



National Highways

M6 JUNCTION 29 SOUTH

Signalisation of Approach Arm
Stage 1 Road Safety Audit



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Stage 1 Road Safety Audit



PROJECT NO. 70084465

OUR REF. NO. 70084465-RS1

DATE: OCTOBER 2023

WSP

First Floor

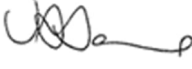


3 Wellington Place

Leeds

LS1 4AP



Quality control

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks				
Date	12/10/2023			
Prepared by	J Ackland			
Signature				
Checked by	Mason Lewis			
Signature				
Authorised by	Andy Cooper			
Signature				
Project number	70084465			
Report number	70084465			
File reference	As above			

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1. PROJECT DETAILS

Report title:	<i>M6 J29 South signalisation of approach arm Stage 1 RSA</i>
Date:	<i>October 2023</i>
Document reference and revision:	<i>70084465-RS1</i>
Prepared by:	<i>WSP</i>
On Behalf of:	<i>National Highways</i>

2. INTRODUCTION

2.1.1. This report results from a Stage 1 Road Safety Audit carried out on the Lancashire Central scheme to signalise the northern approach arm of M6 J29 (South) on behalf of Warren Hilton, Audit Project Sponsor, National Highways. The Road Safety Audit was carried out during October 2023.

2.1.2. The Road Safety Audit Team approved by Warren Hilton, Audit Project Sponsor, National Highways, was as follows:

Audit Team Leader: Jackie Ackland, MCIHT, MSoRSA

Audit Team Member Mason Lewis, (BSc (Hons), MCIHT)

Jackie Ackland holds a Road Safety Certificate of Competence meeting the requirements of the European Directive 2008/96/EC and GG119 paragraph 3.9 and appendix G.

2.1.3. The Audit took place at the WSP Leeds office in October 2023. The Road Safety Audit was undertaken in accordance with the Road Safety Audit brief provided by James Outterside of WSP and approved by Warren Hilton, Audit Project Sponsor, National Highways, and accepted by the Audit Team via email on 6th October 2023.

2.1.4. The Audit Team note that the brief and drawings do not include provision for:

- A signal engineer to park for maintenance activities at the traffic signals,
- The proposed signal controller location,
- Any other associated signal equipment such as feeder pillars, loops etc,
- High friction surfacing, and
- National speed limit signing at the end of the 50 MPH speed restriction.

It is expected that these items would be included at the Stage 2 Road Safety Audit.

2.1.5. The Audit Team noted that the drawings provided indicate a layout for the near side hatching of the through lane which is different to that which currently exists in site. The Designer has confirmed that this is a drafting error and there is no intention to change this.

2.1.6. A review of collision data provided as part of the Audit Brief covering the latest 5 years available indicated there were two collisions within the vicinity of the proposals. Both involved vehicles changing lane within the circulatory carriageway and are not considered to be pertinent to the scheme.

2.1.7. The Audit Team visited the site, together, on Tuesday 10th October between 11:30am and 12:30pm. The weather was sunny and dry. The road surface was dry during the site visit. Traffic was free flowing. No pedestrians or cyclists were observed.

2.1.8. The Road Safety Audit also comprised of an examination of the documents and drawings supplied to the Road Safety Audit Team, referenced in Appendix A of this report.

- 2.1.9. All comments and recommendations are referenced to the design drawings and the locations have been indicated on the plan located in Appendix B.
- 2.1.10. The terms of reference of the Road Safety Audit are as described in the Design Manual for Roads and Bridges (DMRB) Standard GG 119 Road Safety Audit.
- 2.1.11. The Road Safety Audit Team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria.
- 2.1.12. No Departures from Standards relating to the scheme were provided to the Audit Team.

Audit Administration

- 2.1.13. This Audit Report has been provided to the design organisation for submission to the Overseeing Organisation for consideration. A RSA response report should then be produced by the design organisation in consultation with the Overseeing Organisation. This should be completed within 1 month of the issue of the RSA report and the Overseeing Organisation should then provide a copy to the RSA team for information.
- 2.1.14. The Overseeing Organisation is responsible for identifying any misinterpretations of the highway scheme proposals or if any problem or recommendation is not accepted.
- 2.1.15. Safety issues identified during the audit and site inspection which the Terms of Reference exclude from this report, but which the audit team wishes to draw to the attention of the Overseeing Organisation, will be set out in a separate letter. Maintenance issues should be reported directly to the maintaining agent.

2.2. Purpose of the Scheme

- 2.2.1. The scheme involves signalisation of one arm of the M6 Junction 29 south and signalisation of the corresponding circulatory carriageway. The arm to be signalled is the northern approach to M6 Junction 29 south, leading from the southbound connector road between the M6 Junction 29 north and the M6 Junction 29 south. The existing road layout will be maintained however traffic signals will be introduced to provide additional traffic capacity at the intersection of the connector road with the M6 Junction 29 south circulatory carriageway.
- 2.2.2. The traffic signals would be a standard two stage arrangement, with appropriate intergreen periods. No pedestrian facilities or pedestrian phases are proposed.
- 2.2.3. The speed limit on the connector road between M6 Junction 29 north and M6 Junction 29 south is proposed to be reduced to 50mph as part of the proposals, this would be enforced by road markings and signage.
- 2.2.4. Scheme Objectives: Safely mitigate any traffic impacts associated with the additional traffic at the location arising from the Lancashire Central development proposals.



3. PROBLEMS IDENTIFIED IN PREVIOUS ROAD SAFETY AUDITS

The Audit Team have not been made aware of any previous road safety audits relevant to the proposed scheme.

4. PROBLEMS IDENTIFIED AT THIS STAGE 1 ROAD SAFETY AUDIT

4.1. PROBLEM 1

Location: Southbound connector road approach to traffic signals.

Summary: Vegetation and other sign obscuring traffic signals and warning signs.

During the site visit it was noted that foliage adjacent to both lanes of the connector road and existing signs located on the nearside of the carriageway, have the potential to obscure visibility to the primary signal heads and the advance warning signs. The advance warning signs for the traffic signals could also make it more difficult to see the roundabout and bend warning signs that are also currently obscured by vegetation. This could result in sudden sharp braking, resulting in shunts on the approach to the traffic signals.



Figure 4-1 - Approximate distance of signals warning signs indicated, where they may be obscured by vegetation or by the “no hard shoulder” sign, and may obscure the bend and roundabout warning signs.

RECOMMENDATION:

It is recommended that vegetation is removed and maintained, and a double height traffic signal is provided at both primary signal locations to improve visibility.

4.2. PROBLEM 2

Location: Southbound connector road secondary traffic signal location.

Summary: Proposed signal head / pole to be located in front of VRS and Chevron signs.

The proposed location of the secondary signal for the southbound connector road approach is located in front of the roundabout Chevron signs and in front of the existing Vehicle Restraint System (VRS). This may result in increased severity of injury should any vehicle fail to stop at the traffic signals and strikes the pole.

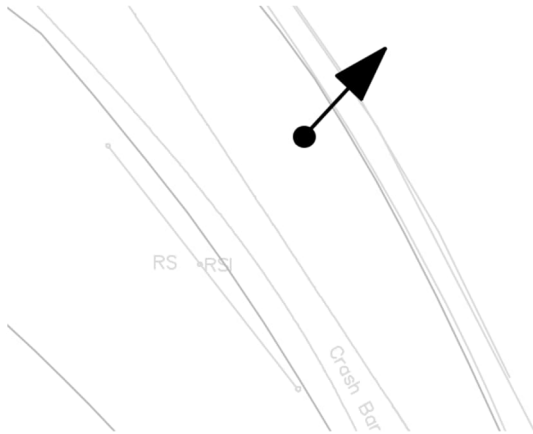


Figure 4-2 -Illustration of proposed secondary signal location

RECOMMENDATION:

It is recommended that the secondary traffic signal is located where it will not be in front of the Chevron sign, and behind the VRS. If it is necessary to relocate the VRS it is noted that, as a continuation of the parapet, the VRS may need to be upgraded to meet current standards.

4.3. PROBLEM 3

Location: Proposed traffic signal buildout, circulatory carriage way approach.

Summary: Proposed build out places traffic signal at a vulnerable location where vehicles losing control may strike the traffic signal.

The design proposes a build out across the width of the hatched area to the near side of the circulatory carriageway. Vehicles losing control within the roundabout and veering towards the near side, would hit the traffic signal or any VRS in front of the traffic signal head-on. The designer has confirmed the intention of the build out is to place the traffic signal closer to the line of sight of drivers in lane 1. However, the curvature of the circulatory carriage way would allow a direct line of sight from lane 1 to a signal placed on the existing kerbed area at the side of the hatching.

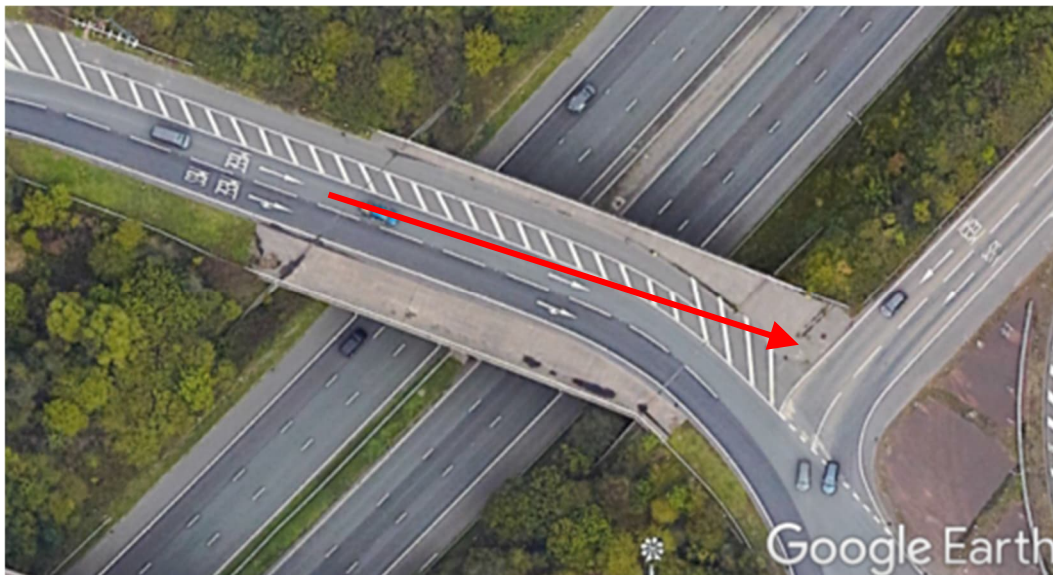


Figure 4-3 - Illustration of visibility angle from nearside lane to nearside primary signal.

RECOMMENDATION:

It is recommended that the build out is omitted from the design or extended along the length of the hatching so that any vehicles losing control would hit the VRS at a shallow angle.

4.4. PROBLEM 4

Location: Proposed traffic signal buildout, circulatory carriage way approach.

Summary: Proposed build out restricts width for HGVs and may result in sideswipe collisions.

The design proposes a build out across the width of the hatched area to the near side of the circulatory carriageway.

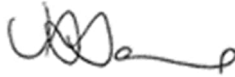

When the signal is at red, two HGVs could line up side by side and negotiate the bend together. The swept path of both vehicles may be constrained by the kerb build out and this could result in side swipe collisions.

RECOMMENDATION:

It is recommended that swept path analysis is carried out to ascertain whether the buildout creates a pinchpoint for two HGVs negotiating the bend together. If so, it should be adjusted, or removed as recommended in Problem 3.

END OF PROBLEMS IDENTIFIED AND RECOMMENDATIONS FOR THIS STAGE 1 AUDIT

5. AUDIT TEAM STATEMENT

We certify that this audit has been carried out in accordance with GG 119.	
ROAD SAFETY AUDIT TEAM LEADER	
Name:	Jackie Ackland
Signed:	
Position:	Associate
Organisation:	WSP
Date:	11 October 2023
ROAD SAFETY AUDIT TEAM MEMBER	
Name:	Mason Lewis
Signed:	
Position:	Senior Engineer
Organisation:	WSP
Date:	12 October 2023

Appendix A



DOCUMENT LIST

Documents

RSA Stage 1 Brief –M6 J29 South signalisation of approach arm Dated 4/10/23

Collision Summary Report dated 6 /6 /22 and data relevant to the site

Drawings

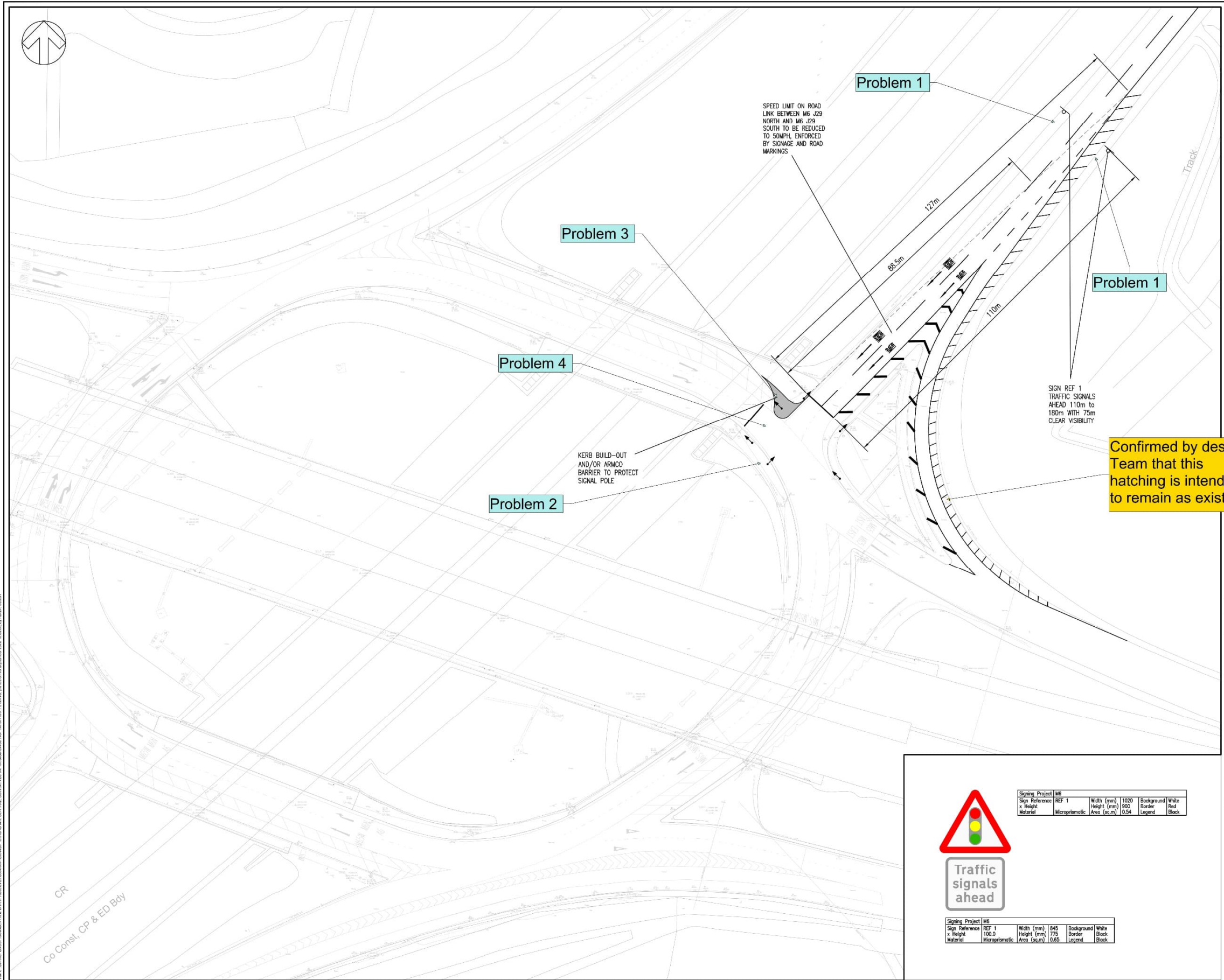
84465-WSP-XX-DR-020 – Rev P02 Scheme details @1:500

Appendix B



PROBLEM LOCATION PLAN

DO NOT SCALE



Confirmed by design Team that this hatching is intended to remain as existing

ISS	26/09/2023	DR	SCALE	AS SHOWN	JD	JD
REV	22/09/2023	DR	FIRST ISSUE		JD	JD
REV	DATE	BY	DESCRIPTION		C	K

DRAWING STATUS: S0 - WORK IN PROGRESS

First Street, Manchester, M15 4RP, UK
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CLIENT: MAPLE GROVE DEVELOPMENTS

ARCHITECT: FLETCHER RAE

SITE/PROJECT: LANCASHIRE CENTRAL, CUERDEN

TITLE: M6 JUNCTION 29 PROPOSED TRAFFIC SIGNALS

SCALE @ A1:	1:500	CHECKED:	JO	APPROVED:	JO
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PROJECT NO:	70084465	DESIGNED:	DR	DRAWN:	DR	DATE:	September 23
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DRAWING NO:	84465-WSP-XX-DR-020	REV:	P02
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Signing Project M6		Width (mm)	845	Background	White
Sign Reference	REF 1	Height (mm)	775	Border	Black
Sign Reference x Height	100.0	Area (sq.m)	0.65	Legend	Black
Material	Microprismatic				

Signing Project M6		Width (mm)	1000	Background	White
Sign Reference	REF 1	Height (mm)	900	Border	Red
Sign Reference x Height	900.0	Area (sq.m)	0.90	Legend	Black
Material	Microprismatic				

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