

STANDARD POSTS
(Used when traffic sign installation is protected by a traffic barrier)

Stiffener Connection Strap Design Criteria

Selection of strap type shall be determined from the table below. This table defines maximum Strap Loaded Area for each strap type and stiffener type. Strap Loaded Area is the product of the post spacing and the stiffener spacing. Alternative straps (listed in the table "Straps Approved by Testing" on SD 1364) shall be tested to meet the following pull out test criteria :

Failure modes	Design Load (kN)	Factor of safety	Characteristic test load **
All modes to strap or bolt failure	10	2.5	25
All modes to aluminium stiffener flanges failure	10	1.5	15

** Where insufficient tests have been carried out to obtain a statistically significant number of results to determine characteristic test value, a nominal test value multiplied by 0.8 may be taken as characteristic test value.

The stiffener connection strap shall have two bolted connections to the stiffener.
TMR approved proprietary strap types are shown in the 'Product Index for Bridges and Other Structures'.

MAX STRAP LOADED AREA for Wind Region B to AS/NZS 1170.2

	Strap Type as per SD 1364		
	Type 1	Type 2	'SIGNIFIX' HRH 1510 CH and HRH 2010 CH
Stiffener Type 1	1.1m ² max	1.1m ² max	1.1m ² max
Stiffener Type 2	1.5m ² max	1.5m ² max	1.5m ² max

MAX STRAP LOADED AREA for Wind Region C to AS/NZS 1170.2

	Strap Type as per SD 1364		
	Type 1	Type 2	'SIGNIFIX' HRH 1510 CH and HRH 2010 CH
Stiffener Type 1	0.7m ² max	0.7m ² max	0.7m ² max
Stiffener Type 2	1.0m ² max	1.0m ² max	1.0m ² max

- NOTES for STANDARD POSTS only:**
- GENERAL NOTES:
- G1. Standard traffic sign support design which includes support and stiffener spacing as well as sign and stiffener overhang limits, in various soil and wind categories, shall be limited to specifications set down in the Design Guide for Roadside Signs or automated design tool TraSiS. A specific structural engineered design shall be required for installations having specifications falling outside those found in the Design Guide.
 - G2. Refer to MUTCD guidelines for sign clearances from kerb face and shoulder edge and sign orientation to road.
 - G3. Refer to Standard Drawing 1369 for dimensions, specifications and fixing of aluminium panel stiffener rails.
 - G4. Selection of foundation type and strength category shall be approved by the Project Administrator.
 - G5. Optional erection cleats shall be provided on RHS posts only, as required.
 - G6. Footing depth 'L' is embedment length into soil of strength category tabulated. Disregard loose top soil and fill when measuring footing depth.
 - G7. Loc-socket or similar systems can be used with 60.3 OD posts. Refer Standard Drawing 1368.
 - G8. Dimensions are in millimetres unless shown otherwise.

- STEEL NOTES:
- S1. Steelwork shall be fabricated to the requirements of MRTS78.
 - S2. CHS and RHS tube shall be to AS/NZS 1163. Steel plate shall be Grade 250 to AS/NZS 3678. Flat bar shall be Grade 300 to AS/NZS 3679.1. ZINC HI-TEN, or other approved equivalent hot rolled steel products, shall be Grade G450 to AS/NZS 1365.
 - S3. Bolts Class 8.8, nuts Class 8 and washers for Class 8 bolts to AS/NZS 1252, thin nuts Class 5 to AS 1112.4.
 - S4. All bolts and nuts shall be hot dipped galvanized to AS 1214. All other steelwork to be hot dip galvanized to AS/NZS 4680 unless shown otherwise. Prior to galvanizing all weld splatter and welding slag is to be removed.
 - S5. Welding symbols shall conform to AS 1101.3.
 - S6. All welding shall be to AS/NZS 1554.1. All welds, except location tack welds, shall be SP category. Welding consumables shall be controlled hydrogen type: for RHS and CHS shall be G493 to AS/NZS ISO 14341-B, or T493 to AS/NZS ISO 17632-B.

- CONCRETE NOTES:
- C1. Concrete shall be S32/20 to MRTS70.
 - C2. Concrete shall be poured directly against augered hole.
 - C3. Mechanically vibrate full depth of concrete.
 - C4. Concrete shall be minimum 7 days old and minimum 25MPa before sign erection.

- ASSOCIATED DEPARTMENTAL DOCUMENTS:
- Manual of Uniform Traffic Control Devices (MUTCD)
 - Design Guide for Roadside Signs
 - Product Index for Bridges and Other Structures

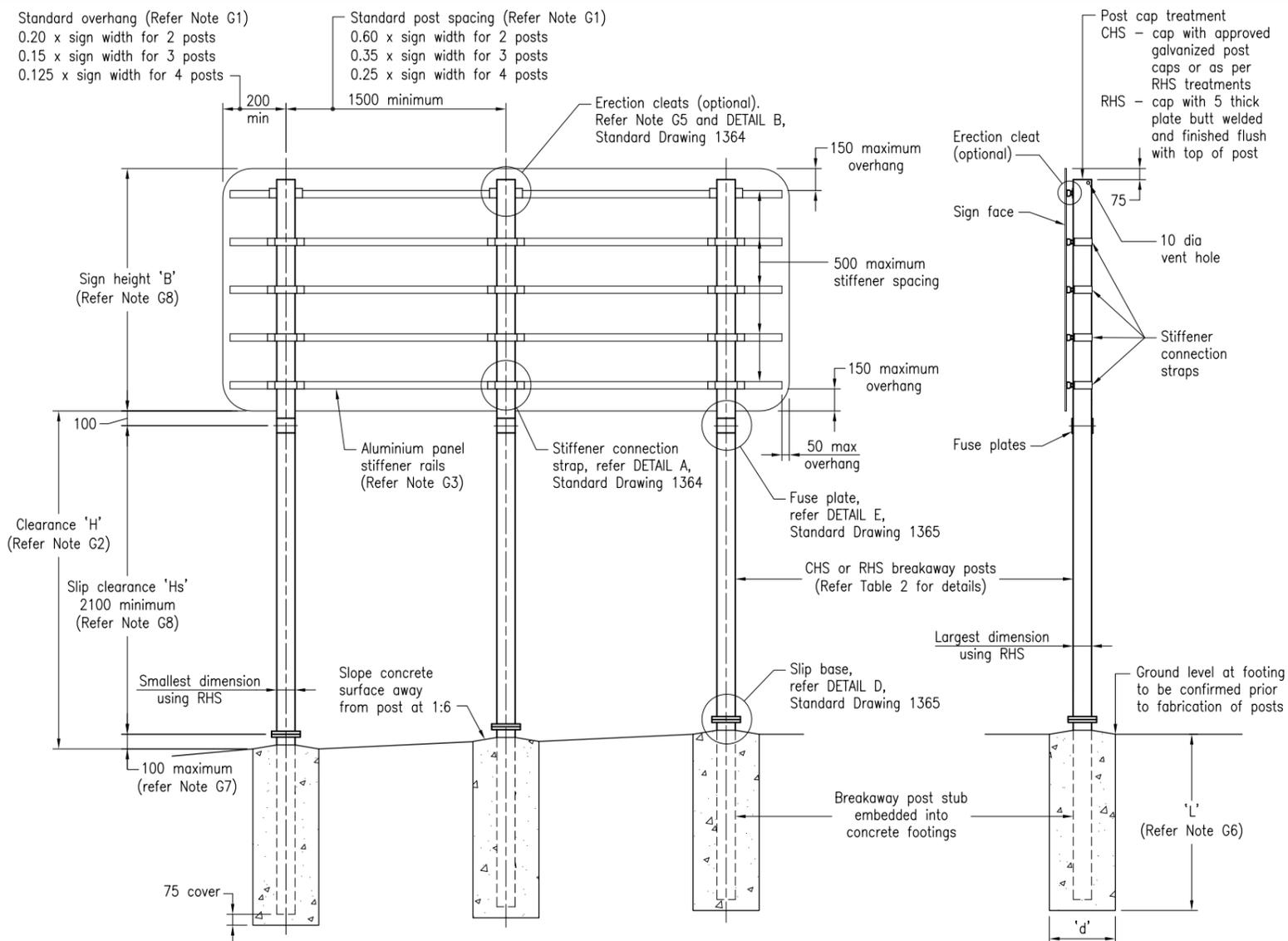
- REFERENCED DOCUMENTS:
- Departmental Standard Drawings:
- 1364 Traffic Sign - Connection Strap and Erection Cleat Details
 - 1368 Traffic Sign - Single Traffic Sign Support
 - 1369 Traffic Sign - Details of Sign Stiffening Extrusion

- Departmental Specifications:
- MRTS14 Road Furniture
 - MRTS70 Concrete
 - MRTS78 Fabrication of Structural Steelwork

POST SPECIFICATION				FOOTINGS (Refer Note G4)							
	POST DIMENSIONS	WALL THICKNESS	GRADE	COHESIVE CLAY SOILS				COHESIONLESS SAND SOILS			
				FIRM TO STIFF		VERY STIFF		LOOSE TO MEDIUM		DENSE	
				'd'	'L'	'd'	'L'	'd'	'L'	'd'	'L'
CHS	60.3 OD	2.9	C350LO	300	450	300	450	300	750	300	750
	76.1 OD	3.2	C350LO	300	700	300	500	300	1000	300	800
	88.9 OD	3.2	C350LO	300	900	300	600	300	1100	300	900
	101.6 OD	3.2	C350LO	450	750	300	750	300	1200	300	1000
	114.3 OD	3.6	C350LO	450	900	450	700	450	1200	300	1200
	139.7 OD	3.5	C350LO	450	1200	450	800	450	1350	450	1200
	139.7 OD	5.0	C250LO	450	1200	450	800	450	1350	450	1200
	165.1 OD	3.5	C350LO	600	1300	450	1100	450	1600	450	1300
RHS	75 x 50	3.0	DualGrade C350LO/C450LO	300	900	300	600	300	1100	300	900
	100 x 50	4.0	DualGrade C350LO/C450LO	450	900	450	700	450	1200	300	1200
	125 x 75	3.0	DualGrade C350LO/C450LO	450	1200	450	800	450	1350	450	1200
	125 x 75	5.0	DualGrade C350LO/C450LO	600	1300	450	1100	450	1600	450	1300
	150 x 100	5.0	DualGrade C350LO/C450LO	600	1500	600	1000	450	1700	450	1400
	200 x 100	5.0	DualGrade C350LO/C450LO	600	1800	600	1300	450	2000	450	1700

TABLE 1

Department of Transport and Main Roads			
TRAFFIC SIGN			
MULTIPLE TRAFFIC SIGN SUPPORT		A3	Standard Drawing No
DRAWING 1 OF 2		Not to Scale	1363
STANDARD POSTS			Date 7/18



Stiffener Connection Strap Design Criteria

Selection of strap type shall be determined from the table below. This table defines maximum Strap Loaded Area for each strap type and stiffener type. Strap Loaded Area is the product of the post spacing and the stiffener spacing. Alternative straps (listed in the table "Straps Approved by Testing" on SD 1364) shall be tested to meet the following pull out test criteria :

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The stiffener connection strap shall have two bolted connections to the stiffener.

TMR approved proprietary strap types are shown in the 'Product Index for Bridges and Other Structures'.

MAX STRAP LOADED AREA for Wind Region B to AS/NZS 1170.2

	Strap Type as per SD 1364		
	Type 1	Type 2	'SIGNIFIX' HRH 1510 CH and HRH 2010 CH
Stiffener Type 1	1.1m ² max	1.1m ² max	1.1m ² max
Stiffener Type 2	1.5m ² max	1.5m ² max	1.5m ² max

MAX STRAP LOADED AREA for Wind Region C to AS/NZS 1170.2

	Strap Type as per SD 1364		
	Type 1	Type 2	'SIGNIFIX' HRH 1510 CH and HRH 2010 CH
Stiffener Type 1	0.7m ² max	0.7m ² max	0.7m ² max
Stiffener Type 2	1.0m ² max	1.0m ² max	1.0m ² max

NOTES for BREAKAWAY POSTS only:

GENERAL NOTES:

- Standard traffic sign support design which includes support and stiffener spacing as well as sign and stiffener overhang limits, in various soil and wind categories, shall be limited to specifications set down in the Design Guide for Roadside Signs or automated design tool TraSIS. A specific structural engineered design shall be required for installations having specifications falling outside those found in the Design Guide.
- Refer to MUTCD guidelines for sign clearances from kerb face and shoulder edge and sign orientation to road.
- Refer to Standard Drawing 1369 for dimensions, specifications and fixing of aluminium panel stiffener rails.
- Selection of foundation type and strength category shall be approved by the Project Administrator.
- Optional erection cleats to be provided on RHS posts only, as required.
- Footing depth 'L' is embedment length into soil of strength category tabulated. Disregard loose top soil and fill when measuring footing depth.
- Refer to Standard Drawing 1365 for breakaway post slip base to ground clearances.
- Minimum slip clearance 'Hs' is 2100. When panel Sign height 'B' is greater than 1.65 x 'H', select supports one size up from that derived from the graphs found in the Design Guide for Roadside Signs. (TraSIS automatically compensates).
- Dimensions are in millimetres unless shown otherwise.

STEEL NOTES:

- Steelwork shall be fabricated to the requirements of MRTS78.
- CHS and RHS to AS/NZS 1163. Steel plate shall be Grade 250 to AS/NZS 3678. Flat bar shall be Grade 300 to AS/NZS 3679.1. ZINC HI-TEN, or other approved hot rolled steel products, shall be Grade G450 to AS/NZS 1365.
- Bolts Class 8.8, nuts Class 8 and washers for Class 8 bolts to AS/NZS 1252, thin nuts Class 5 to AS 1112.4.
- All bolts and nuts shall be hot dipped galvanized to AS 1214. All other steelwork shall be hot dip galvanized to AS/NZS 4680 unless shown otherwise. Prior to galvanizing all weld splatter and welding slag is to be removed.
- Welding symbols shall conform to AS 1101.3.
- All welding shall be to AS/NZS 1554.1. All welds, except location tack welds, shall be SP category. Welding consumables shall be controlled hydrogen type: for RHS and CHS shall be G493 to AS/NZS ISO 14341-B, or T493 to AS/NZS ISO 17632-B.

CONCRETE NOTES:

- Concrete shall be S32/20 to MRTS70.
- Concrete shall be poured directly against augered hole.
- Mechanically vibrate full depth of concrete.
- Concrete shall be minimum 7 days old and minimum 25MPa before sign erection.

ASSOCIATED DEPARTMENTAL DOCUMENTS:

- Manual of Uniform Traffic Control Devices (MUTCD)
- Design Guide for Roadside Signs
- Product Index for Bridges and Other Structures

REFERENCED DOCUMENTS:

- Departmental Standard Drawings:
- 1364 Traffic Sign - Connection Strap and Erection Cleat Details
 - 1365 Traffic Sign - Traffic Sign Support Breakaway Post Details (Two or more Supports)
 - 1368 Traffic Sign - Single Traffic Sign Support
 - 1369 Traffic Sign - Details of Sign Stiffening Extrusion

Departmental Specifications:

- MRTS14 Road Furniture
- MRTS70 Concrete
- MRTS78 Fabrication of Structural Steelwork

POST SPECIFICATION				FOOTINGS (Refer Note G4)							
	POST DIMENSIONS	WALL THICKNESS	GRADE	COHESIVE CLAY SOILS				COHESIONLESS SAND SOILS			
				FIRM TO STIFF		VERY STIFF		LOOSE TO MEDIUM		DENSE	
				'd'	'L'	'd'	'L'	'd'	'L'	'd'	'L'
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RHS	75 x 50	3.0	DualGrade C350LO/C450LO	300	900	300	600	300	1100	300	900
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	200 x 100	5.0	DualGrade C350LO/C450LO	600	1800	600	1300	450	2000	450	1700

BREAKAWAY POSTS
(Used when traffic sign installation is not protected by a traffic barrier)

TABLE 2

Department of Transport and Main Roads			
TRAFFIC SIGN			
MULTIPLE TRAFFIC SIGN SUPPORT		A3	Standard Drawing No
DRAWING 2 OF 2		Not to Scale	1363
BREAKAWAY POSTS			Date 7/18