SECTION [07 13 26 / 32 12 16] – DECK WATERPROOFING AND HIGH-PERFORMANCE WEARING COURSE

PART 1 – GENERAL

1.1 SECTION INCLUDES

- **Surface preparation, primer deployment, and field installation of cold-applied Royston polymer-modified bitumen sheet membranes.**
- **Field detailing and edge sealing of joints, drains, and gutter lines.**
- **Mixing, handling, and placement of high-performance hot-mix asphalt containing Rosphalt® dry polymer additive to form a waterproof, rut-resistant wearing course. [1, 2, 3, 4, 5]**

1.2 REFERENCES

- **ASTM D1000: Standard Test Methods for Pressure-Sensitive Adhesive-Coated Tapes.**
- **ASTM D6153: Standard Specification for Materials for Bridge Deck Waterproofing Membrane Systems**
- **ASTM D412: Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers—Tension.**
- **AASHTO / State DOT: Relevant Standard Specifications for Highway and Bridge Construction.**

1.3 SUBMITTALS

- **Product Data: Manufacturer's technical data sheets (TDS) and safety data sheets (SDS) for specified sheet membranes, primers, edge sealers, and Rosphalt modifiers. [1, 2, 3]**

- **Mix Design: Certified asphalt plant mix formulation showing the precise percentage dose of Rosphalt polymer additive required per ton of aggregate mix.**

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- **Chase Corporation (Bridge & Highway Materials Division), Pittsburgh, PA. [1]**

2.2 WATERPROOFING MEMBRANES

- **Royston 10A Waterproofing Membrane: A 60-mil thick, prefabricated, cold-applied laminate consisting of a high-strength inner core and woven fiberglass reinforcement sandwiched between layers of polymer-modified bitumen. Must feature a 3-inch self-adhering leading edge for secure overlap protection. [1]**
- **Royston 10AN Easy Pave: A 60-mil reinforced membrane with an "open" spun-bonded polyester top mat engineered to optimize structural adhesion directly to the hot asphalt overlay. [1]**
- **Royston 10A-65: A heavy-duty, 70-mil variant of the reinforced fiberglass bitumen sheet line utilized for intense mechanical load environments. [1]**

2.3 POLYMER ASPHALT MODIFIERS

- **Rosphalt® 50 / Rosphalt 50-LT: A concentrated, dry black polymer additive mixed directly into hot-mix asphalt (HMA) at the batch plant. Formulated to render the wearing course inherently waterproof, crack-resistant, and deeply stable under severe heavy-traffic environments. [1, 2]**

2.4 COMPATIBLE ACCESSORIES & PRIMERS

- **Roybond 713A / 713B: A fast-drying, solvent-based primary adhesive designed to secure Royston sheet membranes to concrete, steel, or wood deck substrates.**
- **Roybond 740 Cold Weather Primer: A low-temperature subgrade primer formulated for sheet installs down to sub-freezing installation points.**
- **Royston 754 Low-VOC Tac Coat: A dedicated bond coating applied over the concrete or bridge deck substrate to act as an anchor point specifically for Rosphalt-modified pavement layers.**

- **Royston Flex-Flo Adhesive Sealant (FFAS)**
- **Royston 104-Caulkable Mastic (104CM)**
- **Royston 120-29 Low-VOC Edge Sealer: A cold-applied, single-component liquid mastic formulated for detailing perimeter joints, scuppers, gutter interfaces, and vertical curb faces before paving. [1, 3, 4]**

PART 3 – EXECUTION

3.1 SURFACE PREPARATION

- **Clean the substrate via shot-blasting or mechanical brooming to create an open, debris-free anchor profile.**
- **The bridge deck substrate must be completely dry and clear of curing fluids, oils, or loose aggregate. Ensure surface temperatures match or exceed 35°F (2°C) for standard membrane systems.**

3.2 SYSTEM INSTALLATION

Method A: Royston Preformed Sheet Membrane System

1. **Priming: Apply Roybond 713A/713B by roller or spray at the manufacturer's recommended square-footage rate. Allow to cure until dry/tacky to the touch.**
2. **Sheet Application: Roll out the membrane (Royston 10A / 10AN Easy Pave) straight into the dry primer, matching the drainage pitch of the deck. Press or hand-roll to remove wrinkles [3.5].**
3. **Seaming: Overlap all adjacent membrane panels utilizing the integrated 3-inch self-adhering leading edge. Treat transverse cross-seams via gentle heat-softening with a propane torch or by applying authorized liquid detailing mastic.**

Method B: Rosphalt Polymer Asphalt Overlay System

1. **Substrate Tac: Spray an even layer of Royston 754 Tac Coat over the structural base to maximize interlaminar bonding.**
2. **Paving Execution: Introduce the hot-mix asphalt containing the Rosphalt 50 dry additive to the deck. Ensure the mix registers between 290°F and 340°F (143°C**

to 171°C) at the time of dynamic laydown and screed leveling. Compact using steel-wheel rollers according to engineering design parameters. [1, 3]

3. **Perimeters: Liberally apply Royston 120-29 Edge Sealer around the gutter lines, [BS1.1] weep holes, drains, and structural expansion joints.**

3.3 QUALITY CONTROL

- **Visual Inspections: Check applied sheets for continuous contact, fishmouths, or air pockets. Cut out damaged layers and patch with fresh membrane pieces extending 3 inches past the repair locus in all directions.**
- **Pavement Testing: Ensure Rosphalt compaction passes achieve target structural density without blistering or deep segregation.**