge Lane and a new SUP on the northern side of the B4634. The proposed alignment slightly reduces the current level of visibility from the B4634 to Hayden Lane junction. The departure is therefore required for the reduced SSD to the junction.
- 9.6.3. To achieve the required visibility would require the scheme to be extended further along the B4634. It would also require additional land requisition to the south of the B4634, relocation of an existing boundary fence and removal of existing vegetation to provide a wider southern verge. This would increase scheme costs, potentially have negative environmental impacts, and may result in objections from affected landowner/s.

9.6.4. The introduction of a reduced speed limit on the B4634 and the close physical presence a new signalised junction on the B4634 to the east of Hayden Lane junction and associated signage would assist with speed control at this location. Therefore, the proposal is not considered to have a notable impact on user safety.

9.7. Attachments & Other Information

9.7.1. Details of attachments and other information included as part of this departure submission are included in the table below.

Table 9-5 – DFS.13 Attachments & Other Information

A	List of Attachments	Departures from Standards (Sheet 1 of 4): GCCM5J10-ATK-HGN-ZZ-DR-CH-000061_C04 General Arrangement Layout M5 Junction 10 (Sheet 12 of 17): GCCM5J10-ATK-HGN-J3_JN-DR-CH-000001_C06 Traffic Regulation Order Plans (Sheet 1 and 2 of 6): GCCM5J10-ATK-HGN-ZZ-DR-CH-000055_C03 GCCM5J10-ATK-HGN-ZZ-DR-CH-000056_C03
B	Consultations	N/A
C	Other Information	N/A

9.8. Decision

9.8.1. The decision summary for this departure is provided in the table below.

Table 9-6 – DFS.13 Decision

Name 1	Role	Signed	Date
Name 2	Role	Signed	Date
Tick One Box	APPROVED	APPROVED WITH COMMENTS <input checked="" type="checkbox"/>	REJECTED
COMMENTS	Confirmed that design is not worsening current visibility, which is non-standard, but that mitigation by way of reduced speed limit from 50 to 40 mph is included plus the introduction of a traffic signal junction, both of which will manage vehicle speeds. Panel considered whether the increase in traffic volumes could increase risk but accepted that there is no additional space within the red line boundary for the scheme. However, it was suggested that junction treatments were considered to further mitigate.		

10. DFS.14 – Visibility from Hayden Lane junction is below 120m

10.1. Submission for Departure from Standards

- 10.1.1. As part of the M5 J10 Improvements scheme, a new signalised junction is proposed on the B4634 to the east of Withybridge Lane. To accommodate the new junction, carriageway widening and realignment of the B4634 is required between Withybridge Lane and the new signalised junction. A new SUP is also proposed on the northern side of the B4634.
- 10.1.2. Hayden Lane is located to the west of Withybridge Lane so is outside the scheme extents. However, visibility from Hayden Lane to the east along the B4634 is obstructed by an existing boundary fence and vegetation and as such is below the desirable minimum required.
- 10.1.3. DMRB CD 123 Clause 3.4 requires that from a setback of 2.4m into Hayden Lane, visibility corresponding to the desirable minimum SSD for the speed of the major road shall be provided. For a 70kph design speed the desirable minimum SSD is 120m. This is achieved to the west of the junction but not to the east, where visibility is limited to 60m.
- 10.1.4. Submission for departure to CD 123 Cl 3.4 for the existing reduced visibility to the east from Hayden Lane junction.

10.2. Project Details

- 10.2.1. Project details for this departure are provided in the table below.

Table 10-1 – DFS.14 Project Details

A	Description	Realignment and widening of the B4634 is proposed from its junction with Withybridge Lane to a new signalised junction to the east. The B4634 junction with Hayden Lane is located to the west of Withybridge Lane and as such is outside the extents of the scheme. However, visibility corresponding to the desirable minimum SSD to the east along the B4634 from Hayden Lane is not achieved due to an existing boundary fence and vegetation.
B	Location	B4634 Hayden Lane Junction
C	Road category and type	Single carriageway
D	Design speed and speed limit	70 kph Design speed 40 mph Speed limit (proposed)
E	Traffic flows	<p>2025 Do Minimum Scenario AADT Flows</p> <ul style="list-style-type: none"> • B4634 eastbound = 4,464 veh/day • B4634 westbound = 4,546 veh/day • Hayden Lane northbound = 2,000 veh/day • Hayden Lane southbound = 2,297 veh/day <p>2041 Do Minimum Scenario AADT Flows</p> <ul style="list-style-type: none"> • B4634 eastbound = 4,285 veh/day • B4634 westbound = 4,618 veh/day • Hayden Lane northbound = 2,177 veh/day • Hayden Lane southbound = 2,661 veh/day <p>2025 Do Something Scenario AADT Flows</p> <ul style="list-style-type: none"> • B4634 eastbound = 3,709 veh/day • B4634 westbound = 4,493 veh/day • Hayden Lane northbound = 582 veh/day

		<ul style="list-style-type: none"> Hayden Lane southbound = 657 veh/day <p>2041 Do Something Scenario AADT Flows</p> <ul style="list-style-type: none"> B4634 eastbound = 5,225 veh/day B4634 westbound = 5,510 veh/day Hayden Lane northbound = 1,226 veh/day Hayden Lane southbound = 1,680 veh/day
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10.3. Departure Details

10.3.1. Departure details are provided in the table below.

Table 10-2 – DFS.14 Departure Details

A	Discipline	Highways
	Type	Visibility
B	Relevant Standard(s)	CD 123
	Clause	3.4
C	Difference between Standard(s) and Proposed Design	CD 123 Clause 3.4 requires that from a setback of 2.4m into Hayden Lane, visibility corresponding to the desirable minimum SSD for the speed of the major road (70kph – 120m) shall be provided. This is achieved to the west of the junction but not to the east, where visibility is limited to 60m.
D	Reason for Departure (overview)	This is an existing departure where the visibility splay is obstructed by an existing boundary fence and vegetation belonging to Orchard House. Existing junction and visibility splay are outside the extents of the proposed scheme. Details have been included because of its proximity to the scheme and association with DFS.13. The introduction of the proposed signalised junction in close proximity to this junction and associated signing should assist with speed control at this location. The scheme also proposes a reduction in speed limit from 50mph to 40mph for the lengths of the B4634 either side of the proposed signalised junction which extends beyond Hayden Lane junction.
E	Associated Project Departures	DFS.13
F	Other Options Considered	To achieve the required SSD, the option of widening the southern verge of the B4634 on approach to Hayden Lane junction could be considered. However, this would require the scheme to be extended further west along the B4634 towards Hayden Lane. It would also require additional land purchase to the south of the B4634 and the removal and relocation of an existing boundary fence and vegetation along the existing boundary. This would result in additional scheme costs and potential environmental impacts. It may also result in objections from affected landowner/s.

10.4. Justification (Potential Positive & Negative Impacts)

10.4.1. Potential impacts of this departure are provided in the table below.

Table 10-3 – DFS.14 Justification

A	Safety	This is an existing departure where the visibility splay is obstructed by an existing boundary fence and vegetation belonging to Orchard House. The existing junction and obstructions to the visibility splay are outside the extents of the proposed scheme. The introduction of the proposed signalised junction to the east of the junction and associated signing should assist with speed control at this location. The scheme also proposes a reduction in speed limit from 50mph to 40mph for the lengths of the B4634 either side of the
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		proposed signalised junction and extends beyond Hayden Lane junction. As such, it is considered that the reduced visibility to the east from Hayden Lane junction would not have a notable impact on safety.
B	Congestion/delay	No positive or negative impact.
C	Environmental/Sustainability	The alternative option of widening the southern verge of the B4634 to achieve the desirable minimum SSD would require additional land requisition and the removal of existing vegetation which may have a negative environmental impact of removing/relocating an existing hedge.
D	Capital and Whole Life Cost/Value	The alternative option of widening the southern verge of the B4634 to achieve the desirable minimum SSD would require additional land requisition and the removal and relocation of an existing boundary fence, which would increase scheme costs.
E	Accessibility	No positive or negative impact.
F	Integration	No positive or negative impact.
G	Structural	No positive or negative impact.
H	Network Resilience & Maintenance	No positive or negative impact.

10.5. Compensatory Measures

10.5.1. Compensatory measures where relevant have been included in the table below.

Table 10-4 – DFS.14 Compensatory Measures

A	Included Measures	A 40mph speed limit is proposed for the B4634 Old Gloucester Road either side of the proposed new signalised junction and extends beyond the junction for Hayden Lane. The existing speed limit along the B4634 is 50mph. The reduced speed limit should encourage slower vehicle speeds approaching the Hayden Lane junction compared to the existing situation which should assist vehicles entering the B4634 from Hayden Lane. Existing directional signs provided on the B4634 approach to the Hayden Lane junction will be retained/renewed as part of the scheme which will provide advance warning to drivers of the upcoming junction.
B	Rejected Options	N/A

10.6. Design Organisation’s Concluding Remarks

- 10.6.1. The visibility to the east along the B4634 from Hayden Lane is below the desirable minimum SSD required for the design speed as specified in DMRB CD 123 CI 3.4. The existing junction and existing obstructions within the visibility splay are outside the extents of the proposed scheme. The departure is therefore required for the existing reduced visibility from the junction.
- 10.6.2. To achieve the required visibility would require the scheme to be extended further along the B4634. It would also require additional land requisition to the south of the B4634, relocation of an existing boundary fence and removal of existing vegetation to provide a wider southern verge. This would increase scheme costs, potentially have negative environmental impacts, and may result in objections from affected landowner/s.
- 10.6.3. The introduction of a reduced speed limit on the B4634 and the close physical presence of a new signalised junction on the B4634 to the east of Hayden Lane junction and associated signage would assist with speed control at this location. Therefore the proposal is not considered to have a notable impact on user safety.

10.7. Attachments & Other Information

10.7.1. Details of attachments and other information included as part of this departure submission are included in the table below.

Table 10-5 – DFS.14 Attachments & Other Information

A	List of Attachments	Departures from Standards (Sheet 1 of 4): GCCM5J10-ATK-HGN-ZZ-DR-CH-000061_C04 General Arrangement Layout M5 Junction 10 (Sheet 12 of 17): GCCM5J10-ATK-HGN-J3_JN-DR-CH-000001_C06 Traffic Regulation Order Plans (Sheet 1 and 2 of 6): GCCM5J10-ATK-HGN-ZZ-DR-CH-000055_C03 GCCM5J10-ATK-HGN-ZZ-DR-CH-000056_C03
B	Consultations	N/A
C	Other Information	N/A

10.8. Decision

10.8.1. The decision summary for this departure is provided in the table below.

Table 10-6 – DFS.14 Decision

Name 1	Role	Signed	Date
Name 2	Role	Signed	Date
Tick One Box	APPROVED	APPROVED WITH COMMENTS <input checked="" type="checkbox"/>	REJECTED
COMMENTS	Confirmed that design is not worsening current visibility, which is non-standard, but that mitigation by way of reduced speed limit from 50 to 40 mph is included plus the introduction of a traffic signal junction, both of which will manage vehicle speeds. Panel considered whether the increase in traffic volumes could increase risk but accepted that there is no additional space within the red line boundary for the scheme. However, it was suggested that junction treatments were considered to further mitigate.		

11. DFS.15 – Access road horizontal radii less than 44m

11.1. Submission for Departure from Standards

- 11.1.1. As part of the M5 J10 Improvements scheme, a new access road is proposed connecting Cooks Lane to the new Link Road. This access road will also serve a small group of properties (including The Forge) located to the west of Cooks Lane.
- 11.1.2. To minimise the impact on land requirements, the access road has been designed with two individual radii of 30m. For a 50kph design speed (30mph speed limit) Manual for Streets (MfS) 2 recommends a desirable minimum horizontal radius of 44m.
- 11.1.3. Submission for departure to Manual for Streets 2 to provide horizontal radii less than the desirable minimum.

11.2. Project Details

- 11.2.1. Project details for this departure are provided in the table below.

Table 11-1 – DFS.15 Project Details

A	Description	As part of the M5 J10 Improvements scheme, a new access road is proposed connecting Cooks Lane to the new Link Road. To minimise the impact on land requirements, the access road has been designed with two individual radii of 30m, which is less than the desirable minimum radius (44m) recommended in MfS for the design speed (50kph).
B	Location	Access road from Link Road to small group of properties (including The Forge) and to Cooks Lane
C	Road category and type	Single carriageway
D	Design speed and speed limit	50 kph Design speed 30 mph Speed limit (proposed)
E	Traffic flows	Traffic flows unavailable.

11.3. Departure Details

- 11.3.1. Departure details are provided in the table below.

Table 11-2 – DFS.15 Departure Details

A	Discipline	Highways
	Type	Horizontal radius for access road
B	Relevant Standard(s)	Manual for Streets (MfS)
	Clause	
C	Difference between Standard(s) and Proposed Design	For a 50kph design speed (30mph speed limit) MfS 2 recommends a desirable minimum horizontal radii of 44m. This proposed access road includes two individual radii of 30m.
		The proposed curve radii are closer to the desirable minimum 28m recommended for a 40kph design speed in MfS 2.
D	Reason for Departure (overview)	To minimise permanent land impacts.
		Proposed access road is 5.5m wide but swept paths have been produced for two HGV's passing on these radii and widened to suit these requirements. MfS requirements for SSD is achieved.
E	Associated Project Departures	N/A

F	Other Options Considered	The option of providing the desirable minimum horizontal radii of 44m was considered. However, this would require a larger permanent impact on the land and result in additional scheme costs. Due to the low traffic volumes and low speed of traffic anticipated, a reduced curve radius was considered acceptable and would reduce unnecessary land impacts and associated costs.
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11.4. Justification (Potential Positive & Negative Impacts)

11.4.1. Potential impacts of this departure are provided in the table below.

Table 11-3 – DFS.15 Justification

A	Safety	The access road serves a small number of properties, so traffic flows are anticipated to be low. The proposed 5.5m carriageway width and rural nature of the access road should also assist in keeping traffic speeds low. The proposed curve radii are closer to the recommendations for a 40kph design speed (24mph) which will have the positive impact of reducing the speed of vehicles entering the access road that leads to residential properties. The minimum requirements for SSD for the design speed are satisfied in accordance with MfS. Swept path analysis has also been carried out using two HGVs and local widening at the radii has been included to satisfy that two HGVs are able to pass each other. Therefore, it is considered that the reduced horizontal radii would not have a notable impact on safety.
B	Congestion/delay	The access road serves a small number of properties, so traffic flows are anticipated to be low. Swept path analysis has been carried out using two HGVs and local widening at the radii has been included to satisfy that two HGVs are able to pass each other. Therefore, it is considered that the reduced horizontal radii would not have a notable impact on congestion/delay.
C	Environmental/ Sustainability	Providing reduced horizontal radii reduces land requirements and as such has less impact on the surrounding environment.
D	Capital and Whole Life Cost/Value	Providing reduced horizontal radii reduces land requirements and as such reduces scheme costs.
E	Accessibility	The access road provides access to the proposed Link Road, from which drivers have access to the A4019 in both directions. Swept path analysis has been carried out on the access road using two HGVs and local widening at the radii has been included to satisfy that two HGVs are able to pass each other. Therefore, it is considered that the reduced horizontal radii would not have a notable impact on accessibility.
F	Integration	No positive or negative impact.
G	Structural	No positive or negative impact.
H	Network Resilience & Maintenance	No positive or negative impact.

11.5. Compensatory Measures

11.5.1. Compensatory measures where relevant have been included in the table below.

Table 11-4 – DFS.15 Compensatory Measures

A	Included Measures	N/A
B	Rejected Options	N/A

11.6. Design Organisation’s Concluding Remarks

- 11.6.1. To minimise the impact on land requirements, a new access road connecting Cooks Lane to the new Link Road has been designed with two individual radii of 30m, which is below the desirable minimum radius of 44m recommended in MfS for a 50kph design speed.
- 11.6.2. The anticipated speed and volume of traffic on the access road is low. Swept path analysis has also been undertaken and adequate carriageway width provided at the radii to allow two HGVs to pass each other. Therefore, it is considered that the reduced horizontal radii will not have a notable impact on safety, accessibility or congestion.
- 11.6.3. The reduced horizontal radii will also benefit the scheme by reducing land impacts and scheme costs.

11.7. Attachments & Other Information

- 11.7.1. Details of attachments and other information included as part of this departure submission are included in the table below.

Table 11-5 – DFS.15 Attachments & Other Information

A	List of Attachments	Departures from Standards (Sheet 2 of 4): GCCM5J10-ATK-HGN-ZZ-DR-CH-000062_C03 General Arrangement Layout M5 Junction 10 (Sheet 6 of 17): GCCM5J10-ATK-HGN-J2_JN-DR-CH-000001_C06
B	Consultations	N/A
C	Other Information	N/A

11.8. Decision

- 11.8.1. The decision summary for this departure is provided in the table below.

Table 11-6 – DFS.15 Decision

Name 1	Role	Signed	Date
Name 2	Role	Signed	Date
<input type="checkbox"/> Tick One Box	<input type="checkbox"/> APPROVED	<input checked="" type="checkbox"/> APPROVED WITH COMMENTS	<input type="checkbox"/> REJECTED
COMMENTS	Panel had previously queried whether it was possible to fit a standard compliant design within the red line boundary for the schemes – it is, therefore, no departure required.		

12. DFS.16 – Non-typical junction arrangement with service road junctions close to proposed stop line on The Green

12.1. Submission for Departure from Standards

- 12.1.1. As part of the dualling of the A4019 under the M5 J10 Improvements scheme, new service roads are proposed on the northern side of the A4019, to the east and west of The Green. The service roads provide access for a small number of properties to The Green from which users can join the A4019 in either direction via the proposed signalised junction at Uckington.
- 12.1.2. Specific departures have not been identified at this arm of the junction because the design aspects are not covered by standards. However, the design at this location comprises a non-typical layout so has been included within this report for approval.
- 12.1.3. Submission to approve use of non-typical layout on the northern arm of Uckington Junction to provide access for the service roads onto The Green.

12.2. Project Details

- 12.2.1. Project details for this departure are provided in the table below.

Table 12-1 – DFS.16 Project Details

A	Description	New service roads proposed either side of The Green as part of the A4019 dualling result in a non-typical layout on the northern arm of the proposed signalised junction at Uckington.
B	Location	Uckington Junction – The Green
C	Road category and type	4.8m wide single carriageway service roads
D	Design speed and speed limit	50 kph Design Speed 30 mph Speed Limit
E	Traffic flows	Flows not available for The Green

12.3. Departure Details

- 12.3.1. Departure details are provided in the table below.

Table 12-2 – DFS.16 Departure Details

A	Discipline	Highways
	Type	
B	Relevant Standard(s)	Aspects not covered by standards
	Clause	
C	Difference between Standard(s) and Proposed Design	Specific departures have not been identified at this arm of the junction. However, the design at this location comprises a non-typical layout. Due to the proximity of the proposed service roads to the stop line on The Green, there is the potential for temporary obstruction to the flow of traffic on this arm of the junction by the conflict of traffic to/from the service roads with that on The Green.
D	Reason for Departure (overview)	The requirement to minimise impacts on existing properties on the north side of the A4019 and Manor Farm land and outbuildings to the south of the scheme.

		<p>Additional primary signal has been provided. These signals have been positioned for visibility to main side road carriageway but should be visible to service road traffic without causing confusion as to where the right of way applies.</p> <p>'Keep Clear' markings will also be added to prevent vehicles blocking the entry width into the access to the eastern service road. The available space between the stop line and the start of the 'Keep Clear' marking would be approximately 5m and sufficient for a standard car to enter.</p> <p>Swept path analysis has been undertaken to confirm that the turning movements are possible for various types of vehicle anticipated to use the service roads. Large vehicles including a 7.5t box van and refuge vehicle have been assessed and these can perform the likely turning movements with some limited over-run into opposing lanes in places.</p>
E	Associated Project Departures	N/A
F	Other Options Considered	<p>Due to land and property constraints to the north and south of the A4019 in this location, no alternative option for the service roads have been identified.</p> <p>It should also be noted that the option of providing direct access from the properties to the proposed A4019 eastbound carriageway was rejected due to road safety implications and the need to perform U-turn manoeuvres at the nearest signalised junction to be able to access the A4019 westbound carriageway.</p>

12.4. Justification (Potential Positive & Negative Impacts)

12.4.1. Potential impacts of this departure are provided in the table below.

Table 12-3 – DFS.16 Justification

A	Safety	<p>Traffic flows and speeds are anticipated to be low due to the small number of properties served by the service roads and the residential nature at this location.</p> <p>Swept path analysis has been undertaken to confirm vehicle types expected to use the service roads are able to make the required turning movements between the service roads and The Green. Large vehicles including a 7.5t box van and refuge vehicle have been assessed and these can perform the likely turning movements with some limited over-run into opposing lanes in places.</p> <p>Access to the A4019 dual-carriageway via the signalised junction is considered safer than providing direct access to the A4019 in one direction only. The service roads are therefore considered to have a positive impact on safety compared to the alternative.</p>
B	Congestion/delay	<p>Due to the proximity of the proposed service roads to the stop line on The Green, there is the potential for temporary obstruction to the flow of traffic on this arm of the junction by the conflict of traffic to/from the service roads with that on The Green.</p> <p>The small number of properties accessed via the service road means that the volume of traffic using the service road is anticipated to be low. The risk of vehicles blocking movement on The Green is therefore considered to be low.</p> <p>This risk has been mitigated by including 'Keep Clear' markings in the design to prevent vehicles blocking the entry width into the access to the eastern service road. An additional primary signal has also been included in the design to improve visibility of the signals to service road traffic.</p>
C	Environmental/Sustainability	No notable positive or negative impact.

D	Capital and Whole Life Cost/Value	No notable positive or negative impact.
E	Accessibility	The service roads allow access to the A4019 dual-carriageway in both directions via The Green and the proposed signalised junction. Therefore, the proposal does not negatively impact the property owners.
F	Integration	No notable positive or negative impact.
G	Structural	No notable positive or negative impact.
H	Network Resilience & Maintenance	No notable positive or negative impact.

12.5. Compensatory Measures

12.5.1. Compensatory measures where relevant have been included in the table below.

Table 12-4 – DFS.16 Compensatory Measures

A	Included Measures	<p>'Keep Clear' markings have been included on The Green to prevent vehicles queuing at the signals from blocking the entrance to the eastern service road. This will help reduce the likelihood of a vehicle obstructing the flow of traffic from the A4019 onto The Green. The available space between the stop line and the start of the 'Keep Clear' marking would be approximately 5m and sufficient for a standard car to enter.</p> <p>An additional primary signal has been provided. These signals have been positioned for visibility to the main side road carriageway but should be visible to service road traffic without causing confusion as to where the right of way applies.</p>
B	Rejected Options	N/A

12.6. Design Organisation's Concluding Remarks

- 12.6.1. New service roads are proposed to the east and west of The Green. Due to their proximity to the stop line on The Green, there is the potential for temporary obstruction to the flow of traffic on this arm of the signalised junction at Uckington.
- 12.6.2. Specific departures have not been identified at this arm of the junction. However, the design at this location comprises a non-typical layout so has been included in this report for approval.
- 12.6.3. 'Keep Clear' markings have been included on The Green to prevent vehicles from blocking the entrance to the eastern service road and reduce the risk of a vehicle obstructing the flow of traffic from the A4019 to The Green. An additional primary signal has also been provided to improve visibility to the signals for the service road traffic.
- 12.6.4. Traffic volumes and speeds are anticipated to be low on the service roads due to the relatively small number of properties they serve. Swept path analysis has also been undertaken to confirm that vehicles expected to use the service roads are able to make the required movements.
- 12.6.5. It is therefore considered that the proposed layout should not have a notable impact on safety, accessibility or congestion.

12.7. Attachments & Other Information

12.7.1. Details of attachments and other information included as part of this departure submission are included in the table below.

Table 12-5 – DFS.16 Attachments & Other Information

A	List of Attachments	Departures from Standards (Sheet 4 of 4): GCCM5J10-ATK-HGN-ZZ-DR-CH-000064_C03 General Arrangement Layout M5 Junction 10 (Sheet 7 of 17): GCCM5J10-ATK-HGN-L1_ML-DR-CH-000001_C06
B	Consultations	N/A
C	Other Information	N/A

12.8. Decision

12.8.1. The decision summary for this departure is provided in the table below.

Table 12-6 – DFS.16 Decision

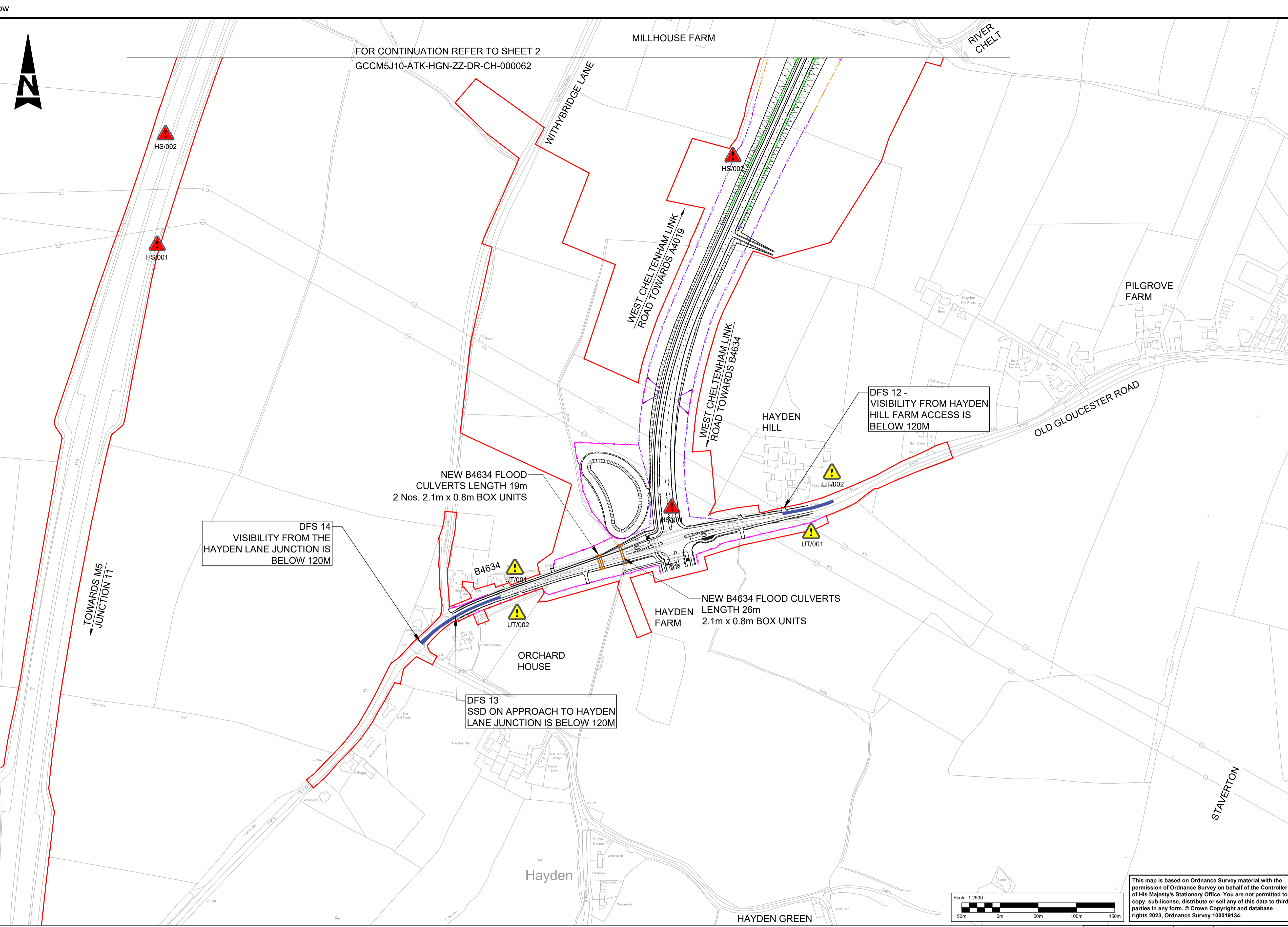
Name 1	Role	Signed	Date
Name 2	Role	Signed	Date
Tick One Box	APPROVED	APPROVED WITH COMMENTS <input checked="" type="checkbox"/>	REJECTED
COMMENTS	Panel had previously queried the comparison with similar arrangement in Gloucester/Eastern Avenue and dimensions used in this junction. At this location the dimensions are smaller, but the traffic volumes are also significantly lower. It was suggested that a wider access may be provided by way of overrun areas. It was accepted that this was a compromise to separate the traffic/frontages from the main carriageway.		

Appendices



Appendix A. Supporting Scheme Drawings

DO NOT SCALE
 Millimetres
 0 10 100

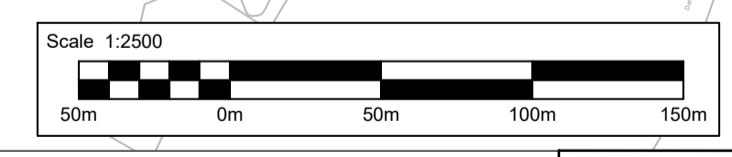


FOR CONTINUATION REFER TO SHEET 2
 GCCM5J10-ATK-HGN-ZZ-DR-CH-000062

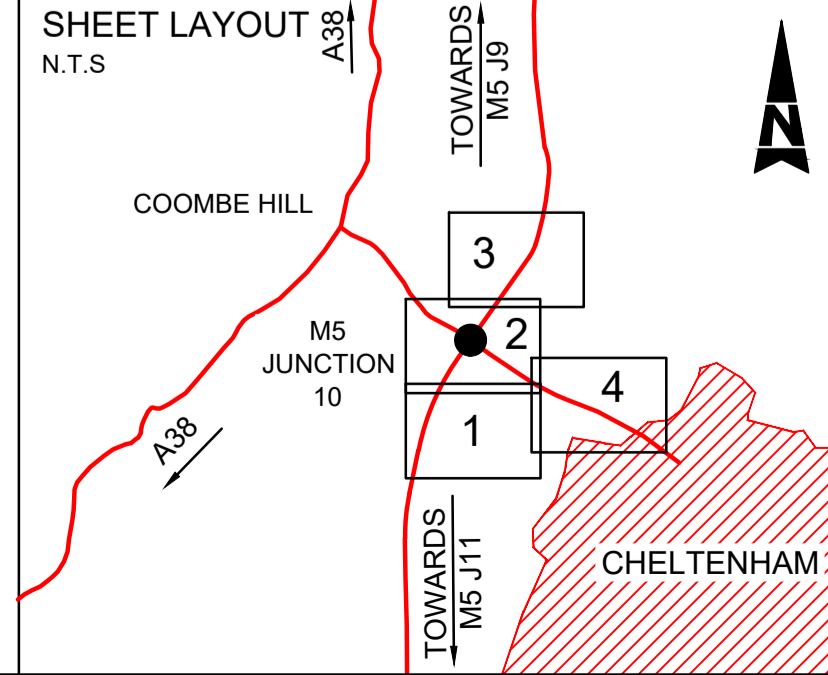
DFS 12 - VISIBILITY FROM HAYDEN HILL FARM ACCESS IS BELOW 120M

DFS 14 VISIBILITY FROM THE HAYDEN LANE JUNCTION IS BELOW 120M

DFS 13 SSD ON APPROACH TO HAYDEN LANE JUNCTION IS BELOW 120M



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NOTES

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KEY:

- PROPOSED REDLINE BOUNDARY
- PROPOSED HIGHWAY FENCE LINE
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- OTR PROPOSED OTTER FENCING
- PROPOSED NOISE BARRIER
- PROPOSED ABSORPTIVE NOISE BARRIER
- EXISTING FENCE LINE
- MERGE / DIVERGE DEPARTURE
- CYCLE TRACK VERTICAL ALIGNMENT DEPARTURE
- FOOTWAY / SHARED USE PATH DEPARTURE
- SSD DEPARTURE
- HORIZONTAL GEOMETRY DEPARTURE
- PROPOSED OVERBRIDGE
- PROPOSED UNDERBRIDGE/CULVERT
- PROPOSED ROAD RESTRAINT (SAFETY BARRIER)
- NW3 WORKING WIDTH
- CONTAINMENT LEVEL
- HW3 PROPOSED ROAD RESTRAINT (SAFETY BARRIER)
- WORKING WIDTH
- CONTAINMENT LEVEL
- PP PROPOSED PARAPET
- P4 PROPOSED LEADING TYPE P4 TERMINAL
- P1 PROPOSED TRAILING TYPE P1 TERMINAL

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

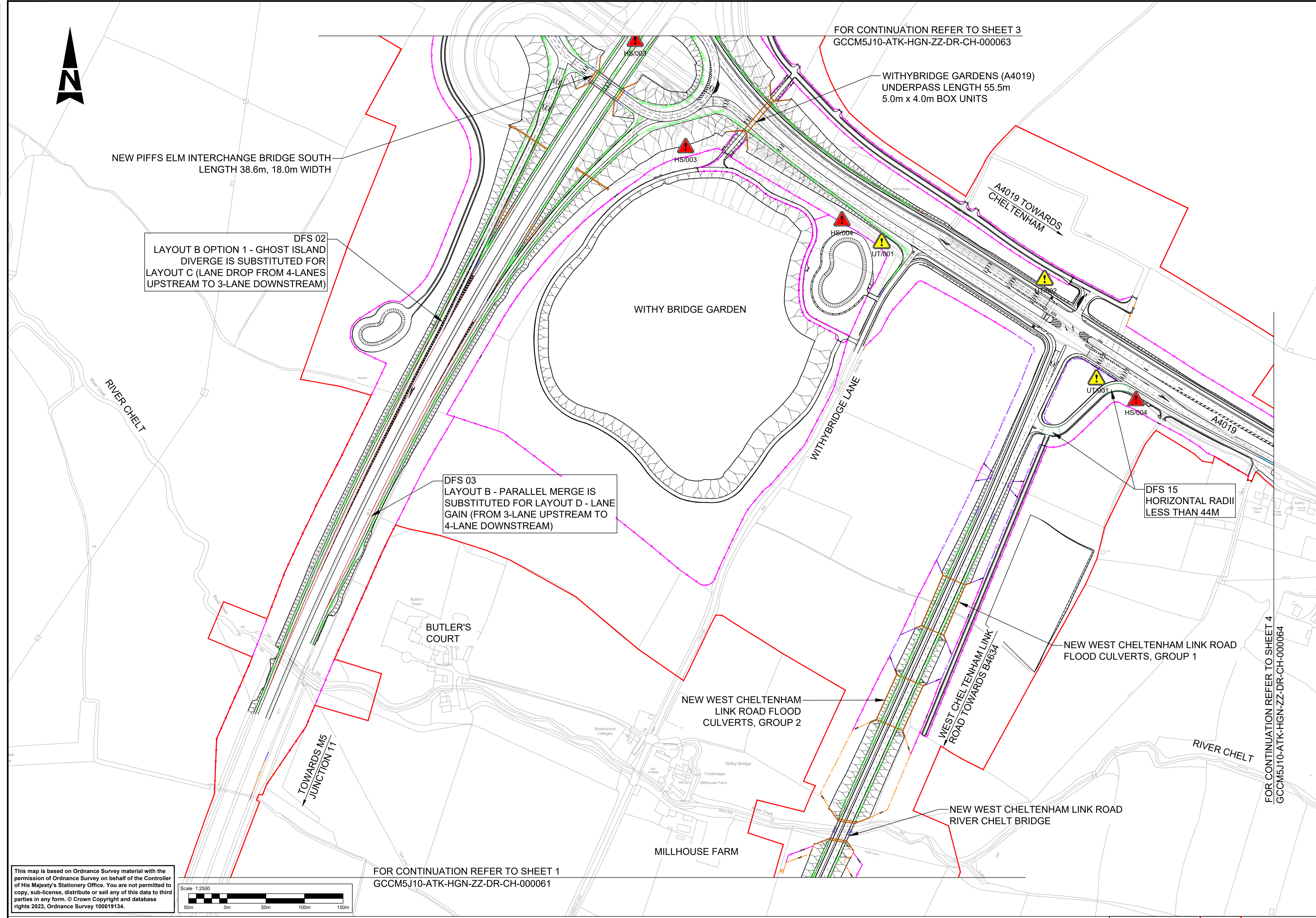
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction						
HS/001	-	OVERHEAD POWERLINES				
HS/002	-	HIGH PRESSURE GAS MAIN				
UT/001	-	EXISTING BRITISH TELECOM UTILITIES				
UT/002	-	EXISTING SEVERN TRENT WATER TRUNK MAIN UTILITIES				
Maintenance / Cleaning						
None identified at this stage						
Use						
None identified at this stage						
Decommissioning / Demolition						
None identified at this stage						
Description						
FIRST SUBMISSION						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
S3	P01	NG	NKRP	CJ	---	04/10/21
Description						
FIRST SUBMISSION						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	CO1	NKRP	AV	CJ	LJ	13/10/21
Description						
DESIGN FIX 3						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	CO2	MC	CJ	AM	LJ	06/07/22
Description						
DESIGN FIX 3 - FINAL						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	CO3	MC	CJ	CCR	BM	28/02/23
Description						
Bus Lane Update						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	CO4	MC	NKRP	CCR	BM	14/06/23
Drawing Suitability						
APPROVED - PUBLISHED						A1
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Client						
Gloucestershire COUNTY COUNCIL						
Project Title						
M5 Junction 10 Improvements Scheme						
Drawing Title						
DEPARTURES FROM STANDARDS SHEET 01 OF 04						
Drawing Number						
Project						
GCCM5J10 - ATK - HGN - ZZ - DR - CH - 000061						
Location						
Original Size: A1 Scale: 1:2500 Project Ref. No.: 5197035 Sheet: 1 of 4 Rev: C04						

DO NOT SCALE

100
0 10
Millimetres

Low



FOR CONTINUATION REFER TO SHEET 3
GCCM5J10-ATK-HGN-ZZ-DR-CH-000063

WITHYBRIDGE GARDENS (A4019)
UNDERPASS LENGTH 55.5m
5.0m x 4.0m BOX UNITS

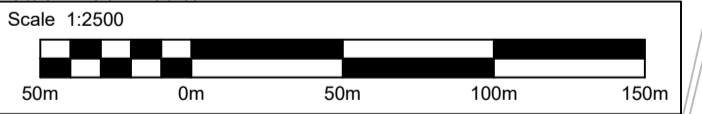
NEW PIFFS ELM INTERCHANGE BRIDGE SOUTH
LENGTH 38.6m, 18.0m WIDTH

DFS 02
LAYOUT B OPTION 1 - GHOST ISLAND
DIVERGE IS SUBSTITUTED FOR
LAYOUT C (LANE DROP FROM 4-LANES
UPSTREAM TO 3-LANE DOWNSTREAM)

DFS 03
LAYOUT B - PARALLEL MERGE IS
SUBSTITUTED FOR LAYOUT D - LANE
GAIN (FROM 3-LANE UPSTREAM TO
4-LANE DOWNSTREAM)

DFS 15
HORIZONTAL RADII
LESS THAN 44M

FOR CONTINUATION REFER TO SHEET 1
GCCM5J10-ATK-HGN-ZZ-DR-CH-000061



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- WORKING WIDTH
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- P4 PROPOSED LEADING TYPE P4 TERMINAL
- P1 PROPOSED TRAILING TYPE P1 TERMINAL

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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Category	Description
Construction	HS/001 - OVERHEAD POWERLINES HS/003 - DEMOLITION OF EXISTING STRUCTURE/BUILDINGS HS/004 - MEDIUM PRESSURE GAS MAIN UT/001 - EXISTING BRITISH TELECOM UTILITIES UT/002 - EXISTING SEVERN TREAT WATER TRUNK MAIN UTILITIES UT/003 - EXISTING BUILDING MUST BE KEPT POWERED AT ALL TIMES
Maintenance / Cleaning	None identified at this stage
Use	None identified at this stage
Decommissioning / Demolition	None identified at this stage

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
DESIGN FIX 3	A1	CO1	MC	Checked	CJ	AM	LJ	06/07/22
DESIGN FIX 3 - FINAL	A1	CO2	MC	Checked	CJ	CCR	BM	28/02/23
Bus Lane Update	A1	CO3	MC	Checked	NKRP	CCR	BM	14/06/23

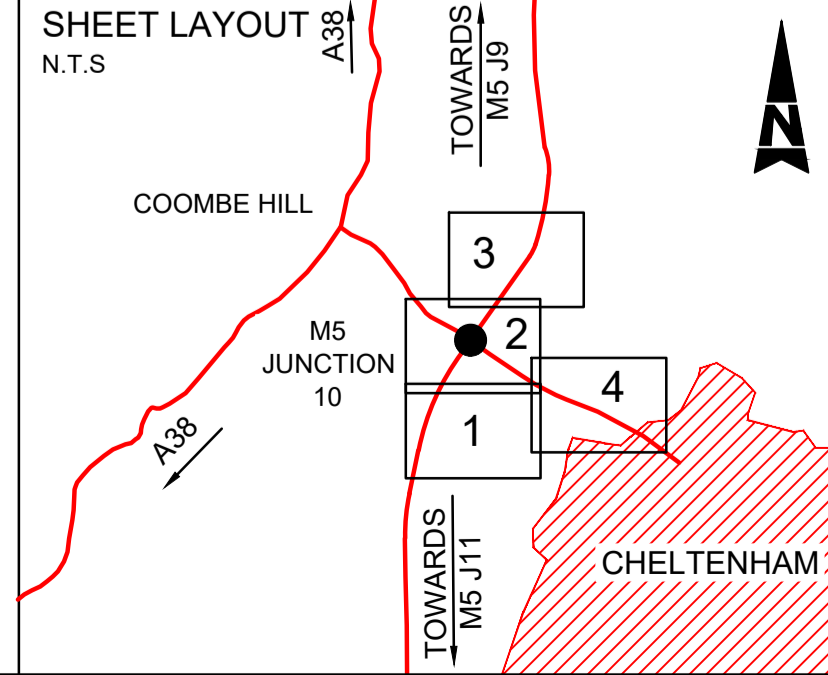
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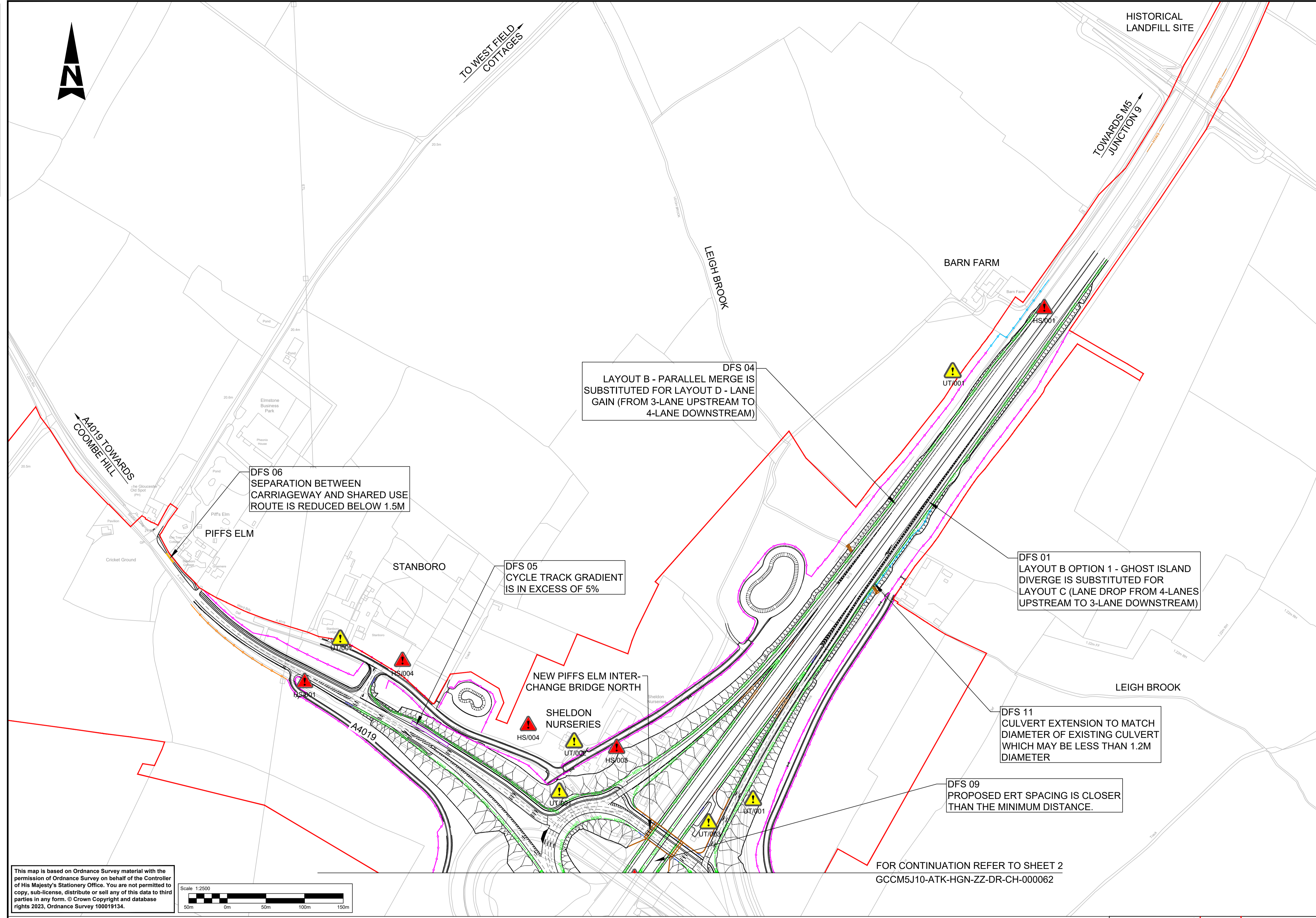


M5 Junction 10 Improvements Scheme

DEPARTURES FROM STANDARDS SHEET 02 OF 04

Drawing Number	Project	Originator	Volume
GCCM5J10	- ATK - HGN - ZZ	- DR - CH - 000062	
Location	Type	Role	Number
A1	Scale: 1:2500	Project Ref. No.: 5197035	Sheet: 2 of 4 Rev: C03

DO NOT SCALE
0 10 100
Millimetres



DFS 04
LAYOUT B - PARALLEL MERGE IS
SUBSTITUTED FOR LAYOUT D - LANE
GAIN (FROM 3-LANE UPSTREAM TO
4-LANE DOWNSTREAM)

DFS 06
SEPARATION BETWEEN
CARRIAGEWAY AND SHARED USE
ROUTE IS REDUCED BELOW 1.5M

DFS 05
CYCLE TRACK GRADIENT
IS IN EXCESS OF 5%

DFS 01
LAYOUT B OPTION 1 - GHOST ISLAND
DIVERGE IS SUBSTITUTED FOR
LAYOUT C (LANE DROP FROM 4-LANES
UPSTREAM TO 3-LANE DOWNSTREAM)

NEW PIFFS ELM INTER-
CHANGE BRIDGE NORTH

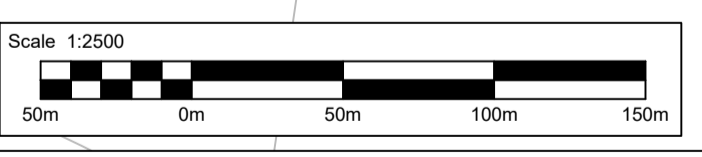
SHELDON
NURSERIES

DFS 11
CULVERT EXTENSION TO MATCH
DIAMETER OF EXISTING CULVERT
WHICH MAY BE LESS THAN 1.2M
DIAMETER

DFS 09
PROPOSED ERT SPACING IS CLOSER
THAN THE MINIMUM DISTANCE.

FOR CONTINUATION REFER TO SHEET 2
GCCM5J10-ATK-HGN-ZZ-DR-CH-000062

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- WORKING WIDTH
- CONTAINMENT LEVEL
- PROPOSED ROAD RESTRAINT (SAFETY BARRIER)
- WORKING WIDTH
- CONTAINMENT LEVEL
- PROPOSED PARAPET
- P4 PROPOSED LEADING TYPE P4 TERMINAL
- P1 PROPOSED TRAILING TYPE P1 TERMINAL

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction
UT/001 - EXISTING BRITISH TELECOM UTILITIES

Maintenance / Cleaning
None identified at this stage

Use
None identified at this stage

Decommissioning / Demolition
None identified at this stage

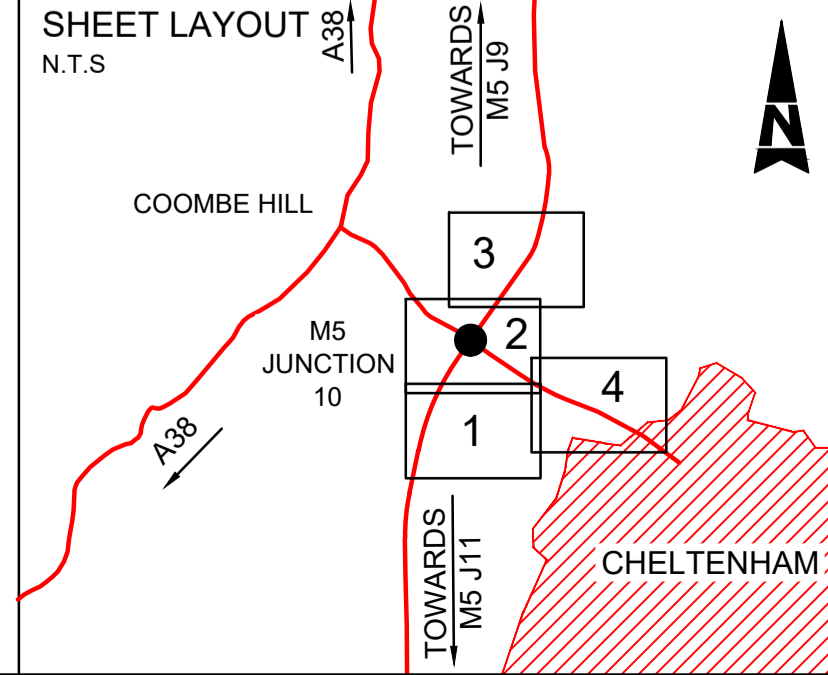
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DESIGN FIX 3	A1	CO1	MC	CJ	AM	LJ	06/07/22
DESIGN FIX 3 - FINAL	A1	CO2	MC	CJ	CCR	BM	28/02/23
Bus Lane Update	A1	CO3	MC	NKRP	CCR	BM	14/06/23

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Project Title: M5 Junction 10 Improvements Scheme

Drawing Title: DEPARTURES FROM STANDARDS SHEET 03 OF 04

Drawing Number: GCCM5J10 - ATK - HGN - ZZ - DR - CH - 000063

Project: 5197035

Scale: 1:2500

Project Ref. No.: 5197035

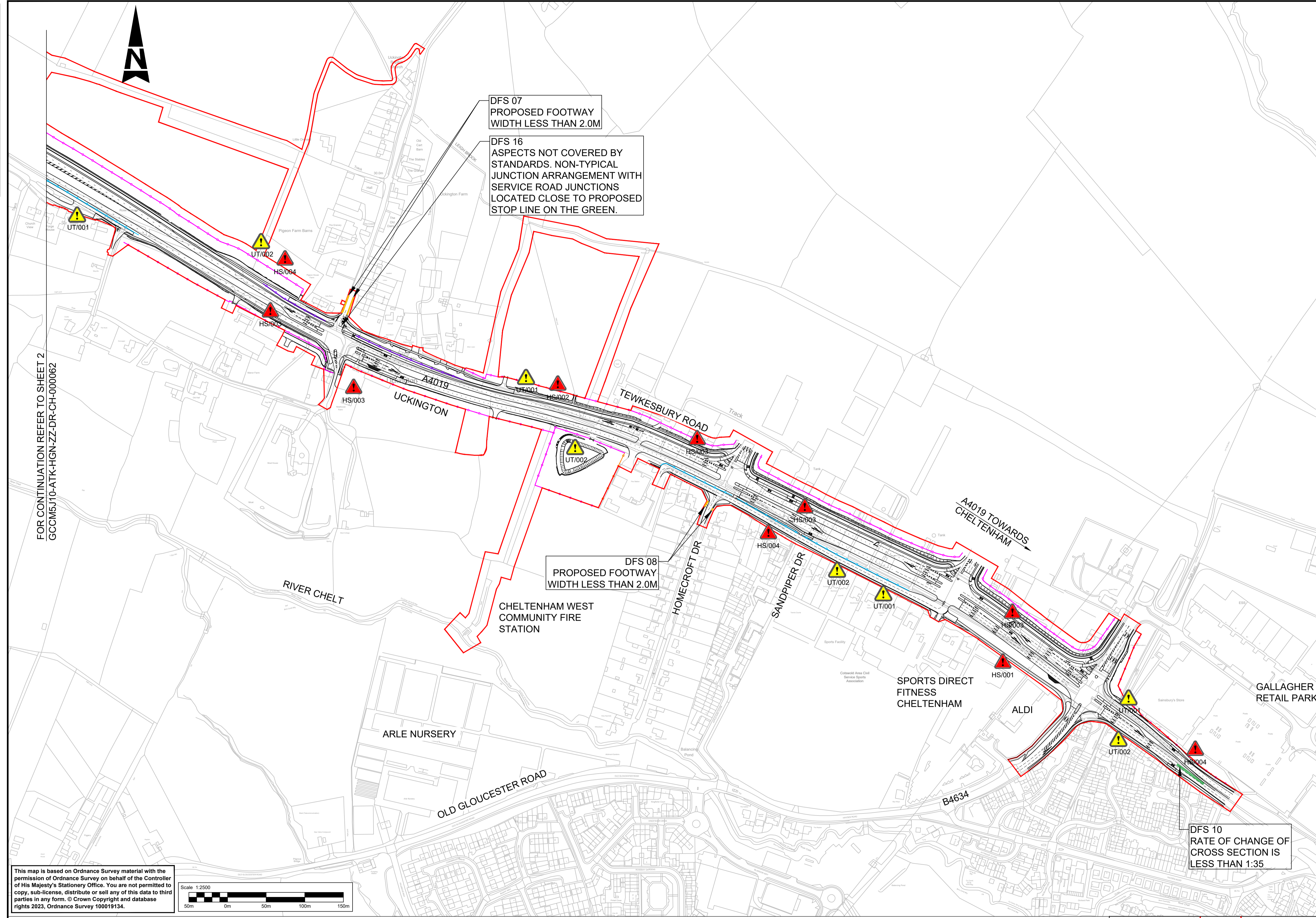
Sheet: 3 of 4

Rev: C03

DO NOT SCALE

Millimetres

Low



DFS 07
PROPOSED FOOTWAY
WIDTH LESS THAN 2.0M

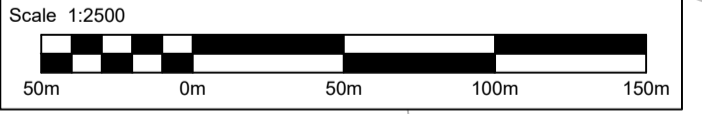
DFS 16
ASPECTS NOT COVERED BY
STANDARDS. NON-TYPICAL
JUNCTION ARRANGEMENT WITH
SERVICE ROAD JUNCTIONS
LOCATED CLOSE TO PROPOSED
STOP LINE ON THE GREEN.

DFS 08
PROPOSED FOOTWAY
WIDTH LESS THAN 2.0M

DFS 10
RATE OF CHANGE OF
CROSS SECTION IS
LESS THAN 1:35

FOR CONTINUATION REFER TO SHEET 2
GCCM5J10-ATK-HGN-ZZ-DR-CH-000062

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- HORIZONTAL GEOMETRY DEPARTURE
- PROPOSED OVERBRIDGE
- PROPOSED UNDERBRIDGE/CULVERT
- PROPOSED ROAD RESTRAINT (SAFETY BARRIER)
- WORKING WIDTH
- CONTAINMENT LEVEL
- PROPOSED ROAD RESTRAINT (SAFETY BARRIER)
- WORKING WIDTH
- CONTAINMENT LEVEL
- PP PROPOSED PARAPET
- P4 PROPOSED LEADING TYPE P4 TERMINAL
- P1 PROPOSED TRAILING TYPE P1 TERMINAL

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Category	Description	None identified at this stage
Construction	HS/001 - OVERHEAD POWERLINES HS/002 - HIGH PRESSURE GAS MAIN HS/003 - DEMOLITION OF EXISTING STRUCTURE/BUILDINGS HS/004 - MEDIUM PRESSURE GAS MAIN UT/001 - EXISTING BRITISH TELECOM UTILITIES UT/002 - EXISTING SEVERN TRENT WATER TRUNK MAIN UTILITIES	None identified at this stage
Maintenance / Cleaning	None identified at this stage	None identified at this stage
Use	None identified at this stage	None identified at this stage
Decommissioning / Demolition	None identified at this stage	None identified at this stage

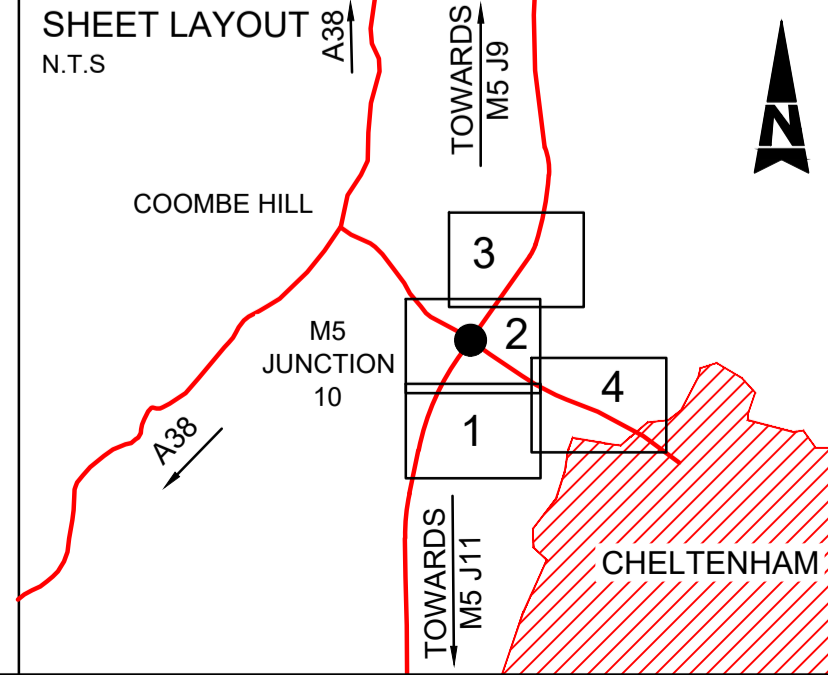
Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
DESIGN FIX 3	A1	CO1	MC	CJ	AM	LJ	06/07/22
DESIGN FIX 3 - FINAL	A1	CO2	MC	CJ	CCR	BM	28/02/23
Bus Lane Update	A1	CO3	MC	NKRP	CCR	BM	14/06/23

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M5 Junction 10 Improvements Scheme

DEPARTURES FROM STANDARDS SHEET 04 OF 04

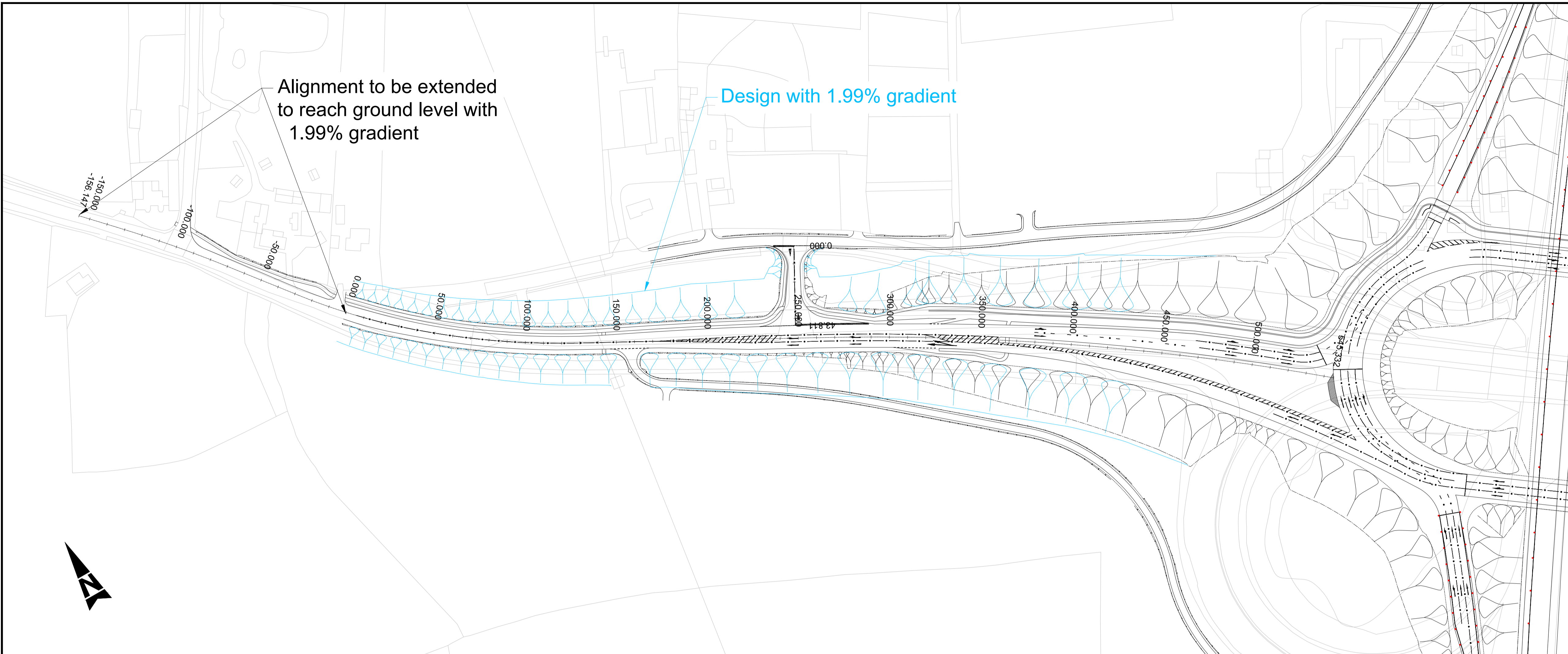
Project	Originator	Volume
GCCM5J10 - ATK - HGN - ZZ	- DR - CH - 000064	
Location	Type	Role
Original Size: A1	Scale: 1:2500	Project Ref. No.: 5197035
		Sheet: 4 of 4
		Rev: C03

DO NOT SCALE

Millimetres

0 10

100



Alignment to be extended to reach ground level with 1.99% gradient

Design with 1.99% gradient

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).	
Construction	Not identified at this stage
Maintenance / Cleaning	Not identified at this stage
Use	Not identified at this stage
Decommissioning / Demolition	Not identified at this stage

Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Description						
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Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
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Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

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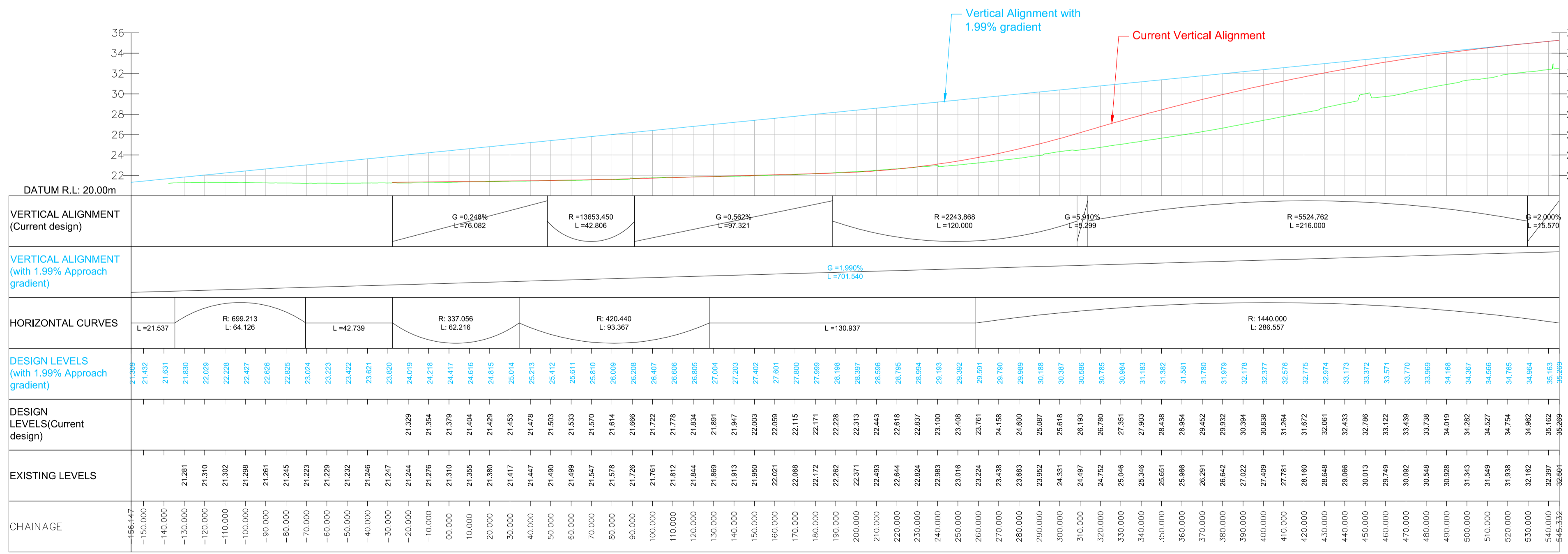
Client

Gloucestershire
COUNTY COUNCIL

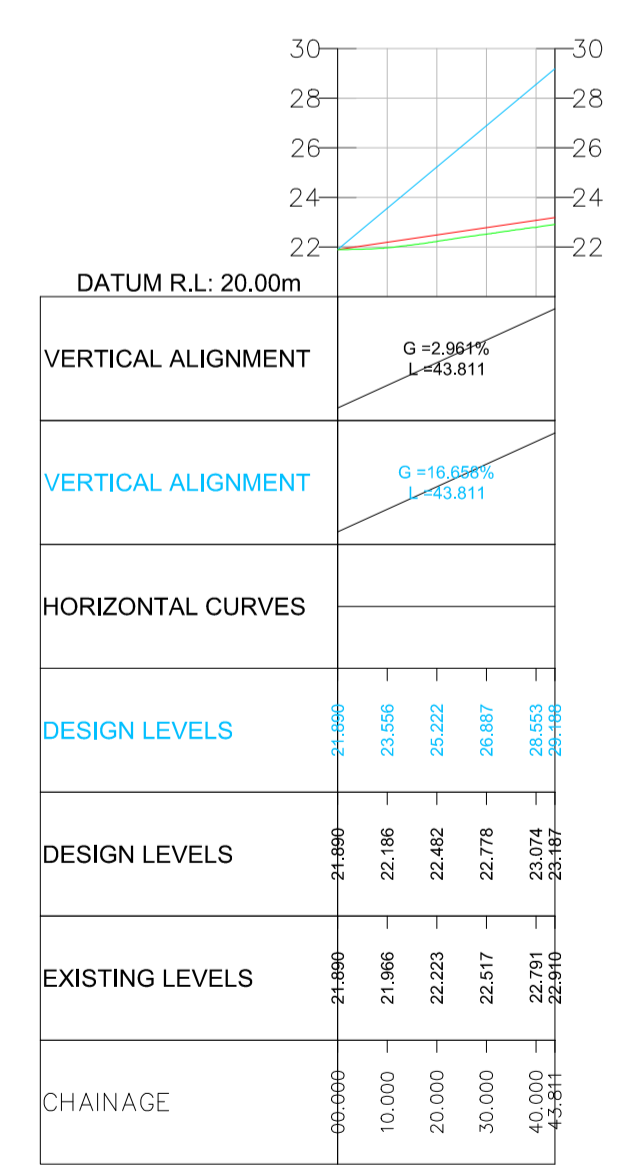
Project Title
M5 Junction 10 Improvements Scheme

Drawing Title
**Departure from Standard - DFS.05
Compliant & Non-Compliant
Cycle Gradient along A4019**

Drawing Number	Project	Originator	Volume
GCCM5J10	J1	ATK	HML
Location	Type	Role	Number
		SK - CH	000014
Original Size	Scale	Project Ref. No.	Sheet
A1	NTS	5197035	1 of 1
			Rev: P01.1



LONGITUDINAL SECTION M-A4019-WEST APPROACH TO J10
SCALE = H - 1:1000
V - 1:200



LONGITUDINAL SECTION - STANBORO LANE
SCALE = H - 1:1000
V - 1:200

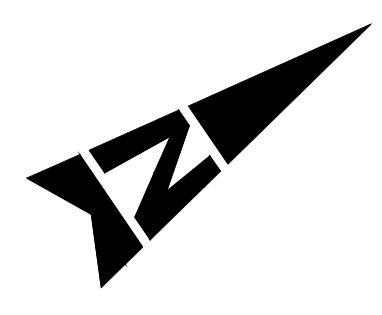
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DO NOT SCALE

Millimetres

0 10

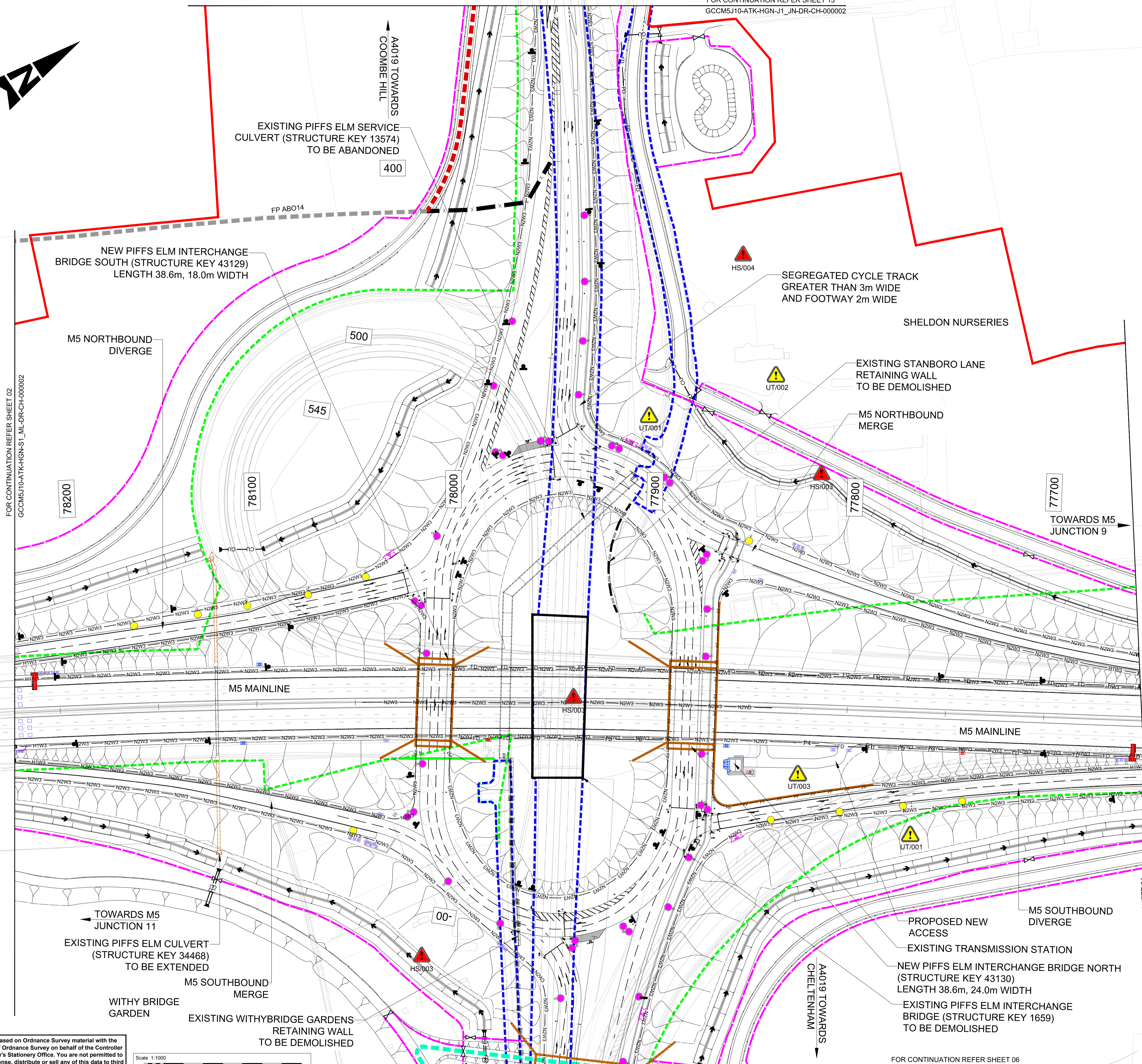
Low



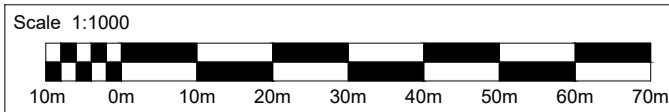
FOR CONTINUATION REFER SHEET 13
GCCM5J10-ATK-HGN-J1_JN-DR-CH-000002

FOR CONTINUATION REFER SHEET 02
GCCM5J10-ATK-HGN-S1_ML-DR-CH-000002

FOR CONTINUATION REFER SHEET 04
GCCM5J10-ATK-HGN-S2_ML-DR-CH-000001

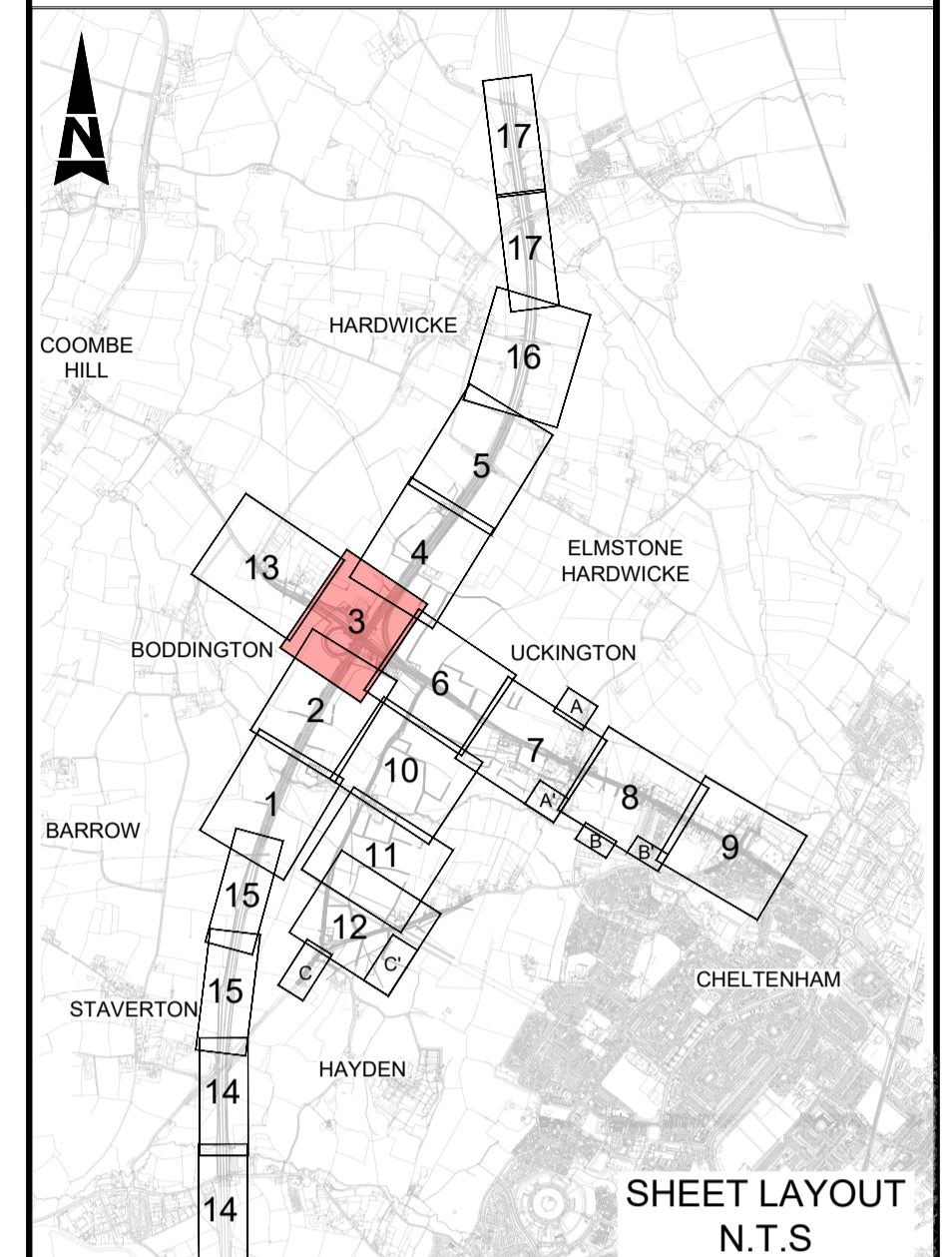


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FOR CONTINUATION REFER SHEET 06
GCCM5J10-ATK-HGN-J2_JN-DR-CH-000001

- NOTES:**
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 - FOR GENERAL NOTES AND KEYS REFER TO DRAWING NO. GCCM5J10-ATK-HGN-ZZ_ML-DR-CH-000001



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction
HS/003 - DEMOLITION OF EXISTING STRUCTURE/BUILDINGS
HS/004 - MEDIUM PRESSURE GAS MAIN
UT/001 - EXISTING BRITISH TELECOM UTILITIES
UT/002 - EXISTING SEVERN TRENT WATER TRUNK MAIN UTILITIES
UT/003 - EXISTING BUILDING MUST BE KEPT POWERED AT ALL TIMES
Maintenance / Cleaning
Not identified at this stage
Use
Not identified at this stage
Decommissioning / Demolition
Not identified at this stage

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
DESIGN FIX 2	A1	C02	NG	HV	AM	TT	27/08/21
DESIGN FOR CONSULTATION	A1	C03	NG	NKRP	AM	TT	04/11/21
DESIGN FIX 3	A1	C04	MC	CJ	CCR	TT	14/07/22
DESIGN FIX 3 - FINAL	A1	C05	MC	CJ	CCR	BM	06/03/23
Bus Lane Update	A1	C06	MC	NKRP	CCR	BM	14/06/23

APPROVED - PUBLISHED | Status: **A1**

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Project Title: **M5 Junction 10 Improvements Scheme**

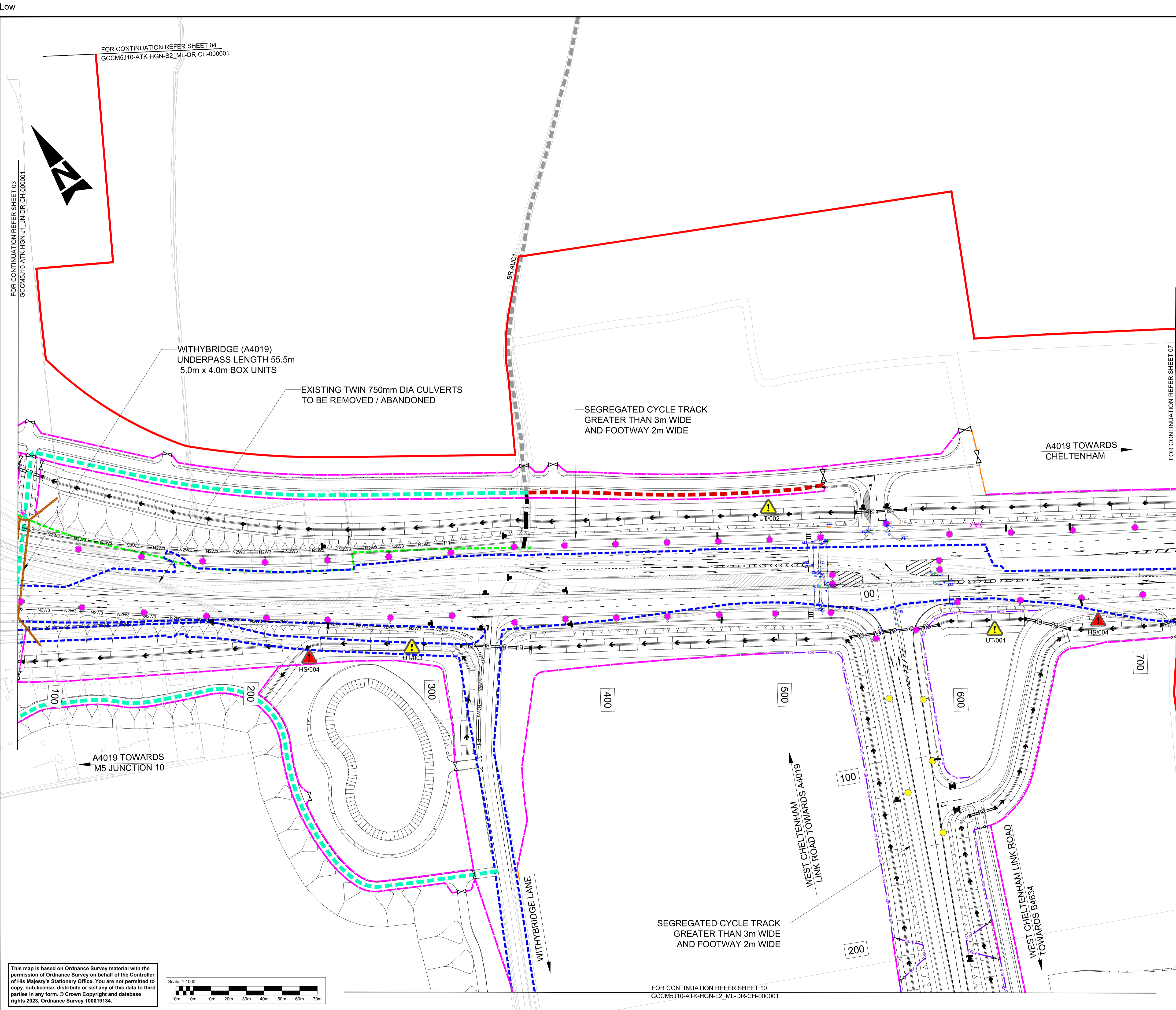
Drawing Title: **GENERAL ARRANGEMENT LAYOUT
M5 JUNCTION 10
SHEET 03 OF 17**

Drawing Number	Originator	Volume
GCCM5J10 - ATK - HGN - J1_JN	- DR - CH - 000001	
Location	Type	Role
A1		
Original Size	Scale	Project Ref. No.
A1	1:1000	5197035
		Sheet: 3 of 17
		Rev: C06

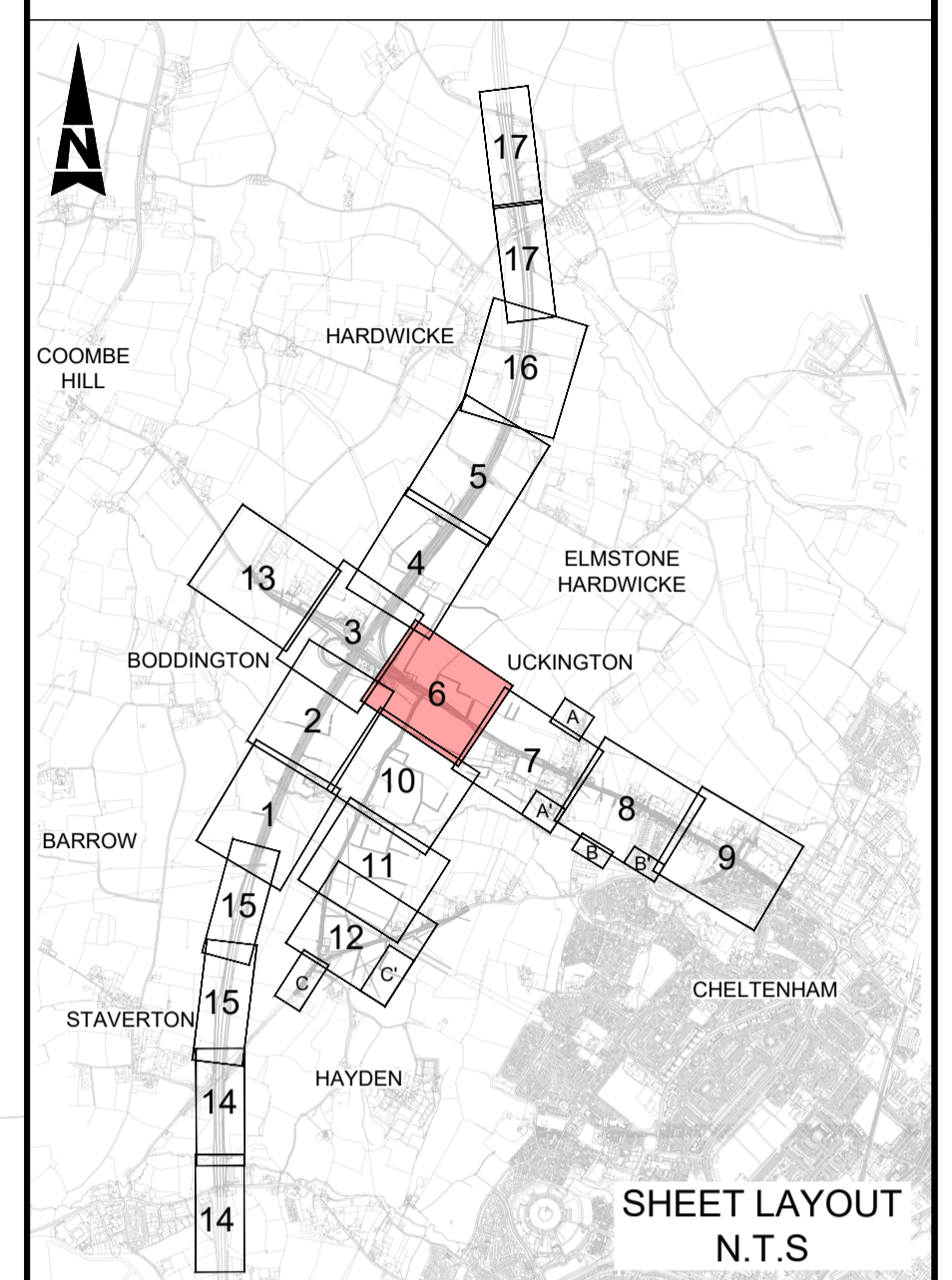
DO NOT SCALE

Millimetres

FOR CONTINUATION REFER SHEET 03
GCCM5J10-ATK-HGN-JT_JN-DR-CH-000001



NOTES:
 1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
 2. FOR GENERAL NOTES AND KEYS REFER TO DRAWING NO. GCCM5J10-ATK-HGN-ZZ_ML-DR-CH-000001



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
 In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).
 Construction
 HS/004 - MEDIUM PRESSURE GAS MAIN
 UT/001 - EXISTING BRITISH TELECOM UTILITIES
 UT/002 - EXISTING SEVERN TRENT WATER TRUNK MAIN UTILITIES
 Maintenance / Cleaning
 Not identified at this stage
 Use
 Not identified at this stage
 Decommissioning / Demolition
 Not identified at this stage

Description DESIGN FIX 2							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	CO2	NG	HV	AM	TT	27/08/21	
Description DESIGN FOR CONSULTATION							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	CO3	NG	NKRP	AM	TT	04/11/21	
Description DESIGN FIX 3							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	CO4	MC	CJ	CCR	TT	14/07/22	
Description DESIGN FIX 3 - FINAL							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	CO5	MC	CJ	CCR	BM	06/03/23	
Description Bus Lane Update							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	CO6	MC	NKRP	CCR	BM	14/06/23	
Drawing Suitability							
APPROVED - PUBLISHED							A1

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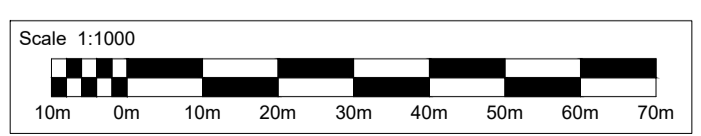
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 Client
Gloucestershire
 COUNTY COUNCIL

Project Title
M5 Junction 10 Improvements Scheme

Drawing Title
**GENERAL ARRANGEMENT LAYOUT
 A4019 & LINK ROAD JUNCTION
 SHEET 06 OF 17**

Project	Originator	Volume
GCCM5J10 - ATK - HGN -	J2_JN	- DR - CH - 000001
Location	Type	Role
A1	Scale: 1:1000	Project Ref. No.: 5197035
Original Size:	Scale: 1:1000	Sheet: 6 of 17
Rev:	Rev:	Rev:
C06	C06	C06

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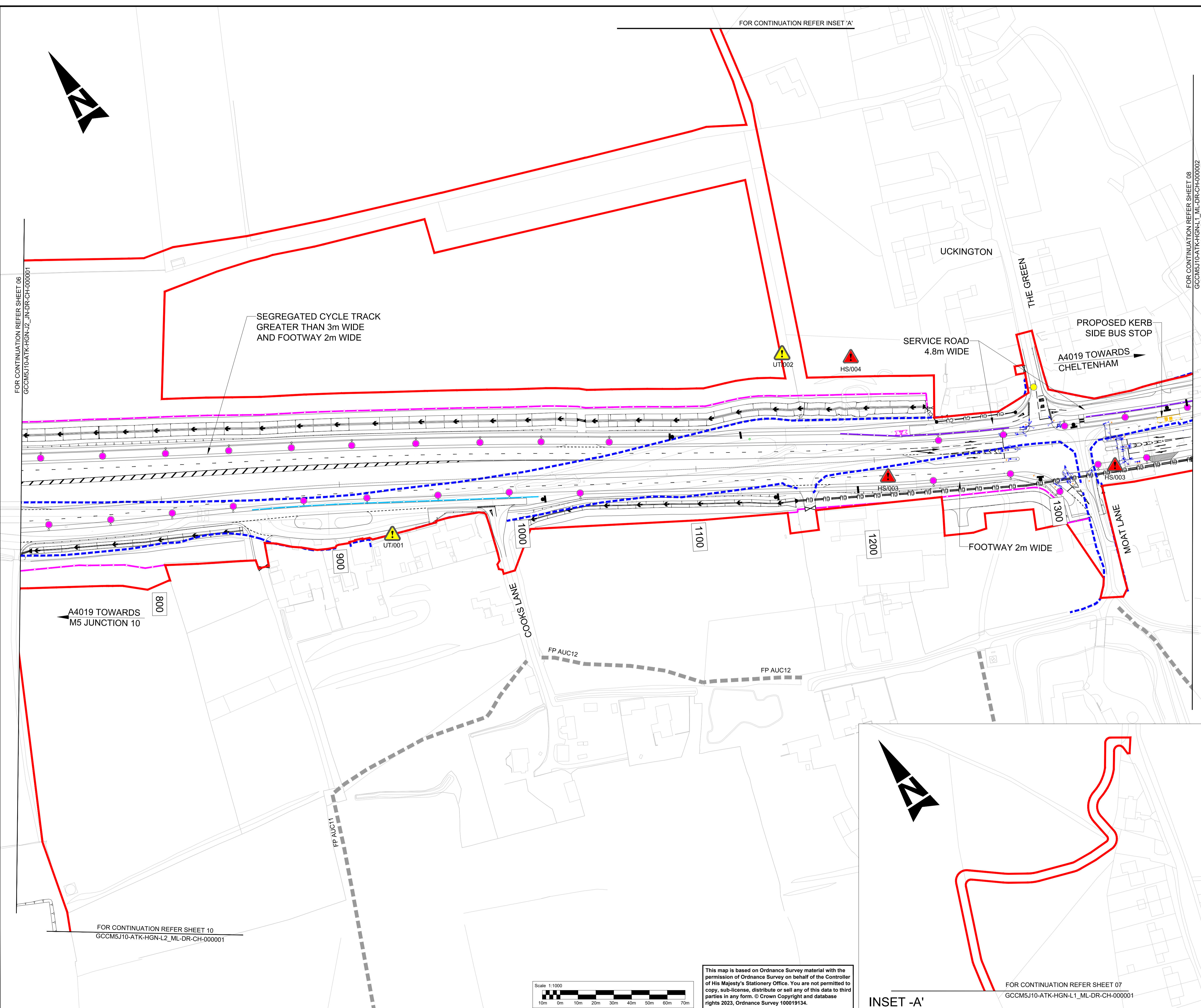
FOR CONTINUATION REFER SHEET 10
 GCCM5J10-ATK-HGN-L2_ML-DR-CH-000001

DO NOT SCALE

Millimetres

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Low



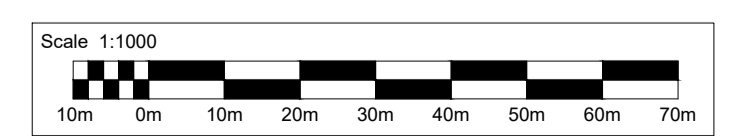
FOR CONTINUATION REFER INSET 'A'

FOR CONTINUATION REFER SHEET 06
GCCMSJ10-ATK-HGN-L2_ML-DR-CH-000001

FOR CONTINUATION REFER SHEET 08
GCCMSJ10-ATK-HGN-L1_ML-DR-CH-000002

FOR CONTINUATION REFER SHEET 10
GCCMSJ10-ATK-HGN-L2_ML-DR-CH-000001

FOR CONTINUATION REFER SHEET 07
GCCMSJ10-ATK-HGN-L1_ML-DR-CH-000001



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INSET -A'

NOTES:

- ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
- FOR GENERAL NOTES AND KEYS REFER TO DRAWING NO. GCCMSJ10-ATK-HGN-ZZ_ML-DR-CH-000001

SHEET LAYOUT N.T.S

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction
HS/003 - DEMOLITION OF EXISTING STRUCTURE/BUILDINGS
HS/004 - MEDIUM PRESSURE GAS MAIN
UT/001 - EXISTING BRITISH TELECOM UTILITIES
UT/002 - EXISTING SEVERN TRENT WATER TRUNK MAIN UTILITIES
Maintenance / Cleaning
Not identified at this stage

Use
Not identified at this stage
Decommissioning / Demolition
Not identified at this stage

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
DESIGN FIX 2	A1	CO2	NG	HV	AM	TT	27/08/21
DESIGN FOR CONSULTATION	A1	CO3	NG	NKRP	AM	TT	04/11/21
DESIGN FIX 3	A1	CO4	MC	CJ	CCR	TT	14/07/22
DESIGN FIX 3 - FINAL	A1	CO5	MC	CJ	CCR	BM	06/03/23
Bus Lane Update	A1	CO6	MC	NKRP	CCR	BM	14/06/23

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Client

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Project Title
M5 Junction 10 Improvements Scheme

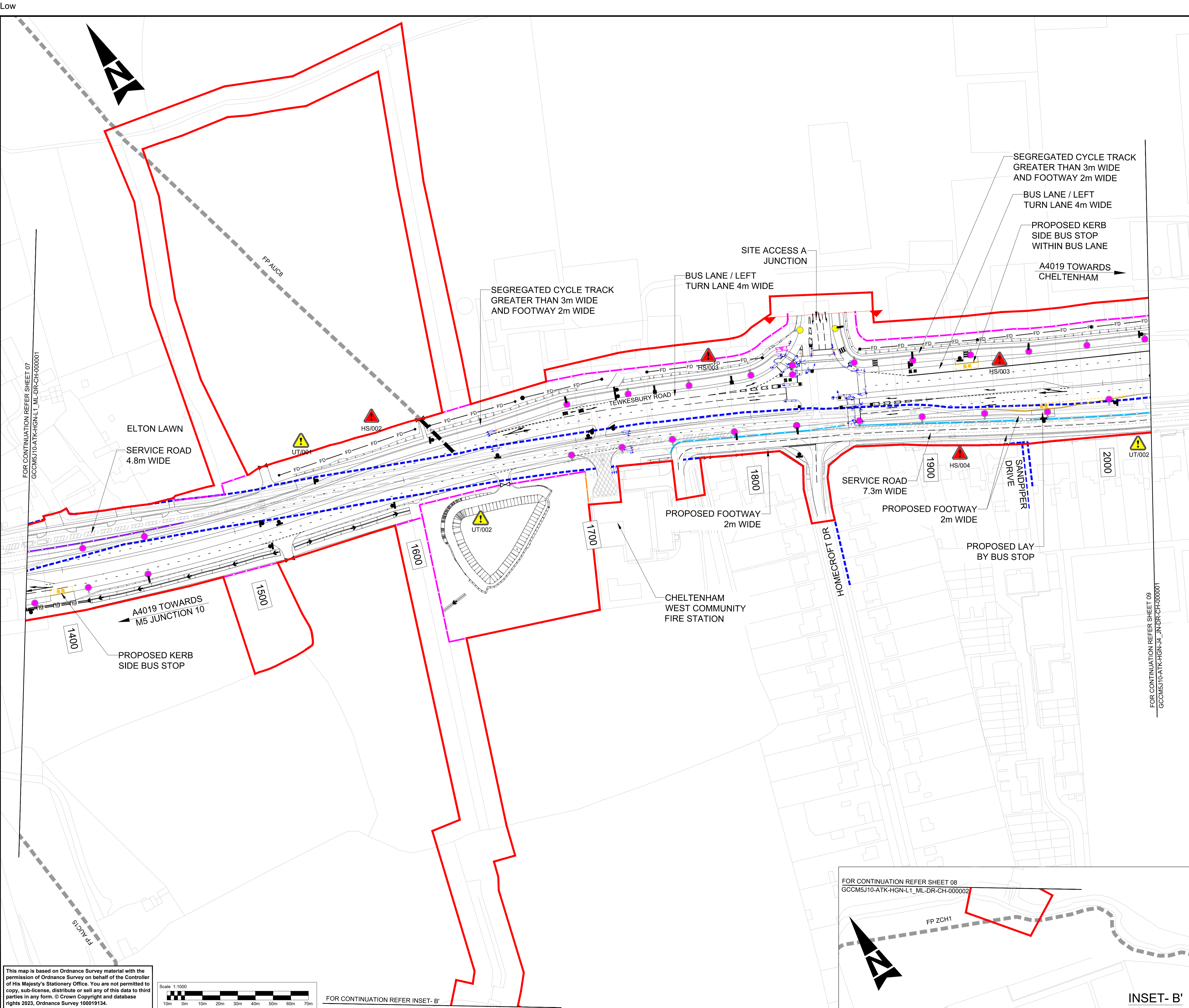
Drawing Title
**GENERAL ARRANGEMENT LAYOUT
A4019
SHEET 07 OF 17**

Original Size	Scale	Project Ref. No.	Project	Volume	Sheet	Rev.
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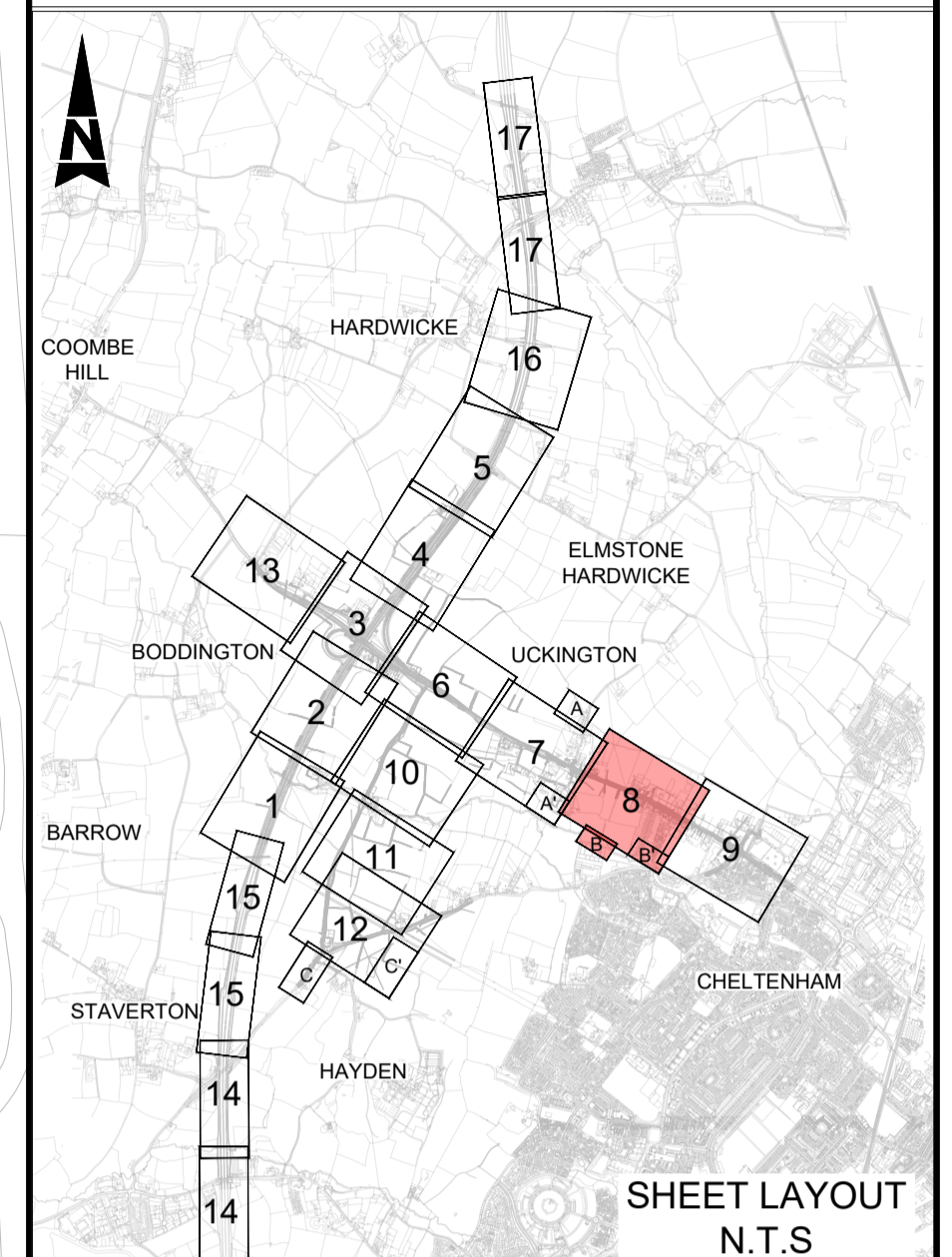
DO NOT SCALE

Millimetres

Low



- NOTES:**
- ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
 - FOR GENERAL NOTES AND KEYS REFER TO DRAWING NO. GCCM5J10-ATK-HGN-ZZ-ML-DR-CH-000001



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Activity	Residual Risk
Construction	HS/002 - HIGH PRESSURE GAS MAIN HS/003 - DEMOLITION OF EXISTING STRUCTURE/BUILDINGS HS/004 - MEDIUM PRESSURE GAS MAIN UT/001 - EXISTING BRITISH TELECOM UTILITIES UT/002 - EXISTING SEVERN TRENT WATER TRUNK MAIN UTILITIES
Maintenance / Cleaning	Not identified at this stage
Use	Not identified at this stage
Decommissioning / Demolition	Not identified at this stage

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
DESIGN FIX 2	A1	C02	NG	HV	AM	TT	27/08/21
DESIGN FOR CONSULTATION	A1	C03	NG	NKRP	AM	TT	04/11/21
DESIGN FIX 3	A1	C04	MC	CJ	CCR	TT	14/07/22
DESIGN FIX 3 - FINAL	A1	C05	MC	CJ	CCR	BM	06/03/23
Bus Lane Update	A1	C06	MC	NKRP	CCR	BM	14/06/23

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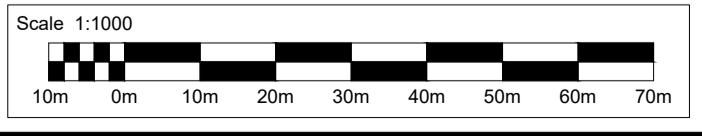


Project Title
M5 Junction 10 Improvements Scheme

Drawing Title
**GENERAL ARRANGEMENT LAYOUT
A4019
SHEET 08 OF 17**

Drawing Number	Project	Originator	Volume
GCCM5J10 - ATK - HGN - L1_ML - DR - CH - 000002			
Location	Type	Role	Number
Original Size	Scale	Project Ref. No.	Sheet
A1	1:1000	5197035	8 of 17
Rev.	Rev.	Rev.	Rev.
			C06

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FOR CONTINUATION REFER INSET- B'

FOR CONTINUATION REFER SHEET 08
GCCM5J10-ATK-HGN-L1_ML-DR-CH-000002

INSET- B'

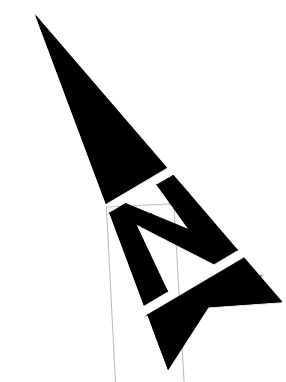
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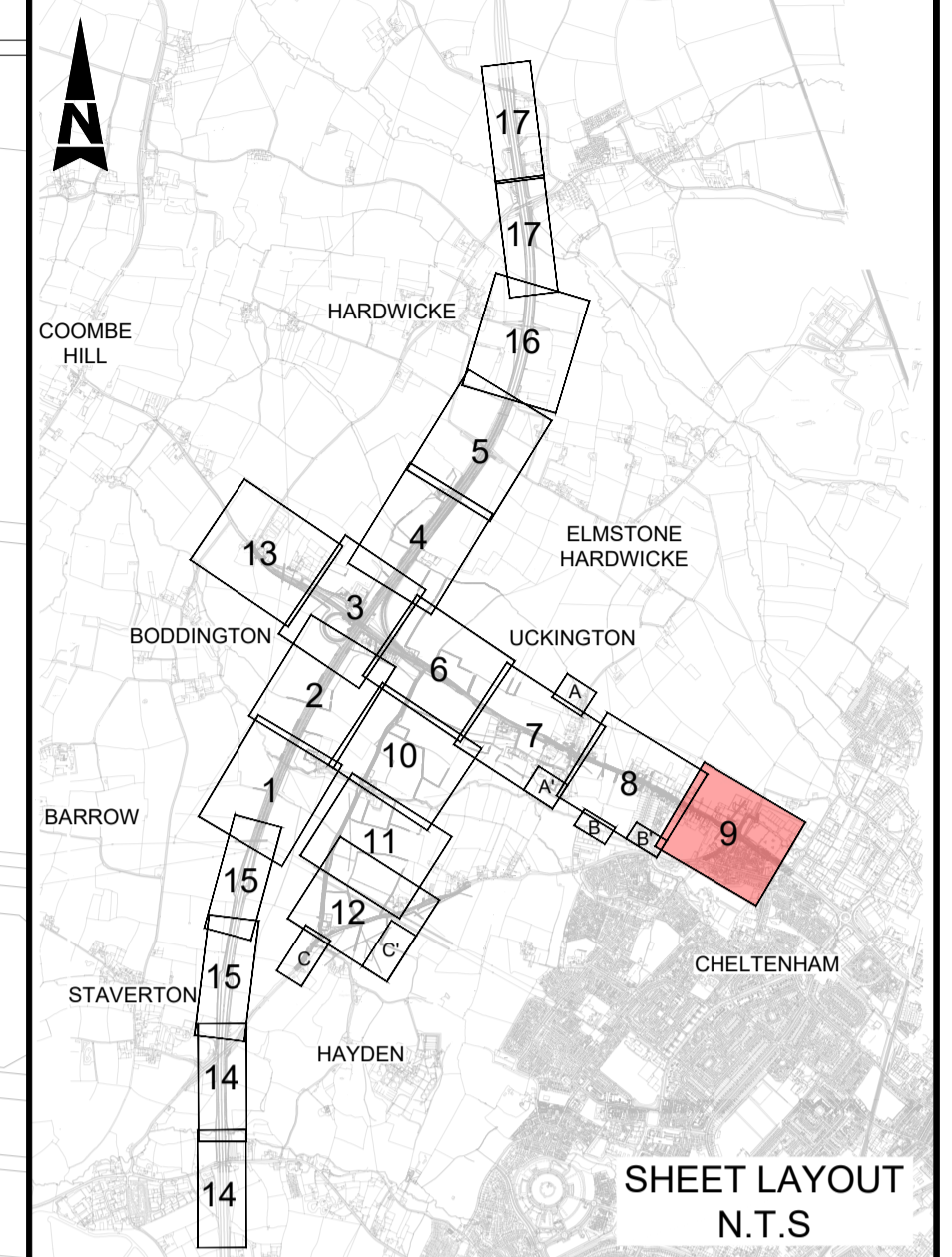
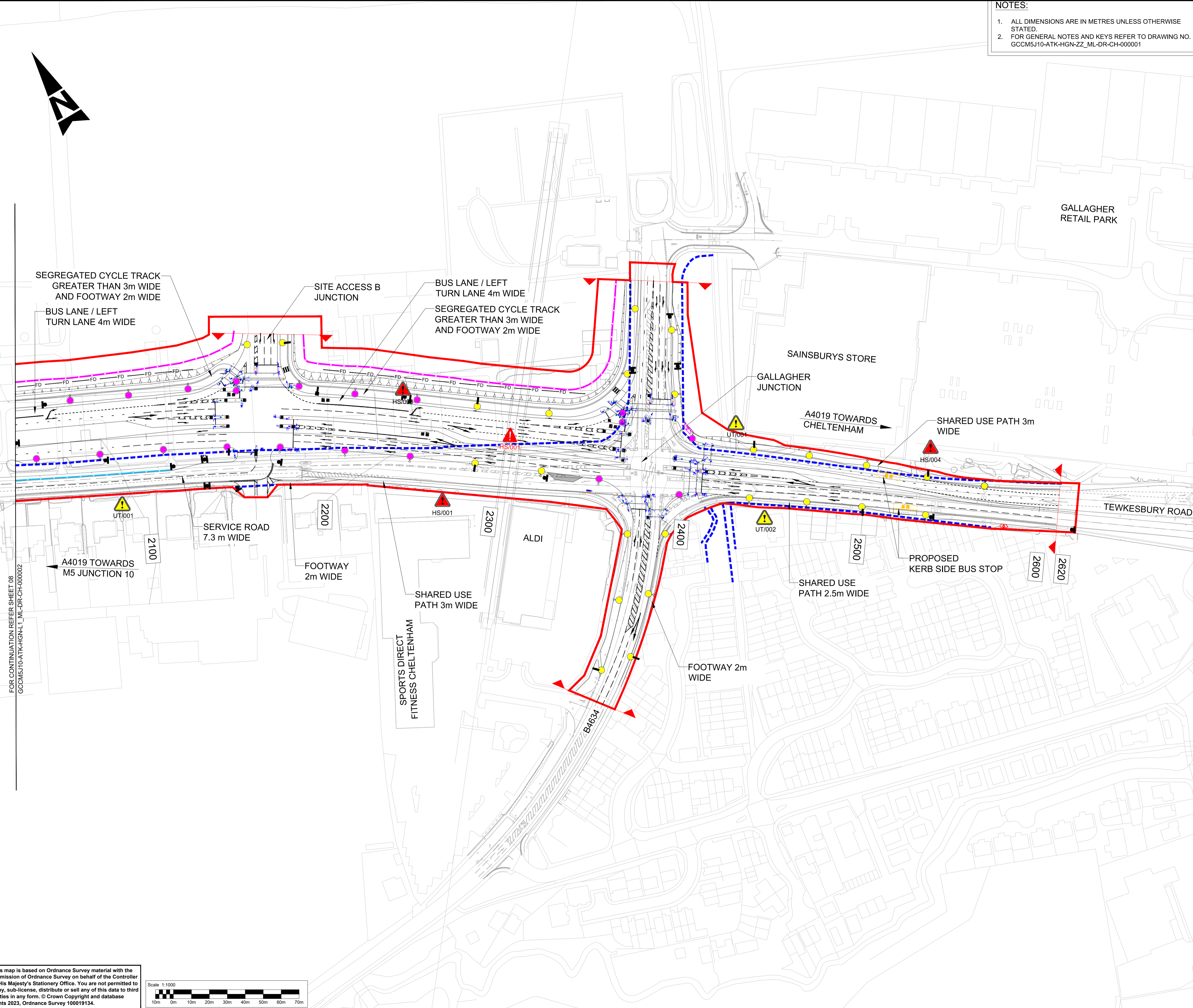
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NOTES:
 1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
 2. FOR GENERAL NOTES AND KEYS REFER TO DRAWING NO. GCCM5J10-ATK-HGN-ZZ_ML-DR-CH-000001



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction	HS/001 - OVERHEAD POWERLINES
	HS/003 - DEMOLITION OF EXISTING STRUCTURE/BUILDINGS
	HS/004 - MEDIUM PRESSURE GAS MAIN
	UT/001 - EXISTING BRITISH TELECOM UTILITIES
	UT/002 - EXISTING SEVERN TRENT WATER TRUNK MAIN UTILITIES
Maintenance / Cleaning	Not identified at this stage
Use	Not identified at this stage
Decommissioning / Demolition	Not identified at this stage

Description							
DESIGN FIX 2							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	C02	NG	HV	AM	TT	27/08/21	
Description							
DESIGN FOR CONSULTATION							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	C03	NG	NKRP	AM	TT	04/11/21	
Description							
DESIGN FIX 3							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	C04	MC	CJ	CCR	TT	14/07/22	
Description							
DESIGN FIX 3 - FINAL							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	C05	MC	CJ	CCR	BM	06/03/23	
Description							
Bus Lane Update							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	C06	MC	NKRP	CCR	BM	14/06/23	

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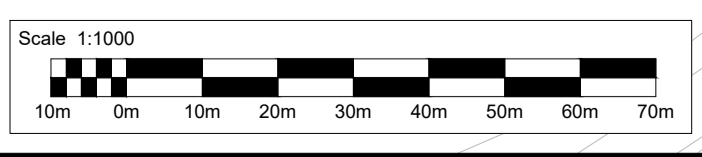
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 GL1 2TH
 Tel : 08000 514514

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Project Title	
M5 Junction 10 Improvements Scheme	
Drawing Title	
GENERAL ARRANGEMENT LAYOUT GALLAGHER JUNCTION SHEET 09 OF 17	
Drawing Number	Project
GCCM5J10 - ATK - HGN -	J4_JN - DR - CH - 000001
Location	Type
	Role
Original Size: A1	Scale: 1:1000
Project Ref. No. 5197035	Sheet: 9 of 17
Rev. C06	

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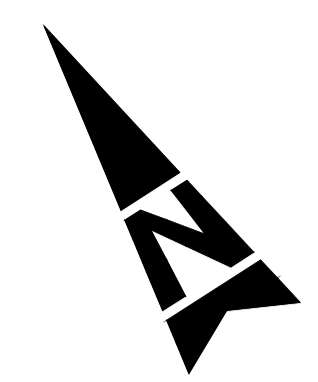


DO NOT SCALE

Millimetres

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Low



FOR CONTINUATION REFER SHEET 11
GCCM5J10-ATK-HGN-L2_ML-DR-CH-000002

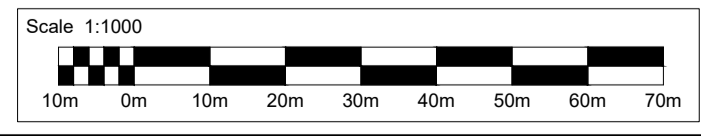
FOR CONTINUATION REFER SHEET 12
GCCM5J10-ATK-HGN-J3_JN-DR-CH-000001

SEGREGATED CYCLE TRACK
GREATER THAN 3m WIDE
AND FOOTWAY 2m WIDE

NEW B4634 FLOOD CULVERTS,
GROUP 2, LENGTH 26m
2.1m x 0.8m BOX UNITS

NEW B4634 FLOOD CULVERTS,
GROUP 1, LENGTH 19m
2 Nos. 2.1m x 0.8m BOX UNITS

FOR CONTINUATION REFER INSET- C'



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INSET- C'

NOTES:

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SHEET LAYOUT
N.T.S

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction	UT/001 - EXISTING BRITISH TELECOM UTILITIES
	UT/002 - EXISTING SEVERN TRENT WATER TRUNK MAIN UTILITIES
	HS/001 - OVERHEAD POWERLINES
Maintenance / Cleaning	Not identified at this stage
Use	Not identified at this stage
Decommissioning / Demolition	Not identified at this stage

Description DESIGN FIX 2							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	CO2	NG	HV	AM	TT	27/08/21	
Description DESIGN FOR CONSULTATION							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	CO3	NG	NKRP	AM	TT	04/11/21	
Description DESIGN FIX 3							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	CO4	MC	CJ	CCR	TT	14/07/22	
Description DESIGN FIX 3 - FINAL							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	CO5	MC	CJ	CCR	BM	06/03/23	
Description Bus Lane Update							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	
A1	CO6	MC	NKRP	CCR	BM	14/06/23	

APPROVED - PUBLISHED A1

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Client

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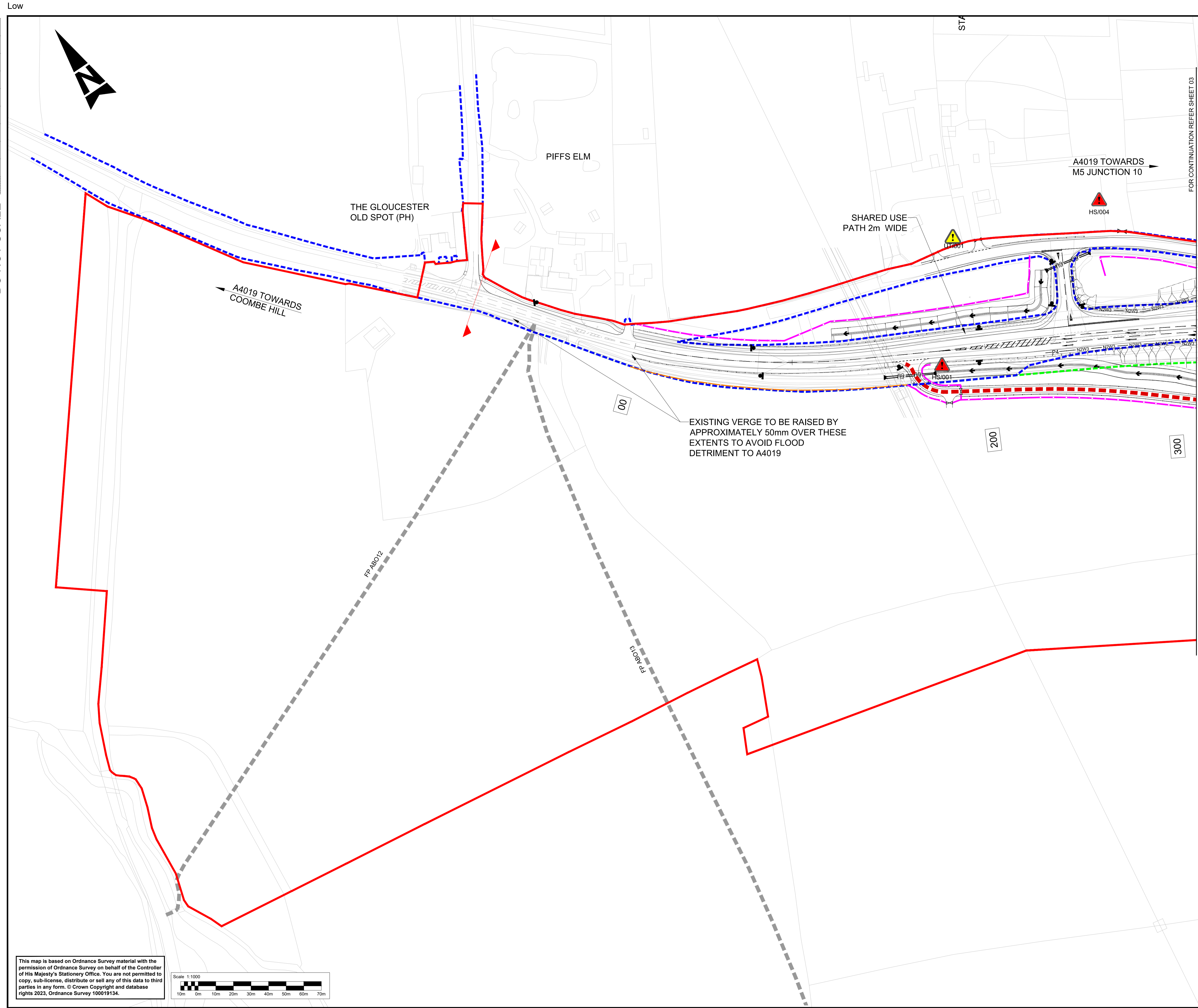
Project Title
M5 Junction 10 Improvements Scheme

Drawing Title
**GENERAL ARRANGEMENT LAYOUT
B4634 JUNCTION
SHEET 12 OF 17**

Drawing Number	Project	Originator	Volume
GCCM5J10 - ATK - HGN -	J3_JN - DR - CH - 000001		
Location	Type	Role	Number
Original Size: A1	Scale: 1:1000	Project Ref. No.: 5197035	Sheet: 12 of 17
		Rev: C06	

DO NOT SCALE

Millimetres
0 10 100



NOTES:

- ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
- FOR GENERAL NOTES AND KEYS REFER TO DRAWING NO. GCCM5J10-ATK-HGN-ZZ_ML-DR-CH-000001

SHEET LAYOUT N.T.S

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Category	Item	Notes
Construction	HS/001 - OVERHEAD POWERLINES	
Construction	HS/004 - MEDIUM PRESSURE GAS MAIN	
Construction	UT/001 - EXISTING BRITISH TELECOM UTILITIES	
Construction	UT/002 - EXISTING SEVERN TRENT WATER TRUNK MAIN UTILITIES	
Maintenance / Cleaning		Not identified at this stage
Use		Not identified at this stage
Decommissioning / Demolition		Not identified at this stage

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
DESIGN FIX 2	A1	C02	NG	HV	AM	TT	27/08/21
DESIGN FOR CONSULTATION	A1	C03	NG	NKRP	AM	TT	04/11/21
DESIGN FIX 3	A1	C04	MC	CJ	CCR	TT	14/07/22
DESIGN FIX 3 - FINAL	A1	C05	MC	CJ	CCR	BM	06/03/23
Bus Lane Update	A1	C06	MC	NKRP	CCR	BM	14/06/23

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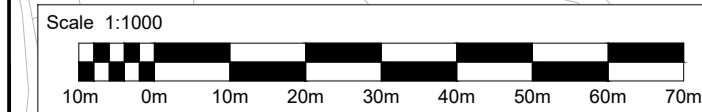
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M5 Junction 10 Improvements Scheme

Drawing Title
**GENERAL ARRANGEMENT LAYOUT
M5 JUNCTION 10
SHEET 13 OF 17**

Drawing Number
Project
GCCM5J10 - ATK - HGN - J1_JN - DR - CH - 000002

Location
Original Size: A1 Scale: 1:1000 Project Ref. No: 5197035 Sheet: 13 of 17 Rev: C06

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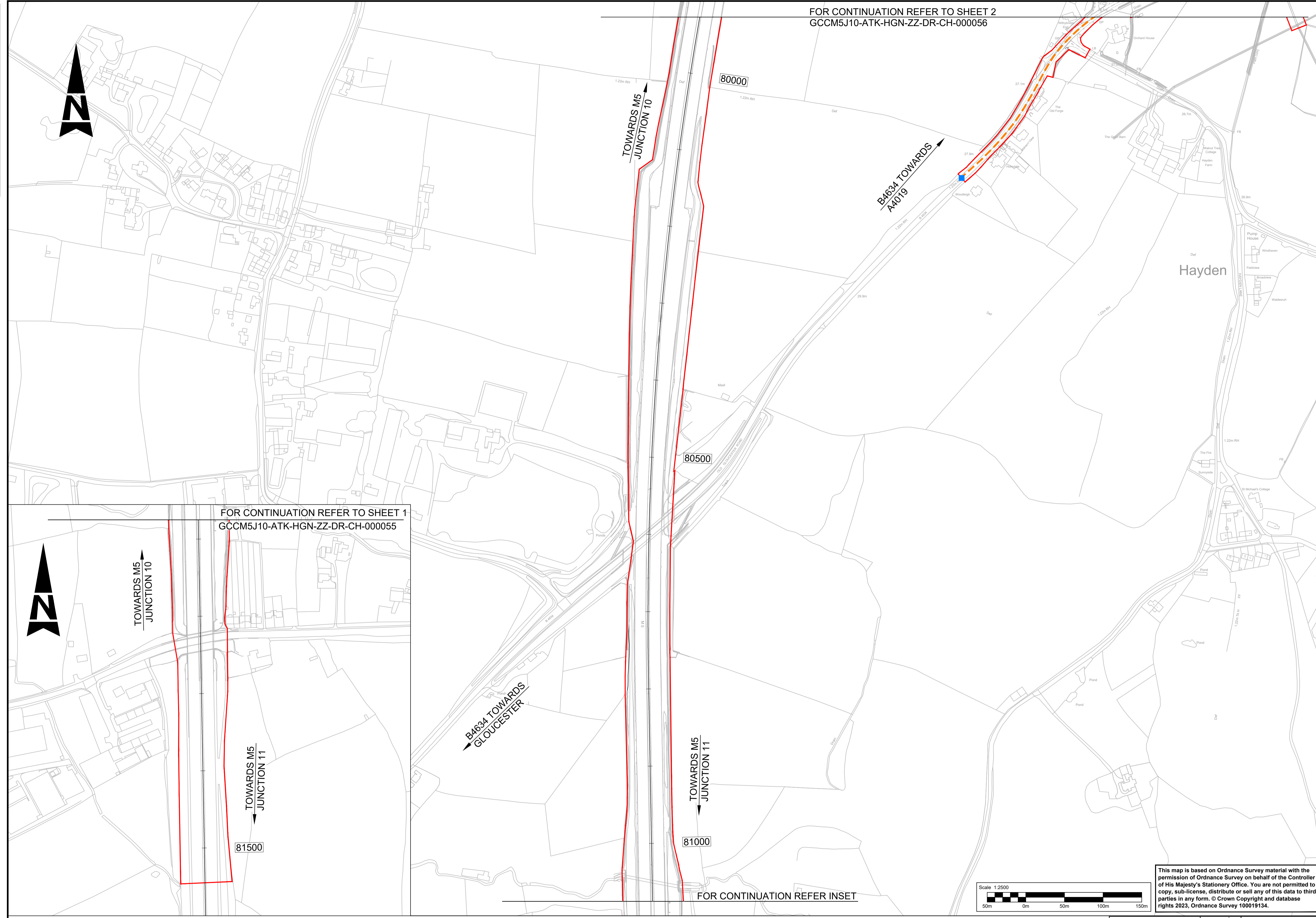
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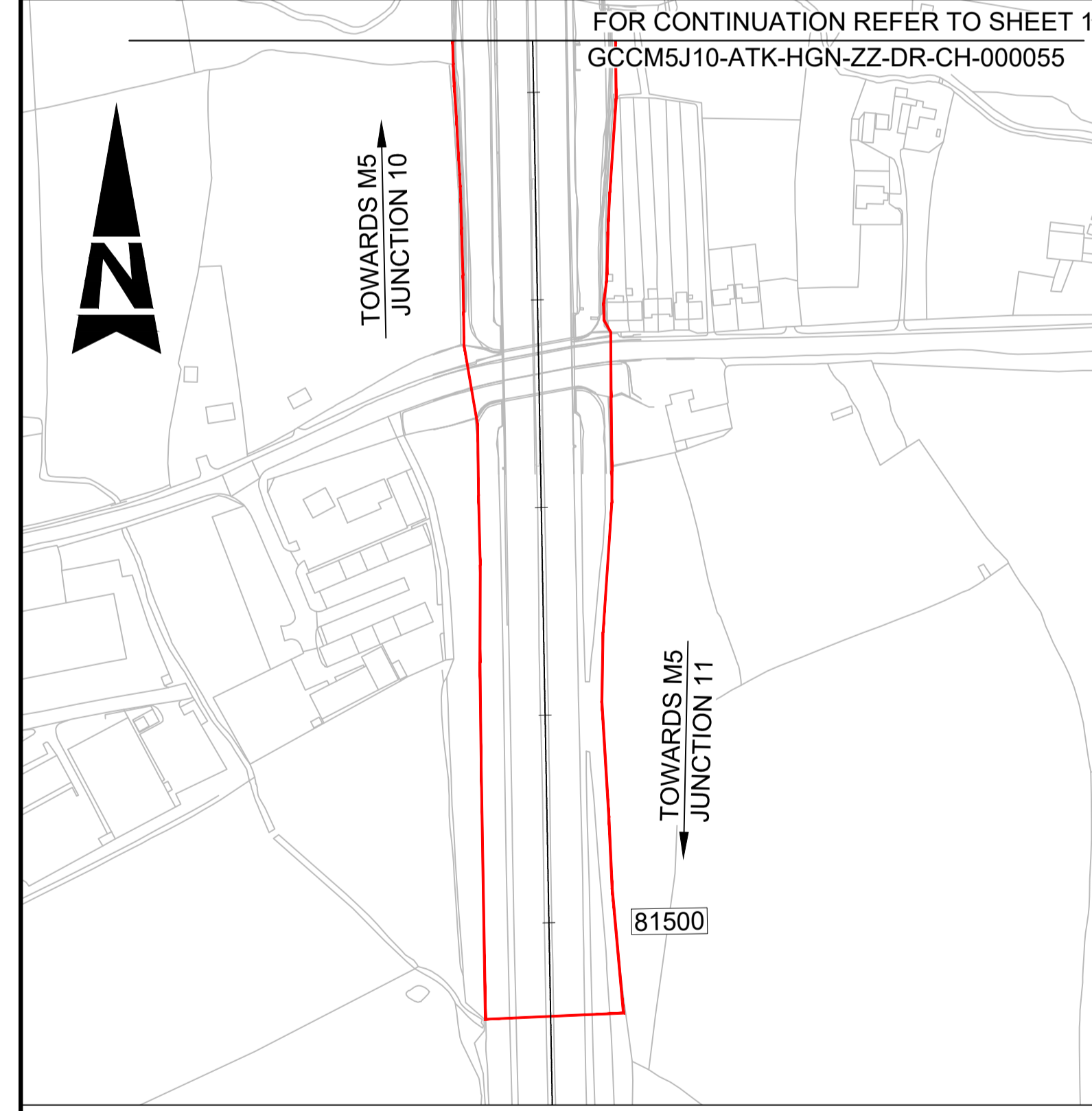
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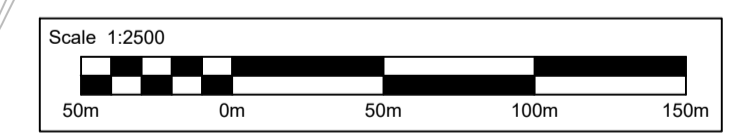
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- PROHIBITION OF U TURNS
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DESIGN FIX 3	A1	CO1	MC	CJ	AM	LJ	06/07/22
DESIGN FIX 3 - FINAL	A1	CO2	MC	CJ	CCR	BM	28/02/23
Bus Lane Update	A1	CO3	MC	NKRP	CCR	BM	14/06/23

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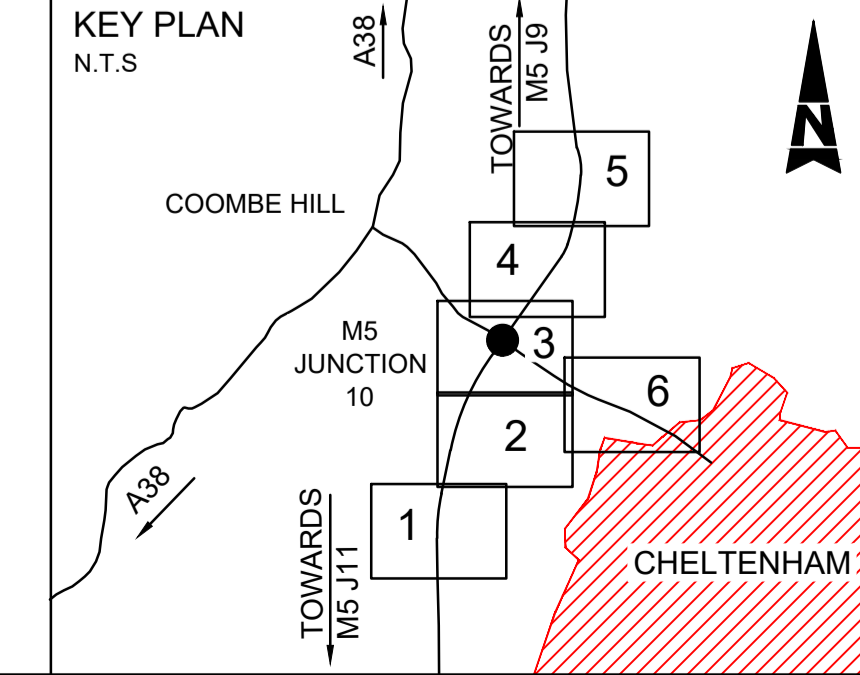
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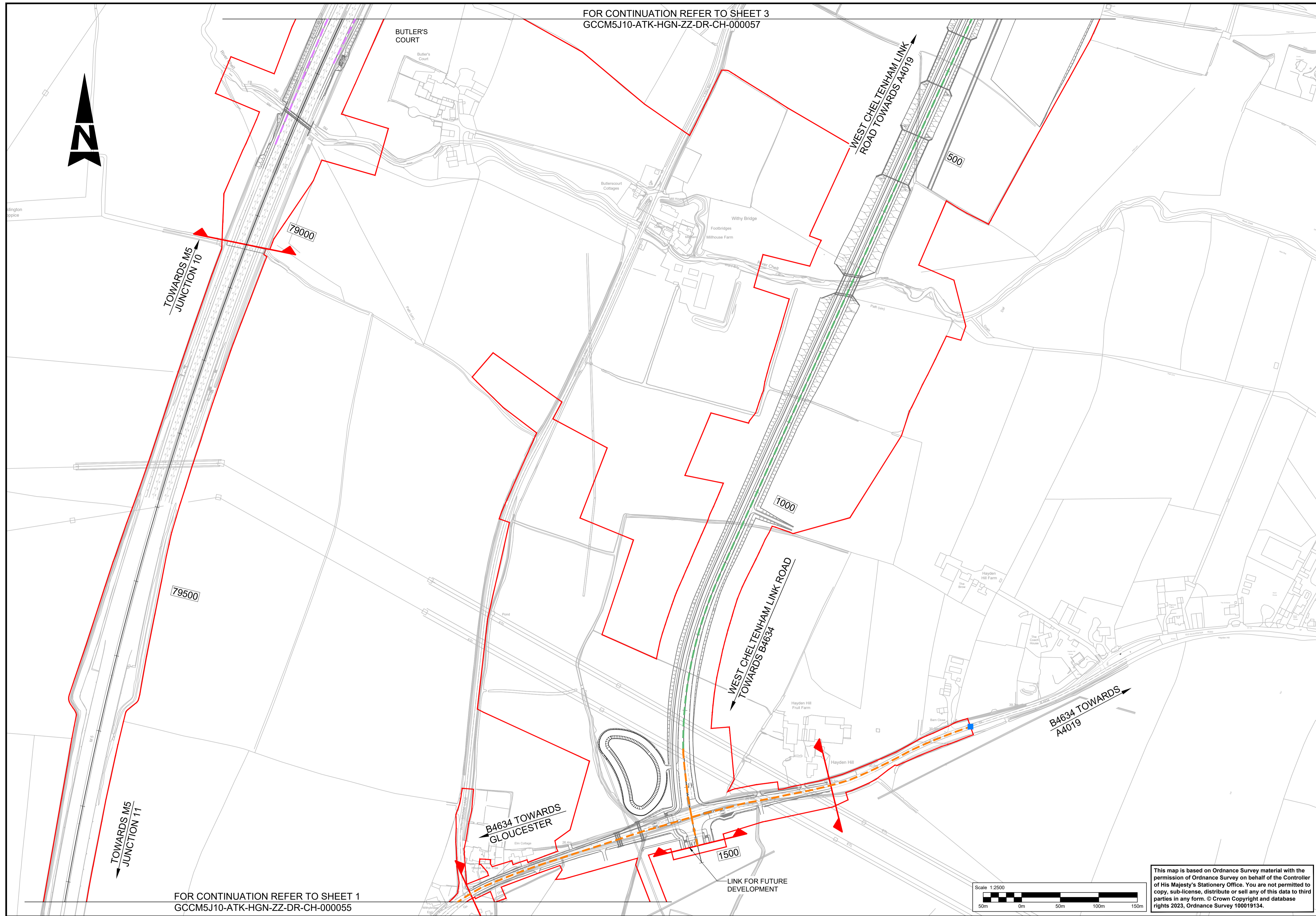
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Drawing Title		TRAFFIC REGULATION ORDER PLANS SHEET 01 OF 06	
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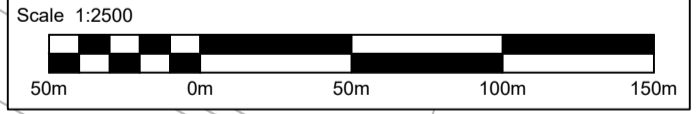
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FOR CONTINUATION REFER TO SHEET 1
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- - - PROPOSED 30MPH SPEED LIMIT
- - - PROPOSED 40MPH SPEED LIMIT
- - - PROPOSED 50MPH SPEED LIMIT
- PROHIBITION OF U TURNS
- TRAFFIC REGULATION ORDER TO BE REVOKED / VARIED
- XXXX MAINLINE CHAINAGE
- ▲ SCHEME EXTENT

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
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Bus Lane Update	A1	CO3	MC	NKRP	CCR	BM	14/06/23

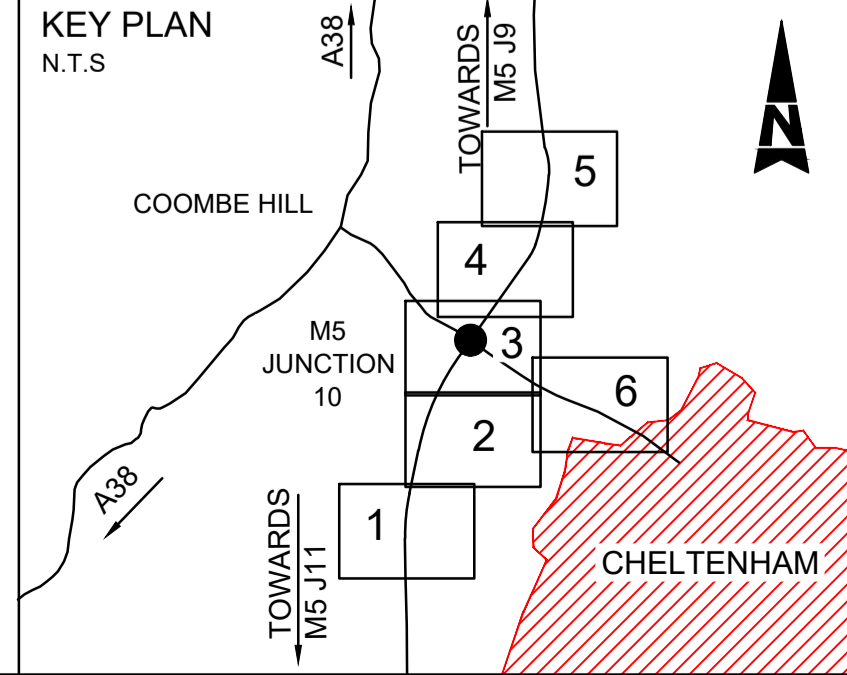
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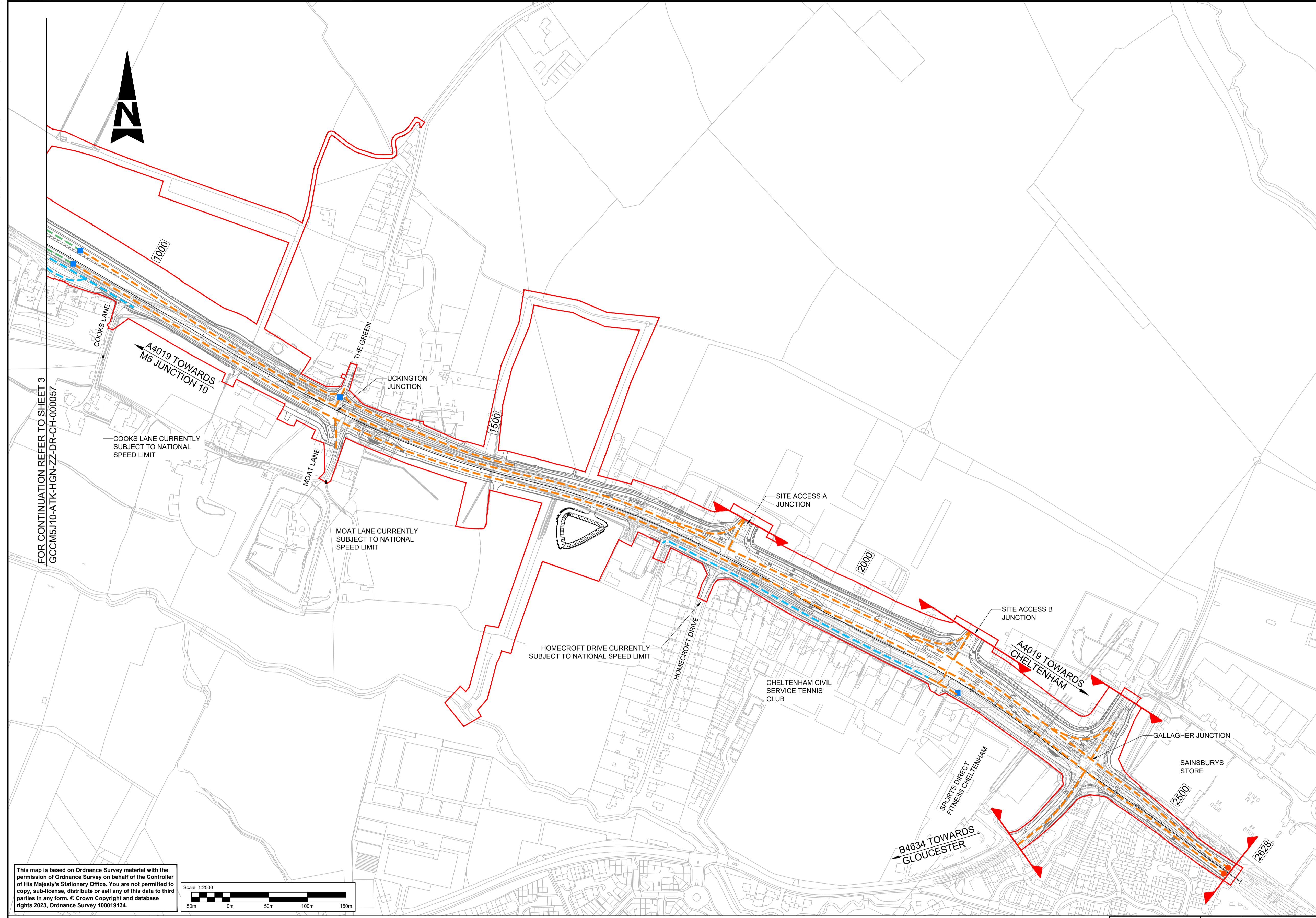
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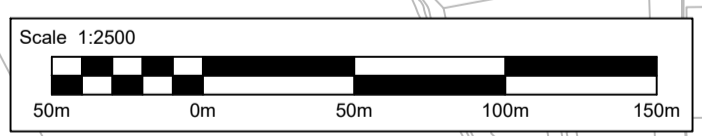
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GCCM5J10-ATK-HGN-ZZ-DR-CH-000057

COOKS LANE CURRENTLY
SUBJECT TO NATIONAL
SPEED LIMIT

MOAT LANE CURRENTLY
SUBJECT TO NATIONAL
SPEED LIMIT

HOMECROFT DRIVE CURRENTLY
SUBJECT TO NATIONAL SPEED LIMIT

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DESIGN FIX 3						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	CO1	MC	CJ	AM	LJ	06/07/22
Description						
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Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	CO2	MC	CJ	CCR	BM	28/02/23
Description						
Bus Lane Update						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
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Drawing Suitability						
APPROVED - PUBLISHED						Status
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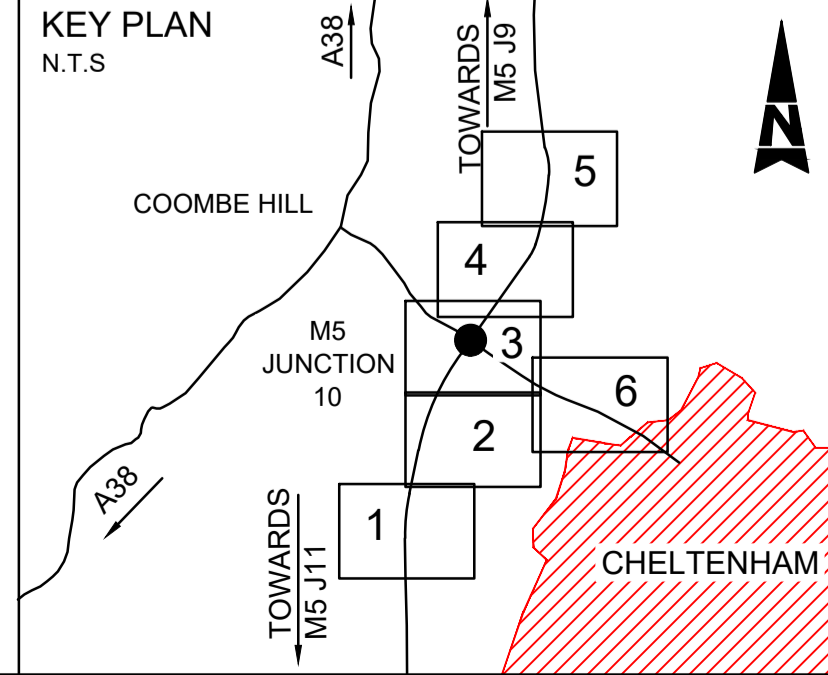
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Project Title
M5 Junction 10 Improvements Scheme

Drawing Title
TRAFFIC REGULATION ORDER PLANS SHEET 06 OF 06

Drawing Number
Project
GCCM5J10 - ATK - HGN - ZZ - DR - CH - 000060

Location
Type Role Number

Original Size: A1 Scale: 1:2500 Project Ref. No.: 5197035 Sheet: 6 of 6 Rev: C03

Appendix B. Technical Note Containing Supplementary Information on GCC Departures from Standard

Technical Note

Project:	M5 Junction 10 Improvements Scheme		
Subject:	M5J10 Departure from Standards		
Author:	CJ	Reviewed by:	CCR
Approved Date and time:	20/04/23	Approved by:	LJ
Distribution	Luke Beddoes	Representing:	GCC

1. Introduction

1.1. Purpose of this Technical Note

- 1.1.1. A review of the proposed GCC departures from standard was undertaken on 23rd January 2023. During this review, Atkins presented details of the proposed scheme local road network departures from standard to the GCC departures review panel.
- 1.1.2. Details of the proposed departures presented to GCC departures review panel are included in the M5J10 Departure from Standards Report - GCCM5J10-ATK-HGN-ZZ-DF-CH-000001 (C01).
- 1.1.3. During this meeting the Departures Review Panel indicated verbal provisional agreement to some proposed departures while requesting additional information to be supplied for other proposed departures. This note is intended to provide a record of this meeting whilst also including the additional information that was requested.

2. Proposed Departures from Standard

2.1. DFS 05 - Cycle track gradient in excess of 5%

- 2.1.1. No comments – provisional agreement likely to be forthcoming.

2.2. DFS.06 – Separation between carriageway and SUP is reduced below 1.5m

- 2.2.1. GCC Departures Review Panel did not have any issues with the proposed departure of reduction of the separation falling below 1.5m but raised concerns with terminating the proposed shared use path (SUP) at the Gloucester Old Spot junction.
- 2.2.2. It was suggested during the meeting that for detailed design consideration be given to terminating the SUP in advance of the Gloucester Old Spot junction – potentially by the property Grasmere or at the crossing of Stanboro Lane.
- 2.2.3. **POST MEETING NOTES:** The proposed scheme includes a SUP from the east of Stanboro Lane junction to the Gloucester Old Spot junction. This facility would be of particular use to cyclists travelling westbound along the A4019 then wishing to access

Stoke Road, as it would allow them to do so without having to negotiate the right turn movement at the Gloucester Old Spot junction. The project team are aware of the current safety concerns at this junction and it is considered that the proposals for M5J10 will also provide some safety benefits to this junction along with specific measures that are proposed to improve road markings and signing at this location.

- 2.2.4. For cyclists coming from or heading towards Coombe Hill, the scheme already includes cycle-track to carriageway transitions between the proposed cycle track and both directions of the A4019 carriageway. This proposed facility is located just to the east of Stanboro Lane junction, before the start of the proposed SUP. Figure 1-1 below shows an extract of the General Arrangement of the proposed cycle-track to carriageway transitions at this location.

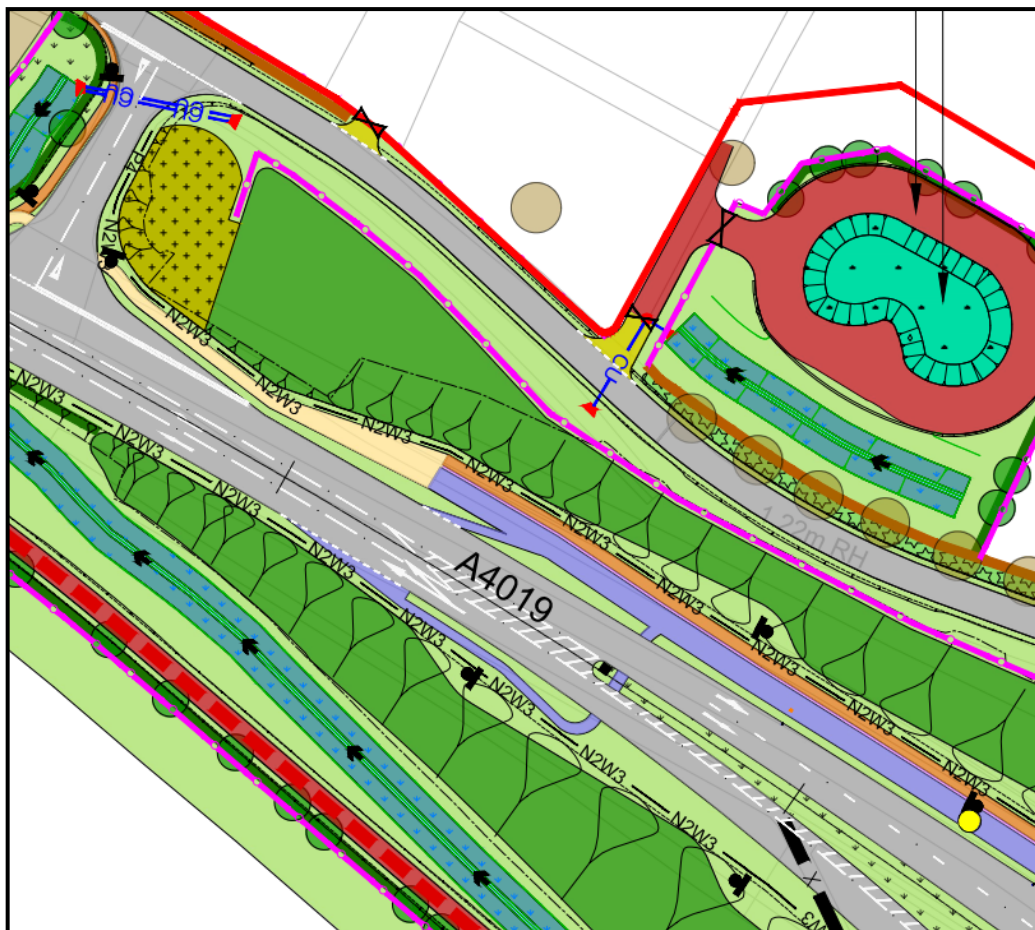


Figure 1-1 – Extract of General Arrangement Plan Showing Proposed Slip/Cycle link Connections

- 2.2.5. The proposed location of the cycle-track to carriageway transitions offers the advantage of connection directly to the proposed cycle track instead of the SUP. Most cyclists at this location are likely to be confident on-road cyclists as they would typically have negotiated long sections of on-road cycling to get to this point. The slips offer these riders the chance to bypass the M5 J10 roundabout.
- 2.2.6. It is recommended that high-quality wayfinding signs are provided at these cycle-track to carriageway transitions to encourage use of these. If the length of SUP is retained in the design, these signs could also highlight that the proposed SUP connects to Stoke Road but ends at that point without onward segregation for cyclists. This would enable less confident cyclists to make an informed decision about onward travel.

2.3. DFS.07 – Footway width less than 2m on The Green

2.3.1. No comments – provisional agreement likely to be forthcoming.

2.4. DFS.08 – Footway width less than 2m on Homecroft Drive

2.4.1. No comments – provisional agreement likely to be forthcoming.

2.5. DFS.10 – Rate of change of cross section is less than 1:35

2.5.1. GCC Departures Review Panel did not have any issues with the proposed departure as this is a diverging taper and the carriageway widens rather than narrows. They queried if this was an actual departure or if it was an acceptable taper for a lane gain.

2.5.2. **POST MEETING NOTES:** CD 127 states that the rate of change of cross-section width for a 70kph design speed should be 1:35 min. Other guidance within CD 123 suggests a taper of 1:5 but only for dedicated turning lanes. This proposed departure is for the introduction of an additional ahead lane so we have therefore considered that the 1:35 taper requirement applies to this.

2.6. DFS.12 – Visibility from Hayden Hill Farm access is below 120m

2.6.1. GCC Departures Review Panel did not have any issues with the proposed departure as there is an improvement to the existing situation. They requested additional information on the existing situation and what a compliant design would require.

2.6.2. **POST MEETING NOTES:** See Table 1 below for existing and proposed visibility from the access.

Table 1 – Visibility for DFS. 12

Existing Visibility	Proposed Visibility	Proposed Mitigation
95m	95m	Speed limit reduction from 50mph to 40mph. Signage in advance of proposed signalised junction

2.6.3. The existing boundary hedge restricts the existing and proposed visibility to the east. In order to achieve a compliant design, the hedge would need to be trimmed back to its centre point. If that is not possible, then an approximate length of 60m of hedge would need to be removed/replanted behind the visibility splay. Replanting a hedge behind the compliant visibility splay would involve additional scheme land-take outside that of the current red line boundary.

2.6.4. The compliant design requirements are shown in Drawing No. GCCM5J10-ATK-HGN-ZZ-SK-CH-000020 in Appendix A.

2.6.5. Collision Data for the B4634 between Hayden Hill Farm and the Hayden Lane junction is included in Appendix B.

2.7. DFS.13 – SSD on B4634 approach to Hayden Lane junction is below 120m

2.7.1. GCC Departures Review Panel did not have any issues with the proposed departure as there is an improvement to the existing situation. They requested additional information on the existing situation and what a compliant design would require.

2.7.2. **POST MEETING NOTES:** See Table 2 below for existing and proposed visibility on the B4634 westbound approach to the junction.

Table 2 – Visibility for DFS. 13

Existing Visibility	Proposed Visibility	Proposed Mitigation
90m	90m	Speed limit reduction from 50mph to 40mph. Signage in advance of proposed signalised junction

- 2.7.3. Existing and proposed visibility would both have a minimum SSD of 90m but in the proposed scheme this minimum value would extend over a slightly greater range than the existing layout due to the proposed alignment starting to curve slightly to the south of the existing road beyond Ch 110m.
- 2.7.4. Existing boundary fence and vegetation restricts the existing and proposed visibility. This fencing and vegetation would need to be removed from within the 120m visibility splay in order to achieve a compliant design. This is beyond the proposed scheme tie in point and the achievement of a compliant visibility splay would involve additional scheme land-take outside that of the current red line boundary.
- 2.7.5. The compliant design requirements are shown in Drawing No. GCCM5J10-ATK-HGN-ZZ-SK-CH-000020 in Appendix A.
- 2.7.6. Collision Data for the B4634 between Hayden Hill Farm and the Hayden Lane junction is included in Appendix B.

2.8. DFS.14 – Visibility from Hayden Lane junction is below 120m

- 2.8.1. GCC Departures Review Panel did not have any issues with the proposed departure as there is an improvement to the existing situation. They requested additional information on the existing situation and what a compliant design would require.
- 2.8.2. **POST MEETING NOTES:** See Table 3 below for existing and proposed visibility from the junction to the east.

Table 3 – Visibility for DFS. 14

Existing Visibility	Proposed Visibility	Proposed Mitigation
60m	60m	Speed limit reduction from 50mph to 40mph. Signage in advance of proposed signalised junction

- 2.8.3. Existing and proposed visibility would be exactly the same. The existing boundary fence and vegetation restricts visibility. This fencing and vegetation would need to be removed from within the 120m visibility splay in order to achieve a compliant design. This is beyond the proposed scheme tie in point and the achievement of a compliant visibility splay would involve additional scheme land-take outside that of the current red line boundary.
- 2.8.4. The compliant design requirements are shown in Drawing No. GCCM5J10-ATK-HGN-ZZ-SK-CH-000020 in Appendix A.
- 2.8.5. Collision Data for the B4634 between Hayden Hill Farm and the Hayden Lane junction is included in Appendix B.

2.9. DFS.15 – Access road horizontal radii less than 44m

- 2.9.1. GCC Departures Review Panel questioned the justification for this proposed departure if only to reduce land take and further information was requested on a compliant design requirements. They also requested further information on the proposed separation between the access road and the A4019.

- 2.9.2. **POST MEETING NOTES:** A compliant design would involve increasing the proposed horizontal radii of the access road from 30m to 44m. This is shown on Drawing No. GCCM5J10-ATK-HGN-ZZ-SK-CH-000021 in Appendix A and would have a modest increase in land take requirements. The proposed radii are in close proximity to the junction and would assist in controlling speeds from vehicles entering and exiting the proposed Link Road.
- 2.9.3. It is considered that the speed control likely to be introduced by these proposed radii would have safety benefits compared to a compliant design and these are also in keeping with similar radii on existing roads in the area such as Moat Lane. It is therefore recommended that these radii are retained within the design.
- 2.9.4. If it is decided that the compliant design should be implemented, this change would fit within the current scheme red line boundary.
- 2.9.5. The proposed separation between the access road and the A4019 is 2.5m min. Figure 1-2 below shows an extract of the General Arrangement drawing at this location.



Figure 1-2 – Extract of General Arrangement Plan Showing Proposed Separation between Access Road and A4019

2.10. DFS.16 – Non-typical junction arrangement with service road junctions close to proposed stop line on The Green

- 2.10.1. GCC Departures Review Panel requested more details of the proposed layout showing dimensions and a comparison with the existing junction layout at Eastern Avenue/York Road in Gloucester.

- 2.10.2. **POST MEETING NOTES:** A drawing GCCM5J10-ATK-HGN-ZZ-SK-CH-000022 showing the key dimensions on The Green arm of the proposed junction layout is included in Appendix A. This drawing also includes a dimensioned layout of the existing Eastern Avenue/York Road junction.
- 2.10.3. The drawing shows that the existing Eastern Avenue/York Road junction has greater available space for turning movements compared to the proposed layout at The Green. However, the main difference is the available length between the stop line and the keep clear/yellow box markings. Junction mouth widths are broadly comparable.
- 2.10.4. Although the layouts are similar, albeit with the proposed layout being a smaller scale than the existing Eastern Avenue/York Road junction, the existing usage of the Eastern Avenue/York Road junction is also significantly different from the proposed usage of The Green junction. Eastern Avenue/York Road provides access to a large number of commercial and industrial units which would generate large traffic flows and a high proportion of HGV movements. The two proposed service roads at The Green would provide access to a total of 6 No. residential properties, 1 No. Farm and 2 No. field accesses. Therefore, traffic flows and large vehicle movements would be far less than that experienced at the Eastern Avenue/York Road junction.
- 2.10.5. Drawing Nos. GCCM5J10-ATK-HGN-ZZ-DR-CH-000126, 000128, 000129 and 000130 included in Appendix A show swept paths of vehicle movements at The Green arm of the proposed junction layout.

Appendix A

Drawing No. GCCM5J10-ATK-HGN-ZZ-SK-CH-000020 - Departure Plan DFS12, DFS13 & DFS14

Drawing No. GCCM5J10-ATK-HGN-ZZ-SK-CH-000021 - Departure Plan DFS15

Drawing No. GCCM5J10-ATK-HGN-ZZ-SK-CH-000022 - Departure Plan DFS16

Drawing No. GCCM5J10-ATK-HGN-ZZ-DR-CH-000126 - DF3 Highway Layout Swept Path Sht 4 of 7

Drawing No. GCCM5J10-ATK-HGN-ZZ-DR-CH-000128 - DF3 Highway Layout Swept Path Sht 5 of 7

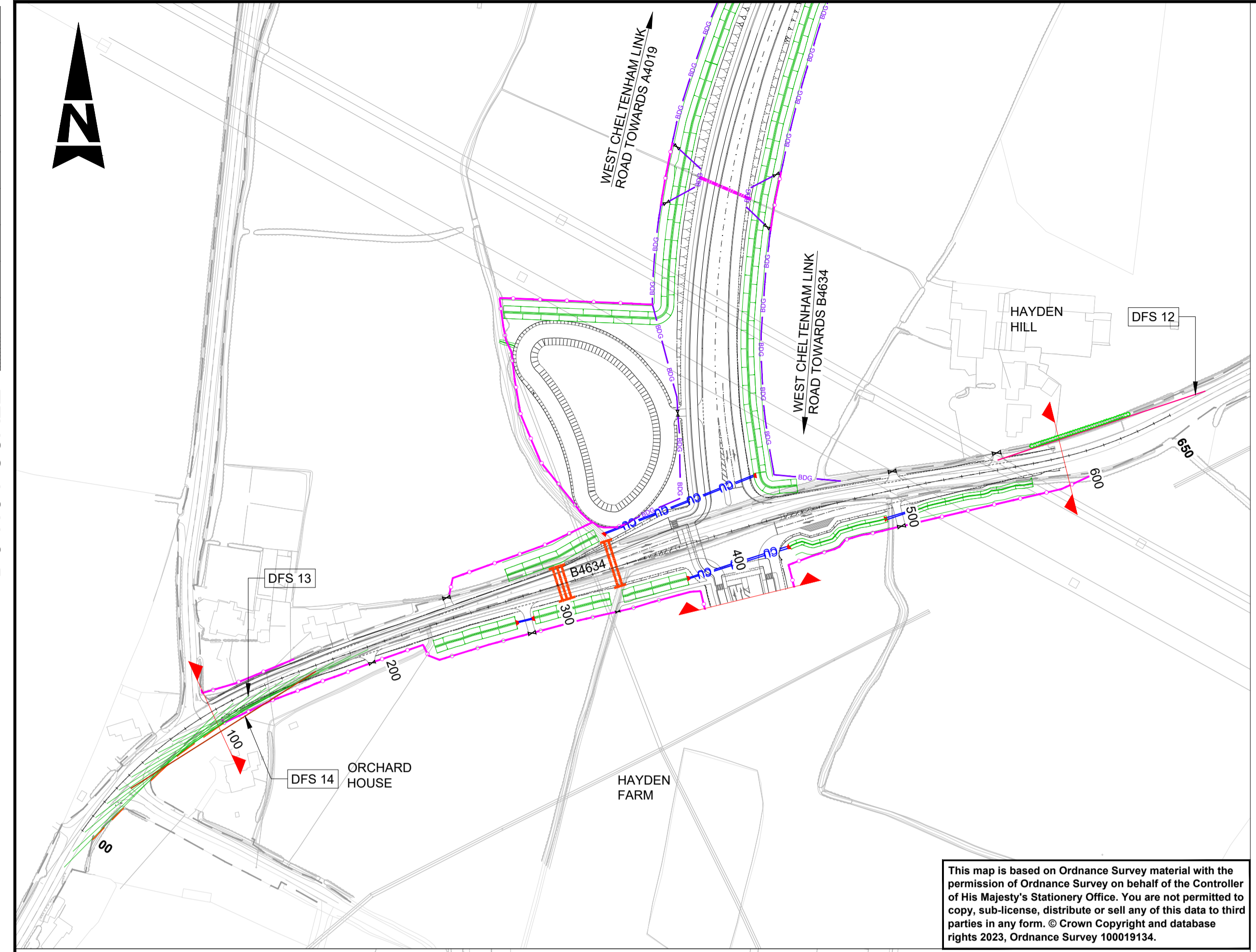
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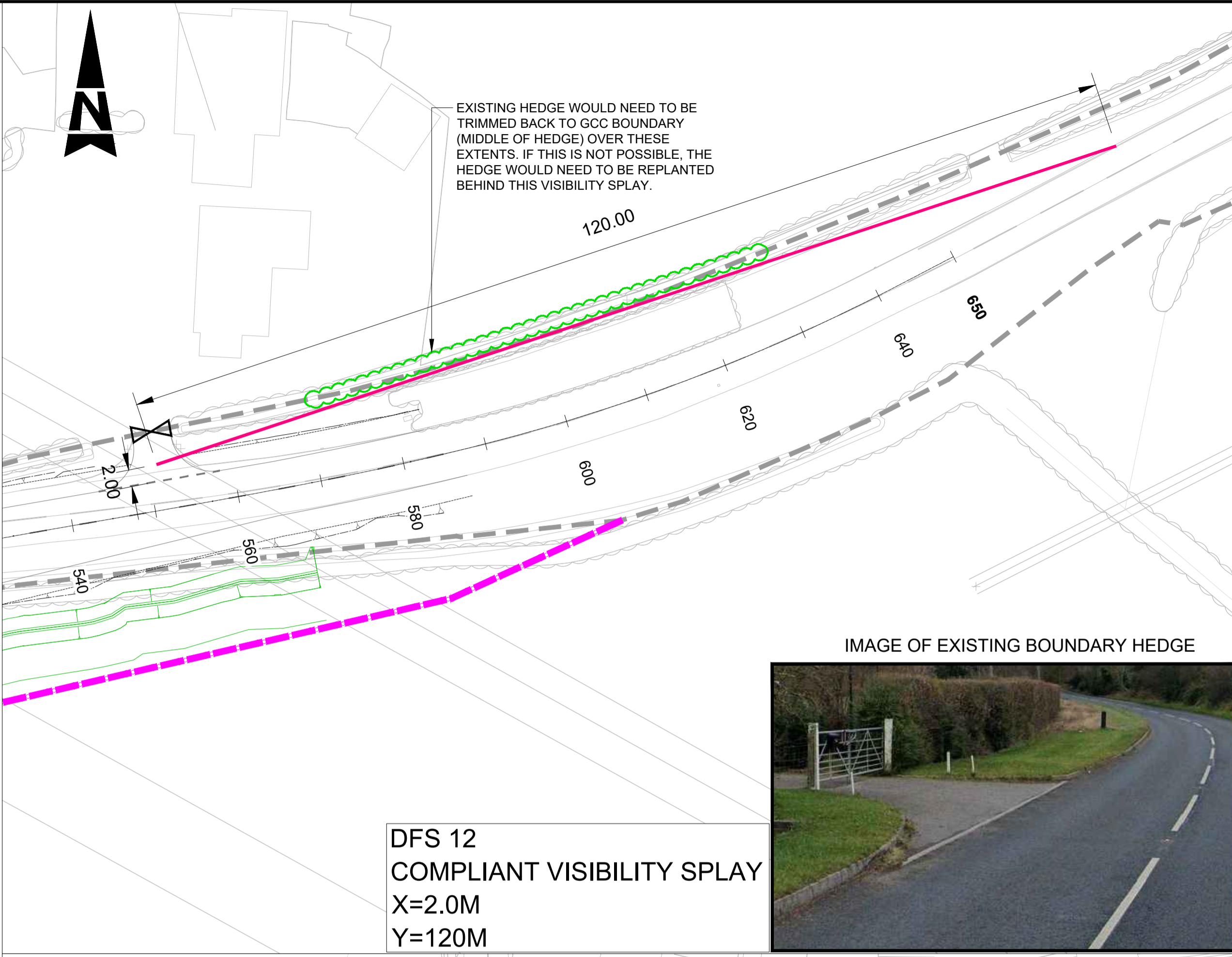
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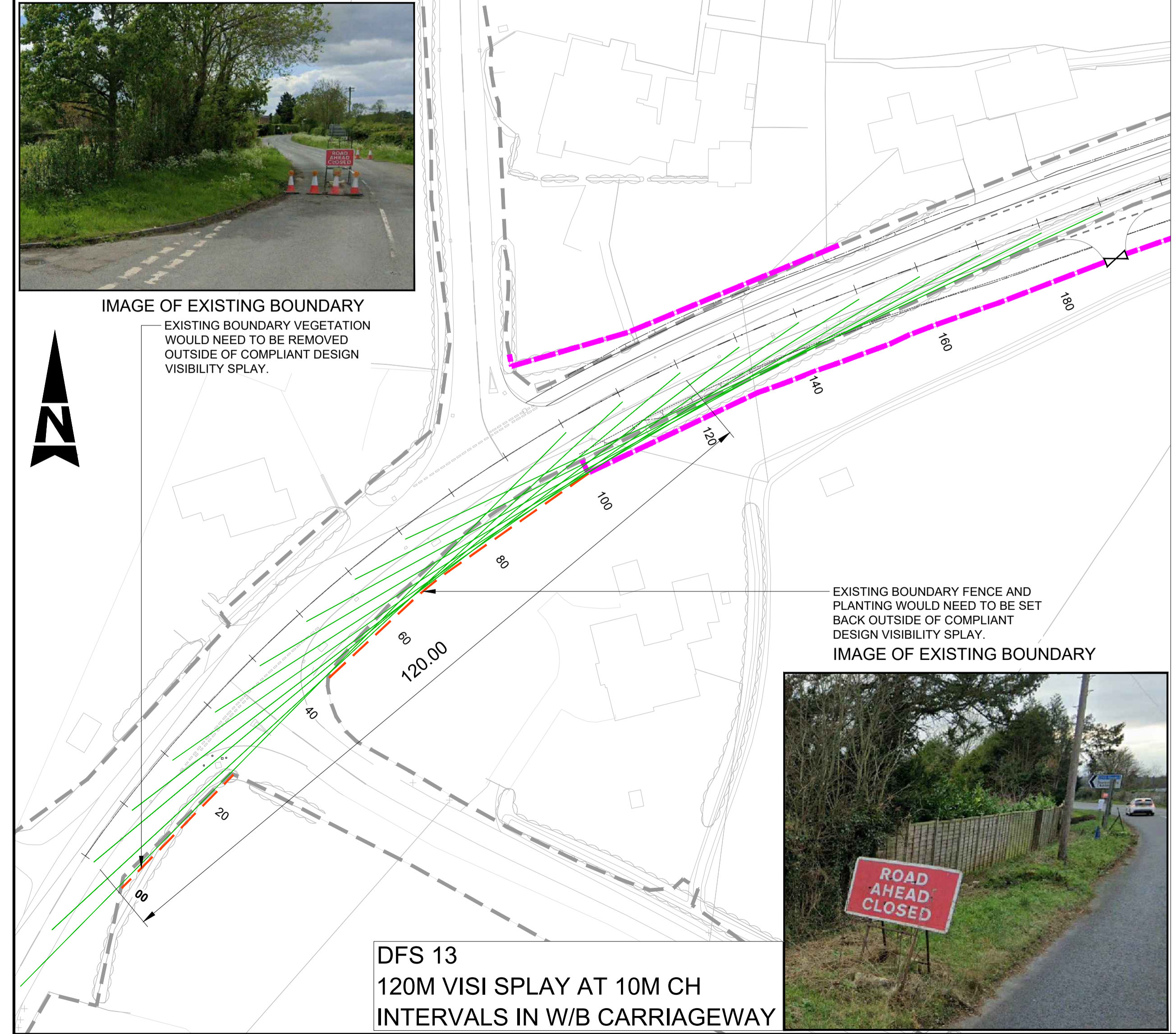
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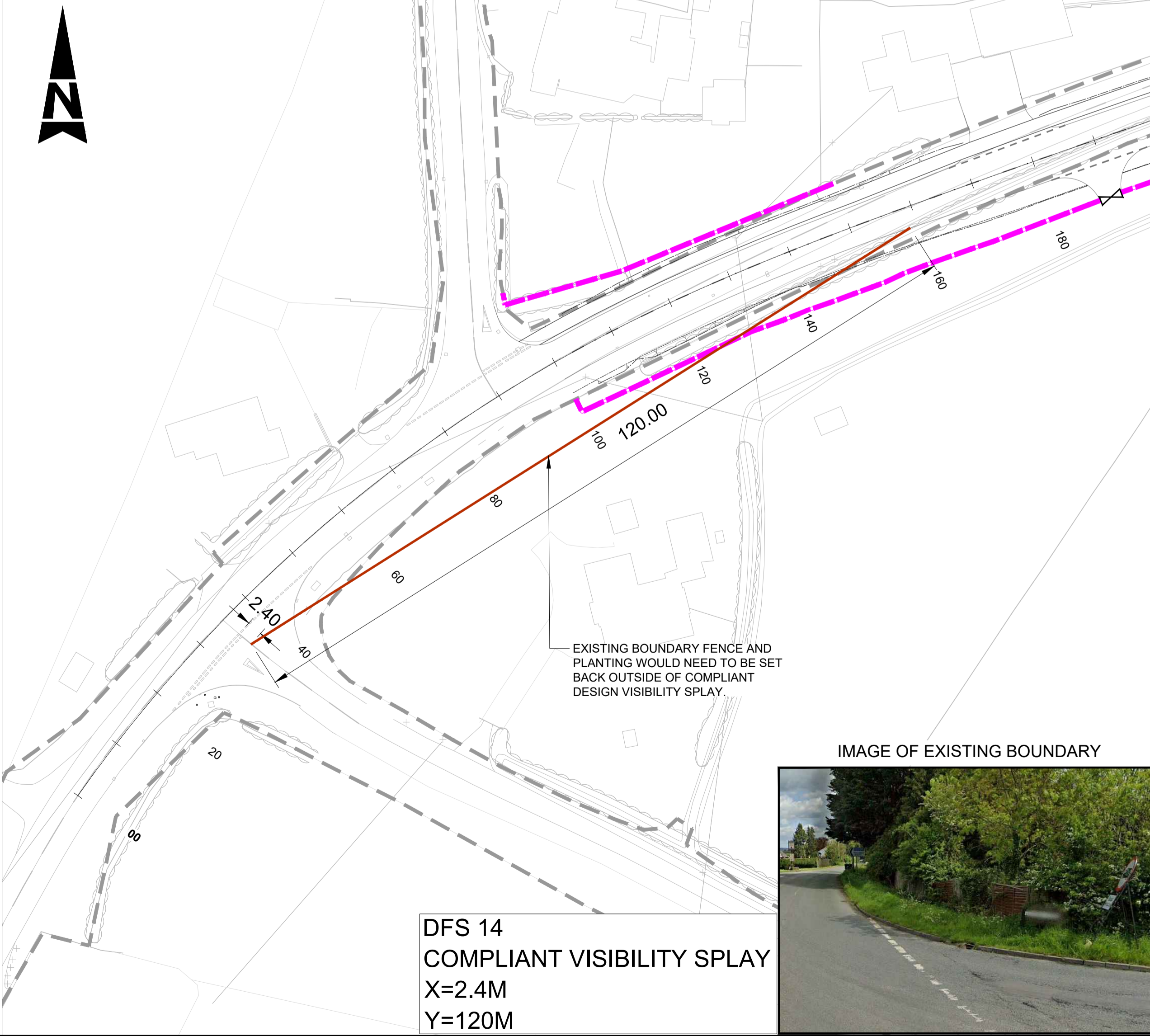
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DFS 12
COMPLIANT VISIBILITY SPLAY
X=2.0M
Y=120M



DFS 13
120M VISI SPLAY AT 10M CH
INTERVALS IN W/B CARRIAGEWAY



DFS 14
COMPLIANT VISIBILITY SPLAY
X=2.4M
Y=120M

NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.

KEY:

- EXISTING GCC BOUNDARY
- PROPOSED HIGHWAY FENCE
- BDG PROPOSED BADGER FENCING

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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Construction
NOT APPLICABLE

Maintenance / Cleaning
NOT APPLICABLE

Use
NOT APPLICABLE

Decommissioning / Demolition
NOT APPLICABLE

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

FIRST ISSUE

Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	C01	MC	NKRP	CCR	LJ	20/04/23

Drawing Suitability: APPROVED - PUBLISHED Status: A1

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Client: **Gloucestershire COUNTY COUNCIL**

Project Title: **M5 Junction 10 Improvements Scheme**

Drawing Title: **DEPARTURE PLAN
DFS12, DFS13 & DFS14**

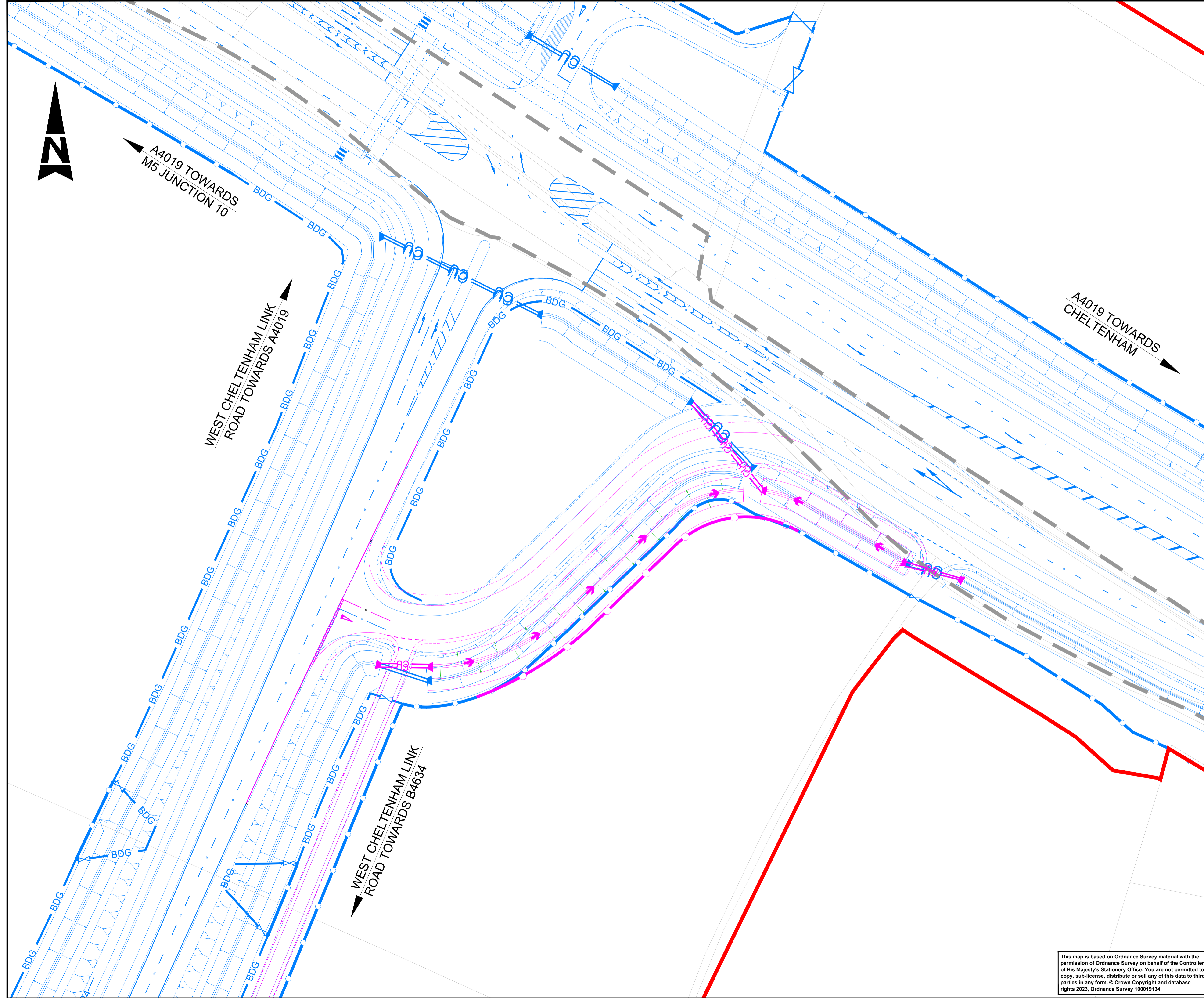
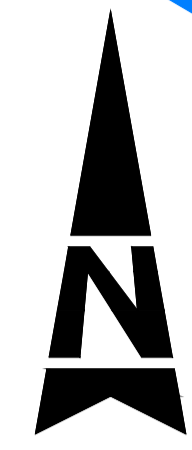
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Type: Role: Number

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NOTES

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KEY:

	RED LINE BOUNDARY
	EXISTING GCC BOUNDARY
	CURRENT DESIGN (DESIGN FIX 3.0)
	COMPLIANT DESIGN

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In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

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Use	NOT APPLICABLE
Decommissioning / Demolition	NOT APPLICABLE

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Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
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Drawing Suitability	APPROVED - PUBLISHED	Status	A1
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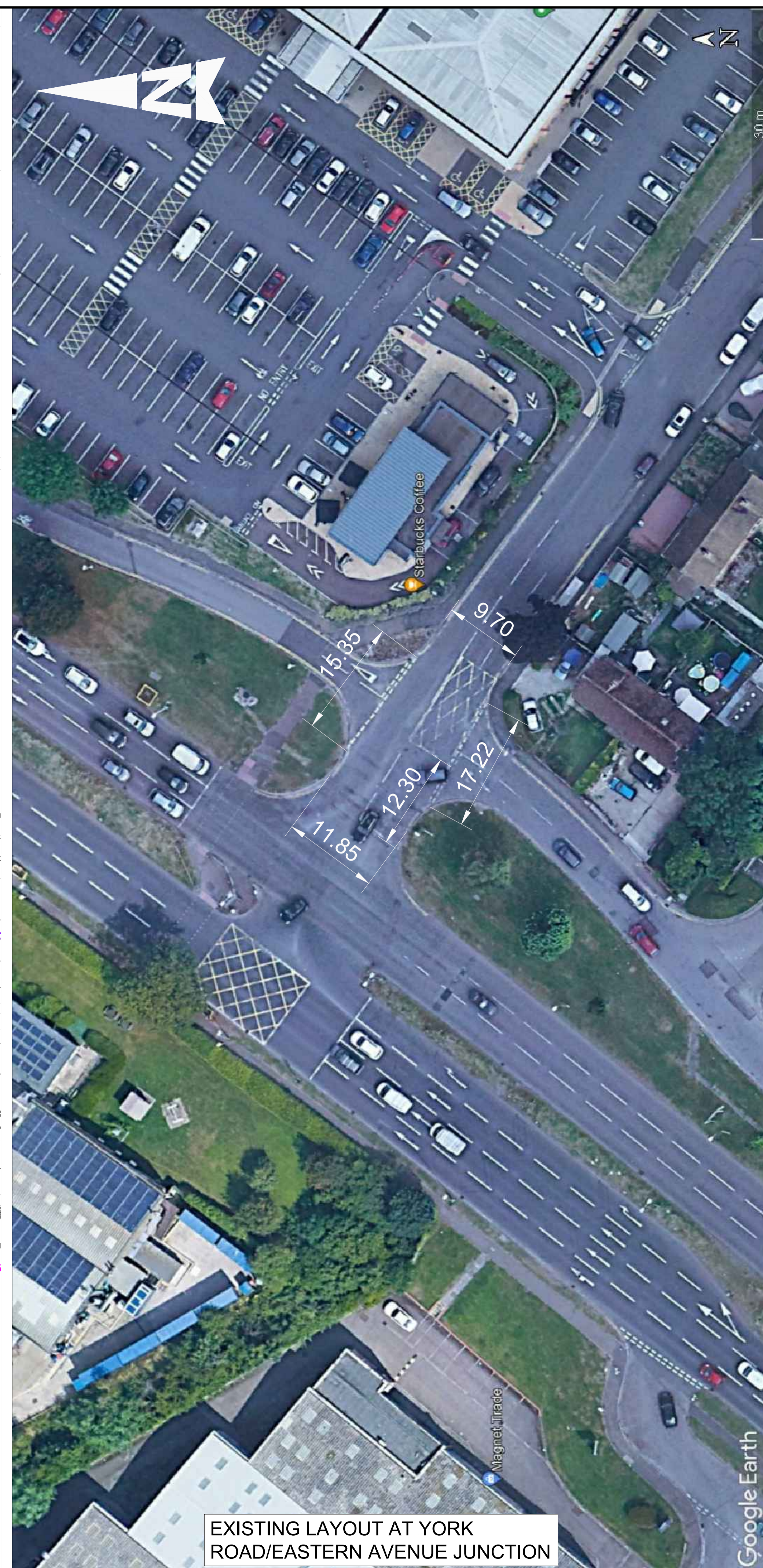
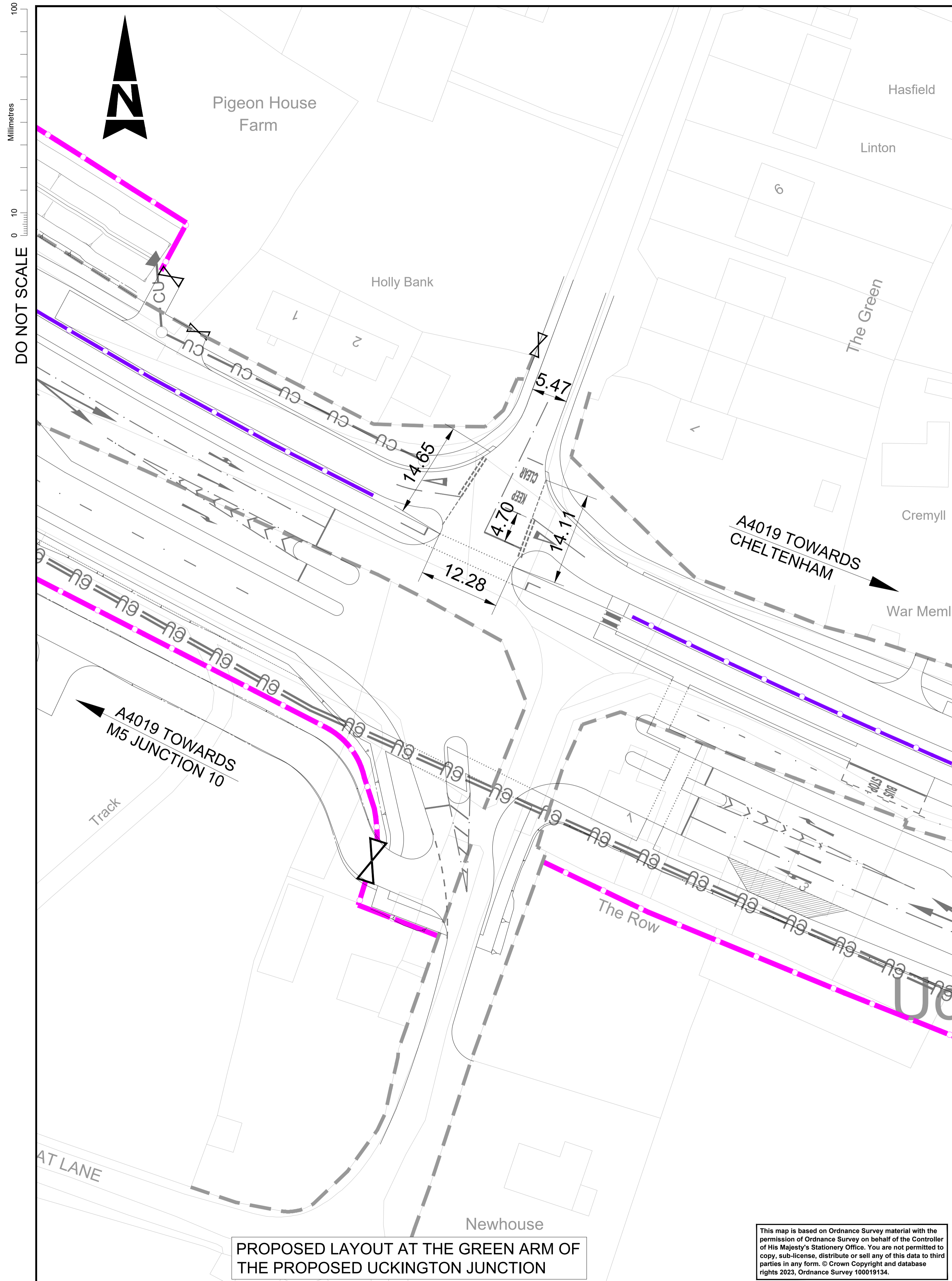
Gloucestershire
COUNTY COUNCIL

Project Title
M5 Junction 10 Improvements Scheme

Drawing Title
**DEPARTURE PLAN
DFS 15**

Drawing Number	Project	Originator	Volume
GCCM5J10	-	ATK	- HGN -
ZZ	-	SK - CH -	000021
Location	Type	Role	Number
Original Size: A1	Scale: NTS	Project Ref. No: 5197035	Sheet: 2 of 3
			Rev: C01

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NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.

KEY:

- EXISTING GCC BOUNDARY
- PROPOSED HIGHWAY FENCE
- PROPOSED ABSORPTIVE NOISE BARRIER 2m HIGH

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction
NOT APPLICABLE

Maintenance / Cleaning
NOT APPLICABLE

Use
NOT APPLICABLE

Decommissioning / Demolition
NOT APPLICABLE

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
DESCRIPTION							
DESCRIPTION							
DESCRIPTION							
DESCRIPTION							
DESCRIPTION							
DESCRIPTION							

DESCRIPTION
FIRST ISSUE

Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	C01	MC	NKRP	CCR	LJ	20/04/23

Drawing Suitability: APPROVED - PUBLISHED Status: A1

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Client: **Gloucestershire COUNTY COUNCIL**

Project Title: **M5 Junction 10 Improvements Scheme**

Drawing Title: **DEPARTURE PLAN DFS16**

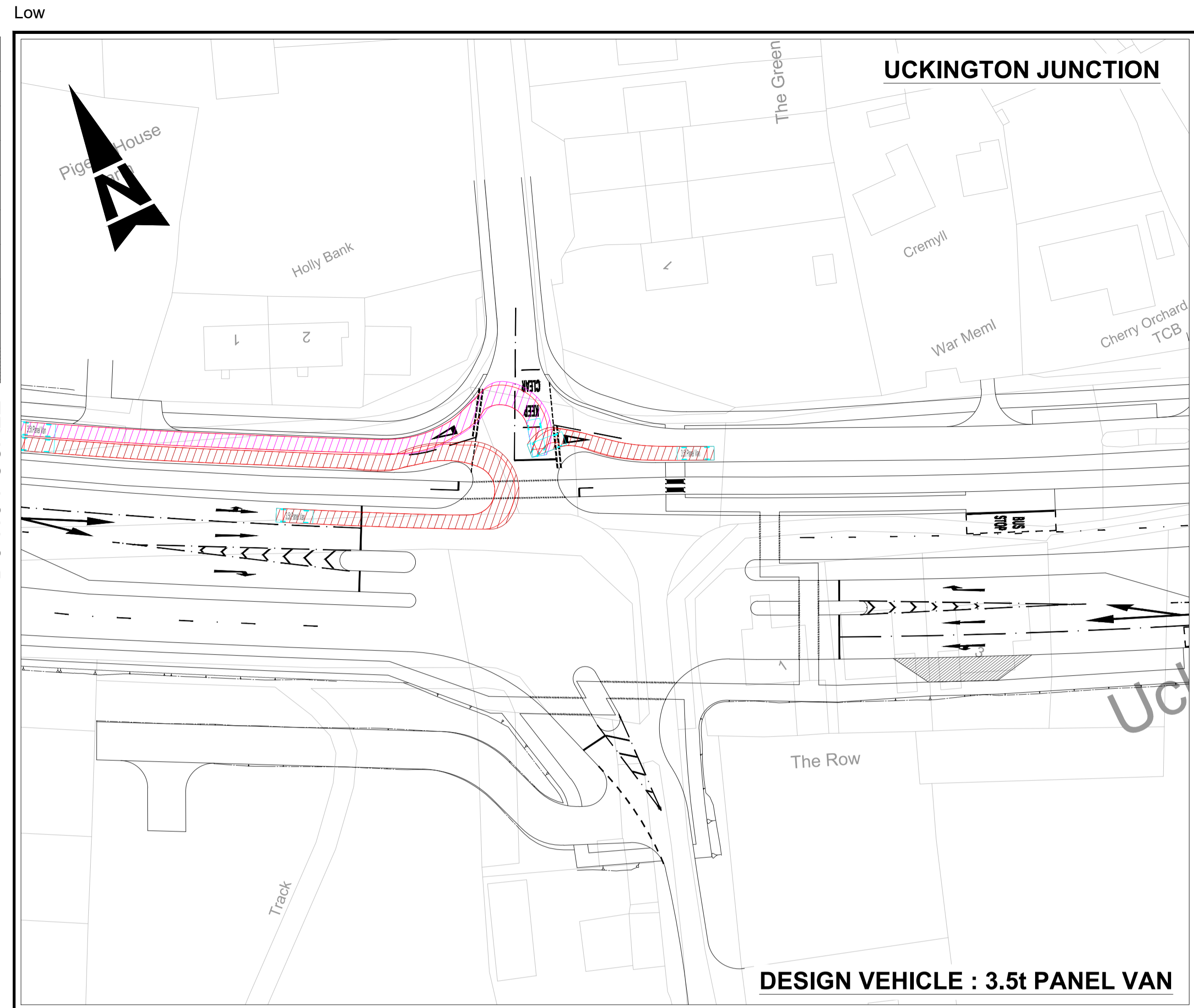
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Project Originator: - SK - CH - 000022
Volume: -

Location: A1 Scale: NTS Project Ref. No: 5197035 Sheet: 3 of 3 Rev: C01

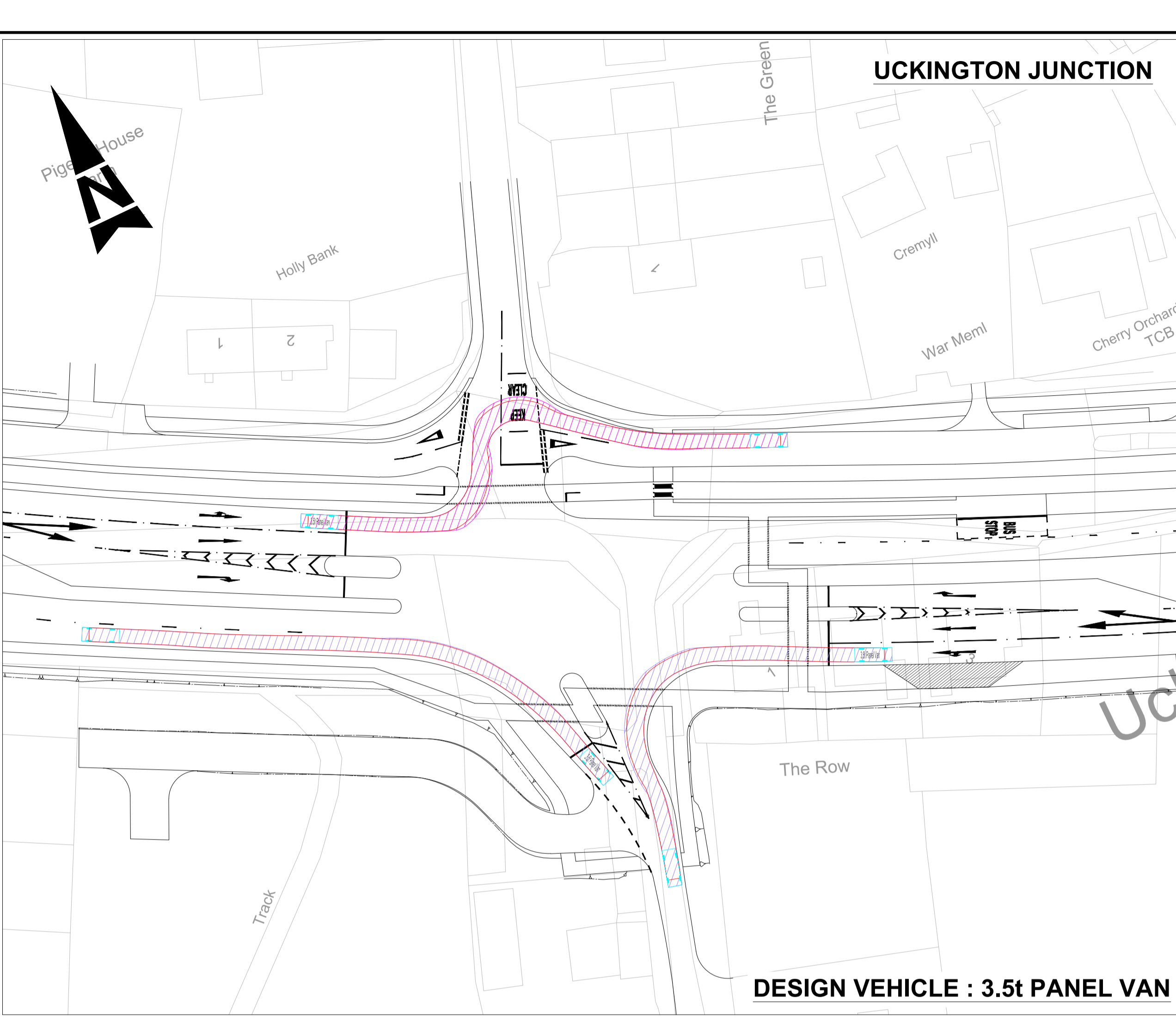
DO NOT SCALE

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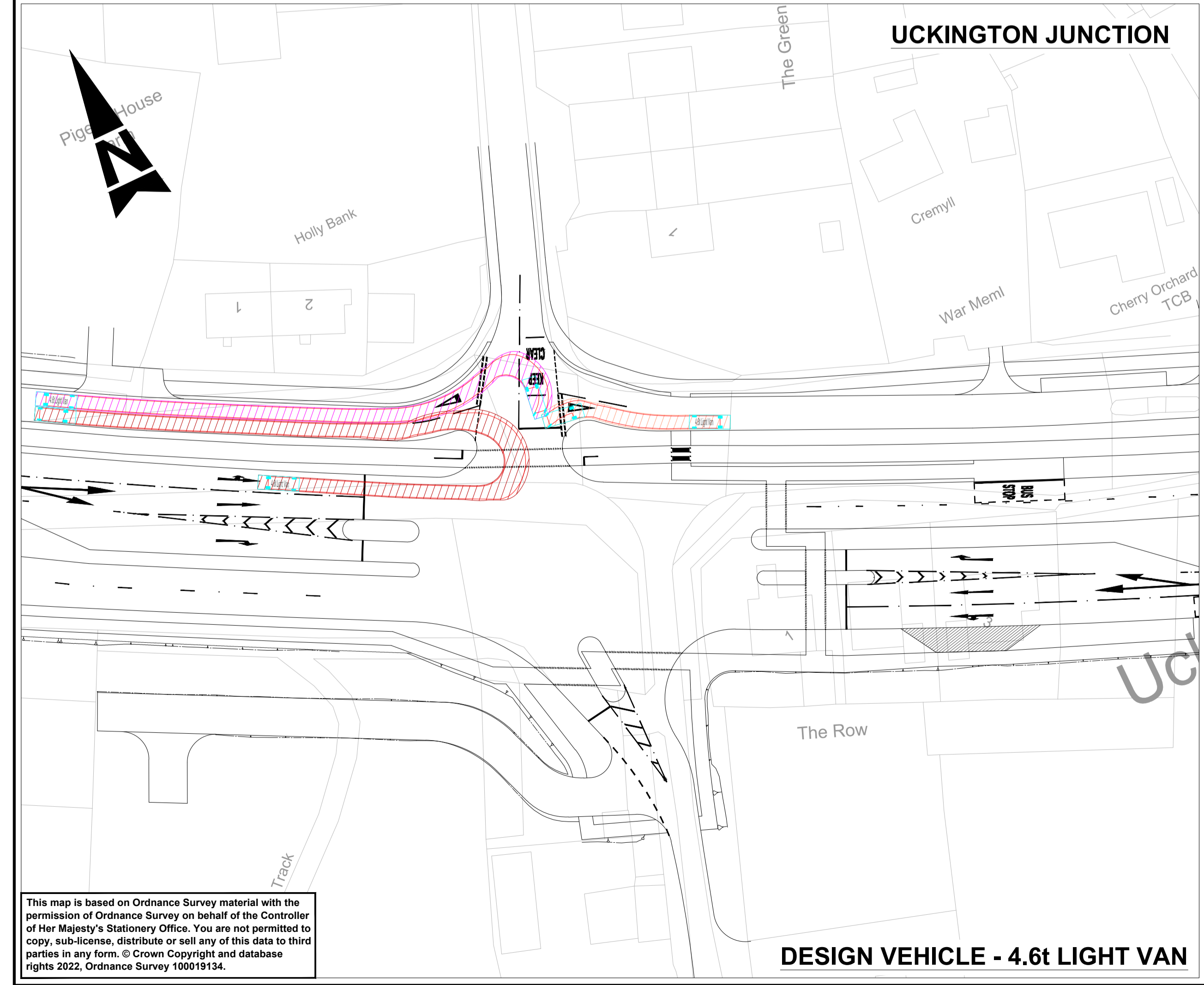
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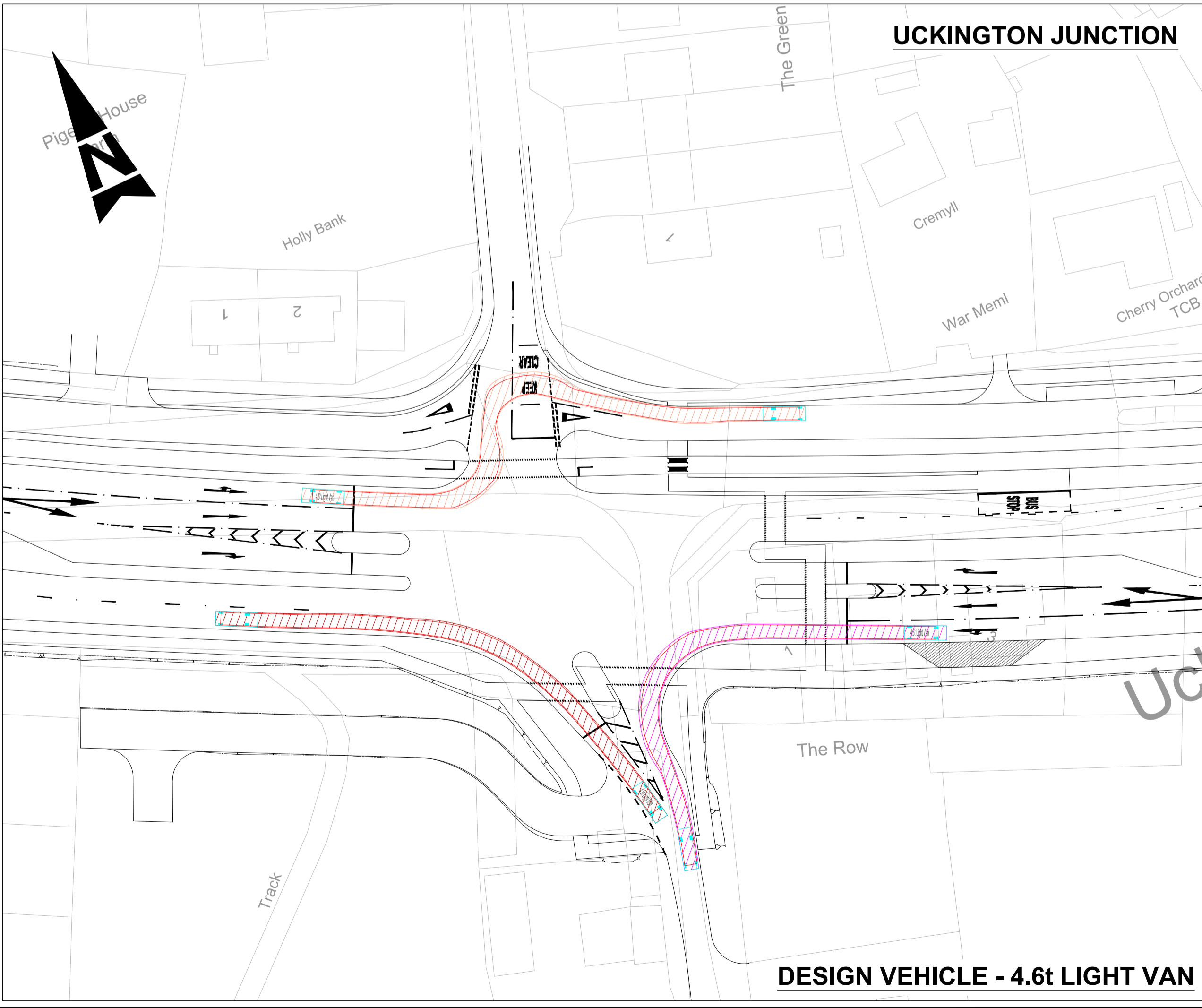
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DESIGN VEHICLE : 3.5t PANEL VAN



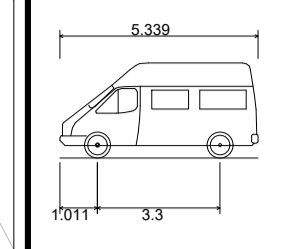
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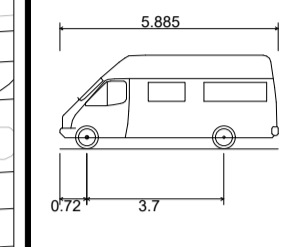
DESIGN VEHICLE - 4.6t LIGHT VAN

- NOTES:
- DO NOT SCALE FROM THIS DRAWING.
 - ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED.

VEHICLE DETAILS :



3.5t Panel Van
 Overall Length 5.339m
 Overall Width 1.986m
 Overall Body Height 2.565m
 Min Body Ground Clearance 0.339m
 Track Width 1.986m
 Lock to lock time 4.00s
 Kerb to Kerb Turning Radius 6.400m



4.6t Light Van
 Overall Length 5.885m
 Overall Width 2.000m
 Overall Body Height 2.526m
 Min Body Ground Clearance 0.299m
 Track Width 1.765m
 Lock to lock time 4.00s
 Kerb to Kerb Turning Radius 6.000m

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Design Fix 3 - Final	A1	CO1	MC	NKRP	CCR	LJ	20/04/23

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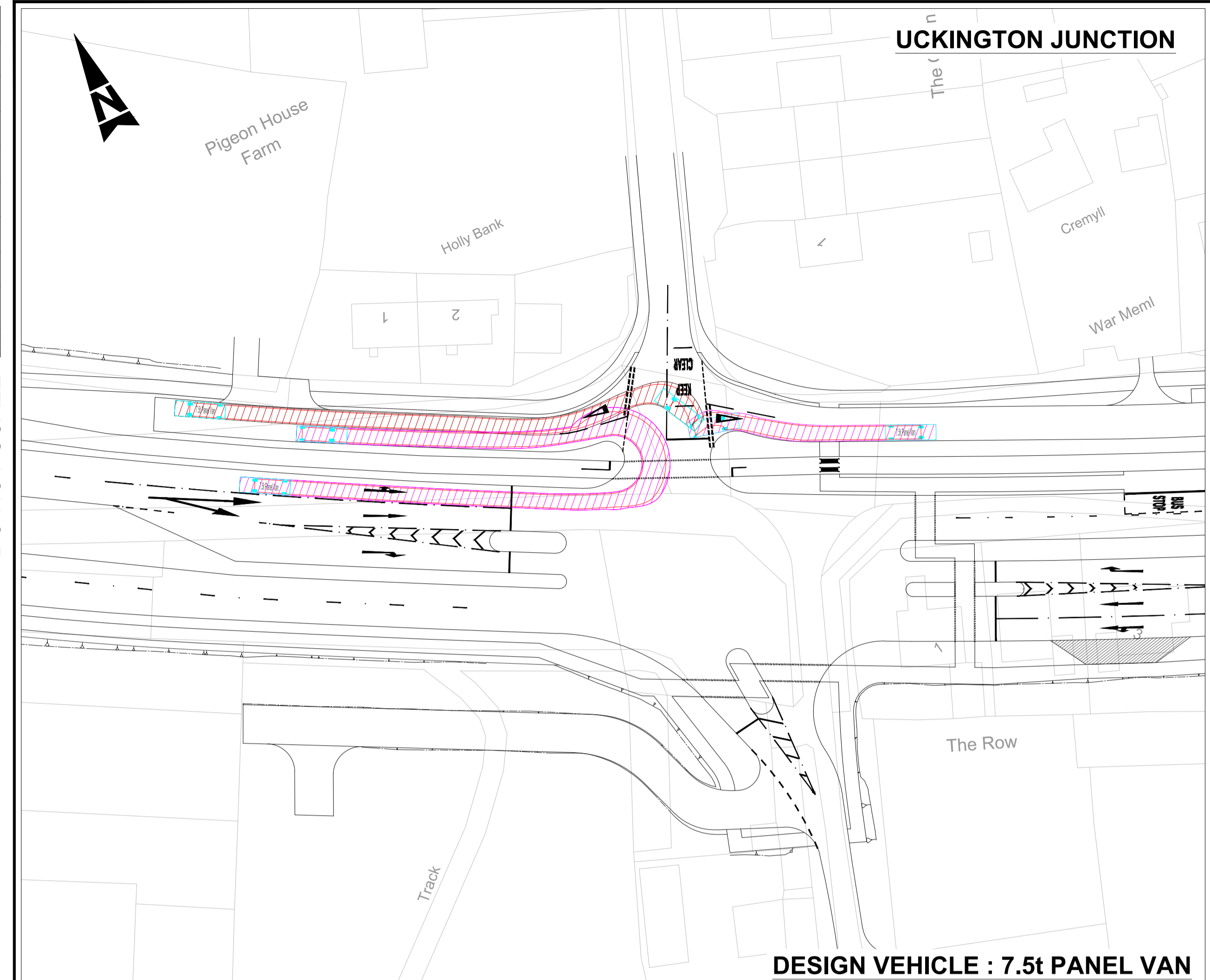
Drawing Title
**M5J10 JUNCTION
 DF3 HIGHWAY LAYOUT
 SWEEP PATH**

Drawing Number	Project	Originator	Volume
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	ZZ	- DR - CH - 000126	
Location	Type	Role	Number
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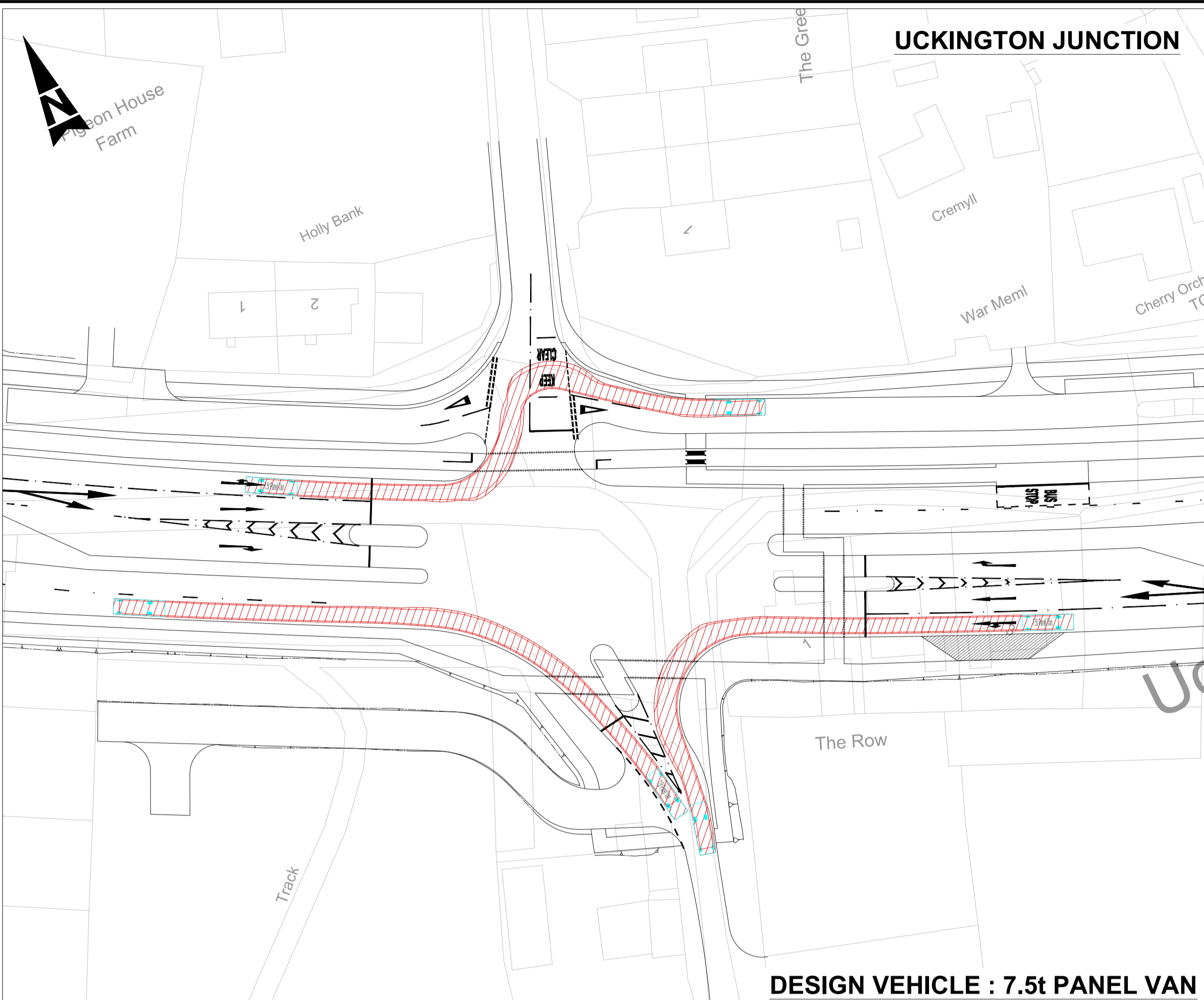
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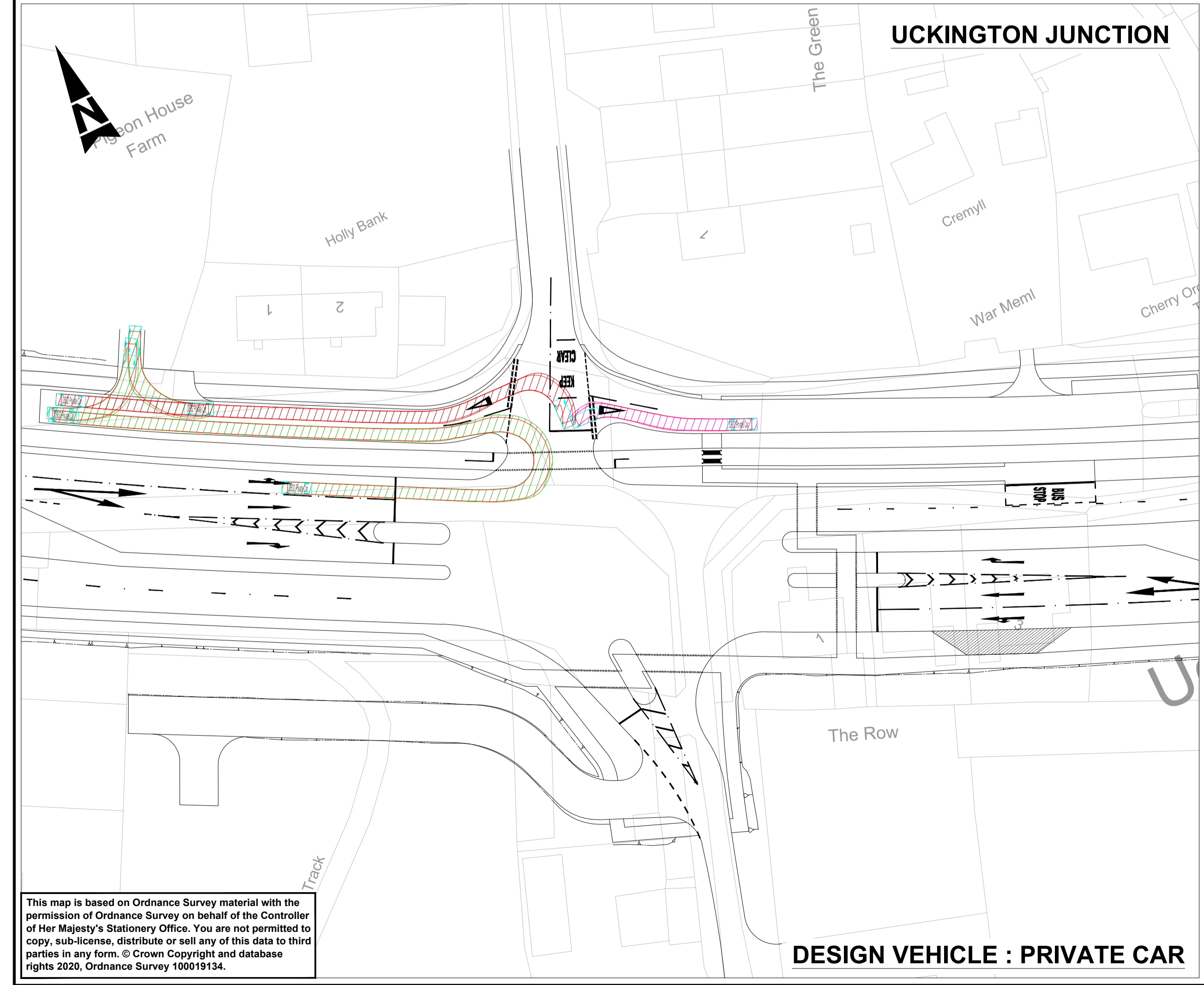
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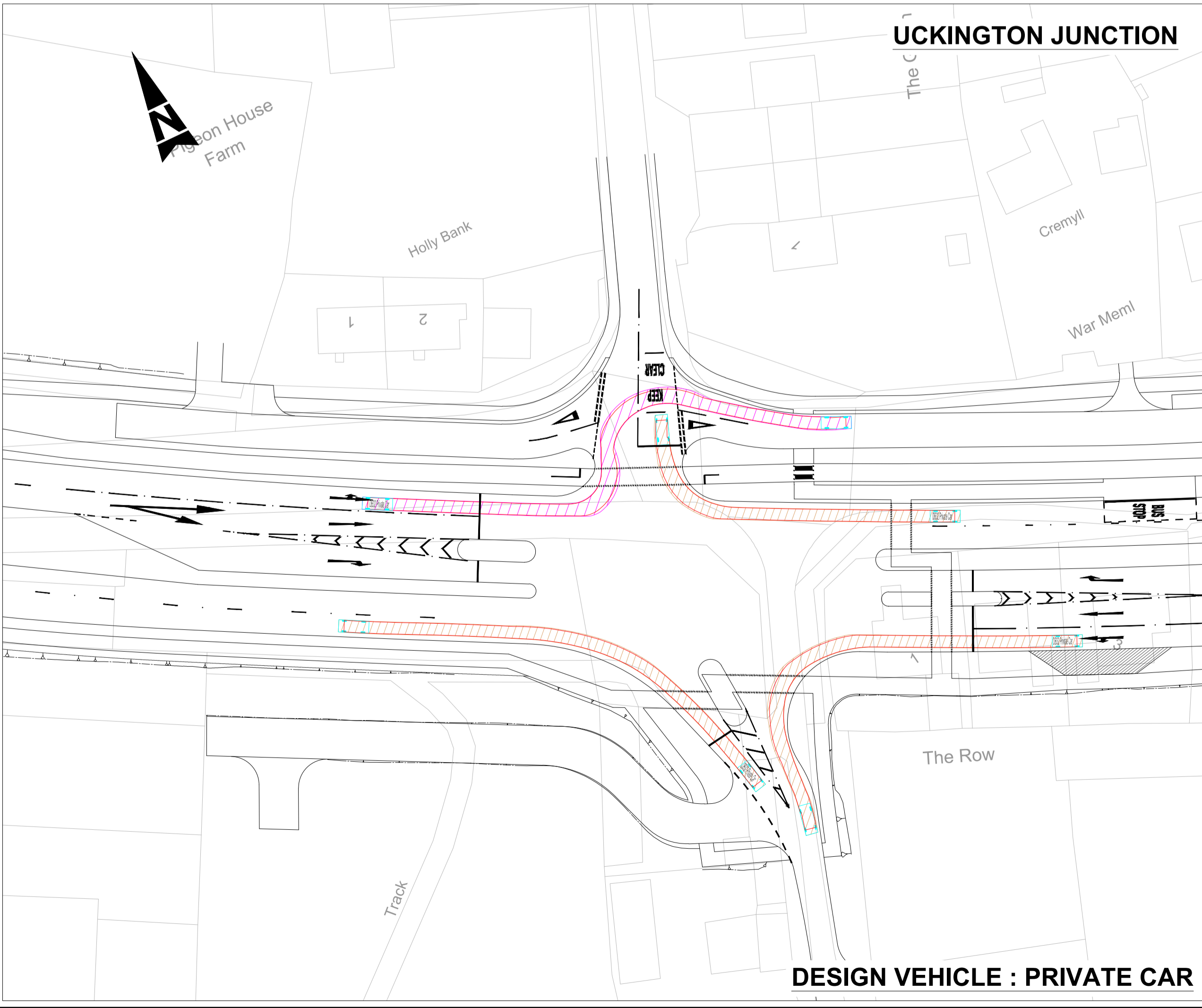
DESIGN VEHICLE : 7.5t PANEL VAN



DESIGN VEHICLE : 7.5t PANEL VAN



DESIGN VEHICLE : PRIVATE CAR



DESIGN VEHICLE : PRIVATE CAR

NOTES:

- DO NOT SCALE FROM THIS DRAWING.
- ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED.

VEHICLE DETAILS :

	7.21m
	4.25m
7.5t Panel Van	7.210m
Overall Length	2.192m
Overall Width	2.544m
Overall Body Height	2.544m
Min Body Ground Clearance	0.316m
Track Width	1.865m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	7.400m

	4.223m
	2.692m
DB32 Private Car	4.223m
Overall Length	1.715m
Overall Width	1.392m
Overall Body Height	1.392m
Min Body Ground Clearance	0.233m
Max Track Width	1.629m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	5.780m

Description	Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Description Design Fix 3 - Final							
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date	Status
A1	CO1	MC	NKRP	CCR	LJ	20/04/23	A1

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Project Title
M5 Junction 10 Improvements Scheme

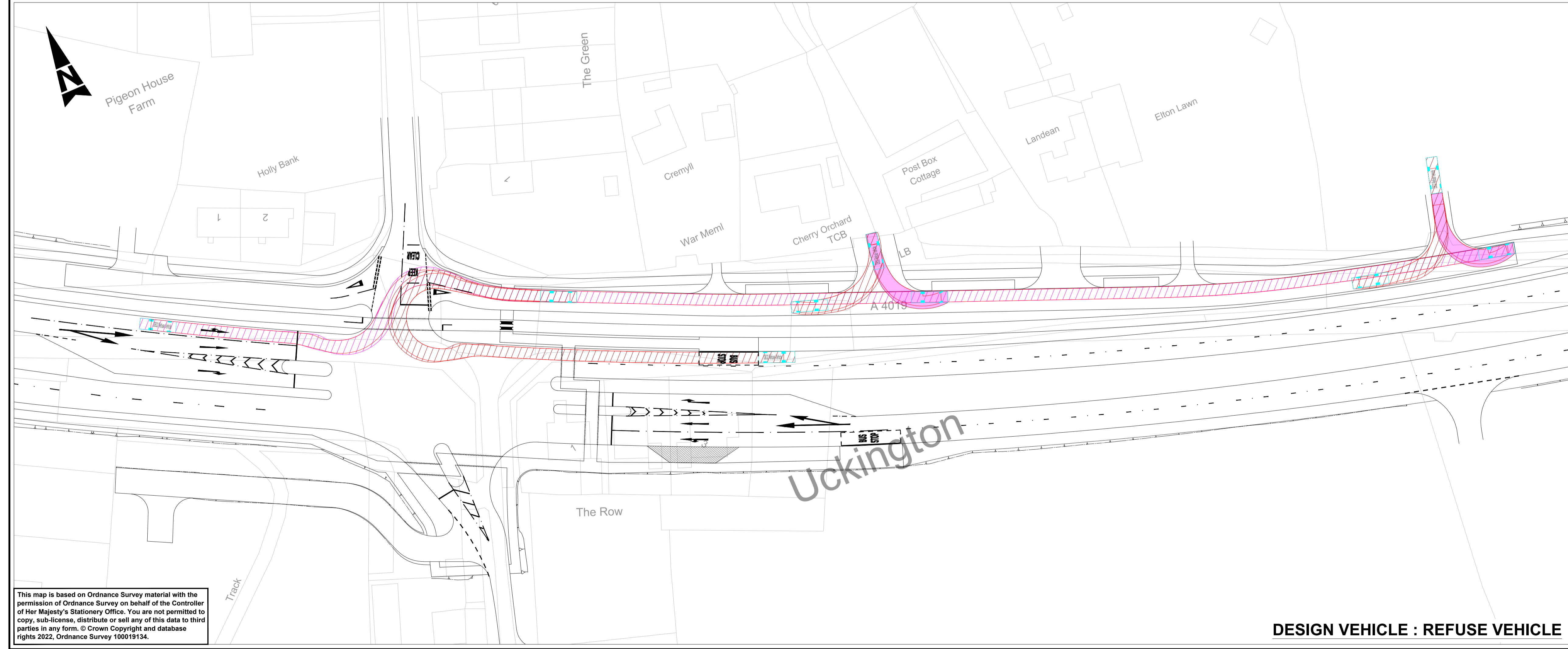
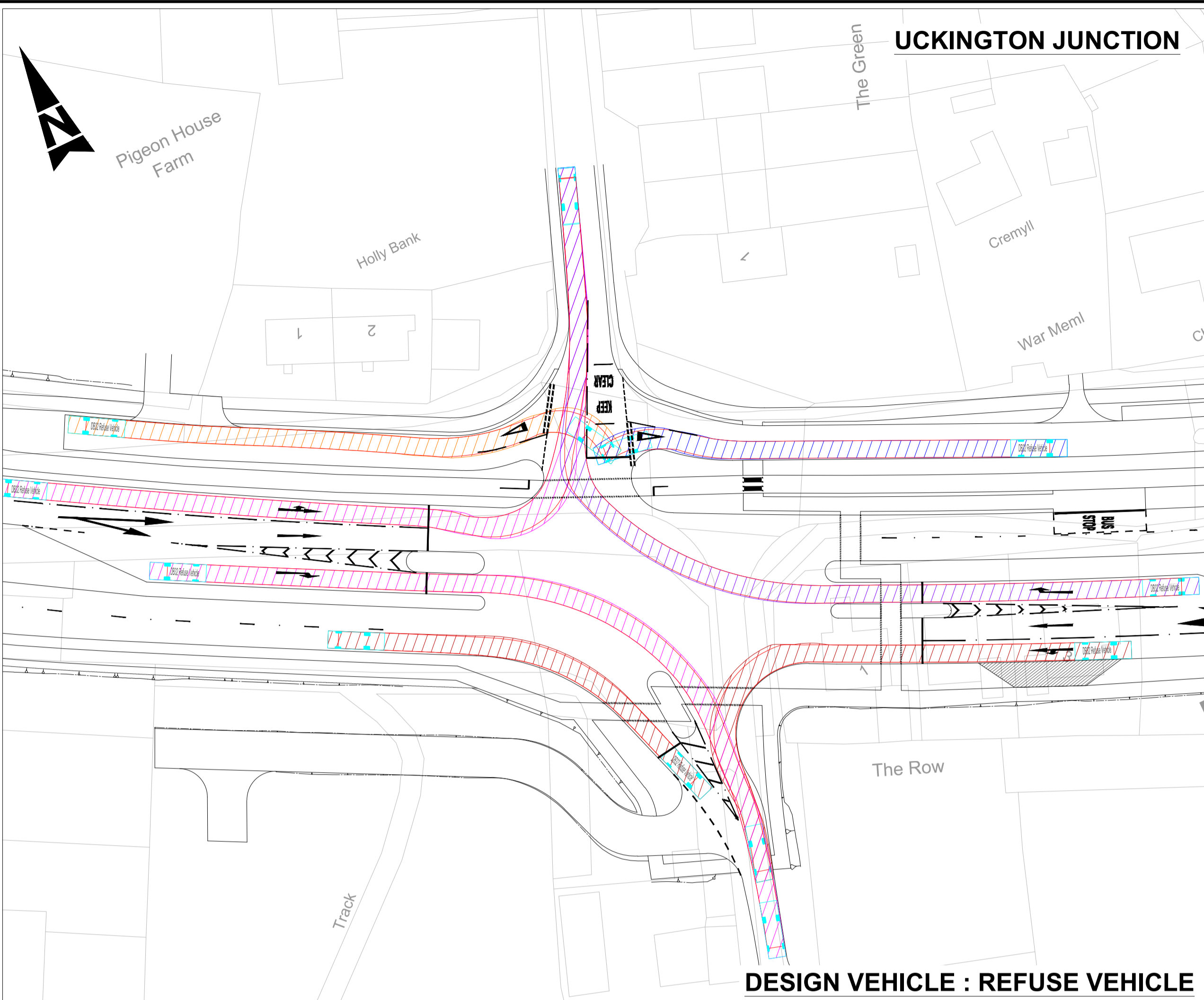
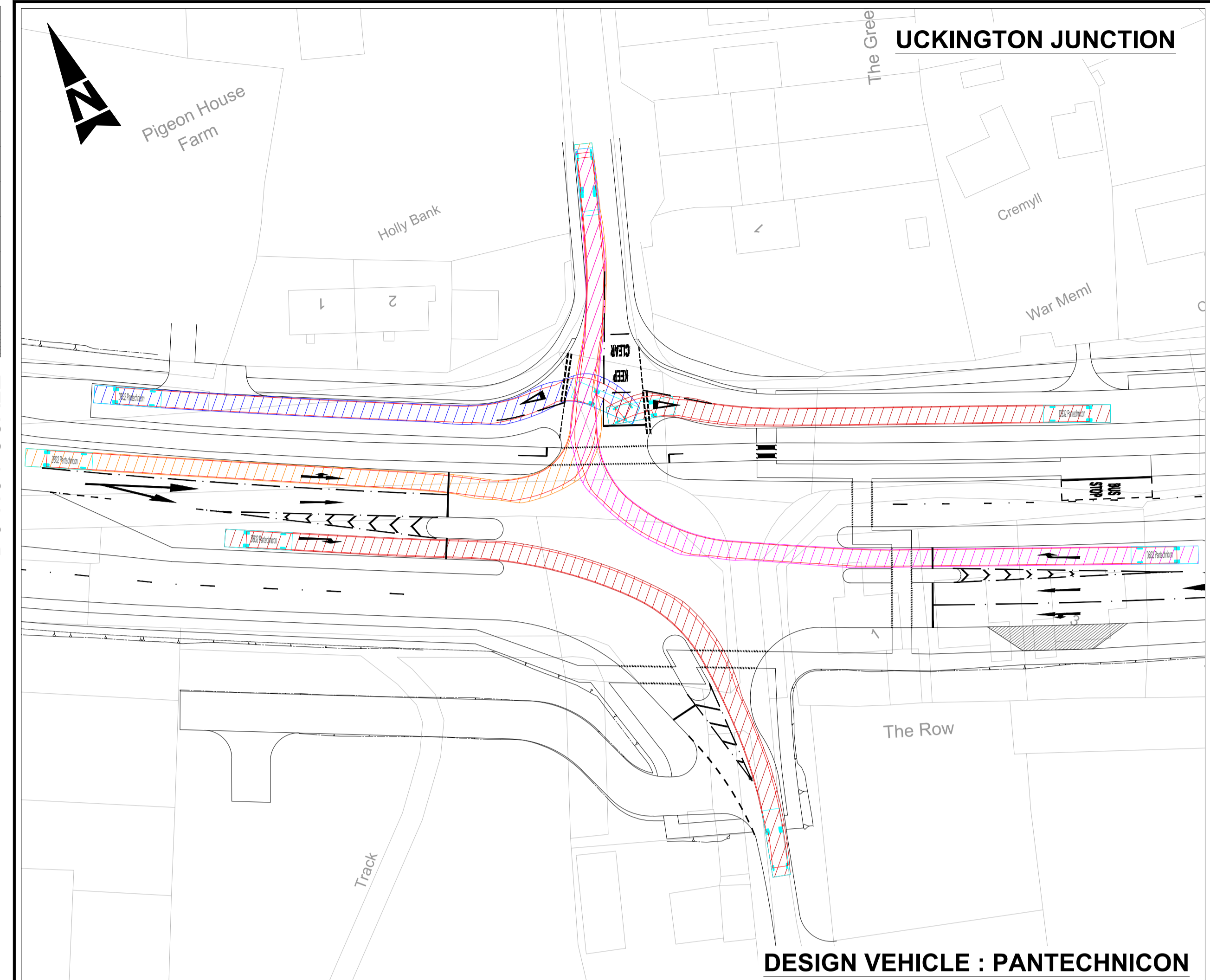
Drawing Title
**M5J10 JUNCTION
DF3 HIGHWAY LAYOUT
SWEEP PATH**

Drawing Number Project	Originator	Volume
GCCM5J10 - ATK - HGN - ZZ	- DR - CH - 000128	
Location	Type	Role / Number
A1	Scale: 1:500	Project Ref. No: 519703 Sheet: 5 of 7 Rev: C01

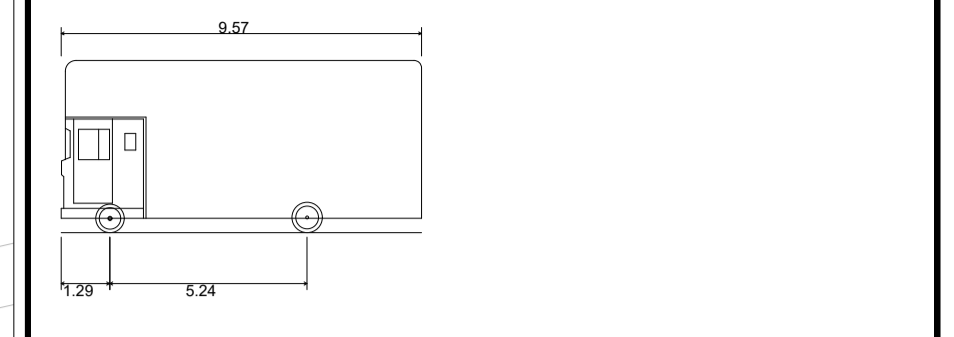
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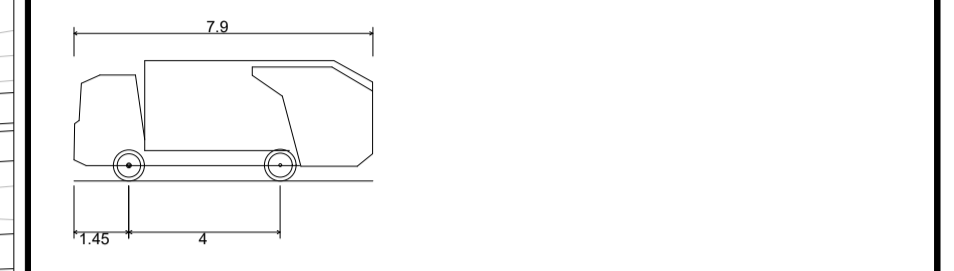
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Millimetres



NOTES:
1. DO NOT SCALE FROM THIS DRAWING.
2. ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED.



DB32 Pantechnicon
Overall Length 9.570m
Overall Width 2.520m
Overall Body Height 4.571m
Min Body Ground Clearance 0.383m
Max Track Width 2.300m
Lock to lock time 6.00s
Kerb to Kerb Turning Radius 10.450m



DB32 Refuse Vehicle
Overall Length 7.900m
Overall Width 3.183m
Overall Body Height 3.183m
Min Body Ground Clearance 0.388m
Max Track Width 2.400m
Lock to lock time 6.00s
Kerb to Kerb Turning Radius 9.625m

Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
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Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date

Description						
Design Fix 3 - Final						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	CO1	MC	NKRP	CCR	LJ	20/04/23

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Project Title
M5 Junction 10 Improvements Scheme

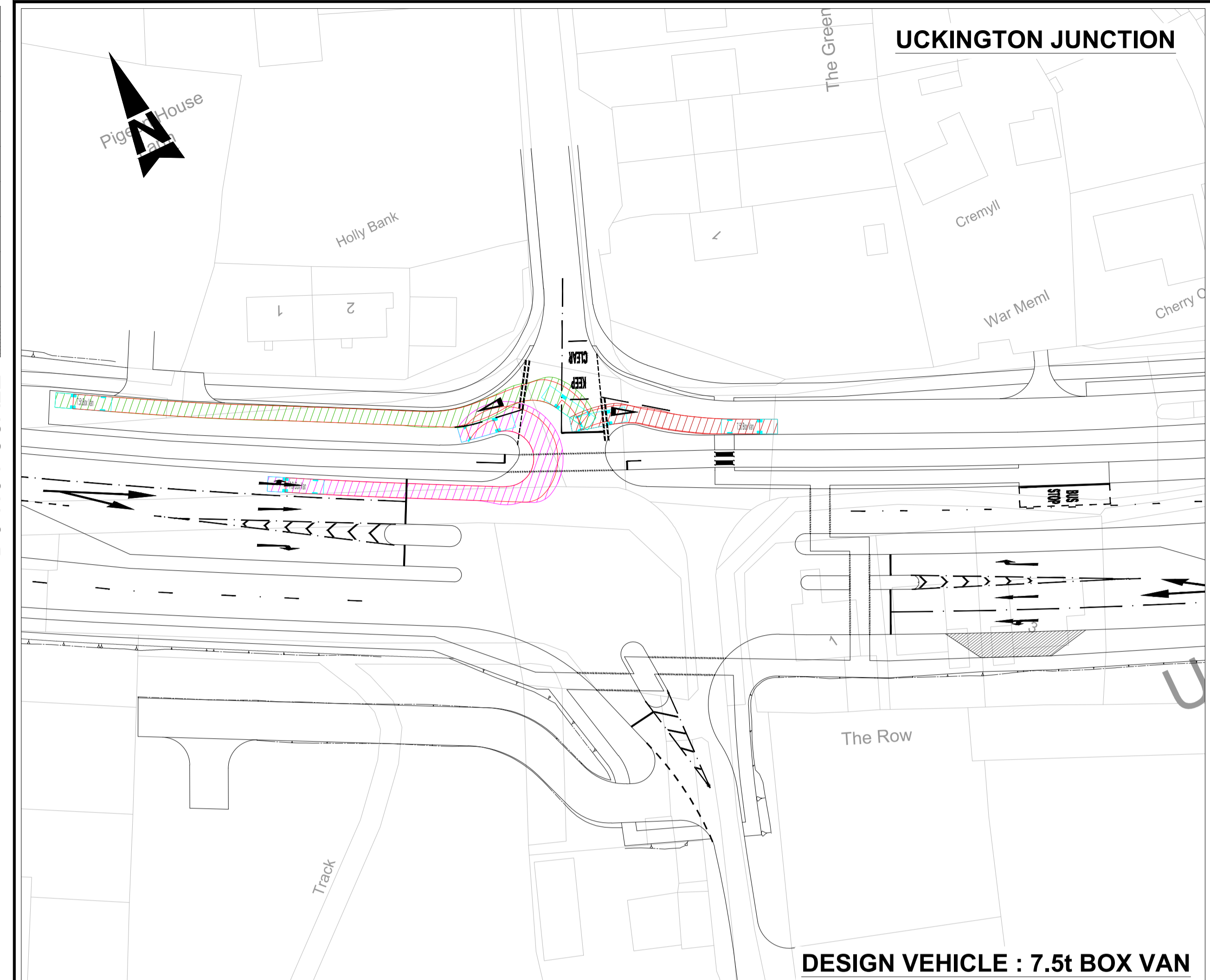
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**M5J10 JUNCTION
DF3 HIGHWAY LAYOUT
SWEEP PATH**

Drawing Number	Project	Originator	Volume
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	ZZ	- DR - CH - 000129	
Location	Type	Role	Number
Original Size: A1	Scale: 1:500	Project Ref. No: 5197035	Sheet: 6 of 7
		Rev: C01	

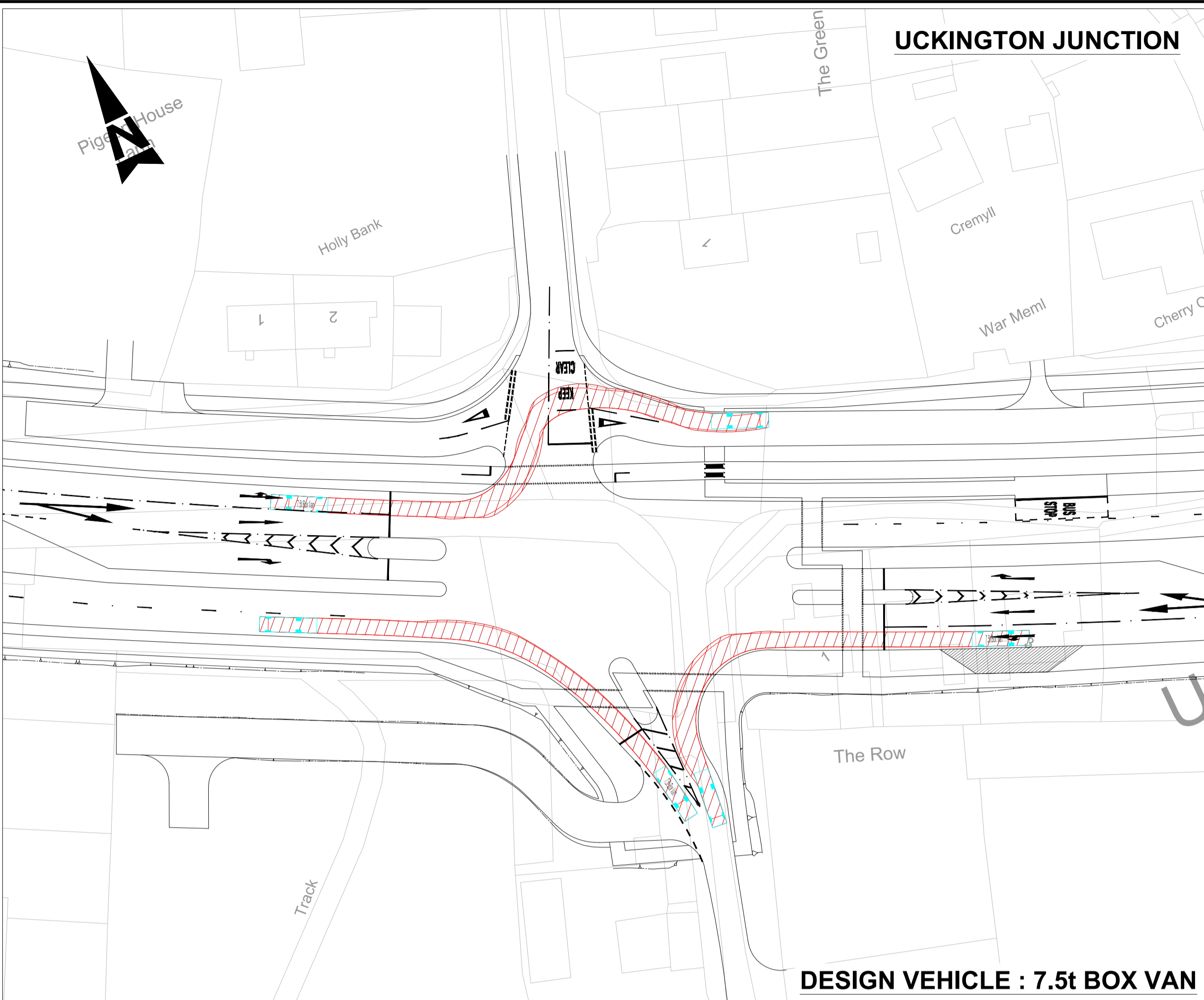
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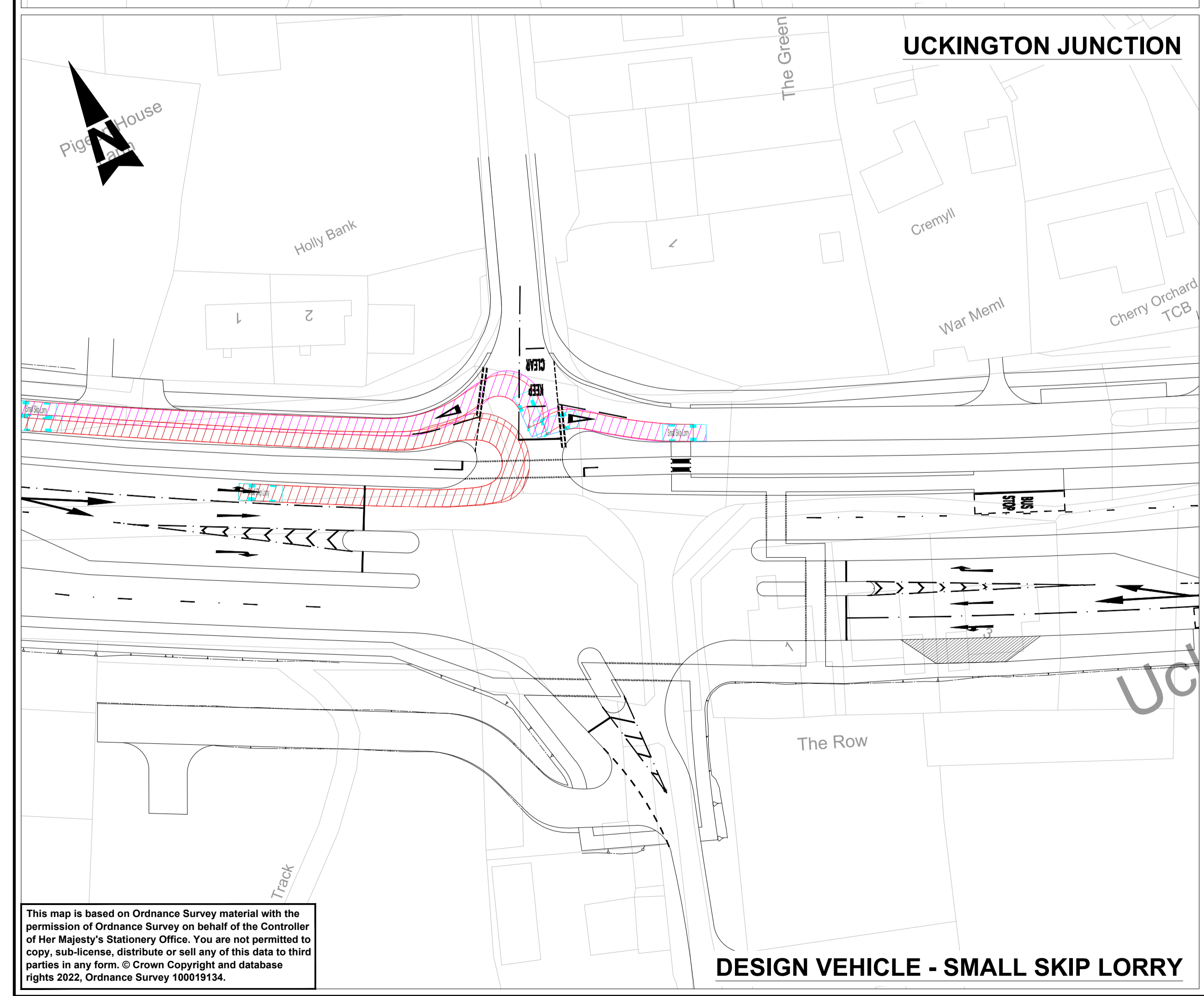
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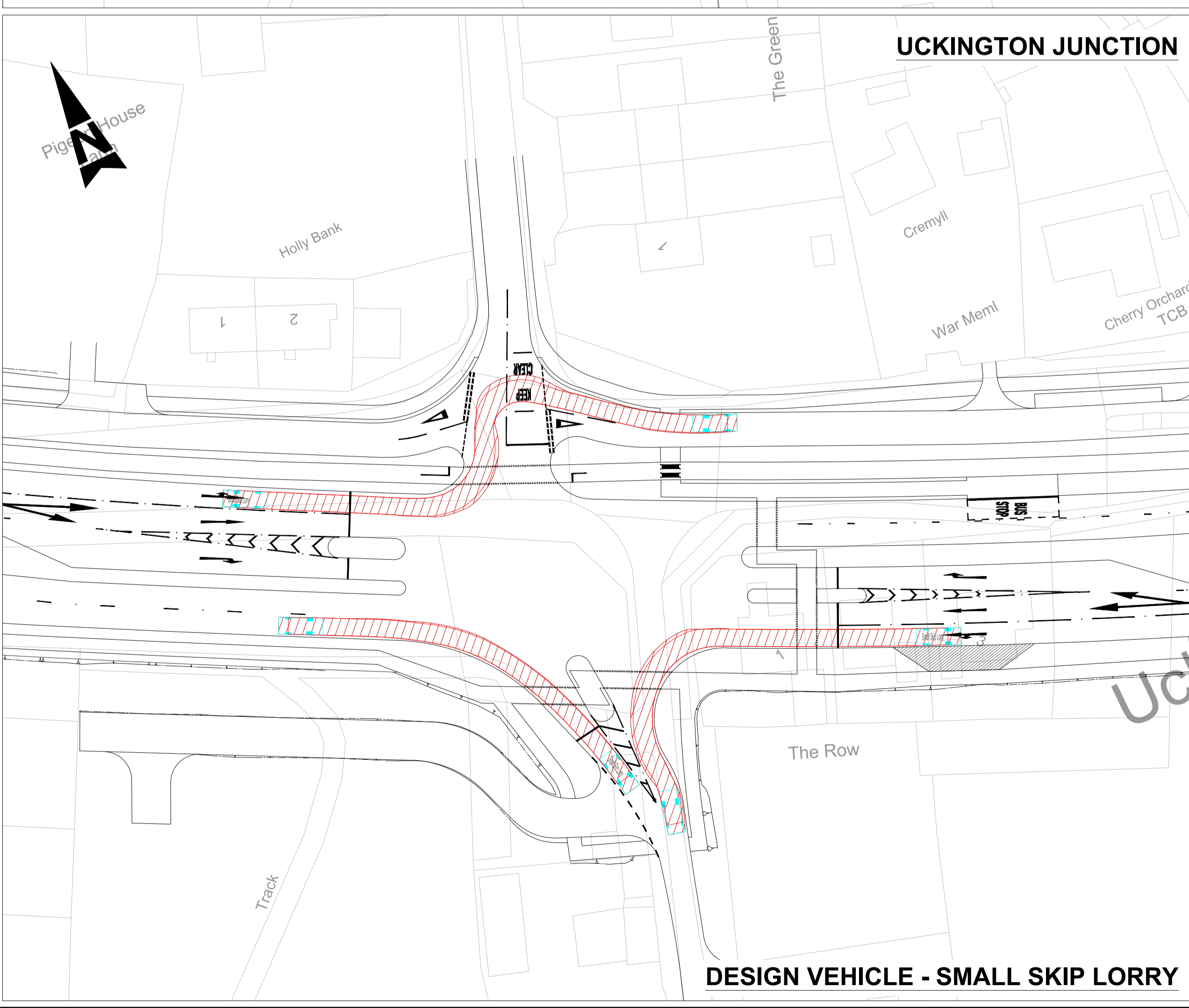
DESIGN VEHICLE : 7.5t BOX VAN



DESIGN VEHICLE : 7.5t BOX VAN

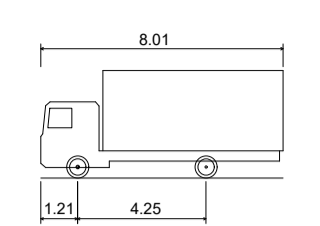


DESIGN VEHICLE - SMALL SKIP LORRY

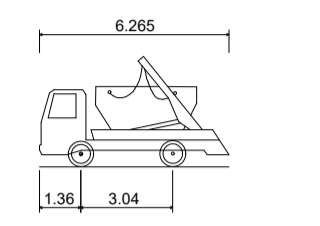


DESIGN VEHICLE - SMALL SKIP LORRY

- NOTES:**
- DO NOT SCALE FROM THIS DRAWING.
 - ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED.



7.5t Box Van
 Overall Length 8.010m
 Overall Width 2.100m
 Overall Body Height 3.556m
 Min Body Ground Clearance 0.351m
 Track Width 2.064m
 Lock to lock time 4.00s
 Kerb to Kerb Turning Radius 7.400m



Small Skip Lorry
 Overall Length 6.265m
 Overall Width 2.390m
 Overall Body Height 3.650m
 Min Body Ground Clearance 0.396m
 Max Track Width 2.435m
 Lock to lock time 6.00s
 Kerb to Kerb Turning Radius 6.340m

Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
Description						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
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Description						
Design Fix 3 - Final						
Status	Revision	Drawn	Checked	Reviewed	Authorised	Issue Date
A1	CO1	MC	NKRP	CCR	LJ	20/04/23
Drawing Suitability						Status
APPROVED - PUBLISHED						A1

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Project Title
M5 Junction 10 Improvements Scheme

Drawing Title
**M5J10 JUNCTION
 DF3 HIGHWAY LAYOUT
 SWEEP PATH**

Drawing Number	Project	Originator	Volume
GCCM5J10	ZZ	ATK	HGN
		- DR - CH - 000130	
Location	Type	Role	Number
Original Size: A1	Scale: 1:500	Project Ref. No: 5197035	Sheet: 7 of 7
		Rev: C01	

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Appendix B

B4634 Collision Data

B4634 Collision History

- Collision data for the period from 1 January 2014 to 30 June 2019 was obtained from Gloucester County Council Accident Investigation and Prevention Section, for the B4634 between Hayden Lane and Hayden Hill Farm. During this period 3 personal injury collisions (PICs) were recorded in close proximity to the Hayden Lane and Withybridge Lane junctions, all of which resulted in slight injury. A further collision occurred approximately 450m east of the junction and resulted in serious injury.

Figure 1 below shows the location of the junction and associated collisions.

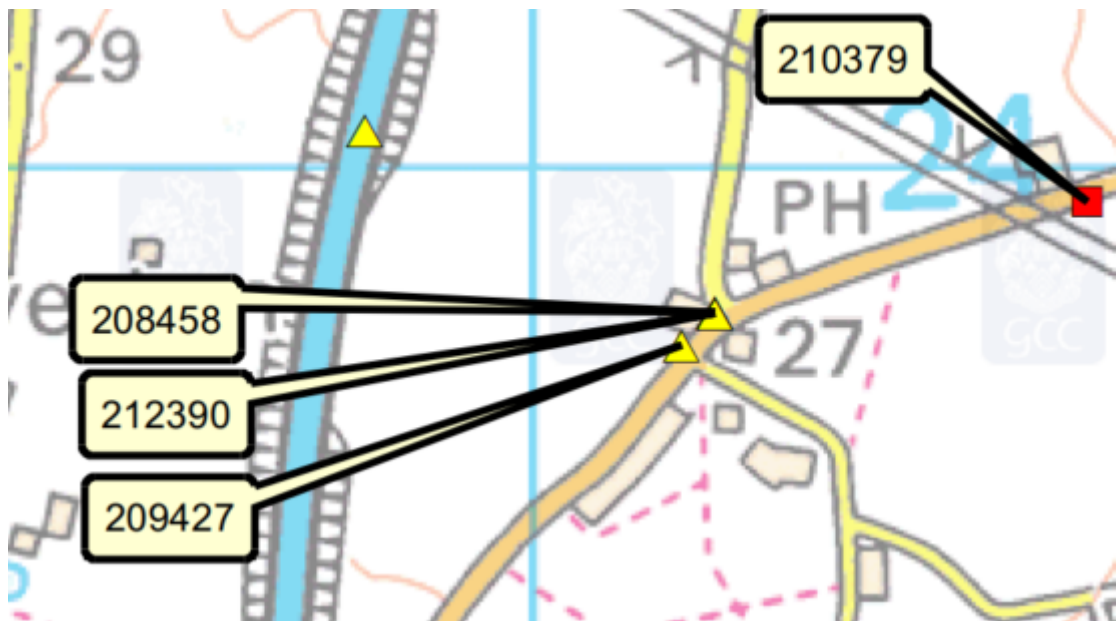


Figure 1: Withybridge Lane/ B4634 Old Gloucester Road Collision Location Extract

- All three collisions occurred in daylight, with two in dry conditions and one in rain with a wet road surface
- Two similar collisions have taken place at the Withybridge Lane junction. One (Ref 212390) involved a vehicle turning right out of Withybridge Lane into the path of a vehicle travelling east towards Cheltenham on the B4634. The description of the collision states: 'V2 TRAV OLD GLOUCESTER ROAD TOWARD CHELTENHAM. VEHICLES IN FRONT WHERE TURNING LEFT AS HE APPROACHED THE JUNCTION WITH WITHYBRIDGE LANE, V1 PULLS OUT IN FRONT OF V2 RESULTING IN A COLLISION'
- Another (Ref 208458) involved a right turning vehicle from Withybridge Lane colliding with a vehicle travelling West on the B4634.
- Another collision took place at the Hayden Lane priority junction (ref 209427). This collision occurred when a vehicle turned right out of the side road into the path of a vehicle travelling west along the B4634. The vehicle on the mainline swerved to avoid the vehicle and collided with a fence.

6. The collision which occurred 450m from Withybridge Lane (Ref 210379) was a head-on collision involving a vehicle travelling west around a left hand bend on the B4634 and colliding with a vehicle travelling towards Cheltenham.

7. The collisions described above could indicate the vehicles are travelling at inappropriate speeds along the B4634 (which is subject to a 50mph speed limit), although at least one suggests poor decision making by the driver at the priority junction, (who appears to have assumed the approaching vehicle was turning into Withybridge Lane). Visibility at the side road junctions (Hayden Lane and Withybridge Lane) may also be inadequate which may have resulted in drivers pulling out onto the mainline into a path of a vehicle.

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