

SECTION 32 13 14

CONCRETE WALKS, MEDIANS, AND DRIVEWAYS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Cast-in-place concrete walkways, medians, driveways, and valley gutters.

B. Related Sections:

1. Section 31 23 00 - Excavation and Fill.
2. Section 31 23 13 - Subgrade Preparation.
3. Section 32 11 23 - Aggregate Base Courses.
4. Section 32 16 13 - Concrete Curbs and Gutters.
5. Section 32 12 02 - Flexible Paving (Municipal Project).

1.02 PRICE AND PAYMENT PROCEDURES

A. Measurement and Payment

1. Concrete Sidewalk and Driveway. Measurement shall be on the basis of square foot of sidewalk and driveway of specified thickness constructed and the required aggregate class 5 base.
2. Concrete Median. Measurement shall be on the basis of square foot of median of specified thickness constructed and the required aggregate class 5 base.
3. 4-Inch thick Concrete Sidewalk Special - Colored. Measurement shall be on the basis of in-place square foot and the required aggregate class 5 base
4. 4" Concrete Walk Special Poetry. Measurement shall be on the basis of in-place square foot and the required aggregate class 5 base.
5. Concrete Pedestrian Curb Ramp. Measurement shall be on the basis of square feet of ramp constructed and the required class 5 base. Measurement of ramp shall not include adjacent concrete curb and gutter. Adjacent concrete curb and gutter shall be measured and compensated separately.
6. Truncated Dome Panel. Installed on the concrete pedestrian curb ramp. Measurement shall be on the basis of square feet of Truncated Dome Surface actually constructed
7. 7 Inch thick Concrete Valley Gutter. Valley gutters shall consist of high early concrete. Measurement shall be on the basis of square yard of valley gutter constructed and the required class 5 base.
8. All other Work and costs of this Section shall be incidental to the Project and included in the Total Base Bid.

B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the associated walks - concrete items. Such items of work include but are not limited to:

- a. Subcutting the excavation to the required depth, furnishing, placing and compacting suitable material to sub-grade, backfilling with topsoil and related work.
- b. Cold weather concrete protection methods and materials required.
- c. Provide adequate barricades and personnel to protect fresh concrete from pedestrian traffic and graffiti.
- d. Provide temporary walk ways spanning fresh concrete where required to maintain access into building entrances.

- e. Placing of aggregate base class 5, as specified in the details under concrete walks and driveways.
- f. Scoring of concrete walk special as shown on the construction plans.

1.03 REFERENCES

- A. Minnesota Department of Transportation "Standard Specifications for Construction" 2020 Edition (MnDOT Spec.):
 - 1. 2211 - Aggregate Base.
 - 2. 2461 - Structural Concrete.
 - 3. 2521 - Walks.
 - 4. 2531 - Concrete Curbing.
 - 5. 3101 - Portland Cement.
 - 6. 3113 - Admixtures for Concrete.
 - 7. 3702 - Preformed Joint Filers.
 - 8. 3754 - Membrane Curing Compound.

1.04 SUBMITTALS

- A. Submit design mix for each concrete mix used.

PART 2 PRODUCTS

2.01 MATERIALS

- A. All concrete shall be in accordance with MnDOT Spec. 2461, mix 3F52 for flat work and MnDOT Spec. 2461, mix 3F32 for curb & gutter with the following additional requirements:
 - 1. Type 3 air-entrained concrete
 - 2. 28-day compressive strength of 4,500 psi.
- B. White pigmented curing agent shall be in accordance with Mn/DOT Spec. 3754.
- C. Aggregate base shall be Class 5 granular material conforming to Mn/DOT Spec. 2211.
- D. Contractor shall be responsible for the making the suppliers aware of these additional requirements. Any concrete not meeting these specifications shall be rejected.
- E. Truncated Dome Panels: Approved products:
 - 1. Neenah Foundry Co. - Detectable Warning Plates. Gray in color.

PART 3 EXECUTION

3.01 GENERAL

- A. All concrete curb and gutter shall be constructed in accordance with Section 2531 of the current Minnesota Department of Transportation Standard Specifications, except as modified or altered below:
 - 1. All curb and gutter shall be B618, unless otherwise specified on the plan or special provisions.
 - 2. Driveway openings in the curb shall be constructed as shown on the plans, standard plates, or as directed by the Engineer in the field.
 - 3. An expansion joint shall be placed at the radius point or all changes in direction.
 - 4. The Contractor shall construct concrete gutters as detailed on the standard plate at the end of these specifications, and as located on the plans.

5. Delete that portion of Section 2531 which requires that the concrete curb and gutter joints be sealed with joint sealer material.
6. The Contractor shall provide all concrete samples needed for test cylinders, slump tests, air entrainment tests, and other tests ordered by the Engineer.
7. All honeycombed areas shall be back plastered as directed by the Engineer.

3.02 JOINTS

1. Joints shall align with like joints in adjoining work unless the work is separated by an 1" expansion joint.
2. Sidewalk adjacent to curb and gutter shall have expansion material placed between the two unless the Engineer approves otherwise.
3. When new sidewalk is to be placed adjacent to new curb and gutter and the deletion of expansion material is approved by the Engineer, the Contractor must exercise extreme care in jointing the curb and gutter such that the sidewalk joints result in an aesthetically pleasing pattern and provide uniformity.
4. Adjustments of joint spacing in the curb and gutter and/or sidewalk may be necessary.
5. Special attention shall be taken in spacing joints near driveways, corners and changes in direction to achieve uniformity of panels.
6. Expansion joints shall be installed on each side of the driveway, between walk and curb section at intersections, at changes in direction, at a maximum spacing of 50 feet, and in accordance with detail plates.
7. The Engineer may order expansion material placed between existing walks and at other locations as required in the field.

3.03 CONCRETE VALLEY GUTTER

- A. Concrete valley gutters shall be placed as indicated on the plans or as staked in the field by the Engineer. Valley gutters shall be a minimum of three feet (6') wide and have a 2% cross slope.

3.04 CONCRETE SIDEWALK

- A. Typical sidewalks that are within City right-of-way shall be 5 feet wide unless it is a carriage walk.
- B. At no point should any walk, including walks beyond the right-of-way, be installed at a slope greater than 5% longitudinally or a 2% cross slope.
- C. It shall be the Contractor's responsibility to maintain slopes within these tolerances, and also to establish and confirm these grades.
- D. At no point will steps be allowed in the right-of way unless approved by the Engineer.
- E. All sidewalk and pedestrian ramps shall be concrete and constructed in accordance with Mn/DOT 2521, Walks, with the following modifications:
 1. A spray membrane type of curing agent shall be used. The spray membrane shall be in accordance with Mn/DOT 3754 (White pigmented).
 2. Joint sealers are not required.
 3. Typical walk panels shall be 25 ft² with a contraction joint on each end of the panel unless otherwise specified or approved.
 4. Sidewalk thickness shall be a minimum of 4" and be increased to 6" through all driveways.
 5. Places where sidewalk may be subjected to vehicle loads, the Engineer shall require the sidewalk to be increased to a 6" thickness.

6. Curb boxes, which are in sidewalks, must remain accessible by use of two (2) part lid or a collar to keep concrete free of the lid. The style used should be a Power Seal Single Cover Water lid or approved equal.

F. Refer to standard plates for typical sections and width requirements.

3.05 PEDESTRIAN RAMPS

- A. All sidewalk and pedestrian ramps shall be concrete and constructed in accordance with Mn/DOT 2521, Walks, with the following modifications:
 1. A spray membrane type of curing agent shall be used. The spray membrane shall be in accordance with Mn/DOT 3754 (White pigmented).
 2. Joint sealers are not required.
 3. Typical panels shall be 25 ft² with a contraction joint on each end of the panel unless otherwise specified or approved. See the Standard Plate for additional details.
- B. Truncated Domes shall be Neenah R4984 Detectable Warning Plate, powder-coated gray, or approved equal.
- C. Pedestrian ramps and other places that sidewalk may be subjected to vehicle loads shall be thickened to a 6" thickness.
- D. Pedestrian ramps shall be constructed per the detail shown on the plans.

3.06 CONCRETE CARRIAGE WALK

- A. Typical widths for carriage walks are 4 feet unless carriage walk previously exists and then the Contractor shall match the existing width.
- B. Carriage walks shall not have a slope greater than 5% longitudinally or a 2% cross slope.
- C. It shall be the Contractor's responsibility to maintain slopes within these tolerances, and also to establish and confirm these grades.
- D. All carriage walks shall be concrete and constructed in accordance with Mn/DOT 2521, Walks, with the following modifications:
 1. A spray membrane type of curing agent shall be used. The spray membrane shall be in accordance with Mn/DOT 3754 (White pigmented).
 2. Joint sealers are not required.
 3. Typical walks shall have a contraction joint every four feet (4') unless otherwise specified or approved.
- E. Carriage walk thickness shall be a minimum of 4".

3.07 CONCRETE DRIVEWAY

- A. The driveway slab shall form a smooth transition from the street to property line and shall provide drainage to the street.
- B. Excess material developed in grading the driveway subbase shall be disposed off site by the Contractor and at the Contractor's expense.

- C. When grading driveways, it may be necessary to excavate the existing driveway beyond the property line. The existing driveway material will have to be replaced and shall be done at the contract unit price bid.
- D. Driveway subbase shall be brought to a smooth grade by excavating or filling to allow for the placing of six inches of Class 5 gravel.
 - 1. Where the six-inch gravel base is already existing but is loose or unstable, the top one inch of base shall be excavated, replaced with Class 5 gravel, and compacted prior to the installation of the bituminous mat.
- E. The concrete material shall conform to Section 2531 of the current Minnesota Department of Transportation Standard Specification.
- F. A spray membrane type of curing agent shall be used in accordance with Mn/DOT 3754 (White pigmented).
- G. Existing concrete driveways shall be cut with a concrete saw to the length designated by the Engineer in the field to allow placement of the new slab.
- H. The existing concrete to be removed shall be removed prior to construction of the curb and gutter.
- I. Where directed, the Contractor shall install concrete driveway pavement to the property line or to the existing concrete driveway.
- J. Refer to standard plates for typical sections and width requirements. Also see the Driveway and Sidewalk Construction Policy for additional details.

3.08 CONCRETE STEPS

- A. Concrete steps are not allowed within the street right-of-way unless approved in writing by the City Engineer.
- B. Steps shall be at least as wide as the carriage walk.
- C. A typical step has a 7-3/4 max rise and a 10" minimum tread width unless otherwise specified in the plans and specifications.
- D. If handrails are required, they shall be between 34" and 38" above the front step height.
- E. Steps shall conform to any applicable Americans with Disabilities Act standards. See Standard Plate GEN-2
- F. All steps shall be formed and the forms shall be inspected and approved prior to pouring the concrete.

3.09 SUBGRADE AND AGGREGATE BASE

- A. Prior to placement of the aggregate base, the Contractor shall prepare the subgrade to the grade, stability and compaction as per Section 2112 of the Minnesota Department of Transportation Standard Specification.
- B. The subgrade shall be toleranced by the Engineer before aggregate is placed.

- C. Class 5 aggregate used for subgrade below sidewalks, pedestrian ramps, carriage walks, and driveways shall be 6 inches thick unless otherwise specified in the plans and specifications.
- D. All Class 5 aggregate shall be compacted to 100% dry density.
- E. A mechanical tamper or any other approved method will be required for compaction of subgrade.
- F. Class 5 gravel shall be included in the price bid for concrete walk, steps, and driveway pavement.

3.10 WORKMANSHIP

- A. Concrete shall not be placed when stormy or inclement weather will prevent good workmanship.
- B. No aggregates containing frozen lumps may be used, and concrete shall not be placed on frozen subgrade.
- C. Concrete may be placed when the air temperature in the shade and away from artificial heat is not less than 33° F and rising.
- D. Concrete shall not be placed when the temperature is 360 F or less and falling.
- E. The temperature of the concrete shall not be less than 500 F nor more than 900 F when placed on the subgrade.
- F. If temperatures drop below freezing after the newly poured is laid, the concrete shall be covered with blankets.
- G. Application of white pigmented curing compound shall be at a rate no less than one gallon per 200 square feet.
- H. Placement of the curing compound shall follow the placement of the concrete and be applied to all uncovered surfaces.
- I. Placement of the curing compound shall not be delayed for several hours or until another day unless approval is granted by the Engineer.
- J. All joints shall be formed or sawn within 24-hours of placement of the concrete.
- K. The finish of the concrete shall be uniform and aesthetically pleasing. No variations of more than ¼" when tested with a ten foot straight edge placed parallel to the center line of the pavement shall be acceptable. The Engineer may direct the Contractor to replace any areas that do not meet this criteria at the Contractor's expense.

END OF SECTION