



A20 Coldharbour Roundabout

Segregated Left Turn Lane
Option Study
January 2015

Maidstone Borough Council

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Maidstone Borough Council

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Issue and revision record

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Executive Summary

In November 2014, Mott MacDonald was commissioned by Maidstone Borough Council to undertake the outline design and cost estimate for a new segregated left turn lane, for vehicles travelling from the west to the north, at Coldharbour Roundabout on the A20, north-west of Maidstone.

As part of this, two outline layout designs have been produced:

- Option A: A segregated left turn lane with a non-physical island (as shown in drawing 344395-D-DR-HH01-XX-0001, in Appendix A); and
- Option B: A segregated left turn lane with a physical island (as shown in drawing 344395-D-DR-HH01-XX-0002, in Appendix A).

Following discussions with representatives from Maidstone Borough Council and Kent County Council, and a review of the relative costs, traffic controllability (through the use of traffic signals) and safety implications for both of the options, it is suggested that Option B (a segregated left turn lane with a physical island) should be considered for detailed design.

1 Introduction

In November 2014, Mott MacDonald was commissioned by Maidstone Borough Council to undertake the outline design and cost estimate for a new segregated left turn lane off the existing A20 London Road / Coldharbour Lane roundabout to relieve congestion. The review of the impact on the operation of the existing traffic signals was outside the remit of the study.

The purpose of this report is to summarise the two options that have been developed for the introduction of a segregated left turn lane at Coldharbour Roundabout in Kent. The introduction of a segregated left turn lane would allow vehicles travelling eastbound along A20 London Road (from Aylesford) to make an unhindered movement towards the northbound carriageway of Coldharbour Lane (towards junction five of the M20); please see Section 1.1.1 for location plans.

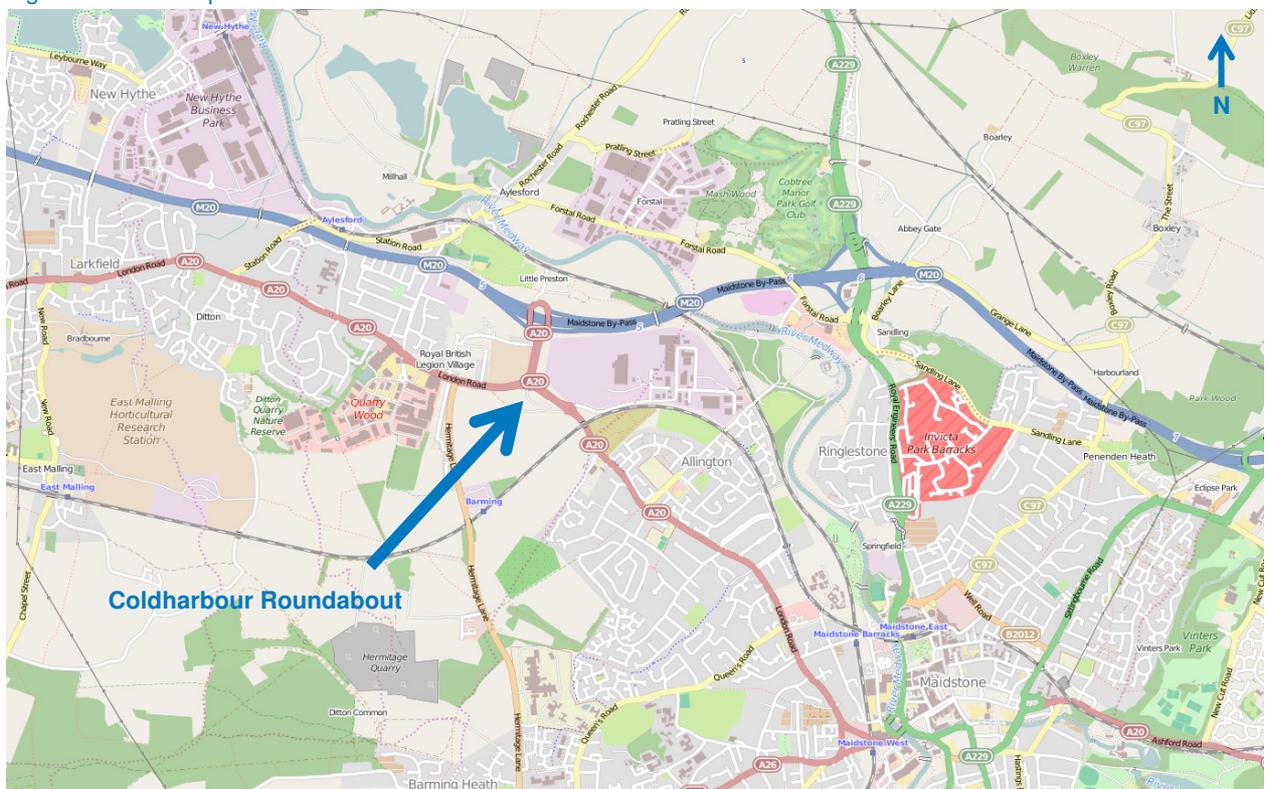
The report is divided into the following sections:

- Section 1 - Introduction;
- Section 2 - Design considerations applicable to both options;
- Section 3 - Option A: Non-physical island;
- Section 4 - Option B: Physical island;
- Section 5 - Summary table;
- Section 6 - Conclusion; and
- Appendices – Contains drawings, cost estimates, stage one road safety audit and designers' exception report and results from inquiries to statutory undertakers.

1.1.1 Location plan

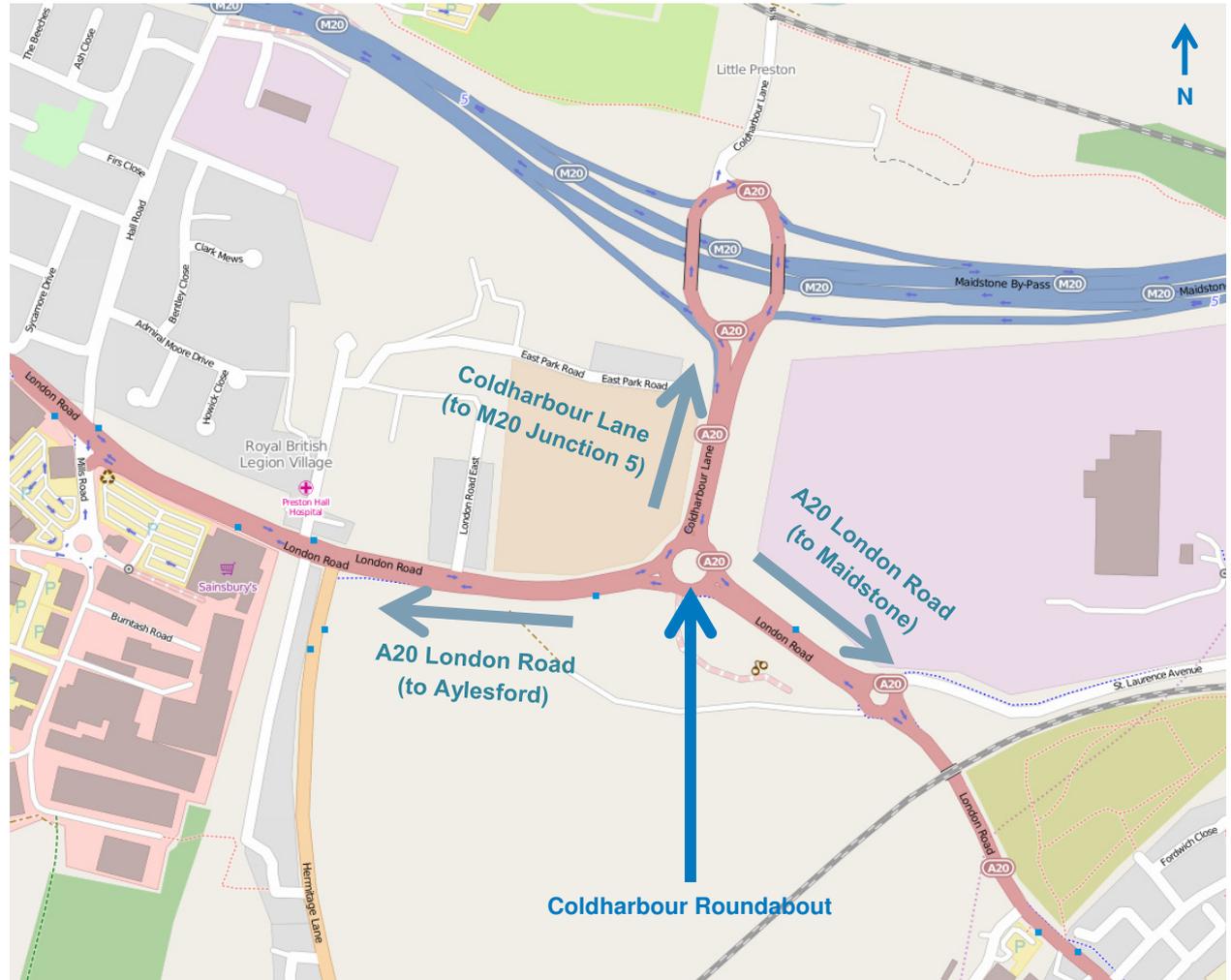
Figure 1.1 and Figure 1.2, show area and location plans for Coldharbour Roundabout.

Figure 1.1: Area plan



Source: OpenStreetMap.org - © OpenStreetMap Contributors – modified by Mott MacDonald

Figure 1.2: Location plan



Source: OpenStreetMap.org - © OpenStreetMap Contributors – modified by Mott MacDonald

1.2 Design reference documents

The following standards were used to develop the outline design:

DMRB **Design Manual for Roads and Bridges**
TD 51/03: Segregated Left Turn Lanes and Subsidiary Deflection Islands at Roundabouts
TD 9/93: Amendment No. 1 – Highway Link Design
TD 16/07: Geometric Design of Roundabouts

TSRGD **The Traffic Signs Regulations and General Directions 2002**

1.3 Site visit

Two representatives from Mott MacDonald undertook a site visit during the end of the morning peak on 26 November 2014 in overcast, drizzly conditions. A number of observations were made during the site visit and are described below:

- In order to provide sufficient sight line visibility for the segregated left turn lane, vegetation clearance would be required in the area between the western and northern arms of the roundabout.
- It is advisable that the terminal national speed limit signs (to TSRGD diagram number 671) located on the northbound carriageway of Coldharbour Lane should be relocated further north in order to increase the distance between them and the end of the taper for the segregated left turn lane.
- Given the cross-falls on the roundabout, it is likely that drainage is unlikely to be affected by either of the options depending on the location of the island.
- It appeared that the roundabout does not currently adhere to the guidance DMRB. In particular, the width of the circulatory carriageway and the maximum entry width did not appear to be in accordance with DMRB (as per Paragraph 7.8 of TD 16/07, “Geometric Design of Roundabouts”).
- There was not any evidence of vehicles overrunning the carriageway extents, rutting, ponding nor a high number of road traffic incidents.
- The road markings at the roundabout (A20 London Road, from Aylesford) were different to those indicated on the Jacobs as built drawing 20069/S/1 (Rev. C).
- The high friction surfacing was, in places, worn and did not extend across the whole width of the carriageway.
- The footpath crossing on Coldharbour Lane was accompanied by neither dropped kerbs nor tactile paving.
- On average, it was observed that approximately six to seven vehicles were able to pass the traffic signals every cycle on the A20 London Road (from Aylesford) approach to the roundabout.
- The queuing did not appear to accord with expectations prior to the site visit with most queuing occurring on the Coldharbour Lane and A20 London Road (from Maidstone) approaches to the roundabout.
- The width of the footpath alongside the north-eastern part of the roundabout was relatively narrow (approximately 1 m) and did not appear to be heavily used.

1.4 Accident data

A review of accident data at Coldharbour Roundabout between 01 July 2011 and 30 June 2014 suggested that there are not obvious trends that would be adversely affected by either of the suggested options for a segregated left turn lane. The accident data was provided by Kent County Council (via Maidstone Borough Council) by email on 26 November 2014.

2 Design considerations applicable to both options

Both options involve the introduction of a segregated left turn lane within the extents of the existing carriageway. In Option A, a non-physical island (i.e. hatched road markings) is provided to separate circulatory traffic on the roundabout from traffic in the segregated left turn lane. By contrast, in Option B a physical island is used to separate the traffic. Drawings 344395-D-DR-HH01-XX-0001 and 344395-D-DR-HH01-XX-0002, in Appendix A, illustrate the proposed layouts for Options A and B respectively. During a project inception meeting on 26 November 2014, at which representatives from Maidstone Borough Council, Kent County Council and Mott MacDonald were present, it was suggested that, at that stage, Kent County Council would prefer Option B to Option A, but would like both options to be developed to an outline design level.

2.1 Extending an existing traffic deflection island and increasing areas of hatching

As shown in drawings 344395-D-DR-HH01-XX-0001 and 344395-D-DR-HH01-XX-0002, in Appendix A, and with reference to items 004 and 008 of the stage one road safety audit report and its corresponding designers' exception report (which are included in Appendix C and Appendix D respectively), an extended traffic deflection island and increased areas of hatching at the roundabout are proposed for both options.

For safety reasons, the build out of the traffic deflection islands between the entry and exit arms for A20 London Road (to/from Aylesford) and the introduction of hatching (to TSRGD diagram number 1040) at this location and on the A20 London Road (from Maidstone) approach to the roundabout have been suggested in the outline design. Although this means that a small amount of queue space would be lost at both of these locations, it means that the risk of collision between vehicles having to merge in a short amount of space would be significantly reduced.

2.2 Lane designations on approach to the segregated left turn lane

The lane designations on the existing approach to the roundabout along A20 London Road (from Aylesford) would not need to change under either of the proposals. The left hand lane would continue to be used for Coldharbour Lane (to junction five of the M20) and the right hand lane would continue to be used for A20 London Road (to Maidstone). However, to help ensure vehicles are in the correct lane, it is suggested that a lane designation sign is introduced along the eastbound carriageway of the A20 London Road. Furthermore, it is suggested that road markings are introduced on Hermitage Lane at its junction with A20 London Road. Both measures could also be applicable to the existing road layout at Coldharbour Roundabout. In the event that a vehicle is erroneously in the left hand lane and is then forced to travel along Coldharbour Lane (to junction five of the M20), they would only suffer a detour of approximately 1 km and can make a u-turn at the M20 roundabout to return to Coldharbour Roundabout.

In addition to road markings, it is suggested that advance direction and lane designation signs are also introduced or amended in order to reinforce the information being provided to road users.

2.3 Swept path analyses

Swept path analyses have been conducted using a 15.5 m combined articulated lorry as the design vehicle (as per DMRB - Paragraph 7.15 of TD 16/07, “Geometric Design of Roundabouts”). The following manoeuvres have been tracked for the proposed segregated left turn lane feasibility designs, as shown on drawings 344395-D-DR-HH01-XX-0001 and 344395-D-DR-HH01-XX-0002, in Appendix A :

- Manoeuvre α : from A20 London Road (from Maidstone) to Coldharbour Lane (to M20);
- Manoeuvre β : from A20 London Road (from Aylesford) to Coldharbour Lane (to M20); and
- Manoeuvre γ : from A20 London Road (from Aylesford) to A20 London Road (to Maidstone).

Table 2.1 details, for each of the routes, whether the design vehicle was able to successfully make the manoeuvre at tracking speeds of 5 km/h, 10 mph, 20 mph, 30 mph and 40 mph. Brackets indicate options where the manoeuvre was successful, but there was very limited space between the extents of the carriageway and of the swept path.

Table 2.1: Swept path analysis results

Speed at which the design vehicle was tracked	Options for which manoeuvre α was successful	Options for which manoeuvre β was successful	Options for which manoeuvre γ was successful
5 km/h	A and B	A and B	A and B
10 mph	A and B	A and B	A and B
20 mph	A and (B)	A and B	A and B
30 mph	(A)	A and B	A and B
40 mph	Neither option	A and B	A and B

Source: Mott MacDonald

The majority of manoeuvres can be accommodated by the design vehicle at 40 mph. Although manoeuvre α cannot be successfully tracked by the design vehicle at 40 mph, it is suggested that it would be highly unlikely that the design vehicle would attempt to manoeuvre around the roundabout at such a high speed (a suggestion that would be in-keeping with site observations, where evidence of skidding or carriageway overrun was not found). It is therefore suggested that neither option should be discounted due to the swept path analyses.

2.4 Compliance with the Design Manual for Roads and Bridges

2.4.1 Carriageway width

It should be noted that a relaxation/departure from the DMRB would be required for both options, in particular relating to the width of the circulatory carriageway (as per Paragraph 7.8 of TD 16/07, “Geometric Design of Roundabouts”).

2.4.2 Sight lines

Vegetation clearance to the north-east of the roundabout would be required in order to provide suitable stopping sight distances (as per Paragraph 2.18 of DMRB TD 51/03, “Segregated Left Turn Lanes and Subsidiary Deflection Islands at Roundabouts”) for either of the options. Taking the design speed to be 70 kmh^{-1} , which is approximately equal to 43.5mph (and the current speed limit for the road is 40 mph), Table 3 of DMRB TD 9/93, “Amendment No. 1 – Highway Link Design”, suggests a desirable minimum stopping sight distance of 120 m and that one step below the desirable minimum is 90 m.

In addition to vegetation clearance within the highway boundary, approximately 300 m^2 of vegetation clearance would be required outside of the highway boundary in order to achieve a forward visibility of 120 m. Similarly, for a forward visibility of 90 m, approximately 25 m^2 of vegetation clearance would be required outside of the highway boundary. These values have been calculated using Ordnance Survey mapping provided by Maidstone Borough Council via email dated 12 December 2014.

Drawing MMD-344395-D-DR-HH01-XX-0003, which is provided in Appendix A, shows the extents of vegetation clearance that would be required outside the highway boundary to achieve 90 m and 120 m forward visibilities.

2.5 Lighting

Paragraph 2.32 of DMRB TD 51/03, “Segregated Left Turn Lanes and Subsidiary Deflection Islands at Roundabouts”, states that segregated left turn lanes are not permitted at unlit junctions; however Coldharbour Roundabout does currently have street lighting. It is therefore anticipated, at this stage, that changes to street lighting would not be required for the introduction of a segregated left turn lane.

2.6 Utilities

An initial inquiry was made to LinesearchbeforeUdig to establish whether any of their members had any apparatus within the area surrounding the proposed segregated left turn lane. A copy of the results, which indicated that none of their members had any apparatus within the area, is included in Appendix E. No inquiries have been made to other statutory undertakers, as it was not in the scope of this stage of the project, and they would need to be consulted during the detailed design stage.

2.7 Changing the number of lanes approaching and on the roundabout

As shown on drawings 344395-D-DR-HH01-XX-0001 and 344395-D-DR-HH01-XX-0002, in Appendix A, it is proposed to reduce the width of the circulatory part of the roundabout between the entry and exit arms for the A20 London Road (to/from Aylesford) to allow for one lane of traffic only. This has been done as the introduction of a segregated left turn lane reduces the number of lanes that traffic on the circulatory part of the roundabout can exit onto, in the northbound direction onto Coldharbour Lane (to junction five of the M20), from two to one. Therefore, for safety reasons, and as it is anticipated that the vast majority of

vehicles using this part of the roundabout would be turning onto Coldharbour Lane, the number of lanes at this part of the roundabout is also proposed to be reduced from two to one.

In order to accommodate the changes to the circulatory part of the carriageway, the A20 London Road (from Maidstone) approach to the roundabout is also proposed to be changed. Here, the number of lanes would be reduced from three to two (one for A20 London Road (to Aylesford) manoeuvre and one, rather than two, for Coldharbour Lane).

3 Option A: Non-physical island

3.1 Description of Option A

Option A involves the introduction of a segregated left turn lane with a non-physical island. The island would split traffic by means of hatched road markings to TSRGD diagram number 1042.1. Drawing MMD-344395-D-DR-HH01-XX-0001, which shows the indicative layout for this option, is provided in Appendix A.

This option would require the removal of the traffic signals at the A20 London Road (to/from Aylesford) arm of the roundabout. These would be replaced with conventional roundabout give way road markings to TSRGD diagram number 1003.1 on the approach arm, with traffic on the main circulatory carriageway now having priority over traffic on the approach arm. If traffic signals were to remain on the other arms of the roundabout, it is suggested that a phasing which involved all signals on the circulatory part of the carriageway showing a green light should be considered so as to prevent the roundabout from becoming gridlocked, if traffic modelling deemed this to be a potential issue.

In order to provide sufficient visibility at the give way line for the roundabout, the flag type directional signs on A20 London Road (to Aylesford) arm may need to be relocated or mounted at a higher mounting height.

A feasibility cost estimate was undertaken for Option A, which suggested that it would cost in the region of £70,000 to construct. A breakdown of estimated costs is provided in Appendix B.

4 Option B: Physical island

4.1 Description of Option B

Option B involves the introduction of a segregated left turn lane with a physical island. Drawing 344395-D-DR-HH01-XX-0002, which shows the indicative layout for this option, is provided in Appendix A.

For the option, in order to fit the island within the extents of the existing carriageway, the guidance for lane widths in DMRB has been departed from. In the proposed design for this option, the length of the island would be approximately 55 m. However, the minimum widths of the segregated left turn lane suggested in DMRB (Table 2/2 of TD 51/03) for this length of island would require the carriageway to be extended. As such, the minimum recommended lane widths for physical islands less than 50m have been adhered to instead. Furthermore, the width of the circulatory carriageway between the western and northern arms of the roundabout would be smaller than what it should be according to DMRB (Paragraph 7.8 of TD 16/07).

The traffic signals at the A20 London Road (to/from Aylesford) arm of the roundabout can remain in this option, but some of the signals would require relocation or realignment.

A feasibility cost estimate was undertaken for Option B, which suggested that it would cost in the region of £100,000 to construct. A breakdown of estimated costs is provided in Appendix B.

5 Summary table

Table 5.1: Options summary table

Option A: Segregated left turn lane with a non-physical island (as shown on drawing MMD-344395-D-DR-HH01-XX-0001)	
Advantages of Option A	Disadvantages of Option A
Allows vehicles to escape the segregated left turn lane	Requires the removal of traffic signals
Smaller minimum island width allows larger lane widths, compared to Option B	Increased likelihood of sideswipe collisions, compared to Option B
Cheaper and easier to construct than Option B	May require relocation of flag type directional signs for A20 London Road (to Aylesford)
Option B: Segregated left turn lane with a physical island (as shown on drawing MMD-344395-D-DR-HH01-XX-0002)	
Advantages of Option B	Disadvantages of Option B
Roundabout can continue to be fully signalised	More difficult to carry out maintenance, compared to Option A
Reduced likelihood of sideswipe collisions, compared to Option A	Wider minimum island width means narrower lane widths, compared to Option A
	Dearer and harder to construct than Option A
Advantages of both options	
Improved traffic flow from A20 London Road (from Aylesford) to Coldharbour Lane (to M20)	Requires relaxations / departures from DMRB
Results of vehicular swept path analyses were acceptable	Modified traffic deflection islands reduce queuing space
Improved advance lane designation signage along A20 London Road	Reduced width of circulatory carriageway
No major adverse impacts on non-motorised users	

Source: Mott MacDonald

6 Conclusion

Although both Option A, a segregated left turn lane with a non-physical island (as shown in drawing MMD-344395-D-DR-HH01-XX-0001, in Appendix A), and Option B, a segregated left turn lane with a physical island (as shown in drawing MMD-344395-D-DR-HH01-XX-0002, in Appendix A), could provide the basis for viable solutions to the provision of a segregated left turn lane at Coldharbour Roundabout, the benefits that Option B can provide (namely a reduced likelihood of sideswipe collisions and the opportunity to retain the traffic signals at the roundabout) mean that it is the recommended option to be taken forward to the detailed design stage, providing that the departures from DMRB, as discussed in Sections 2.4 and 4.1, are considered acceptable.

At detailed design, particular attention should be given to the following items as some of them have only been considered at a very high level for the purpose of producing an outline design:

- the comments raised in the stage one road safety audit and the corresponding designers' exception report;
- drainage design;
- lighting design;
- interfaces with services;
- traffic flow modelling;
- vertical alignment; and
- revised cost estimates (the baseline cost estimates provided in Appendix B were based on an initial layout design, before some of the comments arising from the stage one road safety audit were incorporated within the design – however, as these comments were applicable to both options, it was not considered necessary to produce amended cost estimates at this stage as the comparison between the relative costs would still be relevant).

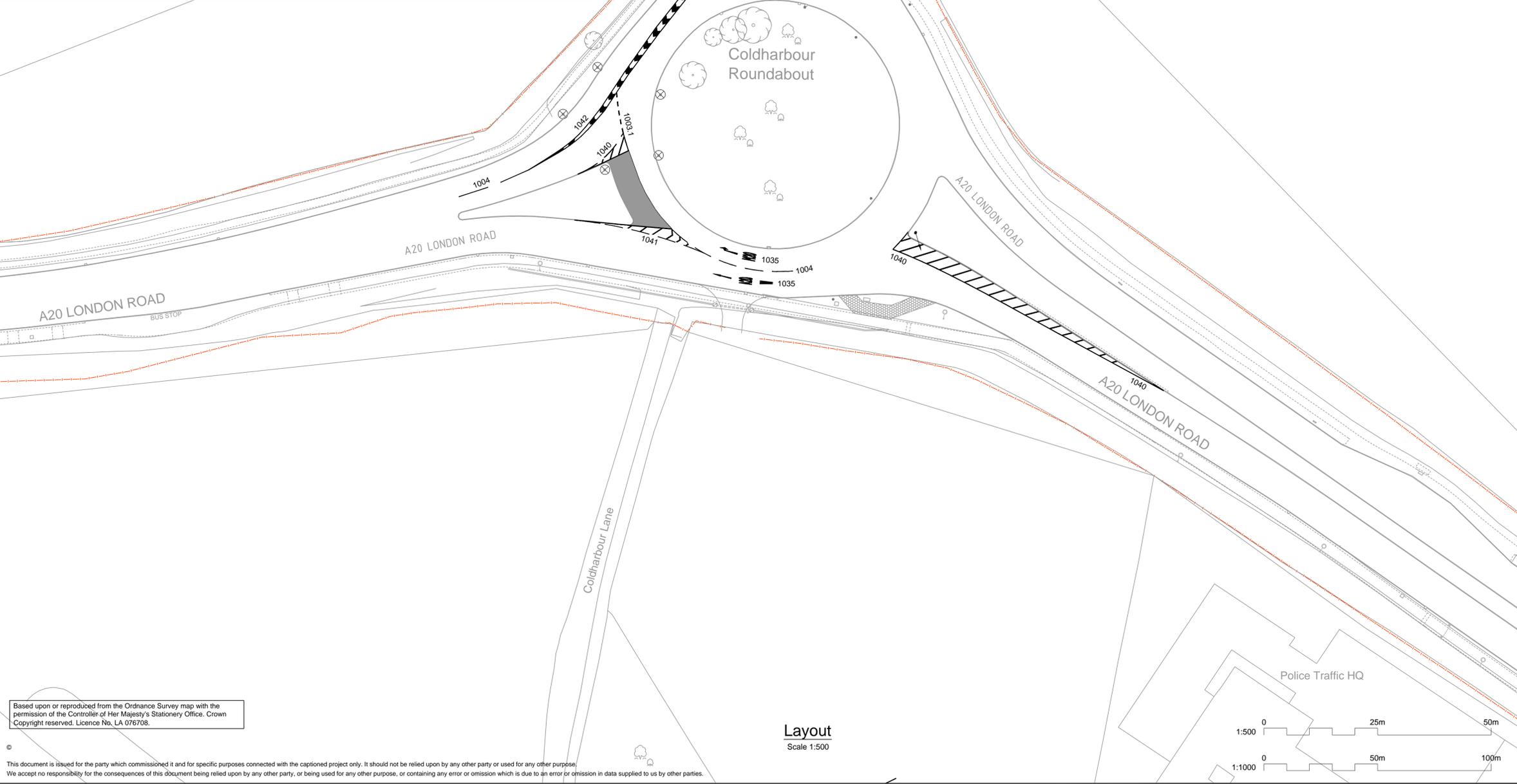
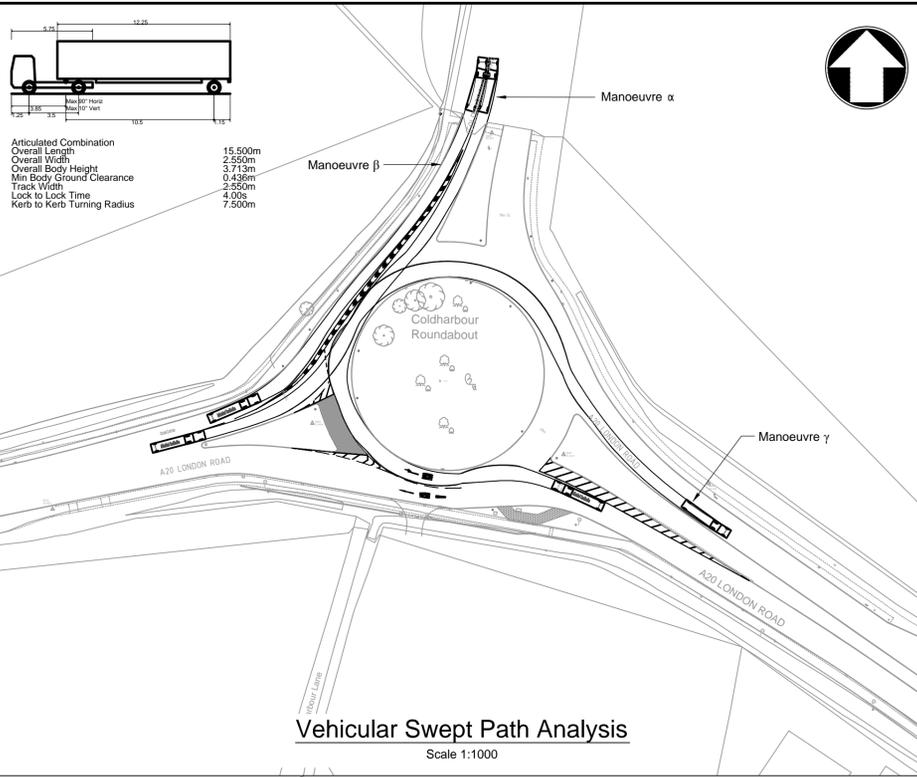
Appendices

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Appendix A. Drawings

This appendix contains the following drawings:

- MMD-344395-D-DR-HH01-XX-0001
- MMD-344395-D-DR-HH01-XX-0002
- MMD-344395-D-DR-HH01-XX-0003



- Notes**
- Layout is indicative only and subject to detailed design
 - Signs and road markings in accordance with the Traffic Signs Regulations & General Directions (TSRGD) 2002
 - Amended layout based on design speed of 70Kph based on posted 40mph speed limit and vehicular swept path analysis using the vehicle shown
 - All dimensions in metres unless otherwise stated
 - Highway boundary taken to be the existing fence line as per email dated 19th November 2014
 - Terminal national speed limit signs (TSRGD diagram number 671) on Coldharbour Lane to be relocated further north
 - Advance direction signs on eastbound A20 London Road to be modified to reflect new road layout

Key to symbols

- Proposed extension to traffic deflection island
- 1003.1 TSRGD 2002 diagram number
- Traffic signal to be removed
- Existing fence line
- Proposed/re-aligned traffic signal

Reference drawings

Based on Jacobs drawing 20069/5/1 (Rev C) received via email dated 19th November 2014

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	09.07.14	WJ	First Revision	RS	SC

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Title

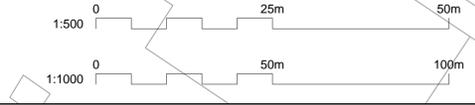
Coldharbour Roundabout
 Segregated Left Turn Lane with
 Non Physical Island Layout

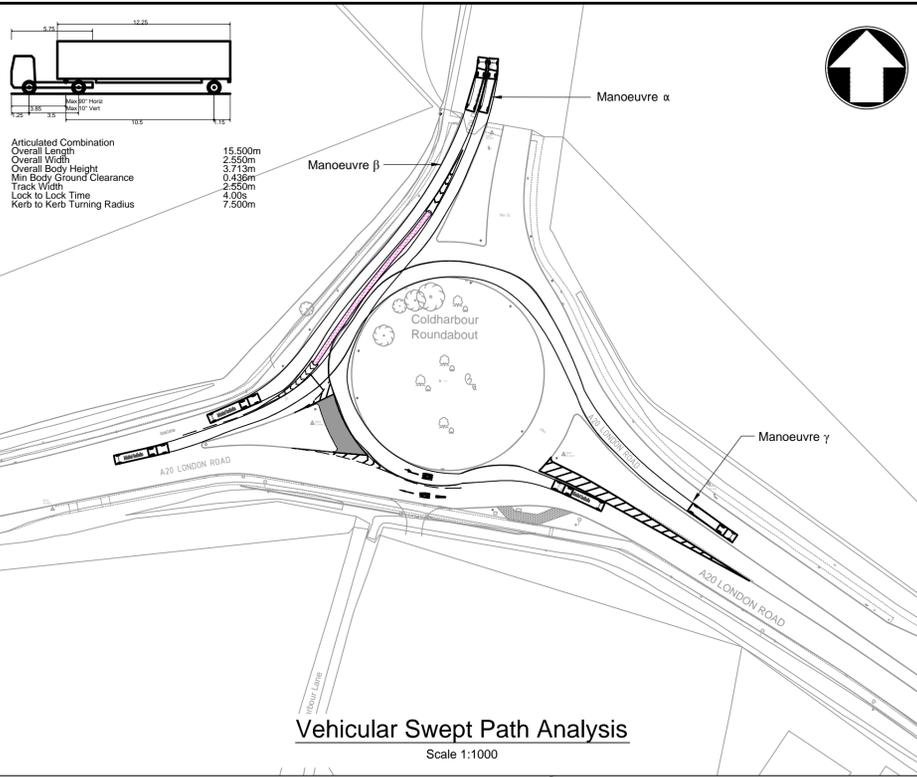
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Drawn	W.Jafrato	WJ	Coordination	M.Smith	MS
Dwg check	R.Smith	RS	Approved	S.Coker	SC
Scale at A1	Status	Rev	Security		
As Shown	PRE	P1	-		
Drawing Number	MMD-344395-D-DR-HH01-XX-0001				

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Layout
Scale 1:500





- Notes**
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 - Advance direction signs on eastbound A20 London Road to be modified to reflect new road layout

Key to symbols

- Proposed extension to traffic deflection island
- Proposed physical island
- 1003.1 TSRGD 2002 diagram number
- Traffic signal to be removed
- Proposed/re-aligned traffic signal
- Existing fence line

Reference drawings

Based on Jacobs drawing 20069/5/1 (Rev C) received via email dated 19th November 2014

P1	21.11.14	WJ	First Revision	RS	SC
Rev	Date	Drawn	Description	Ch'k'd	App'd

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Title

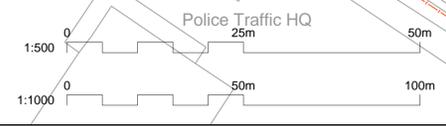
Coldharbour Roundabout
Segregated Left Turn Lane with
Non Physical Island Layout
Reduced Size

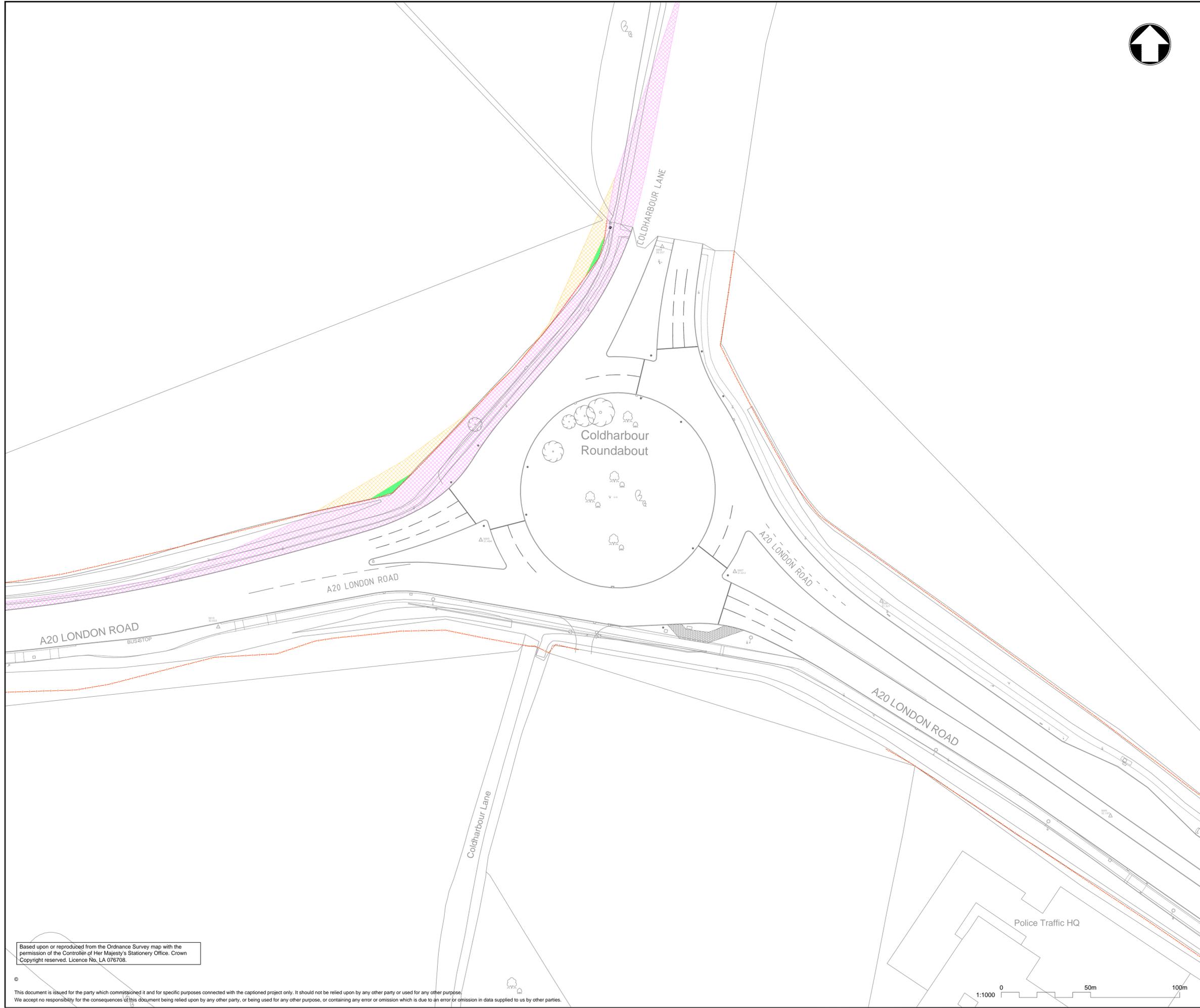
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Dwg check	R.Smith	RS	Approved	S.Coker	SC
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As Shown	PRE	P1	-		
Drawing Number	MMD-344395-D-DR-HH01-XX-0002				

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Layout
Scale 1:500





- Notes**
1. Do not scale.
 2. Visibility based on design speed of 70Kph as posted speed limit is 40mph
 3. Stopping sight distance measured in accordance with TD9/93
 5. Highway boundary taken to be the existing fence line as per email dated 19th November 2014

Key to symbols

- Area where vegetation clearance may be required within the highway boundary
- Additional vegetation clearance required outside the highway boundary to achieve a 90m one step below desirable minimum forward visibility distance
- Additional vegetation clearance required outside the highway boundary to achieve a 120m forward visibility distance
- Existing Fence line

Reference drawings

Based on Jacobs drawing 20069/5/1 (Rev C) received via email dated 19th November 2014

P1	07.01.15	WJ	First Revision	AF	SC
Rev	Date	Drawn	Description	Ch'k'd	App'd



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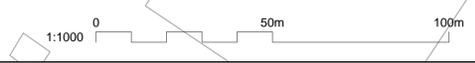
Title

Coldharbour Roundabout
Segregated Left Turn Lane with
Non Physical Island Layout
Visibility Splay

Designed	D.Desai	DD	Eng check	A.Farrow	AF
Drawn	W.Jafrato	WJ	Coordination	M.Smith	MS
Dwg check	R.Smith	RS	Approved	S.Coker	SC
Scale at A1	1:500	Status	PRE	Rev	P1
				Security	-
Drawing Number					
MMD-344395-D-DR-HH01-XX-0003					

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Appendix B. Cost Estimates

This appendix contains the feasibility cost estimate report (document number 344395/Feasibility Estimate (Revision A)). The cost estimates are given for both of the initial outline layouts.



Coldharbour Roundabout

Maidstone Borough Council

Feasibility Estimate Rev A

28th November 2014

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Confidential



Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
A	28-Nov-14	A Kidd	R Coley	P Tollerfield	First Issue

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**Coldharbour Roundabout
Feasibility Estimate Rev A
Estimate Summary**



Summary	Total
Option 1 - Segregated Left Turn with Physical Island	£99,216
Option 2 - Segregated Left Turn with Non Physical Island	£71,010

**Coldharbour Roundabout
Feasibility Estimate Rev A
Estimate Summary**



Summary	
<p><u>Estimate Basis</u></p> <p>344395HH01-SKE-A-001 344395HH01-SKE-A-002</p>	

**Coldharbour Roundabout
Feasibility Estimate Rev A
Estimate Summary**



Summary	
<p><u>Assumptions</u></p> <p>Design Development allowance of 20% included Normal Working Hours without Restriction Preliminaries at 20% Traffic Management at 10% Contractors OHP at 10% Deflection island to be constructed in tarmacadam</p> <p><u>Exclusions</u></p> <p>Professional Fees Service diversions/upgrades Statutory Undertakings Works to existing left hand embankment Works to existing roundabout VAT Drainage works</p>	

Option 1 - Segregated Left Turn with Physical Island

	Qty	Unit	Rate	Total
A Remove existing traffic lights	3	Item	£100	£300
B Remove existing signage	1	Item	£50	£50
C Remove existing bollards	1	Item	£20	£20
D Remove existing road markings	1	Item	£500	£500
E Remove existing lighting column	1	Item	£100	£100
F Breakout existing kerblines	38	m	£5	£190
G Excavate landscaped area to existing deflection island	41	m3	£63	£2,585
H Breakout existing highway for deflection island	111	m3	£63	£6,997
J Breakout existing highway for physical island	50	m3	£63	£3,152
K Disposal of excavated material	202	m3	£51	£10,302
L Fill; granular material type 1; 200th deflection island	73	m3	£35	£2,555
M Fill; granular material type 1; 200th physical island	33	m3	£35	£1,155
N Fill; granular material type 1; 200th landscaped area	27	m3	£35	£945
P Fill; granular material type 1; 100th deflection island	38	m3	£35	£1,330
Q Fill; granular material type 1; 100th physical island	14	m3	£35	£490
R Compaction of fill	185	m3	£2	£372
S Precast concrete kerbs; bedded and jointed in cement mortar physical island	223	m	£25	£5,575
T Precast concrete kerbs; bedded and jointed in cement mortar deflection island	75	m	£25	£1,875
U Dense bitumin macadam base course; 100mm dp physical island	132	m2	£15	£1,980
V Dense bitumin macadam binder course; 50mm dp physical island	132	m2	£10	£1,320
W Dense bitumin macadam surface course; 50mm dp physical island	132	m2	£10	£1,320
X Dense bitumin macadam base course; 100mm dp deflection island	363	m2	£15	£5,445
Y Dense bitumin macadam binder course; 50mm dp deflection island	363	m2	£10	£3,630
Z Dense bitumin macadam surface course; 50mm dp deflection island	363	m2	£10	£3,630
AA Topsoil and seeding 150th to landscaped area	135	m2	£8	£1,080
AB Reinstate existing signage	1	Item	£120	£120
AC Reinstate existing bollards	1	Item	£50	£50
AD Reinstate existing lighting column	1	Item	£250	£250
AE New road markings	1	Item	£500	£500
				£57,818
AF Preliminaries	20 %			£11,564
AG Traffic Management	10 %			£5,782
				£75,164
AH Contractors OHP	10 %			£7,516
				£82,680
AJ Design Development	20 %			£16,536
				£99,216
			Total	£99,216

Option 2 - Segregated Left Turn with Non Physical Island

	Qty	Unit	Rate	Total
A Remove existing traffic lights	5	Item	£100	£500
B Remove existing signage	1	Item	£50	£50
C Remove existing bollards	1	Item	£20	£20
D Remove existing road markings	1	Item	£500	£500
E Remove existing lighting column	1	Item	£100	£100
F Breakout existing kerblines	38	m	£5	£190
G Excavate landscaped area to existing deflection island	41	m3	£63	£2,585
H Breakout existing highway for deflection island	111	m3	£63	£6,997
J Disposal of excavated material	152	m3	£51	£7,752
K Fill; granular material type 1; 200th deflection island	73	m3	£35	£2,555
L Fill; granular material type 1; 200th landscaped area	27	m3	£35	£945
M Fill; granular material type 1; 100th deflection island	38	m3	£35	£1,330
N Compaction of fill	138	m3	£2	£277
P Precast concrete kerbs; bedded and jointed in cement mortar deflection island	75	m	£25	£1,875
Q Dense bitumin macadam base course; 100mm dp deflection island	363	m2	£15	£5,445
R Dense bitumin macadam binder course; 50mm dp deflection island	363	m2	£10	£3,630
S Dense bitumin macadam surface course; 50mm dp deflection island	363	m2	£10	£3,630
T Topsoil and seeding 150th to landscaped area	135	m2	£8	£1,080
U Reinstate existing signage	1	Item	£120	£120
V Reinstate existing bollards	1	Item	£50	£50
W Reinstate existing lighting column	1	Item	£250	£250
X New road markings	1	Item	£1,500	£1,500
				£41,381
Y Preliminaries	20 %			£8,276
Z Traffic Management	10 %			£4,138
				£53,795
AA Contractors OHP	10 %			£5,380
				£59,175
AB Design Development	20 %			£11,835
				£71,010
			Total	£71,010

Appendix C. Stage One Road Safety Audit – Auditors' Report

This appendix contains the stage one road safety audit report (document number 264223HM/ITD/ITQ/176/A (Revision A)).



Road Safety Audit Stage 1

A20 Coldharbour Roundabout, Maidstone, Kent

December 2014

Maidstone Borough Council

Road Safety Audit Stage 1

A20 Coldharbour Roundabout, Maidstone,
Kent

December 2014

Maidstone Borough Council

Maidstone House, King Street, Maidstone, Kent, ME15 6JQ

Issue and revision record

Revision	Date	Originator	Checker	Approver	Description	Standard
A	12/12/2014	M D Lewis	B A Pledge	S A Finney	First Issue	

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1 Introduction

This report is a Stage 1 Road Safety Audit undertaken on proposals to construct a segregated left-turn lane (SLTL) road on the A20 eastbound approach to Coldharbour Roundabout, Maidstone, Kent. The proposals comprise options to construct a SLTL with either a physical or painted island to segregate traffic flows. The physical island option retains traffic signal control, whilst the painted island option reverts to give way control for the roundabout.

The audit has been carried out by Mott MacDonald at the request of their client Maidstone Borough Council.

The audit team membership was as follows:

M D Lewis BEng (Hons) CEng MICE MCIHT (Team Leader)
Mott MacDonald

B A Pledge MCIHT MSoRSA (Team Member)
Mott MacDonald

This audit has been carried out in accordance with the requirements of the Highways Agency departmental standard HD 19/03. The team has examined and reported only the road safety implications of the scheme as presented, and has not examined or verified the compliance of the designs on any other criteria.

The audit took place from the Southampton Office of Mott MacDonald in December 2014. A site inspection was conducted on 9th December 2014 between 11.30hrs and 12:30hrs. During the site visit the weather was clear and the road surface was damp. The audit consisted of a detailed examination of the submitted documents and drawings listed in **Appendix A**.

All of the issues raised in this report are considered to be required for action. The comments contained in the report are based on safety related concerns and as such the design engineer will need to consider carefully how to respond to each of the issues. The Designer's Response or Exception Report to the audit should be kept on file for future reference.

1.1.1 Relevant Design Standards

Section 4.0 of the Stage 1 Road Safety Audit Brief (List of Departures from Standard) states that the scheme is designed in accordance with the standards set out in TD51/03 of the Design Manual for Roads and Bridges (DMRB).

The principal departures from standard include; -

“Minimum lane widths given island length, as prescribed in TD51/03 – see table 2/2 (column 2 values have been adhered to in general, rather than column 3 despite physical island length being approx.. 55m).

Width of circulatory carriageway, as prescribed in TD16/07 – see paragraph 7.8 (notes, existing design of roundabout does not adhere to this).”

A reference key plan is provided at **Appendix B**.

- Non-physical island layout – **Appendix B-1**.
- Physical island layout – **Appendix B-2**.

2 Previous Road Safety Audits

It is understood that no previous road safety audits have been undertaken in accordance with this scheme.

3 Items raised at this Stage 1 Audit

This section describes road safety related issues identified by the Audit Team that are associated with the works. A reference key plan is shown at **Appendix B**.

3.1 Problem 001

Location: A20 westbound approach to the junction.

Summary: Circulatory carriageway width on roundabout.

The audit team understands from the road safety audit brief that the A20 westbound approach to the roundabout is to be narrowed from three lanes to two lanes, with Lane 1 for the left/ahead movement onto the A20 and Lane 2, the right turn onto the M20 link.

There is currently no or little lane delineation on the roundabout. This in turn results in poor lane discipline on the roundabout. Given the proposal to narrow the circulatory carriageway on its eastern side by extending the traffic island, this may result in continued conflicts, leading to side swipe accidents.

Recommendation

It is recommended that appropriate lane markings (and hatching) are provided on the circulatory carriageway for both the east to north (right-turn) movement and the east to west (ahead movement).

3.2 Problem 002

Location: A20 eastbound approach to the roundabout.

Summary: Introduction of weaving movements north of the roundabout.

Drawing Numbers 344395HH01-SKE-A-001 and 002 show the proposals for the Non-Physical Island Layout and Physical Island Layout respectively. The Non-Physical Island has give-way control on the roundabout, whilst the Physical Island Option retains traffic signal control.

The introduction of a SLTL under both configurations will require vehicles to weave, immediately north of the exit taper. There appears to be some 200m of weaving length north of the roundabout and this link is subject to national speed limit. The audit team is concerned that vehicles may seek to change lanes immediately past the exit taper (northbound), potentially resulting in side-swipe / lane changing accidents at this location.

Recommendation

It is recommended that measures to mitigate traffic weaving, north of the SLTL are investigated.

3.3 Problem 003

Location: A20 westbound approach to the roundabout.

Summary: Tracked speed of design vehicle.

Drawing Numbers 344395HH01-SKE-A-001 and 002 show the vehicular swept path for both design options.

The tracked speed of the swept path is not stated and the audit team is concerned that for the non-physical island, the design vehicle may encroach into the SLTL if tracked speeds are not appropriate.

This may result in side swipe accidents.

Recommendation

It is recommended that the tracked speed for the design vehicle is checked such that it is appropriate for the roundabout geometry.

3.4 Problem 004

Location: A20 eastern arm of roundabout.

Summary: Extension of traffic deflection island.

Both options show the proposed extension of the traffic deflection island on this approach.

The audit team is of the opinion that this kerb extension may result in vehicles occasionally striking the kerb, as they turn from west to north.

Recommendation

It is recommended that the extent of the kerb extension is reduced and that an area of hatched road markings is provided in front of it.

3.5 Problem 005

Location: A20 northbound, immediately north of roundabout.

Summary: Pedestrian crossing point.

There is an informal pedestrian crossing point, immediately north of the roundabout, on the link road up to M20 J5. During the site visit, the audit team observed the occasional crossing of the carriageway, by pedestrians, at this location.

The introduction of the SLTL is likely to encourage higher vehicle speeds, with motorists unlikely to anticipate pedestrians crossing at this location. This may increase the risk of collisions with pedestrians at the crossing point.

Recommendation

It is recommended that measures are investigated to deter / discourage / prevent pedestrians crossing at this location.

It may be necessary to provide an alternative crossing away from the SLTL, with appropriate signing / deterrents for pedestrians.

3.6 Problem 006

Location: A20 – entire length of the proposed SLTL.

Summary: Highway Drainage.

The highway crossfall on the eastern side of the roundabout is towards the central island. The audit team observed the presence of gullies within the roundabout.

The introduction of a physical island may result in highway surface water being contained within the SLTL, leading to ponding of water which may present a hazard to drivers.

Recommendation

It is recommended that measures are investigated to ensure there is sufficient highway drainage provided within the physical island proposed.

3.7 Problem 007

Location: A20 eastbound approach to junction.

Summary: Hardstanding for maintenance vehicle.

There appears to be no provision within the preliminary design for a maintenance vehicle hardstanding.

This may result in maintenance vehicles stopping / parking at inappropriate locations, increasing the risk of injury to maintenance operatives.

Recommendation

It is recommended that a maintenance vehicle parking bay / hardstanding is provided within the proposed scheme.

3.8 Problem 008

Location: A20 eastbound approach to junction.

Summary: Number of lanes at Give Way (Non-physical island option).

The audit team is concerned that drivers will seek to form two traffic lanes at the give way line as it appears wide enough to accommodate two traffic lanes at this location. However, as the circulatory carriageway narrows for traffic proceeding ahead (from A20 eastern arm to western arm), this may result in conflicts between passing vehicles.

Recommendation

If it is the intention for two vehicle lanes to form at the give way line and travel ahead, then there should be sufficient width for this.
Alternatively, it is recommended that hatched road markings are provided adjacent to the traffic island, in order to deter / prevent vehicles entering side by side.

3.9 Problem 009

Location: A20 northern section of roundabout.

Summary: Retention of traffic signal control.

Drawing No. 344395HH01-SKE-A-001 shows the retention of traffic signal control on the northern section of the roundabout.

If traffic signal control is to be retained here, the audit team is concerned that it may potentially cause blocking back and impede traffic travelling west to north. This is compounded by the lack of visibility for traffic, across the roundabout, making this manoeuvre.

Recommendation

It is recommended that operation of the traffic signals within the proposed operation is coordinated such that vehicles do not block back and impede traffic travelling from west to north.

3.10 Problem 010

Location: A20 northern section of roundabout.

Summary: Width of SLTL.

The audit team notes from the audit brief that the width of the proposed SLTLs are, in places, lower than those required in TD51/03.

Narrow lanes may result in vehicles inadvertently overrunning the hatched markings separating the two traffic lanes (for the non-physical island) or kerb strikes for the physical island.

Recommendation

It is recommended that the design is reviewed and where practicable, SLTL widths in accordance with TD51/03 are provided.

3.11 Problem 011

Location: A20 eastern section of roundabout.

Summary: Sight Stopping Distance for SLTL.

The entry kerb radius is understood to be in the order of 100m on the A20 eastern approach to the roundabout. The audit team is concerned that there is insufficient stopping sight distance for this radius. This may result in nose to tail / shunt type accidents occurring.

Recommendation

It is recommended that sufficient SSD can be achieved commensurate to the entry kerb radius. The design should be reviewed in this regard.

3.12 Problem 012

Location: A20 eastern approach arm to roundabout.

Summary: Utilisation of lanes.

The A20 eastbound approach to the junction comprises two lanes. Lane 1 is currently designated as 'left turn' only, whilst Lane 2 is designated as 'ahead'. The layouts proposed in both options will enable vehicles to turn left from either lane.

Lack of continuity between road signs and road markings can lead to driver confusions and potentially result in conflicts (such as late lane changing / side-swipe collisions).

Recommendation

Whilst it is recognised that the scheme is currently at preliminary design stage it is recommended that the provision of road markings and road signs is consistent with the intended operation of the roundabout.

4 Audit Team Statement

I certify that this audit has been carried out in accordance with the Highways Agency Departmental Standard HD 19/03.

Audit Team Leader

M D Lewis BEng (Hons), CEng, MICE, MCIHT



Signed:

Date: 12th December 2014

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Appendices

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Appendix A. List of Drawings and Documents Reviewed

A.1: Drawings reviewed by the Audit Team

Drawing no.	Rev	Title
344935HH01-SKE-A-001		Coldharbour Roundabout Segregated Left Turn Lane with Non Physical Island Layout
344935HH01-SKE-A-002	P1	Coldharbour Roundabout Segregated Left Turn Lane with Physical Island Layout Reduced Size

Source: Antonia Farrow – Mott MacDonald HWYS

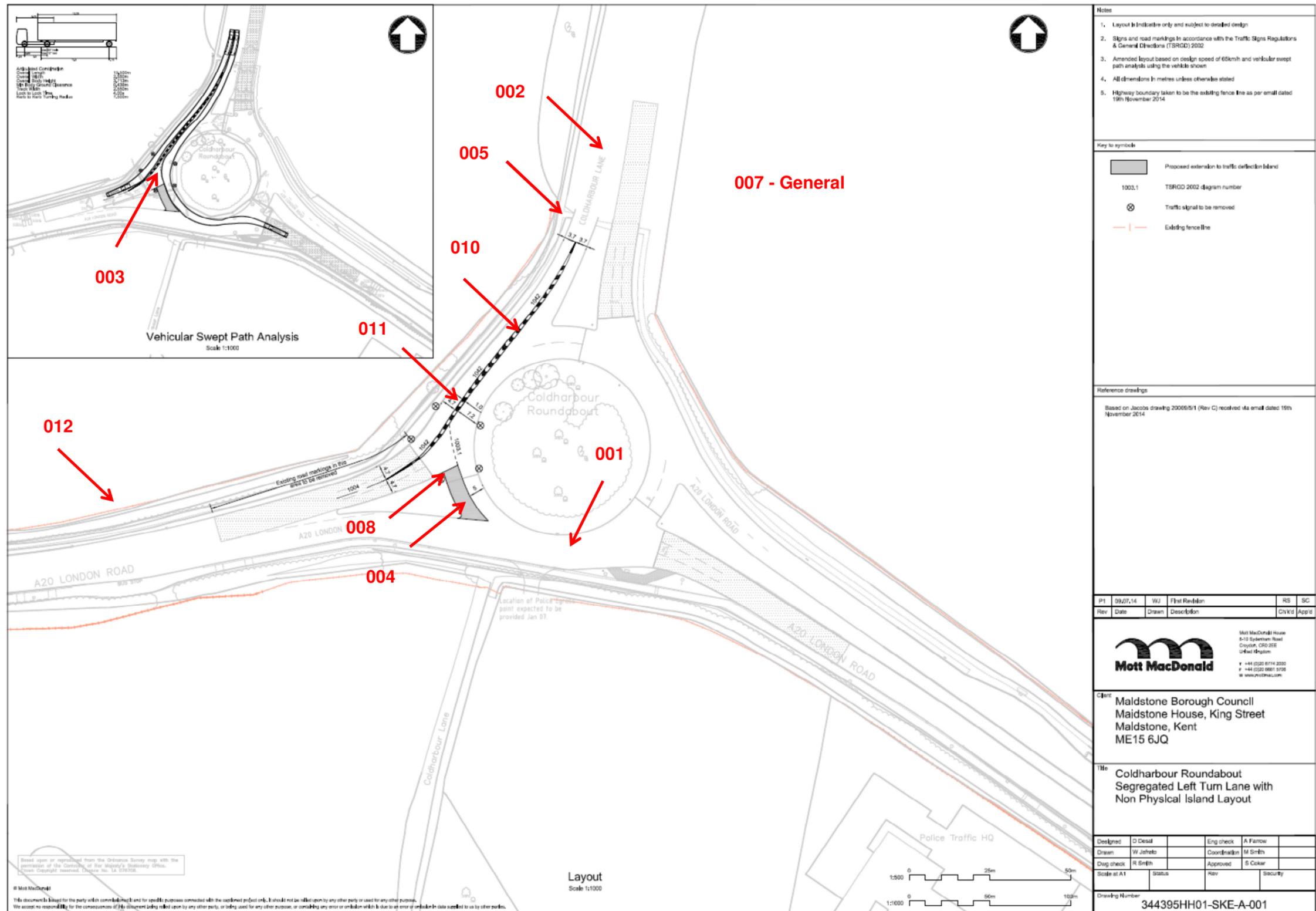
A.2: Documents reviewed by the Audit Team

Document ref	Rev	Title
N/A		Stage 1 Road Safety Audit Brief

Source: Antonia Farrow – Mott MacDonald HWYS

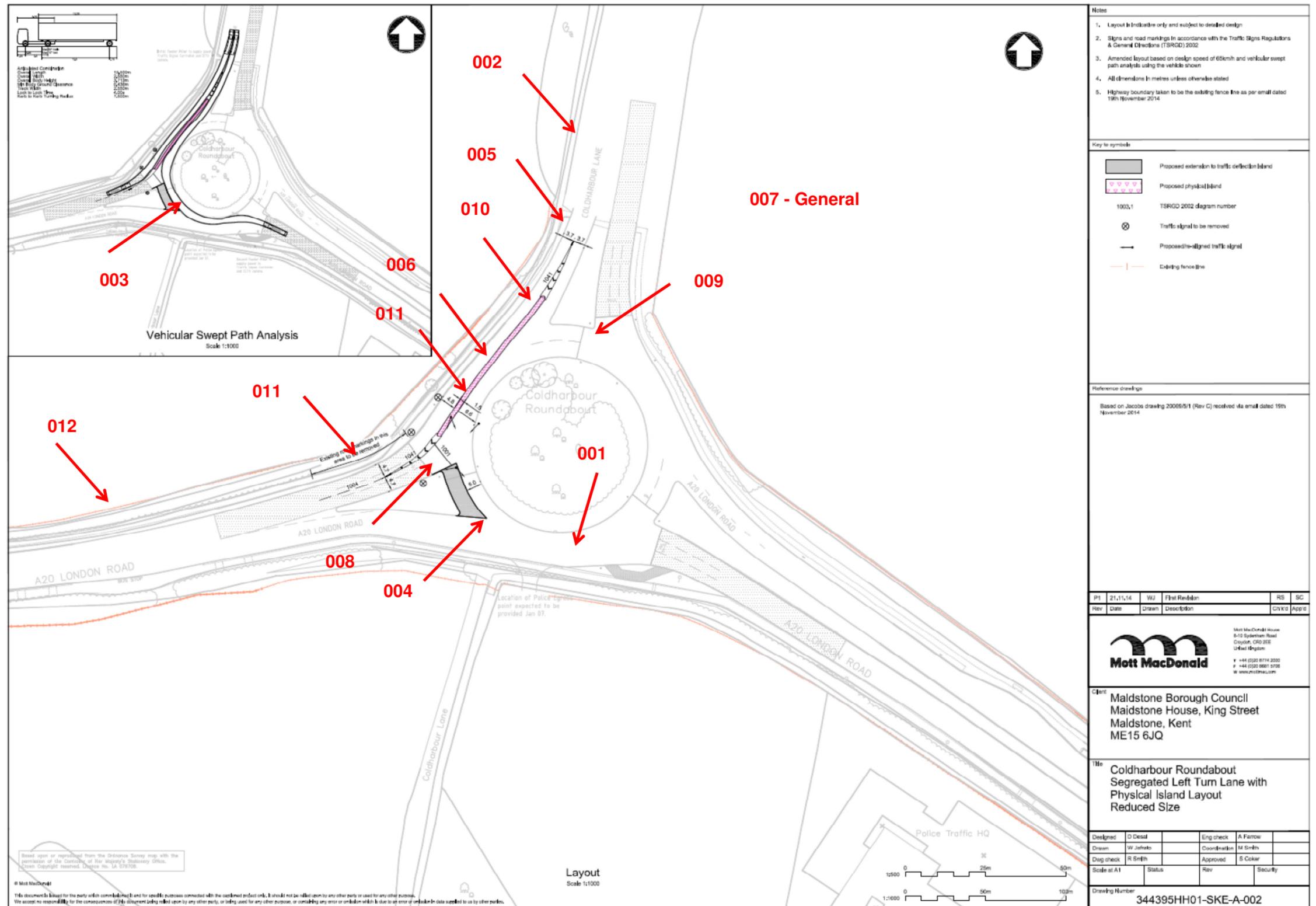
Appendix B. Reference Key Plan

Figure B.1: Based on MM Drawing Number 344395HH01-SKE-A-001



Source: Mott MacDonald

Figure B.2: Based on MM Drawing Number 344395HH01-SKE-A-002



Source: Mott MacDonald

Appendix D. Stage One Road Safety Audit – Designers' Exception Report

Table D.1 forms the response of the design team to the issues raised in the stage one road safety audit, the report (document number 264223HM/ITD/ITQ/176/A (Revision A)) for which can be found in Appendix C.

Table D.1: Designers' Exception Report to the Stage 1 Road Safety Audit

Output from the road safety audit					Response from the designers
Item	Location	Summary	Description	Recommendation	
001	A20 westbound approach to the junction.	Circulatory carriageway width on roundabout.	<p>The audit team understands from the road safety audit brief that the A20 westbound approach to the roundabout is to be narrowed from three lanes to two lanes, with Lane 1 for the left/ahead movement onto the A20 and Lane 2, the right turn onto the M20 link.</p> <p>There is currently no or little lane delineation on the roundabout. This in turn results in poor lane discipline on the roundabout. Given the proposal to narrow the circulatory carriageway on its eastern side by extending the traffic island, this may result in continued conflicts, leading to side swipe accidents.</p>	It is recommended that appropriate lane markings (and hatching) are provided on the circulatory carriageway for both the east to north (right turn) movement and the east to west (ahead movement).	<p>The designers agree with the comments of the auditors.</p> <p>The drawings will be amended to reflect the suggested changes.</p>
002	A20 eastbound approach to the roundabout.	Introduction of weaving movements north of the roundabout.	<p>Drawing Numbers 344395HH01-SKE-A-001 and 002 show the proposals for the Non-Physical Island Layout and Physical Island Layout respectively. The Non-Physical Island has give-way control on the roundabout, whilst the Physical Island Option retains traffic signal control.</p> <p>The introduction of a SLTL under both configurations will require vehicles to weave, immediately north of the exit taper. There appears to be some 200m of weaving length north of the roundabout and this link is subject to national speed limit. The audit team is concerned that vehicles may seek to change lanes immediately past the exit taper (northbound), potentially resulting in side-swipe / lane changing accidents at this location.</p>	It is recommended that measures to mitigate traffic weaving, north of the SLTL are investigated.	The designers note the comments of the auditors, but they do not consider weaving to be an issue. However, this will be reviewed during the detailed design stage.
003	A20 westbound approach to the roundabout.	Tracked speed of design vehicle.	<p>Drawing Numbers 344395HH01-SKE-A-001 and 002 show the vehicular swept path for both design options.</p> <p>The tracked speed of the swept path is not stated and the audit team is concerned that for the non-physical island, the design vehicle may encroach into the SLTL if tracked speeds are not appropriate.</p> <p>This may result in side swipe accidents.</p>	It is recommended that the tracked speed for the design vehicle is checked such that it is appropriate for the roundabout geometry.	The designers note the comments of the auditors. The design vehicle, tracked at 20 mph, has been found to successfully negotiate all the affected manoeuvres on the roundabout (i.e. eastbound to northbound, eastbound to eastbound and westbound to northbound). The design vehicle was also able to successfully negotiate two of these manoeuvres (i.e. eastbound to northbound and eastbound to eastbound), when tracked at the speed limit of 40 mph.

Output from the road safety audit						Response from the designers
Item	Location	Summary	Description	Recommendation		
004	A20 eastern arm of roundabout.	Extension of traffic deflection island.	Both options show the proposed extension of the traffic deflection island on this approach. The audit team is of the opinion that this kerb extension may result in vehicles occasionally striking the kerb, as they turn from west to north.	It is recommended that the extent of the kerb extension is reduced and that an area of hatched road markings is provided in front of it.	The designers agree with the comments of the auditors. The drawings will be amended to reflect the suggested changes.	
005	A20 northbound, immediately north of roundabout.	Pedestrian crossing point.	There is an informal pedestrian crossing point, immediately north of the roundabout, on the link road up to M20 J5. During the site visit, the audit team observed the occasional crossing of the carriageway, by pedestrians, at this location. The introduction of the SLTL is likely to encourage higher vehicle speeds, with motorists unlikely to anticipate pedestrians crossing at this location. This may increase the risk of collisions with pedestrians at the crossing point.	It is recommended that measures are investigated to deter / discourage / prevent pedestrians crossing at this location. It may be necessary to provide an alternative crossing away from the SLTL, with appropriate signing / deterrents for pedestrians.	The designers note the comments of the auditors and measures will be considered during the detailed design stage.	
006	A20 – entire length of the proposed SLTL.	Highway Drainage.	The highway crossfall on the eastern side of the roundabout is towards the central island. The audit team observed the presence of gullies within the roundabout. The introduction of a physical island may result in highway surface water being contained within the SLTL, leading to ponding of water which may present a hazard to drivers.	It is recommended that measures are investigated to ensure there is sufficient highway drainage provided within the physical island proposed.	The designers note the comments of the auditors and measures will be considered during the detailed design stage.	
007	A20 eastbound approach to junction.	Hardstanding for maintenance vehicle.	There appears to be no provision within the preliminary design for a maintenance vehicle hardstanding. This may result in maintenance vehicles stopping / parking at inappropriate locations, increasing the risk of injury to maintenance operatives.	It is recommended that a maintenance vehicle parking bay / hardstanding is provided within the proposed scheme.	The designers disagree with the auditors comments. The existing layout of the roundabout does not have a maintenance vehicle parking bay / hardstanding at this location (although, according to the supplied as-built drawings, there is an egress point near the western arm of the roundabout) and it is not deemed that this project will significantly increase the need for maintenance; therefore it is considered outside the scope of this project to include such a parking place.	
008	A20 eastbound approach to	Number of lanes at Give	The audit team is concerned that drivers will seek to form two traffic lanes at the give way line as it appears wide enough to	If it is the intention for two vehicle lanes to form at the	The designers agree with the comments of the auditors. The intention is to have	

Output from the road safety audit					Response from the designers
Item	Location	Summary	Description	Recommendation	
	junction.	Way (Non-physical island option).	accommodate two traffic lanes at this location. However, as the circulatory carriageway narrows for traffic proceeding ahead (from A20 eastern arm to western arm), this may result in conflicts between passing vehicles.	give way line and travel ahead, then there should be sufficient width for this. Alternatively, it is recommended that hatched road markings are provided adjacent to the traffic island, in order to deter / prevent vehicles entering side by side.	only one lane of traffic at the give way markings. The drawings will be amended to show the suggested hatching.
009	A20 northern section of roundabout.	Retention of traffic signal control.	Drawing No. 344395HH01-SKE-A-001 shows the retention of traffic signal control on the northern section of the roundabout. If traffic signal control is to be retained here, the audit team is concerned that it may potentially cause blocking back and impede traffic travelling west to north. This is compounded by the lack of visibility for traffic, across the roundabout, making this manoeuvre.	It is recommended that operation of the traffic signals within the proposed operation is coordinated such that vehicles do not block back and impede traffic travelling from west to north.	The designers agree with the comments of the auditors. The report will include this consideration, as an aspect to consider during traffic modelling at the detailed design stage, with the suggestion of having one phase of the traffic signals showing green lights to all vehicles on the circulatory part of the roundabout, allowing any build-up of traffic to be dissipated.
010	A20 northern section of roundabout.	Width of SLTL.	The audit team notes from the audit brief that the width of the proposed SLTLs are, in places, lower than those required in TD51/03. Narrow lanes may result in vehicles inadvertently overrunning the hatched markings separating the two traffic lanes (for the non-physical island) or kerb strikes for the physical island.	It is recommended that the design is reviewed and where practicable, SLTL widths in accordance with TD51/03 are provided.	The designers partially agree with the comments of the auditors. The extent of the highway boundary and current carriageway extents means the guidance in Section 2 of TD 51/03 cannot be fully adhered to. However, the recommendation will be taken into account during the review of the preliminary design, and a suitable balance between the recommended SLTL widths in TD 51/03 and the recommended width of the circulatory carriageway in TD 16/07 will be sought.
011	A20 eastern section of roundabout.	Sight Stopping Distance for	The entry kerb radius is understood to be in the order of 100m on the A20 eastern approach to the roundabout. The audit team is concerned that there is insufficient stopping sight	It is recommended that sufficient SSD can be achieved commensurate to	The designers agree with the comments of the auditors.

Output from the road safety audit					Response from the designers
Item	Location	Summary	Description	Recommendation	
		SLTL.	distance for this radius. This may result in nose to tail / shunt type accidents occurring.	the entry kerb radius. The design should be reviewed in this regard.	<p>The designers believe that with vegetation clearance, on the outside of the roundabout between the western and northern arms (both inside and outside the highway boundary), sufficient stopping sight distance can be achieved (i.e. 120 m desirable minimum stopping sight distance (or 90 m for one step below) for design speeds on 70 kmh⁻¹ according to Table 3 in TD 9/93).</p> <p>The extent of the required vegetation clearance will be highlighted on a drawing and will be noted in the report.</p>
012	A20 eastern approach arm to roundabout.	Utilisation of lanes.	<p>The A20 eastbound approach to the junction comprises two lanes.</p> <p>Lane 1 is currently designated as 'left turn' only, whilst Lane 2 is designated as 'ahead'. The layouts proposed in both options will enable vehicles to turn left from either lane.</p> <p>Lack of continuity between road signs and road markings can lead to driver confusions and potentially result in conflicts (such as late lane changing / side-swipe collisions).</p>	<p>Whilst it is recognised that the scheme is currently at preliminary design stage it is recommended that the provision of road markings and road signs is consistent with the intended operation of the roundabout.</p>	<p>The designers agree with the comments of the auditors.</p> <p>The intended operation of the roundabout is such that the lane designation on this approach will remain as existing.</p> <p>In order to reinforce this, advance lane designation signs and road markings will be suggested in the report.</p> <p>The signage and road marking strategy will be developed with this in mind during the detailed design stage.</p>

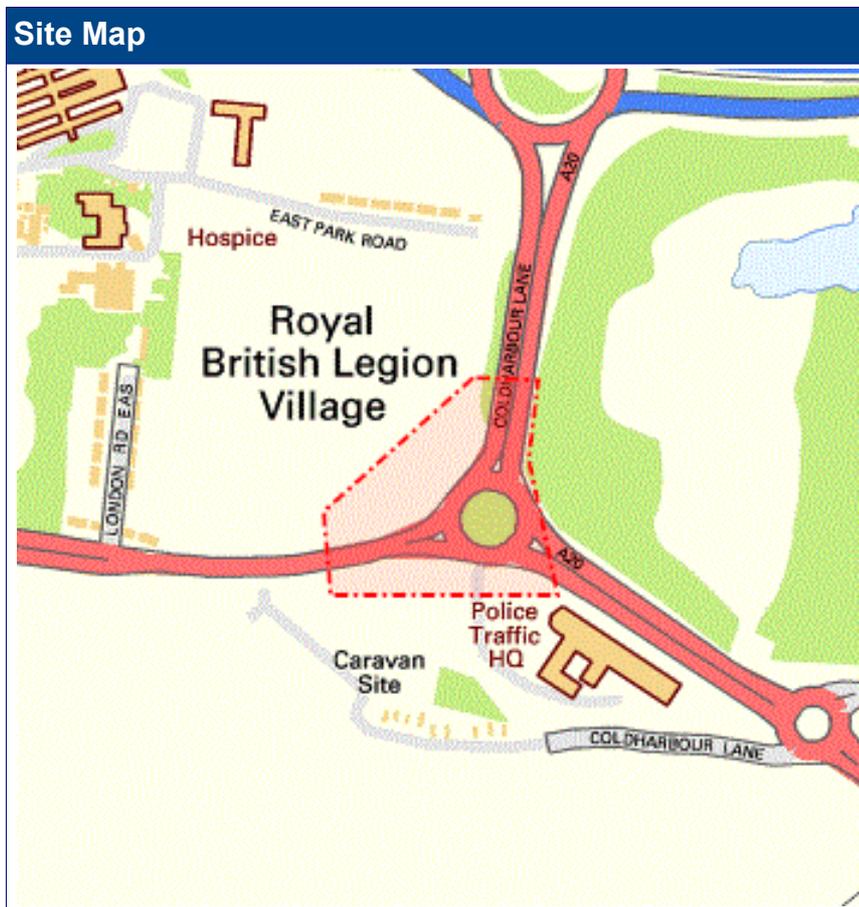
Appendix E. Results from Inquiries to Statutory Undertakers

This appendix contains the results from an inquiry made to LinesearchbeforeUdig regarding the apparatus of statutory undertakers.

Enquirer			
Name	Mr Dimas Basari	Phone	020 8774 3660
Company	Mott Macdonald	Mobile	Not Supplied
		Fax	Not Supplied
Address	Mott Macdonald House 8 - 10 Sydenham Road Croydon Surrey CR0 2EE		
Email	dimas.basari@mottmac.com		
Notes	Please ensure your contact details are correct and up to date on the system in case the Asset Owners need to contact you. Where Asset Owners charge for plans they have been requested to send you a quote before proceeding.		

Enquiry Details			
Scheme/Reference	Coldharbour Roundabout		
Enquiry type	Initial Enquiry	Work category	Highways
Start date	01/01/2015	Work type	Construction/realignment
End date	07/01/2015	Site size	25447 metres square
Searched location	XY= 573235, 157745 Easting/Northing	Work type buffer*	25 metres
Confirmed location	573223 157776		

* The WORK TYPE BUFFER is a distance added to your search area based on the Work type you have chosen



Asset Owners

Subject always to our standard terms and conditions, this enquiry result is valid for 28 days only from the date of enquiry and is based on the confirmed information you entered. If the location of the work changes then a further enquiry must be made. Should the work not be undertaken within 28 days of the enquiry then a further enquiry must be made.

Where applicable listed below are those registered Asset Owners who have been notified, those to whom you need to send further information and those who have no apparatus within your search area. In addition your response will include other non-registered Asset Owners contact details who have NOT been notified, which may be of interest to you.

Please be aware that the lists below are not exhaustive and that not all Asset Owners are registered with this service. In particular please note that the LineasearchbeforeUdig system only contains information on National Grid's Gas above 2 bar asset and all National Grid Electricity Transmission asset. For National Grid Gas below 2 bar asset information please go to www.beforeudig.nationalgrid.com

If you are required to email additional info please note that we need the following: Site contact name and number, Location plan, Detailed plan (minimum scale 1:2500), Cross sectional drawings (if available), Work Specification.

Asset Owners who DO have assets near your proposed work site.

In the Zone of Interest

No LineasearchbeforeUdig Asset Owners within the Zone of Interest

LineasearchbeforeUdig Asset Owners who DO NOT have assets in the immediate vicinity of your proposed work site.

Not in the Zone of Interest

AWE Pipeline	FibreSpeed Limited	Perenco UK Limited (Purbeck Southampton Pipeline)
BOC Limited (A Member of the Linde Group)	Gamma	Phillips 66
BP Midstream Pipelines	Government Pipelines & Storage System	Premier Transmission Ltd (SNIP)
BPA	Humbly Grove Energy	RWEpower (Little Barford and South Haven)
Centrica Energy	HV Cables	SABIC UK Petrochemicals
Centrica Storage Ltd	IGas Energy	Scottish Power Generation
ConocoPhillips (UK) Ltd	Ineos Enterprises Limited	Seabank Power Ltd
Coryton Energy Co Ltd (Gas Pipeline)	INEOS Manufacturing (Scotland and TSEP)	Shell Pipelines
CSP Fibre c/o Centara	Lark Energy	Spiecapag UK Limited (Carrington)
EirGrid	Mainline Pipelines Limited	Total (Finaline, Colnbrook & Colwick Pipelines)
Electricity North West Limited	Manchester Jetline Limited	Transmission Capital
E-on UK Plc (Gas Pipelines Only)	Marchwood Power Ltd (Gas Pipeline)	Western Power Distribution
ESP Utilities Group	National Grid Gas (above2 bar) and National Grid Electricity Transmission	Wingas Storage UK Ltd
ESSAR	NPower CHP Pipelines	Zayo Group UK Ltd c/o JSM Group Ltd
Esso Petroleum Company Limited	Oikos Storage Limited	

The following Asset Owners are NOT currently members of LineSearchbeforeUdig, however you should contact them before proceeding. Please be aware that this list is not exhaustive and that **IT IS YOUR RESPONSIBILITY TO IDENTIFY AND CONTACT ALL ASSET OWNERS WITHIN YOUR SEARCH AREA.**

Not Notified			
Asset Owner	Preferred contact method	Phone	Status
BskyB Telecommunications	nrswa@bskyb.com	02070323234	Not Notified
BT	https://www.swns.bt.com/pls/mbe/welcome.home	08009173993	Not Notified
Colt	plantenquiries@catelecomuk.com	01227768427	Not Notified
Energetics Electricity	plantenquiries@energetics-uk.com	01698404646	Not Notified
Fulcrum	FPLplantprotection@fulcrum.co.uk	03330146455	Not Notified
GTC	https://pe.gtc-uk.co.uk/PlantEnqMembership	01359240363	Not Notified
Instalcom	plantenquiries@instalcom.co.uk	02087314613	Not Notified
Interoute	interoute.enquiries@plancast.co.uk	02070259000	Not Notified
Southern Gas Networks	plantlocation@sgn.co.uk	01414184093	Not Notified
Southern Water	searches@southernwater.co.uk	08452700212	Not Notified
Tata, KPN (c/- McNicholas)	plantenquiries@mcnicholas.co.uk	03300558469	Not Notified
Teliasonera	telentelia.plantenquiries@telent.com	0800526015	Not Notified
UK Power Networks	plans@ukpowernetworks.co.uk	08000565866	Not Notified
Verizon Business	osp-team@uk.verizonbusiness.com	01293611736	Not Notified
Virgin Media	http://www.digdat.co.uk	08708883116	Not Notified
Vodafone	osm.enquiries@atkinsglobal.com	01454662881	Not Notified
Vtesse Networks	https://vtplant.vtesse.com	01992532100	Not Notified

Disclaimer

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