SP-157024
(New)

SPECIAL PROVISIONS
FOR
MANHOLE ADJUSTMENTS

Polk County
TAP-T-C077(207)--8V-77

Effective Date
May 16, 2017

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING ADDITIONS AND MODIFICATIONS. THESE ARE SPECIAL PROVISIONS AND SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

157024.01 DESCRIPTION.

A. Adjustment requirements as noted in Section 2435 of the Standard Specification shall apply to these manhole adjustments.

B. Install polyvinylchloride Liner for all Wastewater Reclamation Authority (WRA) Sanitary Sewer manhole adjustments.

157024.02 MATERIALS.

A. PVC Liner.

1. Ameron T-Lock by Ameron Protective Lining Products, or equal.
Any manhole that is modified which has a T-Lock protective liner must have the same T-Lock protective liner installed on the new manhole sections, no substitutions allowed. The reason for not allowing substitutions is that the T-Lock liner must be continuous across the manhole joints. This continuity is obtained by welding a section of T-Lock across the manhole joint. The T-Lock weld has not been tested for compatibility with other lining systems.

2. Liner material: PVC resin pigments and plasticizers; compounded to remain flexible; PVC resin not less than 99% by weight of total resin used, copolymner resins not permitted.

3. Physical properties of liner: tensile strength: 2200 psi minimum; elongation at break: 200%.

4. Liner Configuration.
- **a.** Liner sheet minimum thickness: 1.65 mm
- **b.** Tee-shaped locking extensions of same material as liner; integrally extruded with liner sheet.
- **c.** Locking extensions: 2.5 inches apart; minimum 0.375 inches high
- **d.** Liner sheet nominal width: 48; maximum length of 24 inches
- **e.** Joint strips: 3/4 inch width minimum; nominal thickness of 3/32 inch.

5. **Other Characteristics of Liner.**
   - **a.** Continuous locking extensions embedded in concrete to withstand test pull of at least 100 pounds per linear inch applied perpendicular to surface without rupture of locking extensions or withdrawal from embedment.
   - **b.** Plastic liner sheet plates, locking extensions, joint corner and welding strips free of cracks, cleavages, and other defects.
   - **c.** Sufficient flexibility to bridge up to 1/4 inch settling cracks without damage to liner.
   - **d.** Lining repairable at any time during life of pipe.

157024.03 CONSTRUCTION.

A. Any manhole that is modified shall have no more than two adjusting rings installed under the manhole casting. If adjusting rings are use, an internal chimney seal must be installed.

B. Installation of Liner in Reinforced Concrete Manhole.

1. Liner installation shall be in accordance with manufacturer's recommendations.

2. Liner shall cover entire interior surface.

3. Liner shall be held snugly in place against inner forms.

4. Locking extensions shall terminate not more than 1.5 inches from the end of the inside surface of sections.

5. Joint flaps shall extend 4 inches beyond end of inside surface.

6. Concrete poured against liner shall be vibrated, spaded or compacted to protect lining and produce dense, homogeneous concrete securely anchoring the locking extensions into concrete.

7. Lined concrete pipe may be cured by standard curing methods.

8. Provide no manholes with damaged lining; damaged liming may be repaired to satisfaction of WRA.

C. Field Jointing of Liner.

1. Inside of manhole joint filled and carefully pointed with cement mortar; mortar shall not extend into the manhole beyond the straight line connecting the surfaces or adjoining manhole sections; joints must be dried before liner joints are made.

2. Mortar and other foreign material shall be removed from liner surface adjacent to joint; clean and dry surface.

3. Field Joints in Lining at Manhole Joints.
   - **a.** Joint flap with locking extensions removed; joint flap shall overlap the liner of adjacent manhole sections, minimum of 1/2 inch; heat sealed in place prior to welding.
   - **b.** Field joint completed by welding flap to the lining of adjacent manhole using 1 inch weld strap.
   - **c.** Protect flap from damage; excessive tension and distortion in bending back the flap to be avoided; heating of liner required at temperatures below 50°F, as required to avoid damage to flap.
   - **d.** Welding of joint in accordance with manufacturer's requirements; hot air welding tools shall provide effluent air at a temperature between 500°F and 600°F; welding tools held approximately 1/2 inch to material to be joined; welding tools moved back and forth over

junction of the two materials; welding tool moved slowly enough as weld progressed to cause small bead of molten material to be visible along both edges and in front of weld strip.

e. Weld both sides of joint flap except leave 8 inch of joint flap at manhole invert on downstream side of joint unwelded to provide relief of groundwater pressure, except as otherwise noted.

D. Testing and Repair of Liner.

1. Following installation all surfaces coved with lining, including welds, shall be tested with an approved electrical holiday detector with instruments set between 18,000 volts and 22,000 volts.

2. All welds shall be physically tested by a non-destructive probing method.

3. All repairs accomplished with welding strip fused over liner in area of patch; larger patches may utilize smooth liner sheet applied over the damaged area with adhesive; edges burned with welding strip fused to the patch and the liner adjoining the repair patch.

157024.04 METHOD OF MEASUREMENT.
Each existing manhole adjusted to grade by addition or removal of riser, cone, or exchange of existing riser section with section having different vertical dimensions will be counted by the Engineer.

157024.05 BASIS OF PAYMENT.
Payment will be at the contract unit price for each manhole adjustment. Payment will be full compensation for removing existing casting, adjustment rings, and risers, excavation, furnishing and installing new PVC liner sections, furnishing and installing new casting (unless salvage of old casting is approved by WRA), installing new chimney seal, and placing and compacting backfill material.