

Section 800

Concrete Construction

801.0 DESCRIPTION

These specifications include concrete construction in accordance with the requirements of the Contract. All references to MnDOT Specifications shall mean the latest published edition of the Minnesota Department of Transportation Standard Specifications for Highway Construction, as modified by any Supplemental Specification edition published prior to the date of advertisement for bids. All references to other Specifications of AASHTO, ASTM, ANSI, AWWA, etc. shall mean the latest published edition available on the date of advertisement for bids.

802.0 MATERIALS

The materials used in this work shall conform to the requirements for kind and size of material specified herein or as shown on the construction plans.

Before any installation, the Contractor shall submit a list of materials proposed for use. This list shall be complete with catalogs, drawings, diagrams or any other descriptive data that may be required to establish specification compliance.

Should the Contractor fail to submit a list of materials, the Engineer shall reserve the right to select all items or omitted items on the required material list. Any items selected by the Engineer shall be furnished and installed by the Contractor without any changes in the contract price.

802.1 CONCRETE CURING

Membrane curing compounds shall be clear TK2519 DCWB, AMS 3754 Clear or approved equal as directed by the Engineer.

803.0 CONSTRUCTION REQUIREMENTS

The construction requirements under this section shall conform to MnDOT Specifications except as modified herein.

803.1 NOTIFICATION TO PROPERTY OWNERS

It is the Contractor's responsibility to notify residents of restricted access to driveways during construction, and to accommodate special needs.

The Contractor must notify the Engineer of curb and gutter installation at least two working days prior to starting work.

The Contractor must post all areas where parking must be restricted for construction. Ample signing shall be set in all boulevards 24 hours prior to work being completed. Signs shall be supplied by the Engineering Department. All signs shall be returned upon completion of the project.

Concrete driveways shall be closed to traffic for a minimum of seven days after they are poured. The Contractor must notify property owners of concrete driveway installation at least 72 hours in advance. If a resident is not notified, and needs to access their

property, they shall be allowed to do so. The Contractor shall then remove and replace that new concrete driveway at a time convenient to the property owner, at no additional compensation.

The Contractor shall maintain access to commercial establishments at all times. This may require constructing half of the driveway entrance at a time. Contractor shall coordinate work to provide access at no additional compensation.

803.2 (2104) SAWING CONCRETE PAVEMENT

Sawing Concrete Pavement shall include the cutting of pavement as directed by the Engineer. The depth of cut shall be a minimum of three (3) inches or two-thirds ($2/3$) the depth of the pavement (whichever is greater) directed to be cut. Only those sections of pavement ordered for sawing by the Engineer shall be paid for. Other sawing done at the option of the Contractor shall be considered incidental.

803.3 CONCRETE CURBING

Prior to curb installation, the Contractor must expose all catch basin structures and manholes as directed by the Engineer, and verify proper opening alignment with the curb and proper structure build heights. All necessary corrections to alignment and build must be made by the Contractor in a timely manner. This work will be incidental to the Contract.

Transverse expansion joints, filled with one-half ($1/2$) inch pre-formed joint material, shall be placed at the ends of all curved sections, at the ends of the curved portions of entrance and street returns, and three feet on each side of all catch basins. Transverse expansion joints shall have a maximum of 200-foot spacing on straightaways.

Curb joints must be sawcut for any gutters larger than 18" wide.

803.4 CONCRETE CURING

MnDOT specifications: 2301.3M, 2401.G, 2404.3E.4, 2521.3E, 2531.3G are hereby modified to include the following provision:

Apply liquid curing compound in a fine spray to form a continuous, uniform film on the horizontal surface and vertical edges of pavement, curbs, and back of curbs immediately after surface moisture has disappeared. With approval of the Engineer, the timing of cure application may be adjusted due to varying weather conditions and concrete mix properties to ensure acceptable macro texture is achieved and bleed has evaporated.

When tying into existing concrete surfaces, Contractor shall use a curing compound that best matches the existing coloration. Application rate shall be 150 square feet (SF) per gallon. Apply homogeneously to provide uniform coverage on all exposed concrete surfaces.

Curing shall be performed by applying the membrane curing compound or polyethylene to the exposed surface of the concrete immediately after the final finishing operation. When forms are removed in less than 72 hours after placing the concrete, curing compound shall be applied immediately or the trenches shall be backfilled immediately with suitable materials. In no case shall the forms be removed in less than 12 hours after placing the concrete.

The Contractor shall protect the concrete from damage caused by inclement weather, vandalism or freezing. After September 15, Contractor shall cure all concrete with polyethylene or thermal blankets for a period of 72 hours or as directed by the Engineer. Any polyethylene or thermal blankets required by the Engineer will be considered incidental to the Contract.

Concrete treating oil meeting MnDOT Specification 3917 shall be applied in two equal applications totaling 0.06 gallons per square yard on all concrete poured. No payment shall be made for treating oil but will be considered incidental to the price of the concrete.

803.5 CONSTRUCTION OF JOINTS

- a) Construct joints of the type, dimensions, and locations specified in the contract documents.
- b) Place longitudinal joints coincident with or parallel to the pavement centerline.
- c) Place all transverse joints at right angles to the centerline and extend the full width of the pavement.
- d) Place all joints perpendicular to the finished grade of the pavement and do not allow the alignment across the joint to vary from a straight line by more than one (1) inch.
- e) Exercise care in placing, consolidating, and finishing the concrete at all joints.
- f) The edge of in-place concrete shall be cut straight and clean, and free of chipping and spalling. The appropriate mechanical cutting tools shall be used for this work.
- g) Saw joints shall be cut into concrete.
 - 1. In locations where concrete is being replaced or a new sidewalk is filling a gap of less than 25 feet between two existing sidewalks that have tooled joints, 1/4-inch tooled joints will be acceptable.
 - 2. In locations where saw cutting is not possible, 1/4-inch tooled joints are acceptable.
 - 3. Saw cutting must be completed in a timely manner to prevent the concrete from cracking.
 - 4. Any cracked concrete will be removed and replaced by the Contractor without any additional compensation.
 - 5. Saw cutting of new joints shall be considered incidental to installation of concrete.

803.6 REPAIR OF CONCRETE DRIVEWAYS

Driveways disturbed by construction shall be repaired as directed by the Engineer. The quantities listed in the Bid are estimates and subject to change. If, in the opinion of the Engineer, the appearance is unacceptable, the Contractor shall replace the driveway as directed by Engineer with no additional compensation.

The edge of in-place concrete shall be cut straight and clean, and free of chipping and spalling. The appropriate mechanical cutting tools shall be used for this work.

- a) Residential concrete driveways shall be replaced with six inches non-reinforced concrete pavement over six inches of Class 5 aggregate base.
- b) Commercial concrete driveways shall be replaced with eight-inch non-reinforced concrete pavement over six inches of Class 5 aggregate base.

803.7 (2531) PEDESTRIAN CURB RAMP (TRUNCATED DOME)

This work consists of furnishing and installing Truncated Dome Systems (detectable warning surfaces) at pedestrian curb ramps in compliance with the Public Rights-of-Way Accessibility Guidelines (PROWAG). This work shall be performed in accordance with the applicable MnDOT Specifications, and the attached standard plan sheets for Curb Ramp Concepts, and the following:

The Contractor shall select a truncated dome product from the approved products list at:

<http://www.dot.state.mn.us/products/detectablewarningsurfaces/detectablewarningsurfaces.html> or as noted on the plans. The truncated domes shall be placed in concrete and shall be pressed firmly into the concrete to the point that concrete fills the vent holes on the truncated dome plates. No cutting of truncated domes will be allowed unless approved by the Engineer. Any swelling of the concrete that occurs around the truncated domes must be screeded off and the surrounding concrete shall be finished flush with the truncated dome plate edge. To ensure that the truncated domes are well seated in concrete, the Contractor should provide a three (3) inch minimum border around the edges of the truncated domes.

803.8 (2572) CLEAN ROOT CUTTING

The Contractor shall cleanly cut all tree roots no more than 10 inches behind the back of proposed curb and gutter or as directed by the Engineer. It shall be the responsibility of the Contractor to establish these limits and not exceed.

The Contractor shall use a grinding-type wheel or other approved root cutter prior to construction. All exposed roots shall be coated with pruning seal as approved by the Engineer.

804.0 METHOD OF MEASUREMENT

All items will be measured separately by length, area, mass or volume, according to design designation as indicated in the pay item name and as may be detailed and defined in the Drawings, Specifications, or Special Conditions.

804.1 REMOVE CONCRETE CURB AND GUTTER

Removals shall be designated by the Engineer. All removals will be measured by the linear foot.

804.2 (2104) SAWING CONCRETE PAVEMENT

Measurement for sawing shall be by the linear foot.

804.3 REPAIR OF CONCRETE DRIVEWAYS

Measurement for concrete driveways at the designated thickness shall be per square yard and shall include subgrade preparation. Common excavation, aggregate base and sawcuts shall be measured as stated in Section 700.

804.4 (2531) PEDESTRIAN CURB RAMP (TRUNCATED DOME)

The truncated dome area will be measured by the square foot.

804.5 (2572) CLEAN ROOT CUTTING

The Engineer will measure clean root cutting by length along the cut line. The beginning and ending points shall be where the affected roots no longer interfere with the proposed construction of concrete curb and gutter or sidewalk. Removal and disposal of ground tree roots and debris along with the application of pruning seal shall be included in the costs for Item No. 2572.503 – “Clean Root Cutting.”

805.0 BASIS OF PAYMENT

Payment will be made at the Contract prices per unit of material in the Bid. Compensation shall be in full for all costs constructing the material as specified. Unit prices in the Bid shall prevail with no adjustment being made due to an increase or decrease in quantities.

In the absence of special payment provisions, all costs of restoring surface improvements as required, disposal of surplus or waste materials, maintenance and repair of completed work, and final cleanup operations shall be incidental to the Contract Items under which the costs are incurred.

805.1 HIGH EARLY CONCRETE

High Early concrete used at the direction of the Engineer shall be paid for at the contract unit price of the concrete bid item being completed plus the difference in the concrete price for regular concrete and high early concrete. The Contractor shall supply an invoice for both regular and high early concrete to the Engineer for determination of additional payment. High early concrete used by the Contractor that is not directed by

the Engineer shall receive no additional compensation above the unit price for the concrete bid item.