

Engineering Construction Specification C20 Guide Posts

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1 General

1.1 Responsibilities

1.1.1 General

Requirement: Provide guide posts, delineators, and remove and dispose of existing posts, as documented.

1.1.2 Performance

Requirements: Guide posts with reflectorised delineators are placed in series in pairs on both sides of the road formation to indicate to road users the alignment of the roadway ahead, especially at horizontal and vertical curves. Properly installed and maintained retro-reflective delineators provide effective long-range delineation for night driving and can be an advantage in fog prone areas. Guideposts with delineators may also be used to alert drivers approaching an intersection, a drainage structure, or a rural driveway.

Guideposts shall be constructed so that when struck by a vehicle, they do not constitute a hazard to vehicle occupants.

Authority requirements: Retro-reflective delineators are generally mounted on white (rigid or flexible posts), with red delineators used on the left side of the carriageway and white delineators on the right.

1.2 Cross references

1.2.1 General

Requirement: This worksection is not a self-contained specification. In addition to the requirements of this worksection, conform to the following:

- *C01 General requirements (Construction)*
- *C02 Quality management (Construction)*
- *C03 Control of traffic*

1.3 Interpretation

1.3.1 Definitions

General: For the purposes of this worksection the following definitions apply:

- Delineator: Small retroreflectors or panels of retroreflective sheeting attached to guide posts to provide a coherent pattern of delineation of carriageway edges as an aid to night driving.
- Flexible guide post: A guide post that when impacted by a vehicle, deflects and returns to the vertical position without maintenance intervention.

1.3.2 Guide post

Post used to mark the edge of the road carriageway. They assist the road user by indicating the alignment of the road ahead, especially at horizontal and vertical curves, and in some cases, provide a gauge with which to assess available sight distance.

- Rigid guide post: A guide post which when impacted by a vehicle, fails by fracturing or remains intact and straight, but not vertical.
- Semi-flexible guide post: A guide post which when impacted by a vehicle, fails by bending but can be straightened with maintenance intervention.

1.4 Tolerances

1.4.1 Maximum guide post installation tolerances

Verticality: maximum of 10 mm from the true vertical position.

Height: 100 mm of the uniform profile height.

Location (in plan): In relation to the control line of the road, conform to the following:

- 200 mm longitudinally of the documented spacing.
- 100 mm transversely of the documented position.

1.5 Submissions

1.5.1 Design documentation

Set-out drawings: Submit set-out of post locations.

1.5.2 Execution details

Guide posts fixed to concrete pavements: Submit details of post fixing to the concrete.

Proprietary guide posts: Submit manufacturer's instructions for anchorage.

1.5.3 Products and materials

Post product data: Submit details of the proposed guide post including the following:

- Type of material.
- Manufacturer's recommended installation procedures.
- Technical specifications.

1.5.4 Tests

Requirement: Submit results, as follows:

- Post strength.
- Flexibility.
- Impact and heat and cold resistance.
- Durability.

1.5.5 Warranties

Manufacturer's warranty: Submit the manufacturer's published product warranties. Supply warranty documents with Work as Executed details

1.6 Inspections

1.6.1 Notice

General: Give notice so that inspection may be made of the following:

- Location of guide posts: Completed post set-out.
- Installation of guide post:
 - Posts set in natural ground: After completion of backfilling for posts.
 - Posts set in concrete pavement: After completion of post fixings.
- Removal and disposal of existing guide posts: Completed reinstatement of surrounding material including backfilling.

2 Materials

2.1 General

2.1.1 Guide post materials

Flexible guide posts: Plastic, rubber or similar.

Semi-flexible guide posts: Plastic, metal or other.

Rigid guide posts: Not used

2.1.2 Guide post selection table

Post type	Traffic and road condition
Flexible guide posts	<ul style="list-style-type: none">• Posts are likely to be struck by vehicles, e.g. tight curves and narrow shoulders.• Roads with high volumes of motor cycles or bicycles.
Guide posts hinged at ground level	
Timber or semi-flexible guide posts	<ul style="list-style-type: none">• Not used

2.2 Proprietary non-timber posts

2.2.1 General

Type and material: Metallic or flexible, driveable or non-driveable, posts.

Surface finish of posts: Durable gloss or semi-gloss opaque white which is smooth and easy to clean.

- Colour: Whiter than Y35 Off White of AS 2700.

Resistance to impact: Post is resistant to overturning, twisting and displacement from wind and impact forces when installed in the ground to the manufacturer's recommendations.

2.2.2 Dimensions

Minimum height above ground surface: 1400 ± 100 mm.

Minimum width of post above ground: One face of 100 ± 5 mm.

2.2.3 Anchorage

Requirement: Resistant to bending, twisting and displacement by wind and/or impact forces.

Resistance to removal: Cannot be removed by persons other than personnel using recommended removal tools.

2.2.4 Markings

Traceability: Mark each post legibly and indelibly with the following:

- Name of the supplier.
- Month and year of manufacture.

Letter size: 5 to 10 mm high.

Marking placement: On at least one side and 500 mm from the top of the post.

Marking of ground level: Mark 1000 mm from the top of the post.

2.2.5 End treatment

Top cap: Fit posts manufactured from thin walled hollow sections or sheet material less than 10 mm thick with a cap on the top of the post.

Cap dimensions: Cover the whole top of the post.

- Minimum dimensions: 100 x 25 mm.

Cap type: Rounded with no sharp edges, and of the same colour and durability as the guide post.

Attachment: Attach cap so that it cannot be dislodged from the post by a force of 500 N pulling on the cap in a direction away from the post.

Top of plastic posts: Have rounded edges and corners.

2.2.6 Physical properties and performance

Durability: No deterioration of post material after minimum 720 hours under accelerated weatherometer testing.

2.3 Non-timber post tests

2.3.1 As per manufacturers specifications

2.4 Timber posts

Not used

2.5 Delineators

2.5.1 General

Properties: To AS/NZS 1906.2.

Type: Provide one of the following for each post:

- Corner-cubed: 80 to 85 mm diameter.
- Class 1A retroreflective sheeting:
Minimum area: 0.01 m².
Minimum width: 50 mm.

Colour: To AS 1742.2 clause 4.2.5.2.

3 Execution

3.1 Establishment

3.1.1 Safety

Precautions: Restrict site access to prevent people and stock from stepping into the post holes during the erection of posts.

3.1.2 Existing underground services

Services laid in close proximity to the guide posts: Locate before placement of footings and protect from damage.

3.1.3 Location of guide posts

Location: To AS 1742.2 and as documented.

Placement: Place posts at a uniform distance from the pavement edge and as follows:

- Shoulder adjacent to an embankment or at the surrounding natural surface level: Place post so that the inside edge is in line with the outside edge of the shoulder.
- Shoulder located in a cutting: Place post on the road pavement side of the table drain so that it does not impede water flow in the drain.

3.2 Installation of guide posts

3.2.1 Positioning

Requirement: Set posts vertically in the shoulder pavement as follows:

- Embedded depth:
Flexible and semi-flexible guide posts: As per manufacturers details.
- Shoulder irregularities: Vary embedded depth to provide uniform post height above ground level, with the tops evenly graded.
- Post position in relation to road: Install each post with 100 mm axis at right angles to the centre line of the road.

3.3 Location

Guide posts shall be erected at the locations shown on the drawings or as directed.

Underground services laid in proximity to the guideposts shall be located prior to erection of posts, and all care shall be taken to not damage such services.

3.3.1 Vertical alignment

Post height allowance: To keep the posts within the range of the beam of vehicle headlights, allow for the effects of superelevation and other road geometry.

3.3.2 Posts installed in natural ground

Timber posts: Do not install by driving into ground.

Posts for which driving is not recommended: Erect inside excavated holes. Backfill and compact around post after erection.

3.3.3 Backfilling

Backfill material: Use the excavated material. If relative compaction cannot be achieved using the excavated material, use imported fill and remove excavated material from site.

Imported backfill properties: Similar to the shoulder material.

Backfilling and compacting: Backfill the posts firm in the ground as follows:

- Compact in layers not more than 150 mm for the full depth of the post up to ground level.
- Density of the compacted backfilling: Not less than that of the adjacent undisturbed ground.
- Relative compaction of the compacted backfill material: Not less than that of the adjacent shoulder material.
- Safety during installation

All necessary steps shall be taken to prevent people and stock from stepping into the post holes during the erection of the guideposts

3.4 Delineators

3.4.1 Fixing

Delineator position: Centrally locate delineators between the edges of the post, with the top of each delineator finishing 50 to 100 mm below the top of the post.

Fixings: Fix the delineators to the post so that they are weatherproof and vandal resistant, and can be replaced without damaging the post.

- Timber posts: Fix corner-cubed delineators to post with one-way, anti-theft screws.
- Proprietary posts: Glue or fasten so that delineators cannot be dislodged by vehicular impact.

Corner-cube delineators that can be damaged by vehicular impact: Do not use on flexible or semi-flexible guide posts.

Arrangement: Arrange the delineators so that drivers approaching from either direction will see only red delineators on their left side and white delineators on their right side.

Consistency: Provide the same type of delineator on each post for a minimum distance of 2 km. Do not change delineator type within this distance.

3.5 Existing guide posts

3.5.1 Removal and disposal of existing guide posts

Removal: Extract and dispose of all posts and other in-ground components and materials, as documented.

Backfilling: Backfill all holes after removal of existing guide posts and compact to the relative compaction of the surrounding shoulder material in maximum 150 mm deep layers.

- Imported backfill material properties: Similar to the shoulder material.

Recycle: Existing posts manufactured from recyclable materials.

4 Annexures

4.1 Annexure – Summary of hold and witness points

Reference No:	Clause and description	Type*	Submission/Inspection details	Submission/Notice times	Process held
C20-HP01	SUBMISSIONS, Products and materials Post product data	H	Details of proposed guide posts.	2 weeks before manufacturing	Material ordering and delivery
C20-HP02	SUBMISSIONS, Design documentation Set-out drawings	H	Set-out drawings of post location.	5 days before installation	Post installation
C20-HP03	SUBMISSIONS, Execution details Guide posts fixed to concrete pavement	H	Details of post fixing to the concrete.	5 days before installation	Post installation
C20-WP04	INSPECTIONS, Notice Location of guide posts	W	Completed post set-out.	5 days before installation	Post installation
C20-WP05	INSPECTIONS, Notice Installation of guide posts	W	Completed post installation.	1 day before inspection	-
C20-WP06	INSPECTIONS, Notice Removal and disposal of existing guide posts	W	Completed reinstatement of surrounding materials.	1 day before inspection	-
*H = Hold Point, W = Witness Point					

4.2 Annexure - Referenced documents

The following documents are incorporated into this worksection by reference:

AS 1742		Manual of uniform traffic control devices
AS 1742.2	2009	Traffic control devices for general use
AS 1906		Retroreflective materials and devices for road traffic control purposes

Council's Standard Drawings
RMS Standards