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Transport Infrastructure Ireland

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The Location and Layout of Lay- bys and Location Markers

DN-GEO-03046
December 2010

Withdrawn
Under Review

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This document has been authorised by the Director of Professional Services, Transport Infrastructure Ireland. For any further guidance on the TII Publications system, please contact the following:

Contact: Standards and Research Section, Transport Infrastructure Ireland
 Postal Address: Parkgate Business Centre, Parkgate Street, Dublin 8, D08 DK10
 Telephone: +353 1 646 3600
 Email: infoPUBS@tii.ie

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Wording amendment to Section 3.29

**Withdrawn
Under Review**

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**The Location and Layout of
Lay-bys and Location Markers**

**Withdrawn
Under Review**

December 2010

Summary:

This Standard details the requirements and gives advice on the provision, siting and design of lay-bys and maintenance lay-by areas on Motorways and all-purpose dual carriageways. It also details the requirements for the provision of location markers on Motorways and all-purpose dual carriageways.

Withdrawn
Under Review

VOLUME 6 ROAD GEOMETRY

**SECTION 3 HIGHWAY
FEATURES**

PART 3

NRA TD 69/10

**THE LOCATION AND LAYOUT
OF LAY-BYS AND LOCATION
MARKERS**

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1. INTRODUCTION

General

1.1 This Standard outlines the design principles and factors which should be considered by Design Organisations for the layout and siting of lay-bys and maintenance lay-bys on national roads. It also includes requirements for the provision of location markers on national roads.

1.2 This Standard supersedes the September 2008 version of the NRA Advice Note TA 69/08 "The Location and Layout of Lay-bys".

1.3 The principal changes from the previous Advice Note are:

- a. change of document status from an Advice Note to a Standard with mandatory requirements;
- b. the standardisation of the existing four lay-by layouts and garda enforcement area;
- c. the inclusion of a reduced lay-by for short duration stops;
- d. the inclusion of a maintenance lay-by area;
- e. the inclusion of location markers on national roads.

1.4 This Standard does not cover the design of service areas, see **NRA TA 70** "The Location and Layout of Service Areas" for more information on these. However **NRA TA 70** should be read in conjunction with this Standard for siting purposes.

Implementation

1.5 This Standard shall be used for the design of all new or improved Motorways and all-purpose dual carriageway roads. The Standard should be applied to the design of schemes already being prepared unless, in the opinion of the National Roads Authority, application would result in significant additional expense or delay progress. In such cases, design organisations should confirm the application of this Standard to particular schemes with the National Roads Authority.

Definitions

1.6 For definitions of the general road terms used in this Standard such as components of the road (central reserve, verge, hard shoulder, and hard strip, etc.) see BS 6100: Subsection 2.4.1.

1.7 Particular terms used in this Standard are defined as follows:

Design Organisation:- The organisation responsible for undertaking and/or certifying the design.

Lay-by: - A convenient parking area adjacent to the carriageway for short duration stops.

Location Marker: - A symbol on the road edge identifying the road user location for emergency purposes.

Mainline: - The carriageway carrying the main flow of traffic (generally traffic passing straight through a junction or interchange).

Maintenance Lay-bys: - A restricted parking area, adjacent to the carriageway, from which maintenance activities can be undertaken.

Motorway: - A divided multi-lane road as defined in Section 43 of the Roads Act.

Service Area: - An area where road users on longer journeys can make short duration stops for refreshment and rest.

Non-motorised Users (NMUs): - Pedestrians, cyclists and equestrians, including mobility impaired users.

Type 1 Dual Carriageway: - A divided all-purpose road with two lanes in each direction constructed to the geometric standards of **NRA TD 9** and **TD 22**.

Type 2 Dual Carriageway: - A divided all-purpose road with two lanes in each direction constructed to the geometric standards of **NRA TD 10**.

Type 3 Dual Carriageway: - A divided all-purpose road with two lanes in one direction of travel and one lane in the other direction, constructed to the geometric standards of **NRA TD 10**. The two-lane section alternates with a one-lane section at intervals of 2km approximately.

Mandatory Sections

1.8 Sections of this document which form part of the standards the National Roads Authority expects in design are highlighted by being contained in boxes. These are the sections with which the Design Organisation must comply or must have agreed a suitable Departure from Standards with the National Roads Authority. The remainder of the document contains advice and enlargement which is commended to Design Organisations for their consideration.

Disclaimer

1.11 Please note that all drawings in this standard are diagrammatic only. No reliance should be placed upon them for road marking layouts for example and full reference should be made to the Traffic Signs Manual.

Relaxations within Standard

1.9 In difficult circumstances, the Design Organisation may relax the stopping sight distance, as specifically provided for within this document, and in accordance with **NRA TD 9**. The Design Organisation shall record the fact that a Relaxation has been used in the design and the corresponding reasons for its use. The record shall be endorsed by the Design Organisation responsible for the scheme. The Design Organisation shall report all Relaxations incorporated into the design as part of the project report at the end of each project management phase (refer to the National Roads Project Management Guidelines).

Departures from Standard

1.10 In exceptional situations, the National Roads Authority may be prepared to agree to a Departure from Standards where the Standard, including permitted Relaxations, is not realistically achievable. Design Organisations faced by such situations and wishing to consider pursuing this course shall discuss any such option at an early stage in design with the National Roads Authority. Proposals to adopt Departures from Standard must be submitted by the Design Organisation to the National Roads Authority and formal approval received BEFORE incorporation into a design layout.

2. GENERAL PRINCIPLES

Lay-bys

2.1 The purpose of a lay-by is to provide a convenient area for short period stops so the road user can undertake tasks which would otherwise be considered unsafe whilst driving or pulled up on the side of the road. These would include tasks such as answering a mobile phone, changing driver, brief rest, attending to a distressed child passenger, changing a flat tire or some other form of emergency stop, etc.

2.2 Lay-bys are for use on rural Motorways and rural all-purpose dual carriageways.

2.3 The lay-by provides separation from the carriageway so that a passenger or driver getting out of an offside door would not encroach onto the carriageway.

2.4 A study of personal injury accidents on English class 'A' all-purpose roads between 1998 and 2002 showed that the proportion of personal injury accidents involving vehicles entering, leaving or parked in lay-bys was small (1.1%) but that their severity (25% of injury accidents fatal or serious) was above the average value of 18% for all accidents on these roads.

The conclusions were as follows:

- Although the proportion of personal injury accidents involving a vehicle parked on the mainline (1.8%) was not much greater than the 1.1% associated with lay-bys, very few vehicles park on the mainline compared with the number that park in lay-bys. The risk of parking in a lay-by is therefore much lower than that of parking on the mainline.
- Large goods vehicles were over-represented in lay-by accidents, accounting for 24% of the total. The dominant accident type was one in which a car left the mainline and hit a stationary heavy goods vehicle parked in the lay-by. Large goods vehicles were found to have a much higher stopping rate in lay-bys and on average they stopped for longer periods than did cars. Hence they had a relatively high accident involvement.

- Detailed investigation of the lay-bys with the worst accident records suggested that lay-bys should not be located near road features such as junctions or where vehicles are likely to be making manoeuvres such as lane changes.
- Lay-bys sited on the outside of curves increase the risk of fatigued drivers entering them unintentionally.
- Nearly half the accidents occurring at lay-bys were associated with vehicles either entering or leaving them, including mistaken entry into the lay-by, using the lay-by for U-turns or two-way operation within the lay-by. These manoeuvres can be reduced by careful siting and design of lay-bys

Maintenance Lay-by

2.5 A number of roadside features require periodic maintenance, such as petrol interceptors, gantries and traffic counters. It may be necessary to provide a safe area for maintenance operatives to park their vehicles to perform maintenance operations.

2.6 Research has shown that there is a much higher risk of a vehicle being involved in an accident when it is parked at least partially on the running lanes compared with being parked in a lay-by.

2.7 Health and Safety legislation requires that consideration be given to the safety of maintenance operations and all who may be required to work on or near trafficked roads.

Location Markers

2.8 In the event of an emergency it is crucial that emergency services can clearly identify the location of an incident. A location marker provides a means of easily identifying the road users unique location on the national road network. This information can then be relayed to the emergency services by either an emergency telephone (if present), cellular phone, or other third party means.

2.9 The Traffic Signs Manual includes details of a standard location marker arrangement and Chapter 6 indicates how this should be implemented on National Roads.

**Withdrawn
Under Review**

3. TYPE AND LAYOUT OF LAY-BYS

General

3.1 This Standard provides for five distinct types of lay-bys for use on rural Motorways and rural all-purpose dual carriageways:

Type A:- For use by Gardai as a garda enforcement area on Motorways only.

Type B:- An all-purpose layout for use on Type 1 dual carriageways. A variation of this layout may be used on Motorways but only with the agreement of the Head of Engineering of the National Roads Authority.

Type C:- An all-purpose layout for use on Type 2 and Type 3 dual carriageways.

Type D:- A reduced layout for use on Type 2 and Type 3 dual carriageways.

Maintenance Lay-by:- For use on Motorways and Type 1, Type 2 and Type 3 dual carriageways as necessary.

Capacity

3.2 Where the parking bay length is shown as a range the design length should be based on an estimation of demand, within the limits indicated. Demand will be affected by factors such as traffic flow, lay-by spacing, proximity to junctions and proximity to other facilities.

3.3 If the number of vehicles wishing to use the lay-by frequently exceeds the capacity of the lay-by, there may be operational problems and increased accident risk. Common problems caused by lack of capacity are: parking on tapers or outside the lay-by, collisions within the lay-by and over-running of the verges or footway.

3.4 The parking area for each lay-by must have a minimum width of 3.5 metres to accommodate heavy goods vehicles.

Segregation Island

3.5 The segregation island is a safety feature that separates mainline traffic from parked vehicles, restricts access to and egress from the parking area and, by restricting through width, encourages drivers to slow down on entering the lay-by.

3.6 Where a segregation island is required the island shall be 1.9m minimum wide.

3.7 It is important to ensure that the segregation island is conspicuous to drivers on the mainline and those entering the lay-by. Hard surfaces are required for ease of maintenance, to allow for occasional over-riding by long vehicles and to avoid possible obstruction of visibility by uncut grass.

3.8 The island must be surfaced in a colour that contrasts with the surfacing of the lay-by and mainline.

Non-motorised Users

3.9 On all-purpose roads non-motorised users must be considered in the design of the lay-by.

3.10 Where the non-motorised user facility is segregated from the mainline then this facility must be continued around the outside of the lay-by. A minimum 0.5m verge separation must be maintained between the lay-by footway and the non-motorised user facility.

Pavement Construction

3.11 Where a sealed pavement is required the pavement must be designed for the anticipated traffic loading.

Footway and kerbing

3.12 Where a footway is required, as shown in the layout figures, a 2m wide footway must be provided adjacent to the parking area. This will encourage parking close to the kerb edge and provide a surfaced area to walk on.

3.13 If a segregation island is provided as part of the layout it shall be fully kerbed with a 45° splay kerb with a show of no more than 80mm.

3.14 Where a footway is provided it must be separated from the parking bay area by a full height kerb with a show of 125mm to improve safety for those using the footway.

3.15 Where a lay-by requires kerbs along the outside edge of the widening, excluding the kerb adjacent to the parking bay area, a kerb with a 45° splay and a show of no more than 80mm shall be provided. This will facilitate drainage, define the edge of the paving clearly and dissuade parking on the verge adjacent to the tapers.

3.16 A 1.0m minimum grass verge must be maintained at the back of the footway. If a non-motorised user facility is provided then the verge can be reduced to 0.5m minimum.

Drainage

3.17 The crossfall of the lay-by should generally fall away from the mainline carriageway. The footway, where provided, should slope towards the lay-by.

3.18 Within a cut situation any surface water runoff should be intercepted before reaching the footway.

3.19 Where raised kerbs are provided a closed kerb and gully drainage system, connected into the mainline drainage system, must be provided.

3.20 Where over-the-edge drainage is utilised this should be consistent with the mainline drainage and in accordance with **NRA HD 33**.

3.21 Sub-surface drainage must follow the outside edge of the lay-by.

3.22 Where a lay-by consists of an unsealed surface, an impermeable membrane within the

foundation must be included to direct any accidental spillage towards the sub-surface drainage system.

Facilities and Lighting

3.23 It is not intended that lay-bys be furnished with facilities such as refreshments or toilets. For these facilities and longer duration stops, drivers should be encouraged to leave the national road and use facilities in adjacent towns or villages or utilise service areas. However, if emergency telephones are installed along the route, it is preferable to position them at lay-bys.

3.24 Lay-bys are not intended to accommodate roadside trading. The presence of roadside trading can cause congestion, parking outside the lay-by, unsafe manoeuvres and environmental damage.

3.25 Where the mainline has road lighting, the lay-by must be illuminated to the same standard as the carriageway.

3.26 If emergency telephones are installed along the route an emergency phone should be provided at each lay-by.

Type A Layout

3.27 The required lay-by layout for use on Motorways, Type A, is given in Figure 3/1.

3.28 The Type A lay-by is for the sole use of gardai undertaking traffic enforcement. Access to and from the area is controlled by the installation of physical barriers located at either end of the area. This limits its use as an unauthorised lay-by.

3.29 The physical barrier shall be a lockable, manually operated lifting barrier spanning the width of the entrance and exit of the layby. The barrier shall have retroreflective markings on both sides of the beam and shall be subject to the approval of TII. The barrier shall be located in order to avoid introducing a hazard within the clear zone'

3.30 In exceptional circumstances and with the permission of the Head of Engineering of the National Roads Authority the barrier may be omitted, but in this case hatching similar to that of the Type B layout must be introduced.

3.31 The segregation island is offset from the running edge of the carriageway by 2.5m. This maintains the mainline hard shoulder through the lay-by area.

3.32 The length of the Type A lay-by parking area is 150m.

3.33 An auxiliary deceleration lane of 80m must be provided at the entry to the lay-by, to enable vehicles to decelerate clear of the main carriageway. Similarly, an auxiliary acceleration lane of 80m must be provided at the exit from the lay-by to allow for acceleration. The layouts of the entry and exit must be as indicated in Figure 3/1, with the lane and taper lengths as shown.

3.34 Kerbs shall be provided along the length of the facility including the tapers, auxiliary lanes, merges and diverges.

Type B Layout

3.35 The required lay-by layout for use on Type 1 dual carriageways, Type B, is given in Figure 3/2.

3.36 The segregation island is offset from the running edge of the carriageway by 0.6m. The mainline hard shoulder is closed for the length of the lay-by through the use of road markings.

3.37 The length of the Type B lay-by parking area will be a minimum of 50m. Where the two-way average annual daily traffic count at design year is forecast to be between 20,000 and 30,000, the minimum parking length must be 100m. Flows above this level require a length of 150m.

3.38 Every second lay-by provided must be 150m in length to enable gardai to utilise the lay-by as an enforcement area if necessary.

3.39 An auxiliary deceleration lane must be provided at the entry to the lay-by, to enable vehicles to decelerate clear of the main carriageway. Similarly, a merging taper must be provided at the exit from the lay-by to allow for acceleration. The layouts of the entry and exit must be as indicated in Figure 3/2, with the lane and taper lengths as shown in the table included in Figure 3/2 for the 100km/h design speed. These requirements are similar to those of **NRA TD 41-42** for a major/minor priority junction.

3.40 At the discretion of the Head of Engineering of the National Roads Authority a variant of the Type B may be used on Motorways.

3.41 Kerbs shall be provided along the length of the facility including the tapers, auxiliary lanes, merges and diverges.

Type C Layout

3.42 The required lay-by layout for all-purpose use on Type 2 and Type 3 dual carriageways, Type C, is given in Figure 3/3.

3.43 The segregation island is offset from the running edge of the carriageway by 0.6m. This is a continuation of the 0.5m mainline hard strip.

3.44 The length of the Type C lay-by parking area will be a minimum of 50m. Where the two-way average annual daily traffic count at design year is forecast to be above 20,000 the minimum parking length must be 100m.

3.45 Every second lay-by provided must be 150m in length to enable gardai to utilise the lay-by as an enforcement area.

3.46 An auxiliary deceleration lane must be provided at the entry to the lay-by, to enable vehicles to decelerate clear of the main carriageway. Similarly, a merging taper of 110m should be provided at the exit from the lay-by to allow for acceleration. The layouts of the entry and exit must be as indicated in Figure 3/3, with the deceleration lane length as shown in the table included in Figure 3/3. These requirements are similar to those of **NRA TD 41-42** for a major/minor priority junction.

3.47 Kerbs shall be provided along the length of the facility including the tapers, auxiliary lanes, merges and diverges.

Type D Layout

3.48 The required reduced lay-by layout for use on Type 2 and Type 3 dual carriageways, Type D, is given in Figure 3/4.

3.49 The reduced lay-by layout is intended to provide a facility for a short duration stop that cannot be readily postponed to suit the spacing of Type C lay-bys.

3.50 The length of the Type C lay-by parking area is 30m.

3.51 The layout is immediately adjacent to the mainline and shall consist of a 45m diverge taper and 25m merge taper.

3.52 When the mainline is kerbed these shall continue around the lay-by, otherwise flush kerbs shall be provided to support the pavement edge whilst facilitating over-the-edge drainage.

Maintenance Lay-by Layout

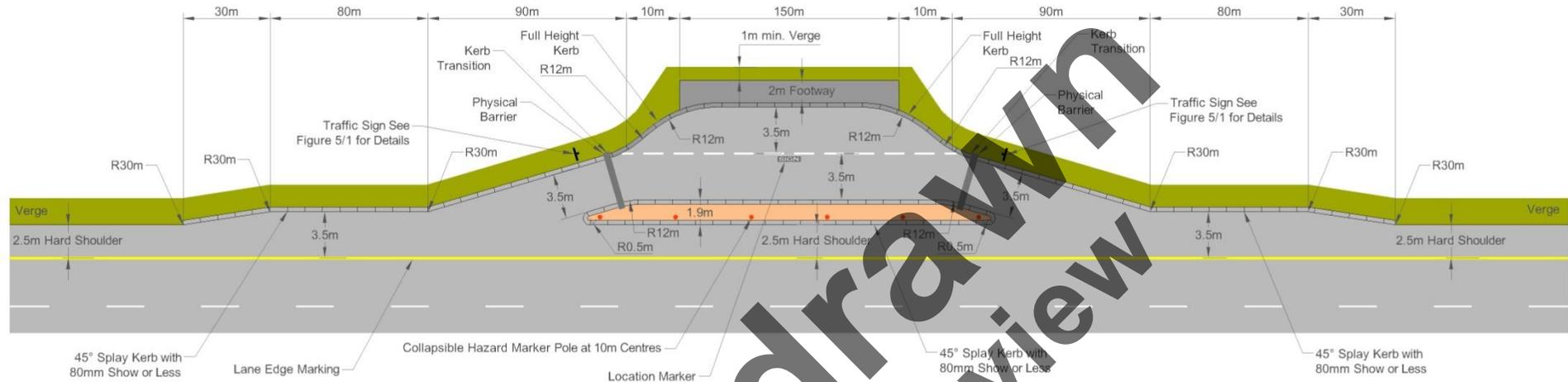
3.53 The suggested Maintenance Lay-by layout for use on Motorways and Type 1, 2 and 3 dual carriageways, as necessary, is given in Figure 3/5.

3.54 The length of the Maintenance Lay-by should be designed to accommodate the largest vehicle or vehicles expected to use them whilst allowing for safe access and egress of that vehicle or vehicles. As guidance, a minimum of 2.5 times the length of the typical vehicle expected to use the facility should be sufficient. There should also be enough space around the parked vehicle to allow free movement of maintenance personnel.

3.55 The layout shown in the Figure 3/5 is for guidance only. The Maintenance Lay-by should be appropriate to its location and intended use. The Design Organisation should consult with the National Roads Authority and Maintenance Organisation on the positioning and size of the lay-by.

3.56 The lay-by appearance should be such that it discourages the general public from using the facility. As such the cellular type construction that allows grass to grow through the surface is suggested.

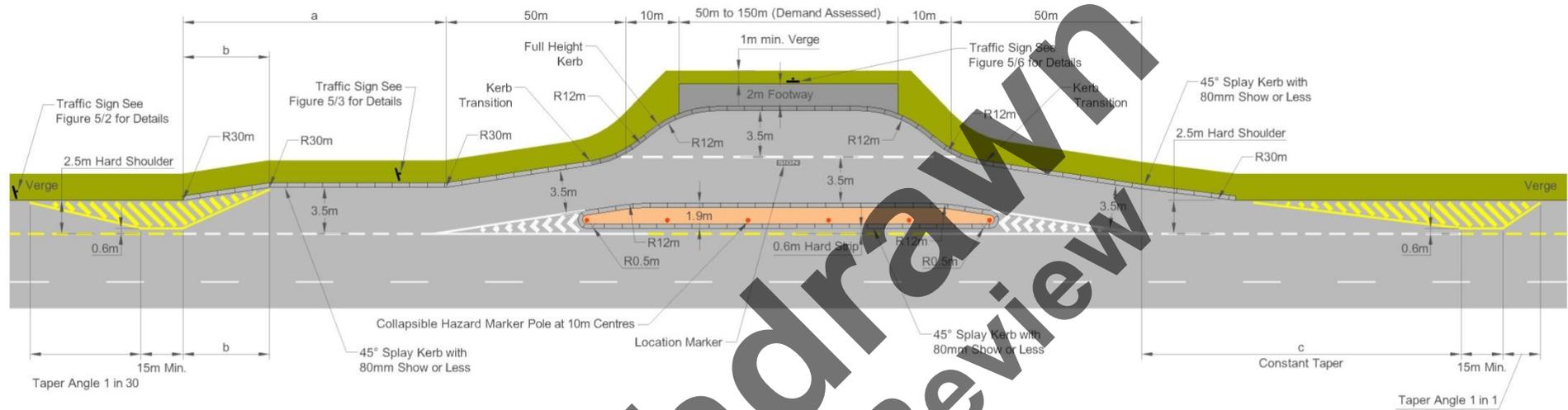
3.57 The selected form of construction for the Maintenance Lay-by should be appropriate for the vehicles/plant intended to use the facility.



Notes:

- 1) R is the kerb radius indicated.
- 2) See paragraphs 3.1 through 3.26 for general details.
- 3) See paragraphs 3.27 through 3.34 for specific details.
- 4) The physical barrier shall be detailed so as to avoid introducing a hazard within the clear zone.
- 5) Drawing not to scale.

Figure 3/1: Geometric Layout of Type A Lay-by

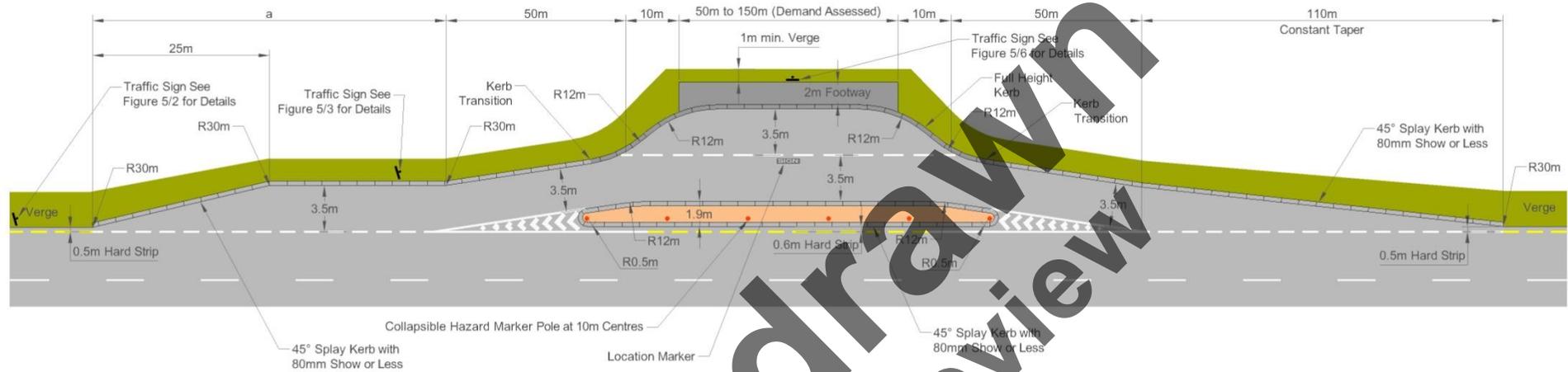


Notes:

- 1) a = deceleration length, b = direct taper length, c = merging length. See adjacent table for details.
- 2) R is the kerb radius indicated.
- 3) See paragraphs 3.1 through 3.26 for general details.
- 4) See paragraphs 3.35 through 3.41 for specific details.
- 5) Drawing not to scale.

Design Speed (km/h)	a Deceleration Length (m)				b Direct Taper Length (m)	c Merging Length (m)
	Up Gradient		Down Gradient			
	Above 4%	0 – 4%	0 – 4%	Above 4%		
120	80	110	110	150	30	130
100	55	80	80	110	25	110

Figure 3/2: Geometric Layout of Type B Lay-by

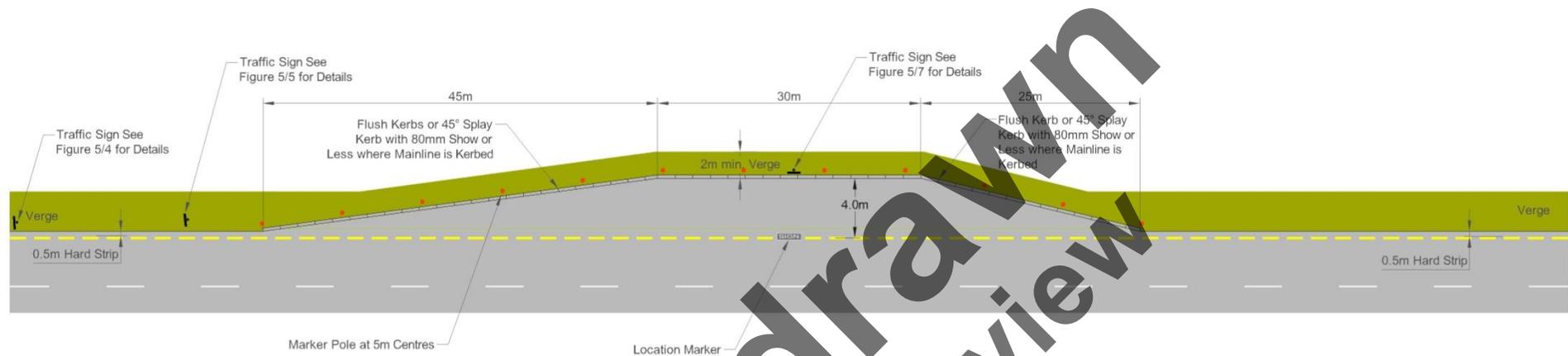


Notes:

- 1) a = deceleration length. See adjacent table for details.
- 2) R is the kerb radius indicated.
- 3) See paragraphs 3.1 through 3.26 for general details.
- 4) See paragraphs 3.42 through 3.47 for specific details.
- 5) Drawing not to scale.

Design Speed (km/h)	a Deceleration Length (m)			
	Up Gradient		Down Gradient	
	Above 4%	0 – 4%	0 – 4%	Above 4%
100	55	80	80	110

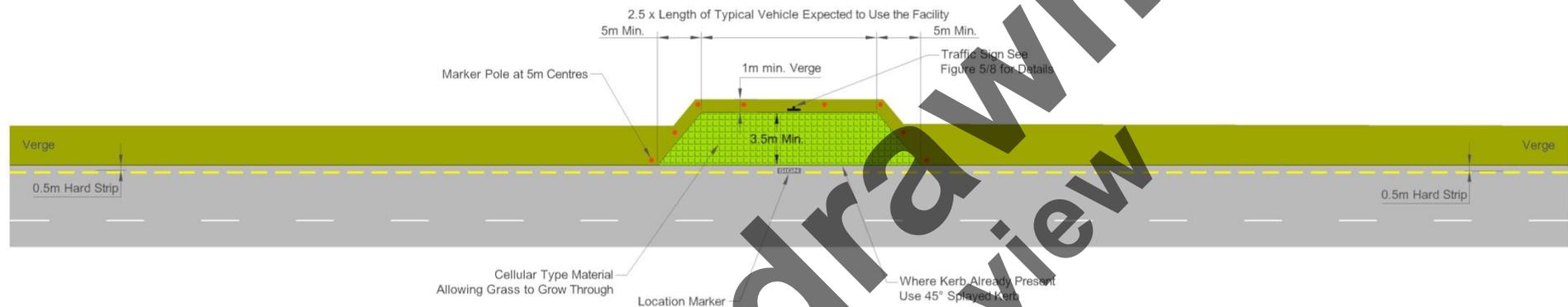
Figure 3/3: Geometric Layout of Type C Lay-by



Notes:

- 1) See paragraphs 3.1 through 3.26 for general details.
- 2) See paragraphs 3.48 through 3.52 for specific details.
- 3) Drawing not to scale.

Figure 3/4: Geometric Layout of Type D Lay-by



Notes:

- 1) See paragraphs 3.1 through 3.26 for general details.
- 2) See paragraphs 3.53 through 3.57 for specific details.
- 3) Drawing not to scale.

Figure 3/5: Geometric Layout of Maintenance Lay-by

4. SPACING AND SITING OF LAY-BYS

General

4.1 There are a number of factors that should be taken into account when considering the siting of lay-bys on rural Motorways and rural all-purpose dual carriageways. Table 4/1 gives some guidance. Siting affects the safety and operation of the lay-by and the land-take requirements for the scheme; consequently it is best considered at an early stage in the design process to reach a balanced solution.

4.2 Siting of lay-bys should particularly be avoided on the inside of curves and at locations near junctions and signage.

4.3 There is no need for lay-bys on opposing carriageways to be located opposite each other. It is better to separate them, so as to reduce the likelihood of pedestrians crossing the road.

4.4 The siting of lay-bys should be considered in an overall route strategy. This should include an assessment of junction locations, service areas and typical journey lengths.

4.5 Where practicable, at least one lay-by should be located on each carriageway between each pair of junctions.

4.6 A junction providing both an exit and entry to a single carriageway side road may provide opportunities for a short duration stop.

4.7 Provided that either a Type B or Type C lay-by of 150m in length, which enables gardai to undertake enforcement duties, is provided at a maximum of 25km spacing, then the lay-by spacing required in this chapter may be relaxed by counting a side road junction as a lay-by facility.

4.8 For the purposes of considering Relaxations in the geometric standards of **NRA TD 9** on the immediate approach to a lay-by, the lay-by shall be regarded as a 'junction'. Thus, the scope for Relaxations is severely restricted, in accordance with **NRA TD 9**, from a distance of 1.5 times the Desirable Minimum stopping sight distance upstream of the start of the diverge taper to the end of the merge taper. This requirement does not apply to Type A lay-bys or Maintenance Lay-bys.

Type A Spacing

4.9 A Type A lay-by is utilised as a garda enforcement area and is limited to use on Motorways.

4.10 The required frequency for a Type A lay-by is approximately every 25 kilometres for each carriageway.

4.11 Garda enforcement areas are included within service areas as per **NRA TA 70**. Type 2 Service Areas are located, on average, every 50 – 60 kilometres. Type 1 Service Areas are located as necessary. These should be considered when siting Type A lay-bys.

Type B Spacing

4.12 On Type 1 dual carriageways the required frequency for a Type B lay-by is approximately 10 kilometres. See also 3.38.

4.13 In accordance with paragraph 3.40 the Type B lay-by may be utilised, with certain amendments to its layout, on Motorways. However this use shall be possible only with the approval of Head of Engineering of the National Roads Authority who will also approve of its siting.

Type C Spacing

4.14 On Type 2 and Type 3 dual carriageways the required frequency for a Type C lay-by is approximately 10 kilometres. See also 3.45.

Type D Spacing

4.15 On Type 2 and Type 3 dual carriageways the required frequency for a Type D lay-by is approximately every 2.5 kilometres between Type C lay-bys.

Maintenance Lay-by Spacing

4.16 Maintenance Lay-bys are for use on Motorways and Type 1, 2 and 3 dual carriageways, as necessary to undertake maintenance operations.

4.17 The Maintenance Lay-by location must be agreed with the National Roads Authority and Maintenance Organisation.

**Withdrawn
Under Review**

Factor	Avoid	Preferred	Reason
Vertical and horizontal alignment of carriageway in vicinity of lay-by	<ul style="list-style-type: none"> • Inside of curves. • Sharp crests. • Bridges and other structures. 	<ul style="list-style-type: none"> • Carriageway visibility standards as contained in NRA TD 9 for desirable minimum or higher. • Visibility at entry and exit should conform to TD 41-42. 	To ensure adequate visibility for vehicles entering and leaving the lay-by and for traffic on the mainline if the lay-by is in the line of visibility.
Proximity of junctions	Location after any Advance Direction Signing or within countdown signs for exits off the main carriageway or near an entry from another road.	Location clear of junctions and signing.	To avoid confusion of the lay-by with a junction exit or entry, particularly at night.
Environment	Locations close to houses, woods and adjacent ground cover.	Open aspect.	<ul style="list-style-type: none"> • For security and to avoid nuisance to households. • To avoid noise intrusion. • To avoid visual intrusion. • To discourage pollution and soiling.
Earthworks	<ul style="list-style-type: none"> • Locations which require extensive earthworks. • High embankments. 	<ul style="list-style-type: none"> • Locations requiring minimal changes to the earthworks. • Locations which are not visually prominent. 	<ul style="list-style-type: none"> • To minimise cost (although the widening needed for lay-bys may help improve the earthworks balance). • To minimise visual intrusion
On-line improvement	Use of redundant carriageway as a lay-by without reference to design standards.	Use of standard layout.	<ul style="list-style-type: none"> • To ensure basic safety requirements of lay-bys. • To avoid misuse.
Facilities provided in a lay-by	<ul style="list-style-type: none"> • Provision of infrequently used services. • Under provision of services. 	Careful determination of needs.	<ul style="list-style-type: none"> • Under use can encourage vandalism. • Under provision can lead to soiling, litter or unwanted trading.
Misuse of lay-by	<ul style="list-style-type: none"> • Location near a train or bus interchange. • Use as a lorry park. • Long duration or overnight stops. 	Consider other needs for parking facilities.	<ul style="list-style-type: none"> • Location may encourage long stay parking and use as a park-and-ride facility. • Long term parking may prevent or discourage short duration stops.

Table 4/1: Siting Considerations

5. SIGNAGE AND ROAD MARKINGS FOR LAY-BYS

General

5.1 All signage and road markings shall be undertaken in accordance with the Traffic Signs Manual (TSM).

5.2 With the exception of Type A, lay-bys should be treated as a junction for road marking purposes.

5.3 All paved parking bays shall be delineated with a dashed white line.

5.4 Carriageway markings should have reflectorised studs in accordance with the Traffic Signs Manual.

5.5 Bifurcation arrows must not be used thereby avoiding road user confusion with junction exits.

5.6 With lay-bys located at regular intervals, drivers will have a choice whether or not to stop at a specific lay-by. Good advance signage assists in this decision and helps avoid sudden deceleration on the approach to the lay-by and attempts to enter the lay-by at too high a speed.

5.7 Segregation islands must have collapsible hazard marker poles to Figure 5/9 installed along the island to increase conspicuity, at intervals of no more than 10m.

Type A

5.8 The recommended road marking and signage layout for the Type A lay-by is given in Figure 3/1.

5.9 There are no road markings to indicate the presence of a garda enforcement area. When in use garda will set up temporary traffic signs and cones, as necessary, to direct traffic.

5.10 The yellow line edge marking continues throughout the lay-by and can only be crossed under gardai instruction or in emergencies.

5.11 Traffic sign Figure 5/1 will be located at either end of the lay-by.

Type B

5.12 The recommended road marking and signage layout for the Type B lay-by is given in Figure 3/2.

5.13 Hatching shall be used to delineate the start of the diverge (thereby closing the hard shoulder) and end the merge (thereby starting the hard shoulder). This hatching should terminate 600mm from the edge of the traffic lane to enable cyclists to remain within the hard shoulder without entering the hatched area.

5.14 Chevron hatching, in accordance with Chapter 7 of the TSM, shall be provided at each end of the segregation island.

5.15 The yellow dashed line edge marking becomes a white edge marking at the entrance and exit to the lay-by.

5.16 An advanced warning sign indicating that the lay-by is ahead, as shown in Figure 5/2, shall be installed 500m in advance of the lay-by.

5.17 A traffic sign, as shown in Figure 5/3, must be positioned on the verge alongside the start of the entry nose to the Type B lay-by.

5.18 A traffic sign, as shown in Figure 5/6, must be positioned at the centre-back of the footway. This sign informs the road user that parking for up to 1 hour is acceptable.

5.19 Alternative signage and road markings will be necessary if the Type B lay-by is to be used on a Motorway. This should be developed in consultation with the Head of Engineering of the National Roads Authority.

Type C

5.20 The recommended road marking and signage layout for the Type C lay-by is given in Figure 3/3.

5.21 Chevron hatching, in accordance with Chapter 7 of the TSM, shall be provided at each end of the segregation island.

5.22 The yellow dashed line edge marking becomes a white edge marking at the entrance and exit to the lay-by.

5.23 An advanced warning sign indicating that the lay-by is ahead, as shown in Figure 5/2, shall be installed 500m in advance of the lay-by.

5.24 A traffic sign, as shown in Figure 5/3, must be positioned on the verge alongside the start of the entry nose to the Type C lay-by.

5.25 A traffic sign, as shown in Figure 5/6, must be positioned at the centre-back of the footway. This sign informs the road user that parking for up to 1 hour is acceptable.

Type D

5.26 No road markings are used for the Type D lay-by. The yellow dashed line edge marking continues past the lay-by.

5.27 An advanced warning sign indicating that the lay-by is ahead, as shown in Figure 5/4, shall be installed 500m in advance of the lay-by.

5.28 A traffic sign, as shown in Figure 5/5, must be positioned on the verge at the start of the entrance to the Type D lay-by.

5.29 A traffic sign, as shown in Figure 5/7, must be positioned centrally in the verge as shown in Figure 3/4. This sign informs the road user that parking for up to 15 minutes is acceptable but pedestrians are not allowed.

5.30 Marker poles to Figure 5/10 must be installed in the verge surrounding the lay-by at intervals of no more than 5m.

Maintenance Lay-by

5.31 No road markings are used for the Maintenance Lay-by. The yellow dashed line edge marking continues past the lay-by.

5.32 A traffic sign, as shown in Figure 5/8, must be positioned centrally in the verge as shown in Figure 3/5. This sign informs the road user that parking in this lay-by is for authorised vehicles only.

5.33 Marker poles to Figure 5/10 must be installed in the verge surrounding the lay-by at intervals of no more than 5m, at least 0.5m offset from the lay-by surfacing.



Figure 5/1: Indicative "Garda Only" Traffic Sign



Figure 5/2: Indicative Advanced Warning Lay-by Traffic Sign



Figure 5/3: Indicative Lay-by Traffic Sign

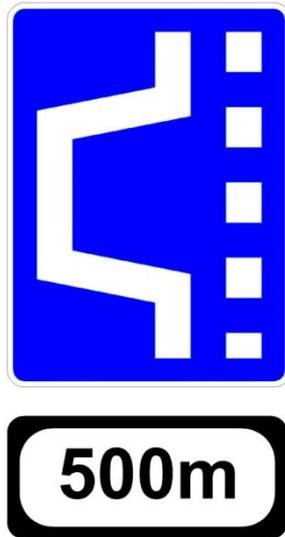


Figure 5/4: Indicative Advanced Warning Parking Traffic Sign

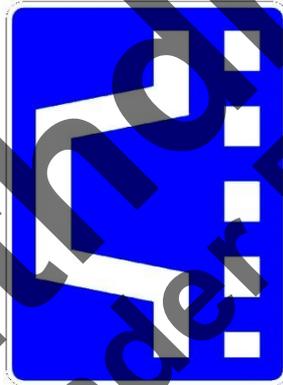


Figure 5/5: Indicative Parking Traffic Sign



Figure 5/6: Indicative Lay-by 1 Hour Duration Parking Traffic Sign



Figure 5/7: Indicative Lay-by 15 Minute Restricted Duration Parking Traffic Sign



Figure 5/8: Indicative No Parking “Except Authorised Vehicles” Traffic Sign

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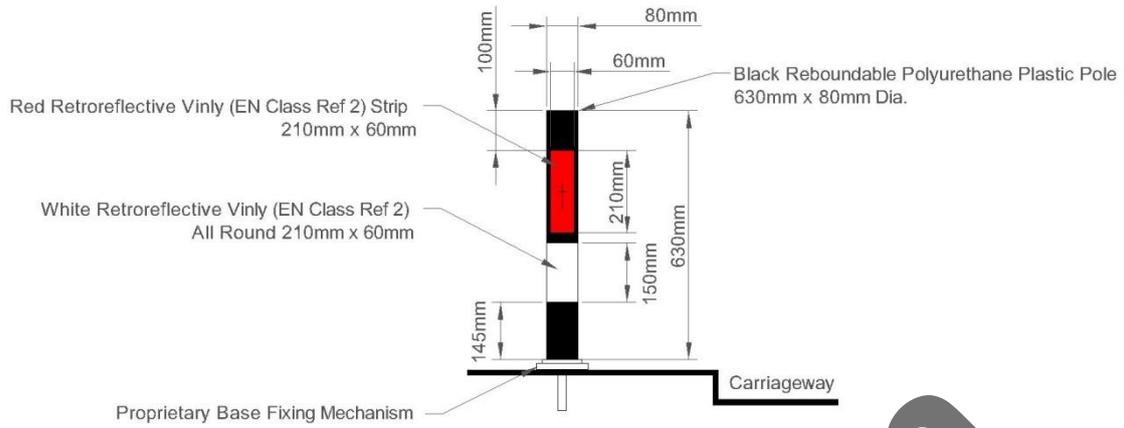


Figure 5/9: Collapsible Hazard Marker Pole

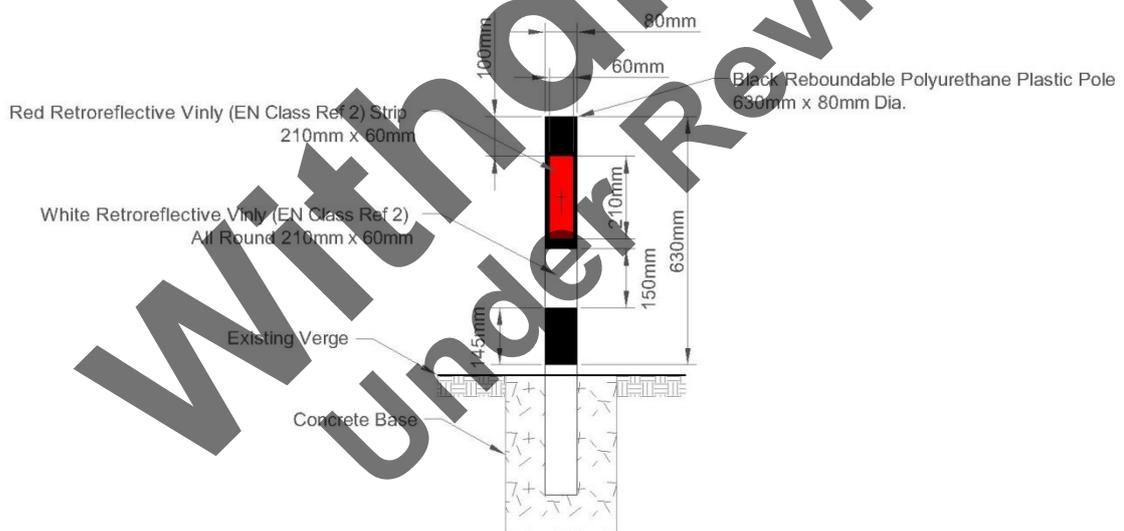


Figure 5/10: Marker Pole

6. LOCATION MARKERS

General

6.1 Location markers are to be included on all rural national road schemes.

6.2 The marking is a painted label on the road surface which indicates route number, direction, chainage and direction to the nearest emergency phone if appropriate. Chapter 7 of the TSM details the label.

6.3 The location marker scheme is administered by the National Roads Authority and as such all schemes must be submitted to, and approved by, the National Roads Authority prior to marking.

6.4 To avoid confusion when providing location information to emergency services, the chainage for each carriageway must be measured from the same end of the road.

6.5 The location marker is to be painted on the hard shoulder or hard strip, adjacent to the verge, to avoid traffic wearing. It must be orientated towards the carriageway.

Frequency

6.6 Location markers must be provided at intervals of 100m on each carriageway as per the TSM.

6.7 Location markers should be provided at each lay-by located centrally either on the road side of the parking bay or on the hard strip if no parking bay is provided.

7. REFERENCES

Design Manual for Roads and Bridges (DMRB),
Volume 6: Road Geometry:

NRA TD 9, Road Link Design (NRA DMRB
6.1.1).

TD 41-42, Geometric Design of Major/Minor
Priority Junctions and Vehicular Access to
National Roads (DMRB 6.2.6).

Roads Act, 1993.

Road Traffic (Signs) Regulations, 1997 (SI No.
181 of 1997).

Traffic Signs Manual, Department of the
Environment and Local Government.

**Withdrawn
Under Review**

8. ENQUIRIES

8.1 All technical enquiries or comments on these guidelines should be sent in writing to:

Head of Engineering
National Roads Authority
St Martin's House
Waterloo Road
Dublin 4



.....
Tim Ahern
Head of Engineering

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 Ionad Ghnó Gheata na Páirce,
Stráid Gheata na Páirce,
Baile Átha Cliath 8, D08 DK10, Éire

 www.tii.ie

 +353 (01) 646 3600

 Parkgate Business Centre,
Parkgate Street,
Dublin 8, D08 DK10, Ireland

 info@tii.ie

 +353 (01) 646 3601