



IMPORTANT NOTICE
The Road Restraint design is the responsibility of the Designer; the RRRAP tool is an integral part of the design process which assists the Designer in determining at each specific site the need for VRS and its performance requirements.
Users of this program take full responsibility for verifying the data entered into this program and only using

Record Information

Record Name: M62 EB Dig Gate Lane
Project Name: Dig Gate Lane Rochdale
Record Description:

Record Status: Live
Record Last Updated: 27-Sep-2024 10:13:40
RRRAP Version Number: 3.3
RRRAP Issue Date: 15-Sep-2009

Record Declarations

Declaration	Name (Organisation)	Job Title	Date
Commencement of Design	Naresh Madhavan (Highway Associates)		Start Date: 20-Sep-2024
Read TD19 & Guidance	Naresh Madhavan (Highway Associates)		Sign off date: 20-Sep-2024
Site Visit	Naresh Madhavan (Highway Associates)		Visit date: 19-Sep-2024
Design Checked			Sign off date:
Design Completed			Sign off date:

Common Details

Basic Details

Project Id or Pin	
Highway Authority	Greater Manchester
Designer Reference	
Contract Type	other
Contract Sub Type	N/A
Region	Rochdale
Country	England

Reason for Design

New Section of Road	No
Widening existing carriageway	No
Upgrade/improvement to existing carriageway	No
Downgrade existing carriageway	No
Replacement of existing restraint	No
New restraint on existing road	No
Temporary Works	No
Road furniture/ equipment improvement	No
Assess existing parapet	No
Other	Development adjacent to the carriageway

Section Details

Road Classification	Motorway	
Road Number	M62	
Road Name	M62	
Road Sub Type	D3M	
Road Location	Rural	
To Current Geometric Standards	Yes	
From Junction Name		To Junction Name
From Junction No		To Junction No
From Marker Post		To Marker Post
From Section Label		To Section Label
From Chainage of section(m)	0.0	To Chainage of section(m) 225.0
Section/Direction being assessed		Eastbound
Nearside or Offside Verge being assessed?		N/S Verge
Does road have full-width (i.e. to standard) near side hardshoulder or hardstrip?		Hard shoulder >= 3m
Are Environmental considerations likely to influence provision?		No

Traffic Info

Permanent Speed Limit (mph)	70
Temporary Mandatory Speed Limit (HSR)	N/A
AADT (2-way unless motorway link or slip)	65008
Large Vehicles (%)	19.7
Medium Vehicles (%)	14.6
Model accident frequency (Nearside)	0.191
Model accident frequency (Offside)	

Scheme Duration and Barrier Costs

Start Year	2025
Use Default VRS Lifetime (20 years)?	Yes
Use the default Discount (i.e. inflation) Rate of 7.0% over the VRS lifetime?	Yes
Use default safety barrier and parapet costs?	Yes

300 Fencing

ID	Nature	Start Chainage	Length	Width	Offset from PSb
0300.0001	Wooden fence e.g. post and rail	0.0	225.0	0.15	22.0

End Offset from PSb	Angle	Height / Depth	Aggressiveness	Local Alignment
19.25	179	<1.8m height	0.7	Good alignment

Speed	Sleep	Other Features	Topography Factor	MF for runoff
Mean speed approximately equal to speed limit	A	W	1.0	0.9

Is risk without VRS acceptable	Level of risk with optimum length VRS	Min Length Advance	Min Length Beyond	Barrier Containment
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Yes

VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?
			0.0	None

Comment

Hazard Issue(s) [0300.0001]

600 Earthworks

ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0001	Rising at 26.6%		0.0	1.65	18.3	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
4.87	26.6	Good alignment	Mean speed approximately equal to speed limit		A	W
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Long grass / scrub		Beyond width of slope		5.0	0.25	
Topography Factor	MF for runoff rate	Is risk without VRS acceptable	Level of risk with optimum length VRS		Min Length Advance	Min Length Beyond
1.0	0.9	Yes				
Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure	
				0.0	None	
Comment						

ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0002	Rising at 29.5%		5.0	3.65	16.7	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
4.93	29.5	Good alignment	Mean speed approximately equal to speed limit		A	W
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Long grass / scrub		Beyond width of slope		116.1	0.25	
Topography Factor	MF for runoff rate	Is risk without VRS acceptable	Level of risk with optimum length VRS		Min Length Advance	Min Length Beyond
1.0	0.9	Yes				
Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure	
				0.0	None	
Comment						

ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0003	Rising at 35.2%		121.1	3.15	13.0	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
4.57	35.2	Good alignment	Mean speed approximately equal to speed limit		A	W
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Long grass / scrub		Beyond width of slope		103.9	0.25	
Topography Factor	MF for runoff rate	Is risk without VRS acceptable	Level of risk with optimum length VRS		Min Length Advance	Min Length Beyond
1.0	0.9	Yes				
Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure	
				0.0	None	
Comment						

ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0004	Rising at 30.5%		225.0	3.1	15.75	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
4.8	30.5	Good alignment	Mean speed approximately equal to speed limit		A	W
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Long grass / scrub		Beyond width of slope		End Earthwork for Section.	0.25	

1100 Kerbs and Edge of Pavement Details

ID	Nature	Start Chainage
1100.0001	Kerb 100mm high or less	0.0
Comment		

ID	Nature	Start Chainage
1100.0002	Kerb 100mm high or less	225.0
Comment		

1200 Traffic Signs or Signals

ID	Nature			Start Chainage	Length	Width	Offset from PSb		
1200.0001	Sign on p.s. post(s)			162.7	0.15	2.53	1.2		
Cluster of hazards	Height / Depth	Mounting height	Designed for collision loading?		Width of sign face	Aggressiveness		Local Alignment	
Individual hazard	1m to 3m	1.5m or less mounting ht	No		2.5	0.25		Good alignment	
Speed		Sleep		Other Features	Topography Factor	MF for runoff rate		Is risk without VRS acceptable	
Mean speed approximately equal to speed limit		A		W	1.0	0.9		Yes	
Level of risk with optimum length VRS	Min Length Advance	Min Length Beyond	Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?	
							0.0	None	

Comment

Hazard Issue(s) [1200.0001]

Object is located within working width of barrier. The correction to apply may be to move the hazard, change the working width class, barrier working width, set-back of barrier from Psb, or a combination of these. In this calculation run the effect of the barrier will be overestimated. You may need to apply for a Departure from Standard if the hazard is to remain within the working width. Please refer to CD 377.

The object has an invalid working width. The working width value is less than that expected for the current working width class. This may be due to the risk calculation updating the working width value to show the maximum working width available as the object is located within the working width of VRS.

1300 Road Lighting Columns

ID	Nature	Start Chainage	Length	Width	Offset from PSb
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1300.0001	Row of lighting columns < 40m apart	91.65	113.75	0.25	2.5
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Height / Depth	Aggressiveness	Local Alignment	Speed
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10m to 15m high	1.7	Good alignment	Mean speed approximately equal to speed limit
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Sleep	Other Features	Topography Factor	MF for runoff rate	Is risk without VRS acceptable
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A	W	1.0	0.9	No
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Level of risk with optimum length VRS	Min Length Advance	Min Length Beyond	Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?
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Acceptable	5		N2	W2	0.8	0.6	0.0	None
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Is calculated risk level accepted for hazard that could give rise to a significant secondary
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No

Comment

Hazard Issue(s) [1300.0001]

This hazard could give rise to a secondary incident should it be impacted. The calculated risk level does not cover the secondary risk. If you consider the risk level of a secondary incident to be significant, you may wish to consider moving the hazard, or use a higher level of containment, or both.

1500 Motorway Communications (above ground)

ID	Nature		Start Chainage		Length	Width	Offset from PSb
1500.0003	Steps (metal handrail)		5.1		0.95	6.85	3.7
Cluster of hazards		Height / Depth	Designed for collision			Aggressiveness	
Individual hazard		<2m high	No			1.2	
Local Alignment		Speed			Sleep	Other Features	
Good alignment		Mean speed approximately equal to speed limit			A	W	
Topography Factor	MF for runoff rate		Is risk without VRS acceptable			Level of risk with optimum length VRS	
1.0	0.9		No			Acceptable	
Min Length Advance	Min Length Beyond	Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?
15		N2	W2	0.8	0.6	0.0	None

Comment

ID	Nature			Start Chainage		Length	Width	Offset from PSb
1500.0001	Comms or Power Cabinet			9.3		0.4	0.4	9.9
Cluster of hazards		Height / Depth		Designed for collision			Aggressiveness	
Individual hazard		<2m high		No			2.0	
Local Alignment		Speed				Sleep	Other Features	
Good alignment		Mean speed approximately equal to speed limit				A	W	
Topography Factor		MF for runoff rate		Is risk without VRS acceptable			Level of risk with optimum length VRS	
1.0		0.9		Yes				
Min Length Advance	Min Length Beyond	Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?	
						0.0	None	

Comment

ID	Nature		Start Chainage		Length	Width	Offset from PSb
1500.0004	Steps (metal handrail)		54.8		0.95	14.6	2.8
Cluster of hazards		Height / Depth		Designed for collision		Aggressiveness	
Individual hazard		<2m high		No		1.2	
Local Alignment		Speed			Sleep		Other Features
Good alignment		Mean speed approximately equal to speed limit			A		W
Topography Factor		MF for runoff rate	Is risk without VRS acceptable			Level of risk with optimum length VRS	
1.0		0.9	No			Acceptable	
Min Length Advance	Min Length Beyond	Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?
15		N2	W2	0.8	0.6	0.0	None

Comment

ID	Nature			Start Chainage		Length	Width	Offset from PSb
1500.0002	Comms or Power Cabinet			56.0		0.4	0.4	21.65
Cluster of hazards		Height / Depth		Designed for collision			Aggressiveness	
Individual hazard		<2m high		No			2.0	
Local Alignment		Speed				Sleep		Other Features
Good alignment		Mean speed approximately equal to speed limit				A		W
Topography Factor		MF for runoff rate		Is risk without VRS acceptable			Level of risk with optimum length VRS	
1.0		0.9		Yes				
Min Length Advance	Min Length Beyond	Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?	
						0.0	None	

Comment

1600 Piles and Retaining Walls

ID	Nature	Start Chainage	Length	Width
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1600.0001	Smooth faced wall	5.15	8.0	0.15
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Offset from PSb	End Offset from PSb	Angle	Height / Depth	Aggressiveness
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10.5	10.5	0	<1m height	1.7
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Local Alignment	Speed	Sleep	Other Features	Topography Factor	MF for runoff rate	Is risk without VRS acceptable
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Good alignment	Mean speed approximately equal to	A	W	1.0	0.9	Yes
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Level of risk with optimum length VRS	Min Length Advance	Min Length Beyond	Barrier Containment	VRS Class
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VRS WW	Setback VRS	End VRS WW	Cost Option	Relaxation / Departure required?
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			0.0	None
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Comment

ID	Nature			Start Chainage	Length	Width
1600.0002	Smooth faced wall			9.85	3.05	0.85
Offset from PSb	End Offset from PSb	Angle	Height / Depth		Aggressiveness	
5.13	5.13	0	<1m height		1.7	
Local Alignment	Speed	Sleep	Other Features	Topography Factor	MF for runoff rate	Is risk without VRS acceptable
Good alignment	Mean speed approximately equal to 100km/h	A	W	1.0	0.9	Yes
Level of risk with optimum length VRS		Min Length Advance	Min Length Beyond		Barrier Containment	VRS Class
VRS WW	Setback VRS	End VRS WW	Cost Option		Relaxation / Departure required?	
			0.0		None	
Comment						

Trees

ID	Nature		Start Chainage		Length	Width	Offset from PSb
8700.0001	Tree less than 250 mm girth expected in lifetime		0.0		5.0	11.5	4.0
Cluster of Hazards		Aggressiveness	Local Alignment		Speed		Sleep
Cluster of hazards		0.75	Good alignment		Mean speed approximately equal to speed limit		A
Other Features	Topography Factor	MF for runoff rate	Is risk without VRS acceptable		Level of risk with optimum length VRS	Min Length Advance	Min Length Beyond
W	1.0	0.9	Yes				
Barrier Containment		VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?	
					0.0	None	
Comment							

ID	Nature		Start Chainage		Length	Width	Offset from PSb
8700.0002	Tree >= 250 mm girth expected in lifetime		46.5		3.0	5.8	10.15
Cluster of Hazards		Aggressiveness	Local Alignment		Speed		Sleep
Cluster of hazards		2.0	Good alignment		Mean speed approximately equal to speed limit		A
Other Features	Topography Factor	MF for runoff rate	Is risk without VRS acceptable		Level of risk with optimum length VRS	Min Length Advance	Min Length Beyond
W	1.0	0.9	Yes				
Barrier Containment		VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?	
					0.0	None	
Comment							

ID	Nature			Start Chainage	Length	Width	Offset from PSb	
8700.0003	Tree >= 250 mm girth expected in lifetime			59.0	1.5	4.7	10.7	
Cluster of Hazards		Aggressiveness		Local Alignment	Speed		Sleep	
Cluster of hazards		2.0		Good alignment	Mean speed approximately equal to speed limit		A	
Other Features	Topography Factor	MF for runoff rate	Is risk without VRS acceptable		Level of risk with optimum length VRS		Min Length Advance	Min Length Beyond
W	1.0	0.9	Yes					
Barrier Containment		VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?		
					0.0	None		
Comment								

Hardshoulder / hardstrip width & Verge width details

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
0.0	1.65	3.3	0.0	11.2	3.3	11.2
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
5.0	3.0	3.3	0.0	11.2	3.3	11.2
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
225.0	3.4	3.3	0.0	17.0	3.3	17.0
Comment						

Public building or place where people congregate

ID	Nature		Start Chainage		Length	Width	Offset from PSb	
8300.0001	Office block/Work place		2.25		47.5	27.5	27.85	
Description of vulnerable wall	Aggressiveness	Local Alignment	Speed			Sleep	Other Features	MF for runoff rate
Building Wall	1.3	Good alignment	Mean speed approximately equal to speed limit			A	W	0.9
Likelihood of reaching other hazard		Topography Factor	Avg No. of People exposed to risk			Avg time each person is exposed to risk		
Fairly unlikely		0.25	5			1760		
Total Number of people at risk	Other Consequences Multiplicative factor		Is risk without VRS acceptable		Level of risk with optimum length VRS		Min Length Advance	
1	1		Yes					
Min Length Beyond	Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?		
					0.0	None		
Comment								

Chemical or fuel installation

ID	Nature		Start Chainage	Length	Width	Offset from PSb
8000.0001	Chemical		102.0	52.0	14.75	34.2
Description of vulnerable		Aggressiveness	Local Alignment	Speed	Sleep	
None		0.5	Good alignment	Mean speed approximately equal to speed limit	A	
Other Features	MF for runoff rate	Likelihood of reaching other hazard	Topography Factor	Average Number of People exposed to risk	Average time each person is exposed to risk (hours per	
W	0.9	Cannot reach feature	0.0001	5	1760	
Total Number of people at risk	Other Consequences Multiplicative factor		Is risk without VRS acceptable	Level of risk with optimum length VRS	Min Length Advance	
1	1		Yes			
Min Length Beyond	Barrier Containment	VRS Class	VRS WW	Setback VRS	Cost Option	Relaxation / Departure required?
					0.0	None
Comment						

VRS Summary Output

ID Number	Nature of Hazard	Start chainage of hazard	End chainage of hazard	Offset(s) from Psb	Minimum Length of Barrier in advance of object (m)	Minimum Length of Barrier beyond object (m)
1300.0001	Row of lighting columns < 40m apart	91.65	205.4	2.5	5	
Barrier Containment	Barrier working width class	Parapet Containment	Barrier working width	Set-back of VRS from PSb	VRS Start / End Chainage	Relaxation / Departure required?
N2	W2		0.8	0.6		None
Comments						

ID Number	Nature of Hazard	Start chainage of hazard	End chainage of hazard	Offset(s) from Psb	Minimum Length of Barrier in advance of object (m)	Minimum Length of Barrier beyond object (m)
1500.0003	Steps (metal handrail)	5.1	6.05	3.7	15	
Barrier Containment	Barrier working width class	Parapet Containment	Barrier working width	Set-back of VRS from PSb	VRS Start / End Chainage	Relaxation / Departure required?
N2	W2		0.8	0.6		None
Comments						

ID Number	Nature of Hazard	Start chainage of hazard	End chainage of hazard	Offset(s) from Psb	Minimum Length of Barrier in advance of object (m)	Minimum Length of Barrier beyond object (m)
1500.0004	Steps (metal handrail)	54.8	55.75	2.8	15	
Barrier Containment	Barrier working width class	Parapet Containment	Barrier working width	Set-back of VRS from PSb	VRS Start / End Chainage	Relaxation / Departure required?
N2	W2		0.8	0.6		None
Comments						

End