

## SECTION 03933

# PARAPET/PARAPET END MODIFICATION

### PART 1 GENERAL

#### 1.1 SECTION INCLUDES

- A. Methods and materials for modifying existing concrete parapet systems to:
  - 1. Meet current standards.
  - 2. Prepare the parapet system for attachment of guardrail system or precast concrete barrier.

#### 1.2 RELATED SECTIONS

- A. Section 03055: Portland Cement Concrete
- B. Section 03211: Reinforcing Steel and Welded Wire
- C. Section 03310: Structural Concrete
- D. Section 03392: Penetrating Concrete Sealer

#### 1.3 REFERENCES

- A. AASHTO M 111: Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- B. AASHTO M 213: Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)
- C. AASHTO M 235: Epoxy Resin Adhesives
- D. AASHTO M 270: Carbon and High-Strength Low-Alloy Structural Steel Shapes, Plates, and Bars and Quenched and Tempered Alloy Structural Steel Plates for Bridges

## **PART 2 PRODUCTS**

### **2.1 MATERIALS**

- A. Portland Cement Concrete, Class AA(AE). Refer to Section 03055.
- B. Cement: Refer to Section 03055.
- C. Reinforcing Steel (Coated): Refer to Section 03211.
- D. Connection Bar:
  - 1. AASHTO M 270, Grade 36.
  - 2. Galvanized. AASHTO M 111.
- E. Guardrail Preset Anchors: Follow plans.
- F. Surface Sealing Material (penetrating type): Refer to Section 03392.
  - 1. Selected from the Accepted Products Listing available at Research Web site. Refer to <http://www.udot.utah.gov/index.php/m=c/tid=719>.
- G. Prefomed Joint Filler: As specified. AASHTO M 213.
- H. Anchoring Epoxy:
  - 1. Type I.
  - 2. Class rating consistent with the application temperature.
  - 3. Refer to the Accepted Products Listing. Listing available at Research Web site. Refer to <http://www.udot.utah.gov/index.php/m=c/tid=719>.
  - 4. AASHTO M 235.

## **PART 3 EXECUTION**

### **3.1 PREPARATION**

- A. Locate existing electric conduit, protect from damage.
- B. Carefully remove existing parapet railing and brackets, and deliver to the UDOT maintenance shed designated by the Engineer.

### **3.2 CONCRETE REMOVAL**

- A. Prevent debris from falling into streams, pedestrian areas, traffic areas or railroad tracks.
- B. For parapet modification to meet standards:
  - 1. Remove the existing parapet concrete. Prevent damage to wingwalls and deck surface.
  - 2. Remove loose and spalled concrete. Sandblast the removal areas.
- C. For preparing parapet end modifications:
  - 1. Make saw cuts 1 inch deep to define the work area.
  - 2. Remove concrete using 90 pound class hand-held jackhammers or smaller. Prevent damage to wingwall.
  - 3. Remove approach slab curb between the parapet end and the approach slab end.
  - 4. Remove loose and spalled concrete and sandblast the removal areas.

### **3.3 REINFORCING STEEL**

- A. Existing Reinforcing Steel:
  - 1. Refer to the design plans for specific directions.
  - 2. Thoroughly clean by sandblasting remaining steel of all corrosion and adhering materials.
- B. New Reinforcing Steel:
  - 1. For parapet end modifications: Use epoxy resin adhesive to attach rebar as indicated on the plans. AASHTO M 235.
  - 2. Place new coated reinforcing steel after sandblasting operations are complete.

### **3.4 PLACE CONCRETE**

- A. Refer to Section 03055 and Section 03310.
- B. Clean concrete and steel surfaces. Dampen existing concrete before placing new concrete.

### **3.5 CONNECTION BARS**

- A. For modifying to meet standards: Provide two bars for each parapet end.

- B. For preparing parapet end modifications: Provide two bars for each parapet end modification except where noted otherwise.

### **3.6 FORMS**

- A. Clean forms thoroughly.
- B. Coat forms with an approved release agent from the Accepted Products Listing available at Research Web site. Refer to <http://www.udot.utah.gov/index.php/m=c/tid=719>.
- C. Use a release agent guaranteed in writing by the manufacturer not to stain concrete or impair bonding properties of any concrete protective surface coating.

### **3.7 FINISHING**

- A. Refer to Section 03310.

### **3.8 COATING CONCRETE SURFACES**

- A. Allow concrete to properly cure.
- B. Sandblast the top and traffic face of the parapet of all curing compound.
- C. Coat all sandblasted surfaces with the penetrating concrete sealer. Follow the manufacturer's recommended procedure.

### **3.9 STAINING**

- A. When any concrete surface of the structural members become stained, provide a treatment to restore to a uniform color.

END OF SECTION