

B920

Temporary Portable Precast Concrete Barrier Anchorage to Concrete (Temporary Usage in Limited Barrier Displacement Areas)

Approved, and signed, April 9, 2020. Last date revised: April 21, 2021.

Revised 04-21-2021

Under NOTES:

- Changed the last sentence of circled note ① from "See special provisions for additional requirements." to "Refer to the approved/qualified products list and the special provisions for additional requirements."

Approved 04-09-2020

General:

Added note inside rectangular box at center of sheet "Anchored Barrier Meets MASH TL-3 Requirements".

At Designer Note at lower left corner:

Removed "Refer to MnDOT LRFD Manual "Memo to Designers" "2019-01" for Guidance on Edge Distance" and replaced with "Refer to MnDOT BDM "Memo to Designers" #2019-01 and "Temporary Barrier Guidance Manual" Table 3-3 for Guidance on Deflection Distance."

At Notes:

Replaced "per" with "in accordance with".

Removed 2nd sentence "All structural steel to be spec. 3306 unless otherwise noted." and replaced with "Plate washers to be structural steel in accordance with spec. 3306."

In circled notes ③ and ④ changed 5½" minimum embedment to 6".

Revised 01-30-2019

At ANCHORAGE DETAILS: Removed all references to approach panel because anchoring to approach panels is covered in the *Temporary Barrier Guidance Manual* and Standard Plan 5-297.680.

Under NOTES: Changed the 5th note from "Do Not Use on Bridges or Approach Panels with a Bituminous Overlay." to "Do Not Use Option 2 on Bridges with a Bituminous Overlay."

Changed circled note ③ from "5½" Minimum and 6" Maximum for Bridge Decks with Top Mat Reinforcement and Sound Concrete. 9" Minimum and 10½" Maximum for Sound Concrete Approach Panels." to "5½" Minimum for Bridge Decks with Top Mat Reinforcement and Sound Concrete." This was changed because the max depth is already covered by circled note ② and because anchoring to approach panels is covered in the *Temporary Barrier Guidance Manual* and Standard Plan 5-297.680.

At DESIGNER NOTE: Changed designer note reference to the new Memo to Designers #2019-01.

Revised 11-08-2018

CHANGED: Detail title *from*: "Temporary Portable Precast Concrete Barrier Anchorage" *to* "Temporary Portable Precast Concrete Barrier Anchorage to Concrete"

CHANGED: The term "Anchor Bolts" was changed to "Anchor Rods" throughout the B-Detail.

ADDED: Designer Note – Refer to MnDOT LRFD Manual "Memo to Designers (2011-03)" for Guidance on Edge Distance. Coordinate w/roadway designer for layout and payment. Add special provision for "Temporary Portable Precast Concrete Barrier Anchorage Installation and Removal".

ADDED: Designer Note – "Do not use option 1 on new bridge decks. Use option 2 only on new decks or where the existing deck concrete is in condition state 1 or 2 as confirmed by visual inspection in areas of anchorages by the Regional Construction Engineer."

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UNDER NOTES:

- Removed the 3rd note “Cost of anchorage system, anchor removal and grouting of hole are incidental to the cost of placing the temporary portable precast barrier.”
- Changed the 4th note *from* “Through bolt anchors must be used if the deck is penetrated during drilling process” *to* “Through bolt anchor rods must be used if the deck underside is penetrated during drilling process.”
- Added 7th note “Refer to standard figure 5-297.680 (1 of 2) regarding anchoring barrier over bridge expansion joints.
- Changed circled note ① *from* “Percussion drilling of these holes is not permitted” *to* “Hammer drilling of these holes is not permitted.”
- Added circled note ④: “Provide an adhesive with a minimum characteristic bond strength in uncracked concrete of 1.0 ksi. Embed the anchorage no less than 5 ½” regardless of characteristic bond strength. Drill through reinforcement (if encountered) to achieve minimum embedment. Ensure hex nut is in contact with the adjacent surface. Proof load to 7.0 kips. See special provisions for additional requirements.”
- Added circled note ⑤: Hole diameter 1 3/16” Min., 1 ½” Max.

At ANCHORAGE DETAILS:

(Option 1)

- Added numbered note ⑤ to “Core Drilled” note.
- Removed wearing course.

(Option 2)

- Added numbered note ⑤ to “Anchor Rod” note.
- Removed wearing course.
- Changed note *from*: “For anchorage, see special provisions. Ultimate pullout strength = 14 kips minimum per anchor” *to* “Adhesive Anchorage ④”

Revised 05-24-2012

Changed: “MnDOT” to “SPEC.” at multiple locations on the detail and in the notes.

At ANCHORAGE DETAILS, OPTION 1 and OPTION 2: Added the wearing coarse to the details on the traffic side of the barrier.

At SIDE VIEW: Added “TORQUE ANCHOR BOLTS TO 80 FT. LBS.” to the end of the existing note.

UNDER NOTES:

- Changed the 3rd note *From*: “Cost of anchorages, anchor removal *To*: Cost of anchorage system, anchor removal.....
- Changed 4th note *From*: “Pin barriers together per MnDOT standard plate 8337.” *To*: “Pin barriers together per standard plate 8337.”
- Removed the 9th note: “Fill anchorage holes with.....”
- Changed 10th note *From*: “See special provisions for barrier removal requirements.” *To*: “See special provisions for barrier installation and removal requirements.”

Re-Approved 12-21-2011

At SHEET TITLE: changed the title *from*: “Portable Precast Barrier Anchorage” *to*: Temporary Portable Precast Concrete Barrier Anchorage”.

Removed the “ANCHOR BRACKET FOR OPTION 1” detail from the sheet.

Added a bubbled “DESIGNER NOTE” to the sheet. Note reads: Refer to MnDOT LRFD Manual “Memo to Designers (2011-03)” For Guidance on Edge Distance.

UNDER NOTES:

- Changed the 1st note to read: “All hardware to be galvanized per MnDOT 3392.”
- Changed the 2nd note to read: “All structural steel to be MnDOT 3306 unless otherwise noted.”
- Changed the 3rd note to read: “Cost of anchorages, anchor removal and grouting of hole are incidental to the cost of placing the temporary portable precast barrier.”
- Added 4th note: “Pin barriers together per MnDOT standard plate 8337.”
- Added 5th note: “Through bolt anchors must be used if the deck is penetrated during drilling process.”
- Added 6th note: “Do not use on bridges or approach panels with a bituminous overlay.”
- Added 7th note: “Refer to traffic control plans for deployment length and barrier termination requirements.”
- Added 8th note: “Anchor on traffic side of barrier only.”
- Added 10th note: “See special provisions for barrier removal requirements.”
- Added numbered note “② 1 ½” minimum to prevent bottom of slab from spalling or fracturing during drilling.”
- Added numbered note “③ 5 ½” minimum and 6” maximum for bridge decks with top mat reinforcement and sound concrete. 9” minimum and 10 ½” maximum for sound concrete approach panels.”

At ANCHORAGE DETAILS: (Option 1 and Option 2)

- Updated the shape of the barriers.
- Removed the dimension and anchorage bracket between the anchor rods and removed the outside anchor rod.
- Moved the See section “A” circle to the traffic side of the barrier.
- Added a dimension with bubbled “See Designer Note” between the edge of barrier and the edge of deck.
- Added the leader line showing the “Edge of Deck”.
- Added the underlined designation showing the “Traffic Side” of the barrier.
- Added note “Reinforced Concrete Bridge Deck or Approach Panel” with leader line to both options.
- Changed the note *from*: “See Standard Plate 8337B.....to: :”See Standard Plate 8337 for Barrier Details”

(at Option 1)

- Changed the look of the anchorage by adding the plate washer to the top of the anchorage and adding the plate washer and jam nuts to the bottom with updated note: “2-Heavy Hex Jam Nuts, ½” Plate Washer”.

(at Option 2)

- Added the “ 1½” Min. ②” dimension between the bottom of the deck and the bottom of the anchorage.
- Changed the note pointing to the anchorage to read: 3 – 1 1/8” Dia. MnDOT 3385 Type A Anchor Rods Per Barrier Segment.
- Changed the note showing the dimension from the top of the deck to the bottom of the anchorage to read: “Anchorage Embedment Depth ③”
- Changed the note for ultimate pullout strength *from*: 16 KIPS *to*: 14 KIPS

At OPTION 1 ANCHOR:

- Added sub title “(3 PER BARRIER SEGMENT)” to the detail.
- Rotated the view and added Top and Bottom for clarification.
- Changed the dimension *from*: 1’-1” + Slab Thickness *to*: 9” + Slab Thickness.
- Added to the detail: 2-heavy hex jam nuts and 5”x5” plate washer (bottom), and 3”x3” plate washer (top).
- Changed note to read: “Heavy Hex Nut, Lock Washer and ½” Plate Washer. Check Plan for Number Required”.
- Changed note to read: “1 1/8” Dia. MnDOT 3385 Type A Anchor Rod”
- Changed note to read: “2-Heavy Hex Jam Nuts, ½” Plate Washer. Check Plan for Number Required”.

At PLATE WASHER:

- Changed the detail title *to*: “TOP PLATE WASHER”
- Changed the look to better represent the actual shape and removed the side view of the plate washer.

- Added: ½” x 3” x 3” Plate Washer note to the detail.

Added: “BOTTOM PLATE WASHER” detail to the sheet with plate dimensions, hole location and size.

At the SIDE VIEW:

- Changed the dimension for the block out in the barrier *from: 5” to: 4”*
- Removed the 4 ½” vertical dimension for the block out in the barrier.
- Changed the note *from: ½” Plate Washer with Heavy Hex Nut and Lock Washer to: Heavy Hex Nut, Lock Washer and ½” Plate Washer.*
- Changed the look of the nut, lock washer and plate washer to better represent the actual size.

At DETAIL “A”:

- Mirrored the detail to match the traffic side of the barrier on the sheet.
- Changed the shape of the barrier to better represent the actual shape.
- Changed the look of the nut, lock washer and plate washer to better represent the actual size.
- Removed the 3” and 1 ½” dimensions showing the depth of block out and anchor location.
- Added a 3” dimension from the edge of the barrier to the anchorage.

07-28-03

At ANCHORAGE DETAILS: Changed SEE STANDARD PLATE 8337A ... to SEE STANDARD PLATE 8337B ...