STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

memorandum

subject: New Bridge Design Standard Practice

date: July 6, 2005

to: Arthur W. Gruhn
Bureau Chief
Bureau of Engineering and Highway Operations

from: Julie F. Georges
Principal Eng. Bridge Design
Bureau of Engineering and Highway Operations

Attached is a proposed new Bridge Design Standard Practice which addresses the following concern:

Paraffin Coated Joints - Random Parapet cracking associated with shrinkage has been noticed as a result of eliminating paraffin coated joints.

Proposed new practice:

Reintroduce paraffin coated joints in bridge parapets to control the location of the shrinkage cracks.

The three standard concrete bridge parapets (sidewalk, 32" F Shape, and 42" F Shape) were analyzed for a TL-3 Railing Test Level in accordance with the requirements of the AASHTO LRFD Bridge Design Specification at various crash locations.

The new Bridge Plates are attached.

APPROVED BY: Arthur W. Gruhn, Bureau Chief

DATE: 7-11-05

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FROM THE DESK OF JULIE F. GEORGES

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JUL 19 2005
CONNECCTICUT
BRIDGE DESIGN
MANUAL
PARAFFIN COATED JOINTS
IN SIDEWALK PARAPETS

NEGATIVE MOMENT REGIONS

Limits of paraffin coated joint

Limits of joint seal

Limits of ½" X ½" Bevel

Inside face of parapet

Reinforcement to be discontinuous at paraffin coated joint

¾" x ½" Bevel

SECTION A

SECTION B

SECTION A B

BEVEL

POSITIVE MOMENT REGIONS

Concrete to be continuous in this area

Paraffin Coated Joint Area

DESIGN INFORMATION

For design information, see Plate 6.2.9
Construction joints and paraffin coated joints shall be placed in the standard parapet, sidewalk and sidewalk parapet coinciding with the transverse deck construction joints. The placement of railing posts, fence posts and additional paraffin coated joints shall take into consideration the location of the transverse deck construction joints.

Paraffin Coated Joint Area

Design Information
All parapets supported by decks or butted prestressed deck units shall have paraffin coated joints. The paraffin coated joint spacing shall be shown on the plans. The paraffin coated joint spacing shall be based on the total parapet length, location of deck joints, location of transverse deck construction joints, railing and fence post spacing. The paraffin coated joint spacing shall be as follows:

- In positive moment regions: 8'-0" <= joint spacing <= 20'-0"
- In negative moment regions: 8'-0" <= joint spacing <= 10'-0"

For parapets that support a railing or fence, the joint spacing shall be a multiple of the railing or fence post spacing and the joints shall be located in the middle of the railing or fence panel. Preferably, the number of joints should be minimized so as to expedite the parapet construction.

Paraffin coated joints are not required in U-Type wingwalls and parapet walls.