DIVISION 10

CONCRETE SIDEWALK AND DRIVE APPROACHES

10.01 Description:

The work shall consist of a concrete sidewalk or drive approach of the required cross section, without steel reinforcement, constructed on the prepared subgrade.

This specification shall not apply to the sidewalks constructed as an integral part of a bridge, grade separation, culvert, nor as an independent structure over an areaway.

10.02 Materials - All Materials shall comply with the materials identified in Section 7 of the City of Wyoming Standard Specifications. Material shall meet the minimum compression strength of 3,500 psi in 28 days per Mix Design A in Section 7.04.01 Concrete Division at a minimum.

10.03 Construction Methods:

10.03.01 Subgrade – The subgrade shall be formed by excavating or filling to the required elevation for bottom of concrete or to the bottom of the subbase, if a subbase is specified. In fill areas, a berm of not less than two (2') feet beyond the edges of the sidewalk shall be constructed and compacted before placing the concrete. The subgrade shall be the top twelve (12") inches and shall be thoroughly compacted to a minimum of 95% maximum unit weight as determined by Section 1.01.02 of the Michigan Department of Transportation Standard Specifications.

10.03.02 Subbase – Subbase material, where required, consisting of MDOT Class II sand, shall be placed under the structure, to a minimum of six (6") inches or to the thickness shown on the plans, and as specified in Division 6.

10.03.03 Drive Approach Requirements:

(a) Thickness: Drive approaches shall be constructed to the following thicknesses for various uses:

Residential	4 inches
Commercial	8 inches
Industrial	8 inches

(b) Drive approach flares: The drive approach shall conform to the Standard Detail except where the parkway width is less than five (5') feet for residential areas and nine (9') feet for commercial and industrial areas. In such areas with narrow

parkways, the curb opening will remain as shown on the Standard Detail, and the drive approach flares will be extended to the sidewalk on a one-to-one angle (45˚ from the curb) to a maximum of 5 feet each side, unless otherwise specified by the Engineer.

(c) Drive approach grades: All drive approaches are to be constructed with a percent of grade no greater than six (6%) percent in commercial areas or eight (8%) percent in residential areas unless approved by the engineer.

(d) Drive approach width: The drive approach maximum width for residential approaches shall be measured along the front of walk and is related to the structures number of garage doors:

Two (or fewer) Car Garage	20 feet maximum
Three or More Car Garage	30 feet maximum

10.03.04 Forms – The forms shall be of metal, straight and free from warp, and of sufficient strength to resist springing during the process of depositing and finishing the concrete. The forms shall be the full depth of the concrete. They shall be set firmly on the subgrade, true to the required line and grade, and be held in place by adequate stakes. Approved flexible steel or wood forms shall be used for sharp curves or special sections, when the walk is to be built on a radius of one hundred fifty (150') feet or less. Properly supported wood forms may be used for lengths of less than twenty (20') feet.

10.03.05 Placing and Finishing Concrete – The subgrade shall be thoroughly wetted and the concrete shall be deposited thereon to the proper depth. No concrete shall be placed on a frozen subgrade. The concrete shall be thoroughly spaded along the forms and joints before finishing operations are started. The concrete shall be alternately tamped and struck off with a proper strike board until all the voids are removed and the surface has the required grade and cross section. The surface shall be floated with a steel float just enough to produce a smooth surface free from irregularities.

All edges on all sidewalks, drives, and drive approaches shall be rounded to a radius of one-quarter (¼") inch with an approved finishing tool. All sidewalk joints shall be rounded with an approved double edging tool having a radius of one-quarter (¼") inch on each side (no saw cut joints shall be allowed). Drive Approach joints shall be rounded with an approved double edging tool having a radius of one-quarter (¼") inch on each side or may be saw cut joints in straight lines. The surface of the concrete shall then be brushed lightly with a fine brush to produce a slightly roughened surface and remove the finishing tool marks. Brushing shall be perpendicular to the flow of traffic on the surface being broomed.

Saw cut joints shall be completed at the earliest opportunity in the curing period. Expansion and contraction cracks which appear as a result of improper or un-timely saw

cutting, will result in removal and replacement of concrete. Saw cut joints which are not perfectly straight shall require removal and replacement of the concrete.

Walk shall be formed to meet the requirements of current A.D.A. standards.

Maximum slopes of walk in the direction of travel shall not exceed a grade of 1:12. Maximum grades shall limited to a maximum run of 30 feet in length. Upon reaching a maximum run of 30 feet at 1:12 slope, a 5 foot by 5 foot level landing area (with maximum 2% slope) shall be constructed.

Level landing areas (2% maximum slope) shall be constructed at the top and bottom of all ramps. Minimum area for level landing areas are 5 feet by 5 feet.

All changes in grades shall be perpendicular to direction of travel on sidewalk. All changes in direction shall be accomplished at a level landing area (2% maximum slope). Maximum cross-slope shall be limited to 2%.

10.03.06 Joints – Joints shall be constructed to provide for expansion and contraction of the concrete as follows:

(a) General – Joints shall be constructed true to line, with their faces perpendicular to the surface of the sidewalk. Transverse joints shall be constructed at right angles to the centerline of the sidewalk, and longitudinal joints shall be constructed parallel to the centerline, unless otherwise required. When the sidewalk is constructed in partial-width slabs, transverse joints in the succeeding slab shall be placed in line with like joints in the adjacent slab. In the case of widening existing sidewalk, transverse joints shall be placed in line with the like joints in the existing sidewalk.

(b) Expansion Joints – Expansion joints one-half (½") inch thick, extending to the full depth of the sidewalks, shall be placed in the sidewalk at intervals of every fifty (50') feet. Expansion joints three-quarter (¾") inch thick, extending the full depth of the sidewalk shall be placed at the beginning of sidewalk ramps at intersections, between the sidewalk and drive approaches, and at those locations where the walk extends from a building or other rigid structure to the curb.

(c) Contraction Joints – Contraction joints shall be placed at right angles to the edge of the sidewalk at intervals equal to the width of the sidewalk, and at other locations as shown in the Standard Details. The joints may be produced by use of slab division templates or approved jointing tool extending to one-quarter (1/4) the full depth of the concrete. These slab division templates or tools shall be of steel not less than one-eighth (1/8") inch thick, and not more than one-quarter (1/4") inch thick. They shall be left in place until the concrete has set sufficiently to hold its shape, but shall be removed while the forms are still in place.

10.03.07 Curing of concrete sidewalks and drive approaches shall be performed in accordance with Section 7.03.06 of these Specifications.

10.03.08 Protection:

(a) The Contractor shall be responsible for protection of the concrete from damage caused by construction operations, rain, or any other means. The Contractor shall insure that no vehicles drive over new concrete for a period of at least seven days.

(b) The Contractor shall be responsible for the concrete placed during cold weather, and any concrete injured by frost action shall be removed and replaced at his expense.

(c) No concrete shall be poured between November 1 and May 1, unless approved by the Engineer. The following protection shall be used for cold weather protection of concrete:

Forecast low Temperature for upcoming three (3) day period	Protection Requirement
40˚	No Restrictions
39˚ to 35˚	Cover with plastic
35˚ to 32˚	Winter Protection (Blankets or Straw)
31˚ and Below	Pour will not be allowed

10.03.09 Backfilling shall be performed after the concrete has set a minimum of 48 hours, and the side forms have been removed. The space on both sides of the walk shall be backfilled with Class II sand unless approved by the Engineer which shall be compacted and trimmed to conform to the cross-section shown on the plans.

10.03.10 Cleaning Up shall be completed before final acceptance of the work. The Contractor shall clean the street surface, walks, gutters, fences, lawns, private property, right-of-way, and structures, leaving them in as good condition as originally found, and shall remove all machinery, tools, surplus materials, temporary buildings and other temporary structures from the site.

10.04 Method of Measurement:

(a) Concrete sidewalk will be measured in place by area in square feet at the specified thickness unless otherwise provided.

(b) Concrete sidewalk with integral curb will be measured in place by area in square feet at the specified thickness unless otherwise provided. Varying height of integral curb is included within the unit price of the item.

(c) Concrete drive approaches will be measured in place by area in square yards, at the specified thickness, unless otherwise provided.

(d) Concrete walk ramp will be measured in place by area in square feet at the specified thickness, unless otherwise provided. The limits of walk ramp shall be the area measured in square feet from the back of curb to the top of the flared ramp. All other walk is considered sidewalk and shall be paid as such.

(e) Non-reinforced concrete shall be measured in place by area in square feet at the specified thickness unless otherwise provided.

10.05 Basis of Payment:

Concrete sidewalk, concrete sidewalk with integral curb, concrete walk ramps, non-reinforced concrete, and drive approaches will be paid for at the contract unit price per square feet and square yard. Unit prices for said work shall be payment in full for furnishing all labor, equipment and materials, placing subbase if required, all associated grading and performing the work complete including curing and backfilling.

Truncated domes plates placed at ADA walk ramps shall be paid per lineal foot.

Any four inch (4") concrete flat work not covered by other items shall be paid as 4" Non-reinforced concrete.

Concrete A.D.A. ramps shall be paid as concrete walk ramps per square foot.