

**Figure 5-397.154**

**Metal Railing (Type M-1) for Bikeways on Concrete Parapet (Type P-1)**

Approved, and signed, December 2, 2015. Last date revised: February 27, 2019.

**Revised 02-27-2019**

At GENERAL NOTES:

- Changed 7<sup>th</sup> note from “See special provisions for paint to be applied to metal railing” to “See special provisions for coating to be applied to metal railing.”
- Changed the Designer Note pointing to the 3<sup>rd</sup> general note from “Designer shall consult with Bridge Office Architectural Specialist. Change note accordingly.” to “Designer shall consult with Bridge Office Architectural Specialist to choose one option (normal or plumb) and delete the other.”
- At end of 3<sup>rd</sup> general note added italics and bold font to “[ Normal to grade or plumb ]”.

THROUGHOUT the STANDARD:

- Updated the weld symbols at multiple locations.

**Revised 02-22-2018**

At the INSIDE ELEVATION OF RAILING:

- Changed the height and dimension of the concrete parapet *from 2'-4" to 2'-8"*.
- Changed note *from* “See Fig. 5-397.166 for joint details” *to* “See concrete parapet plan sheet for joint details.”
- Changed the look of the drawing at the base of the parapet to show the brush curb and the top portion of the raised sidewalk.

At the SECTION A-A:

- Changed the height and dimension of the concrete parapet *from 2'-4" to 2'-8"*.
- Changed note *from* “See Fig. 5-397.166 for parapet details” *to* “See concrete parapet plan sheet for joint details.”
- Changed the note pointing to the top of the deck or sidewalk to: “Top of raised sidewalk shown ©.”
- Changed the look of the location where the parapet and sidewalk meet to show the parapet mounted on a sidewalk.

At GENERAL NOTES:

- Within numbered note©, replaced “Standard Figure 5-397.166” with “concrete parapet plan sheet”.
- At numbered note©, Changed note to read: “For non-raised sidewalk, see concrete parapet sheet.”

At the DESIGNER NOTE above section A-A: within the note, changed the “35 mph” *to* “45 mph”.

Added DESIGNER NOTE: “Parapet shown based on standard figure 5-397.166”.

**Re-approved 12-02-2015**

This standard was updated to remove all of the reinforcement and details regarding the concrete parapet, as that information is now provided on Std. Figure 5-397.166. The statement regarding the railing meeting NCHRP TL-2 was also removed as that is a function of the parapet, not the railing. The title of the standard was also updated.

The following additional changes were made:

At INSIDE ELEVATION OF RAILING:

- The reinforcement was removed from the parapet.
- The top and bottom rails were changed from C 3 x 4.1 to C 3 x 6.
- Reference to the abutment wingwall and bridge superstructure were eliminated.
- A 12” minimum spacing between the rail post and adjacent control joint was added.
- The maximum post spacing was changed from 10’ to 8’.
- A designer note and updated note regarding the joint opening was added.
- Added circled notes at the light pole.

**Minnesota Department of Transportation – Bridge Office**  
**REVISION LOG for Figure 5-397.154**

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At SECTION B-B (Now A-A):

- Section B-B was changed to Section A-A.
- The reinforcement was removed.
- The shape of the parapet was changed to reflect that shown on Std Figure 5-397.166.
- Added a designer note stating “For roadway design speeds greater than 35 mph, ornamental railings must be protected by a traffic barrier.”

At DETAIL A and DETAIL B:

- The weld symbols were corrected, the detail was expanded, and the size of the steel end plate was added.

At RAILPOST BASE PLATE:

- The baseplate thickness was changed from 1/2” to 3/4”.
- The weld between the railpost and baseplate was changed from 3/8” to min. weld.

At END RAILPOST DETAIL:

- The channel members were changed from C 3 x 4.1 to C 3 x 6.
- The weld symbols were updated and the 1/4” welds were changed to minimum weld size required by code.

At INTERMEDIATE RAILPOST DETAIL:

- The 1/4” welds were changed to minimum weld size required by code.

At TYPICAL RAILPOST DETAIL:

- The channel members were changed from C 3 x 4.1 to C 3 x 6.
- The weld between the railpost and baseplate was changed from 3/8” to min. weld.
- The width and details regarding the parapet were updated to match Std Figure 5-397.166.
- The note regarding shims was removed.

The following details/tables were removed:

DEFLECTION JOINT DETAIL

RAIL RUSTICATION

GUARDRAIL CONNECTION DETAIL

SECTION B-B

The following details/tables were removed (cont'd):

SECTION C-C

BILL OF REINFORCEMENT TABLE

All reinforcement bend details

At GENERAL NOTES:

The notes were completely rewritten in active voice and updated to conform to current requirements for ornamental metal railings, including updates to the adhesive anchor requirements. New notes were added for the anchorages including minimum embedment and torque requirements. A new note was added for continuous grounding of the railing.

**Revised 04-17-2013**

This standard was updated to convert reinforcing bar marks from metric to U.S. customary bar designations.

**Approved, and signed, December 18, 2003.**