

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: 110705-PEF-XX-XX-TRA-H-00002
Project Name: Hinckley Welcome Break
Record Description: Welcome Break Exit Nearside

Record Status: Live
Record Last Updated: 22-Oct-2025 10:39:08
RRRAP Version Number: 3.3
RRRAP Issue Date: 31-Mar-2022

Record Declarations

Declaration	Name (Organisation)	Job Title	Date
Commencement of Design			Start Date:
Read TD19 & Guidance			Sign off date:
Site Visit			Visit date:
Design Checked			Sign off date:
Design Completed			Sign off date:

Common Details

Basic Details

Project Id or Pin	110705
Highway Authority	
Designer Reference	
Contract Type	
Contract Sub Type	
Region	
Country	

Reason for Design

New Section of Road	No
Widening existing carriageway	Yes
Upgrade/improvement to existing carriageway	Yes
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	

Section Details

Road Classification	All Purpose Road		
Road Number	A5		
Road Name			
Road Sub Type	Single		
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)	247.0
Section/Direction being assessed			
Nearside or Offside Verge being assessed?	N/S Verge		
Does road have full-width (i.e. to standard) near side hardshoulder or hardstrip?	Hard strip < 0.6m		
Are Environmental considerations likely to influence provision?	No		

Traffic Info

Permanent Speed Limit (mph)	50
Temporary Mandatory Speed Limit (HSR)	N/A
AADT (2-way unless motorway link or slip)	5000
Large Vehicles (%)	8.5
Medium Vehicles (%)	15.4
Model accident frequency (Nearside)	0.017
Model accident frequency (Offside)	0.013

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

600 Earthworks

ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0001	Falling at 4.5%		0.0	2.0	13.4	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
-0.6	-4.5	Average alignment	Mean speed < speed limit		A	Y
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Short grass		At back of verge		99.0	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	0.94	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	Falling at 1.4%		99.0	3.0	7.3	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
-0.1	-1.4	Average alignment	Mean speed < speed limit		A	Y
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Short grass		At back of verge		148.0	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	0.94	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	Falling at 5%		247.0	3.0	2.0	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
-0.1	-5.0	Good alignment	Mean speed < speed limit		A	X
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Short grass		At back of verge		End Earthwork for Section.	0.25	

1100 Kerbs and Edge of Pavement Details

ID	Nature	Start Chainage
1100.0001	Kerb >100mm up to 250mm	0.0
Comment		

ID	Nature	Start Chainage
1100.0002	Kerb >100mm up to 250mm	247.0
Comment		

Trees

ID	Nature			Start Chainage	Length	Width	Offset from PSb
8700.0001	Tree >= 250 mm girth expected in lifetime			12.8	6.6	0.7	10.3
Cluster of Hazards		Aggressiveness		Local Alignment	Speed		Sleep
Cluster of hazards		2.0		Average alignment	Mean speed < 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
Y	1.0	0.94	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			25.5	7.3	0.7	9.4
Cluster of Hazards		Aggressiveness		Local Alignment	Speed		Sleep
Cluster of hazards		2.0		Average alignment	Mean speed < 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
Y	1.0	0.94	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			52.0	15.5	0.7	6.1	
Cluster of Hazards		Aggressiveness		Local Alignment	Speed		Sleep	
Cluster of hazards		2.0		Average alignment	Mean speed < 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
Y	1.0	0.94	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
8700.0004	Tree >= 250 mm girth expected in lifetime			84.0	3.3	0.7	10.0
Cluster of Hazards		Aggressiveness		Local Alignment	Speed		Sleep
Cluster of hazards		2.0		Average alignment	Mean speed < 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
Y	1.0	0.94	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	
8700.0005	Tree >= 250 mm girth expected in lifetime			100.0	60.0	0.7	5.8	
Cluster of Hazards		Aggressiveness		Local Alignment	Speed		Sleep	
Cluster of hazards		2.0		Average alignment	Mean speed < 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
Y	1.0	0.94	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
8700.0006	Tree >= 250 mm girth expected in lifetime			160.0	55.0	0.7	8.2
Cluster of Hazards		Aggressiveness		Local Alignment	Speed		Sleep
Cluster of hazards		2.0		Average alignment	Mean speed < 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
Y	1.0	0.94	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	2.0	0.0	0.0	7.3	0.0	7.3
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
2.57	3.0	0.0	0.0	8.2	0.0	8.2
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
10.6	2.0	0.0	0.0	7.3	0.0	7.3
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
36.7	3.0	0.0	0.0	10.7	0.0	10.7
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
47.5	3.0	0.0	0.0	6.2	0.0	6.2
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
62.4	3.0	0.0	0.0	5.5	0.0	5.5
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
82.1	3.0	0.0	0.0	19.4	0.0	19.4
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
165.4	3.0	0.0	0.0	10.3	0.0	10.3
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
247.0	3.0	0.0	0.0	10.8	0.0	10.8
Comment						

End