

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-00001
Project Name: Hinckley Welcome Break
Record Description: Welcome Break Entry Nearside

Record Status: Live
Record Last Updated: 20-Oct-2025 13:16:06
RRRAP Version Number: 3.3
RRRAP Issue Date: 31-Mar-2022

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)	167.0
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 5.3%		0.0	1.5	9.5	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
-0.5	-5.3	Average alignment	Mean speed < speed limit		A	Y
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Short grass		At back of verge		100.0	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

Hazard Issue(s) [0600.0001]

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.

ID	Earthworks Profile		Start Chainage	Offset from PSb	Overall Width	
0600.0002	Falling at 8.3%		100.0	3.0	6.0	
Overall Height	Ave slope gradient	Local Alignment	Speed		Sleep	Other Features
-0.5	-8.3	Average alignment	Mean speed < speed limit		A	Y
Typical surface of		Typical location of Highway		Length	Aggressiveness	
Short grass		At back of verge		67.0	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	Rising at 12.5%		167.0	2.0	6.0
Overall Height	Ave slope gradient	Local Alignment	Speed	Sleep	Other Features
0.75	12.5	Average alignment	Mean speed < speed limit	A	Y
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	167.0
Comment		

Telegraph poles / Pylons

ID	Nature	Start Chainage	Length	Width	Offset from PSb
8600.0001	Pylon	55.0	19.0	18.0	7.1

Cluster of Hazards	Height / Depth	Aggressiveness	Local Alignment	Speed
Individual hazard	>15m high	1.8	Average alignment	Mean speed < speed limit

Sleep	Other Features	Topography Factor	MF for runoff rate	Is risk without VRS acceptable
A	Y	1.0	0.94	No

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?
See RRRAP manual	12		N2	W2	0.8	1.2	0.0	None

Is calculated risk level accepted for hazard that could give rise to a significant secondary

Yes

Comment

Trees

ID	Nature		Start Chainage		Length	Width	Offset from PSb
8700.0001	Tree >= 250 mm girth expected in lifetime		42.65		0.7	0.7	9.3
Cluster of Hazards		Aggressiveness	Local Alignment		Speed		Sleep
Individual hazard		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		91.05		0.7	0.7	8.8	
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								

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	0.1	0.0	0.0	8.47	0.0	8.47
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
25.0	0.1	0.0	0.0	7.6	0.0	7.6
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
33.8	0.1	0.0	0.0	7.2	0.0	7.2
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
57.4	0.1	0.0	0.0	9.9	0.0	9.9
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
85.6	0.1	0.0	0.0	9.9	0.0	9.9
Comment						

Chainage	Width of Verge	Width of adjacent Hardstrip A		Carriageway width from Psb	Total nearside runoff distance	Total offside runoff distance
100.0	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
167.0	2.0	0.0	0.0	7.3	0.0	7.3
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)
8600.0001	Pylon	55.0	74.0	7.1	12	
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	1.2		None
Comments						

End