**Special Note for Grooved All Weather Pavement Markings**

1. **DESCRIPTION.** This work consists of furnishing and installing all weather durable preformed patterned retroreflective pavement markings for lane lines, edge lines, channelizing lines, and gore markings. The durable tape pavement markings must have specially designed optics which are highly retroreflective under both wet and dry conditions. Work also consists of recessing most markings in a groove to protect retroreflective elements. Work may also consist of providing contrast borders for certain markings. The summaries, plans, and/or bid items will indicate if contrast borders are included and for which markings. When contrast borders are part of the work, refer to the Contrast Pavement Markings Detail.
2. **MATERIAL.** Use 3M™ Stamark™ High Performance All Weather Tape Series 380AW, 380AW-5 381AW. Preformed markings shall contain abrasion-resistant microcrystalline ceramic beads bonded in a highly durable polyurethane topcoat and shall be capable of being adhered to Portland Cement concrete (PCC) by a pre-coated pressure sensitive adhesive with a woven high tensile strength fiber. The markings shall be immediately ready for traffic after application. Markings must be a highly effective lane marking material that will show no appreciable fading, lifting, shrinkage, or chipping for the duration of the warranty period, when applied according to the manufacturer requirements.
3. **CONSTRUCTION**
	1. **General.** Apply the durable tape markings and surface preparation adhesive (if necessary) according to the manufacturer’s installation instructions. All markings and surface preparation adhesive shall be installed by manufacturer certified installers only. The preformed patterned surface shall be installed such that it presents a near vertical surface to traffic to maximize retro-reflectivity. Center markings within the grooves in accordance with the below detail:



**Groove Depth shall be 160 mils +/- 10 mils**

* 1. **Groove.** All grooves are to be positioned 2 inches from the respective pavement joint or as otherwise directed by the Engineer. In accordance with the above detail, the depth of the groove shall be 160 mils +/- 10 mils, and the groove width shall be one inch +/- ¼ inch wider than the width of the pavement marking to be placed in the groove.
	2. **Equipment.** Equip the grinding equipment with a free-floating cutting or grinding head to provide a consistent groove depth over irregular pavement surfaces. Equip the grinding or cutting head with gang-stacked diamond saw blades. The grinding equipment must be capable of producing a final pavement surface that is flat and free of ridges (see below figure for examples of unacceptable/acceptable groove surface texture).

**Cross section of an unacceptable groove surface texture**

\*\*\* Groove ridges should rise no more than 15 mil above the base of the groove \*\*\*



This coarse tooth ribbed pattern is a result of widely spaced or worn blades. Replace blades and/or change spacing to avoid such groove patterns. Thinner spacers may be used between blades to prevent irregular groove patterns.

**Cross section of an acceptable smooth groove surface texture**



Very minimal “ridged” or “corduroy” texture is a smooth groove made with thin spacers and new blades.

* 1. **Surface Preparation & Cleaning the Groove.** Clean the roadway surface where the markings will be applied. Remove all surface treatment, laitance, curing compound, or any other contaminants that would hinder adhesion. When water is used during surface preparation, the groove must be flushed with clean, high-pressure water immediately following the cut to avoid build-up and hardening of the slurry in the groove. If water is present during groove cutting for any reason, allow grooves to dry for a minimum of 24 hours prior to pavement marking installation. Immediately prior to installation, clean the grooves completely using an air compressor with an air flow of at least 185 CFM and an air pressure of at least 120 PSI. A street sweeper or pick-up broom may effectively remove some debris, but a pass with an air compressor is required to completely clean the bottoms of the grooves. Grooves must be clean and dry for proper pavement marking installation.
	2. **Tamping of the Durable Tape.** Tamping the edges of the tape is very important. Tape application in the groove will require tamping with a vehicle tire. Tamp the tape thoroughly with a minimum of six (6) passes (all in the forward direction) over the surface of the new tape in the groove. The vehicle used to tamp the tape shall be recommended by the manufacturer and approved by the Representative. Do not twist or turn the vehicle tire on the tape and make sure all edges are firmly adhered. Slowly drive over the tape making a minimum of six tamping hits all forward passing over the surface of the new tape in the groove. The vehicle must be equipped with a pointing device to aid in keeping the vehicle tire on the tape. Tire strikes from front and rear wheels when aligned with the aid of a pointing device can be completed in 3 passes. Use a vehicle tire as recommended by the manufacturer.
1. **MEASUREMENT.** The Department will measure work required for the installation of the recessed groove. The Department will not measure surface preparation and pre-marking of the groove pay item. Corrective work will not be measured for payment.
2. **PAYMENT.** Payment will be measured and based on the following items:

06560 PAVE STRIPING-DUR TY 1-12 IN W (WET REFLECTIVE) LF

06560 PAVE STRIPING-DUR TY 1-12 IN W (CONSTRAST WET REFLECTIVE) LF

23871EC PAVE STRIPE-WET REF TAPE-6 IN Y LF

23872EC PAVE STRIPE-WET REF TAPE-6 IN W LF

23872EC PAVE STRIPE-WET REF TAPE-6 IN W (CONTRAST BORDER) LF

24617EC INSTALL (GROOVE FOR PAVE STRIPING – 10 IN) LF

24617EC INSTALL (GROOVE FOR PAVE STRIPING – 13 IN) LF

24617EC INSTALL (GROOVE FOR PAVE STRIPING – 16 IN) LF

25019EC GROOVE FOR PAVE STRIPING – 7 IN LF