



ADDENDUM NUMBER 2

Project Number 89002785

Project Title Riverfront Heritage Trail Segment 4C MO Madison to State Line Central Industrial District Fed No. CMAQ-3300 (499)

County Jackson

ISSUE DATE: **(draft)**

Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on TUESDAY, **11-02-2010**, are amended as follows:

The Bid date for this Project stated in Document 00130 - Invitation to Bid shall be changed to: 2:00 PM, on TUESDAY, **NOVEMBER 9, 2010**.

Information to Bidders The following is provided to Bidders for information only:

The following is a list of questions and corresponding answers for the above referenced project.

- Q1. Will a longitudinal control joint for the trail be required?
A. Contraction joints spacing shall be 15' (02775 - C - 2).
- Q2. What will be the expansion joint spacing?
A. Expansion joints shall be installed per 02775 - C - 1.
- Q3. Will Railroad Insurance be required where we come within 50' of the tracks on Madison Street?
A. Railroad insurance will not be required. Tracks at Madison are inactive.
- Q4. Will the Owner be paying for all testing costs other than the soil stability and fill tests called out in the spec to be paid by contractor?
A. Owner will be responsible for all testing costs, including soil stability and fill tests. Specification Section 02315 "Specification" has been modified to note this change.
- Q5. Are all permit costs waived?
A. All permits from the City of Kansas City, MO, are waived.
- Q7. Cannot locate bid item #46 for "Geo Fern Co. Light Pole Relocation." Where is this shown?
A. The pole relocation is indicated on sheet C104. A detail for the pole relocation is provided on sheet E107 as revised.

- Q8. What forms need to be turned in on the day of the bid?
- A. The following are required on the day of the bid:
1. Bid Form
 2. Bid Bond
 3. Experience Reference Summary
 4. Unit Prices
 5. Anti Collusion Statement
 6. Employee Eligibility Verification Affidavit
 7. Memorandum of Understanding from Homeland Security
- Q9. I did not see any line item on the bid form to identify DBE % like we have seen on previous city of KCMO bid forms. I guess I interpret that meaning that only the low bidder and maybe 2nd or 3rd are the only ones that need to turn in that information (3) days following the bid with the DBE submittal forms? Basically, no DBE information is turned in on bid day?
- A. An Affidavit of Intended Utilization is not required on the day of the Bid. Please note that the following items are required to be submitted **by 4:00 p.m. within three (3) business days after the bid opening:**
1. DBE Submittal Forms (3 pages)
 2. Subcontractor Certification Regarding Affirmative Action (Prime contractor must execute this certification and obtain an executed Certification from each proposed subcontractor; and
 3. Certification that Contractor is Not Excluded from State or Federal Programs.

See item 17 in Section 00210 of the Instructions to Bidders for further clarification of all submittals required following the bid opening. In order for the bid to be considered responsive, bidders should comply with all submittal requirements.

Bidding Requirements

1. Because November 11, is a holiday, and therefore not a business day, the **submittals required under section 17(B) of Section 00210 "Instructions to Bidders" will be due on Monday, November 15, 2010.**

Specifications

1. Section 02225 "Saw Cutting" is hereby deleted and replaced with the attached Section 02225 "Saw Cutting – Addendum No. 2".
2. Section 02230 "Clearing, Grubbing and Demolition" is hereby deleted and replaced with the attached Section 02230 "Clearing, Grubbing, and Demolition – Addendum No. 2".
3. Section 02280 "Utility Adjustments" is hereby deleted and replaced with the attached Section 02280 "Utility Adjustments – Addendum No. 2".
4. Section 02315 "Excavation" is hereby deleted and replaced with the attached Section 02315 "Excavation – Addendum No. 2".

5. Section 02620 "Underdrains" is hereby deleted and replaced with the attached Section 02620 "Underdrains – Addendum No. 2".
6. Section 02630 "Enclosed Storm Sewers and Drainage Structures" is hereby deleted and replaced with the attached Section 02630 "Underdrains – Addendum No. 2".
7. Section 02740 "Flexible Pavement" is hereby deleted and replaced with the attached Section 02740 "Flexible Pavement – Addendum No. 2".
8. Section 02745 "Street Cut Restoration" is hereby deleted and replaced with the attached Section 02740 "Street Cut Restoration – Addendum No. 2".
9. Section 02775 "Sidewalks Driveways Curb Ramps" is hereby deleted and replaced with the attached Section 02775 "Sidewalks Driveways Curb Ramps – Addendum No. 2".
10. Section 03300 "Cast In Place Concrete" is hereby deleted and replaced with the attached Section 03300 "Cast-in-Place Concrete – Addendum No. 2."

NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the Bid Form - Document 00410.

A. GENERAL

Where part of the existing concrete curb, sidewalk, driveway, and asphaltic or Portland Cement Concrete pavement is to be removed at locations other than contraction or expansion joints, the existing concrete shall be cut with a concrete saw to a minimum depth of two (2) inches or one-half (1/2) the existing slab, whichever is greater. Water shall be used as required to control dust during sawing operations. In order to provide true alignment and a vertical face against which the new concrete will be placed, greater depth of cut may be necessary. If the remaining concrete is chipped or cracked during sawing or removal, it shall be re-sawed beyond the limits of the chip or crack, along a line parallel to or perpendicular with the nearest joint, and/or as directed by the Owner's Representative to assure uniform appearance.

B. PAYMENT

1. Method of Measurement – Sawcut will not be measured for payment. Contract quantities as listed in Section 00412, Bid Form-Unit Prices will be used in the final payment.
2. Basis of Payment – Payment for Sawcut will be made at the contract unit price per lineal foot multiplied by the contract quantity as listed in Section 00412, Bid Form – Unit Prices, which shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

END OF SECTION

A. GENERAL

1. This section covers the portion of site work defined as clearing, grubbing and demolition, as required in the CONTRACT DOCUMENTS.
2. Clearing, Grubbing, and Demolition shall conform to APWA Section 2101. All the requirements of the Kansas City Metropolitan Chapter of the American Public Works Association, Standard Specification and Design Criteria (APWA) as amended and supplemented by the City of Kansas City Missouri Public Works Department apply, unless otherwise specified.
3. The CONTRACTOR shall notify property owners one (1) week in advance of removing any special plantings, (e.g. ornamental trees, bushes, garden plants, etc.) so that the owner/caretaker has a reasonable opportunity to transplant them.
4. Demolition and removal shall include the items such as drainage structures, pipe, pavements, curbs, fences, retaining walls, guard rails, and signs.

B. PAYMENT

1. Method of Measurement – Clearing, grubbing and demolition will not be measured for payment. Contract quantities as listed in Section 00412, Bid Form-Unit Prices will be used in the final payment..
2. Basis of Payment - Payment for Clearing, grubbing and demolition will be made at the contract unit price per square yard multiplied by the contract quantity as listed in Section 00412, Bid Form – Unit Prices, which shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

END OF SECTION

A. ADJUSTMENTS

1. Items under this heading include utility adjustments in conjunction with the scope of work for this project as follows: water mains, water service lines, sewer service lines, gas service lines and buried and or overhead cables, utility poles, traffic signals, signal poles and signal cables belonging to public utility companies or the private consumers, such as the KCMO Water Services Department, KCMO Streets & Traffic Division, Gas Service, electric, cable TV, telephone, and other non-franchise utility companies, damaged during the construction of this project shall be repaired as necessary in conformance with the regulations of the involved utilities.
2. The CONTRACTOR is responsible for the maintenance of service of all sewer mains and building sewers encountered during construction. The CONTRACTOR shall not be entitled to additional compensation for the repair of any such lines damaged during his operations.

B. RELOCATIONS

1. Relocations or adjustments to facilities owned by Utility Companies will be accomplished by the utility company at no cost to the CONTRACTOR except Water or City owned Street Lights.
2. The City will endeavor to have all necessary adjustments or relocations of public or private utility facilities in direct conflict with the trail work made as soon as practicable. Such adjustments or relocations will be made at no cost to the CONTRACTOR. The adjustments or relocations may be completed before the CONTRACTOR progresses to the points affected. Under some circumstances, however, such adjustments or relocations may have to be performed during the CONTRACTOR'S construction. The CONTRACTOR shall be responsible for coordinating his work with that of the utility owners or their contractors so as to cause the least possible delay in the work.
3. Locations or grades of items shown on the Plans are considered approximate only. No guarantee is made as to the accuracy or completeness thereof.
4. It is anticipated that unknown items not shown on the plans will also be uncovered during excavations and shall require adjustment as specified herein. The CONTRACTOR shall carefully note the location of all such items exposed and report the information to the owning utility and to the Owner's Representative. The CONTRACTOR'S employees shall not knowingly cover over permanently any such items unless specifically instructed to do so.

C. STREET RIGHT-OF-WAYS/EASEMENTS

Utilities located in street right-of-way, except water and street lighting, requiring adjustment or relocation for this construction shall be adjusted or relocated by the respective owner at no cost to the CONTRACTOR. The CONTRACTOR shall be responsible for coordinating this activity with the responsible utility.

D. PROTECTION

Utilities located in utility easements or private easements shall be protected.

E. PAYMENT

No separate payment will be made for this item. All costs pertaining thereto shall be included in the Contract Unit Price(s) for other items.

END OF SECTION

A. GENERAL

1. **APWA-KCMO.** All the requirements of the Kansas City Metropolitan Chapter of the American Public Works Association (APWA), *Standard Specifications and Design Criteria* apply as amended and supplemented by the Department of Public Works of the City of Kansas City, Missouri (KCMO). Sections of said Specifications will be hereinafter referred to as "APWA-KCMO."
2. **Excavation Classification.** All excavation is unclassified.
3. **Excavation.** Excavation shall conform to APWA-KCMO 2102.4 and 2602.3.A, except that no blasting will be allowed.
4. **Overexcavation.** Additional depth excavation or overexcavation, undergrading, and backfill shall conform to APWA-KCMO 2102.5.
5. **Soils Testing.** The CITY will hire an independent geotechnical testing firm to perform soil stability tests on overexcavation and embankment areas.

B. SUBSURFACE EXPLORATION

1. **Borings.** Four borings were made by Terracon, Lenexa, Kansas, using a power rotary drill rig. The borings were terminated at a depth of approximately fifteen feet or at auger refusal. Their locations are indicated on the Contract Drawings, and their bore logs are provided, for information only, in accordance with the Supplementary Conditions.
2. **Recorded Information.** Subsurface information should not be interpreted as representing a complete or exhaustive exploration of the depth or position of rock, nor does this information indicated the hardness of rock that was identified or refusal of the bore. The accuracy of records shown is not guaranteed.
3. **Materials Determinations.** The CONTRACTOR shall make his own assessments and determinations as to the quantity, position, extent, depth, character and densities of existing subsurface rock or other materials in preparing the bid and in the performance of the work through to its final completion.

C. OVEREXCAVATION AND BACKFILLING

1. **Overexcavation.** Prior to placing the retaining wall, storm sewer lines and adjoining inlet structures, all existing unsuitable or deleterious material in the trench line such as soft silt, humus, sand, cobbles, and boulders shall be overexcavated down to firm clays or weathered shale, or three feet below bottom of pipe.

2. **Backfilling of Overexcavated Material.** Upon backfilling the overexcavated material in accordance with APWA-KCMO 2102.5 and 2602.3.A (including CLSM) and prior to laying the pipe, the soil may need to be re-worked and re-tested until the bearing capacity of the soils supporting the pipe and adjoining junction structures is satisfactory to the Owner's Representative. The average net allowable bearing capacity of the soils supporting the pipe shall be on the order of 2,000 pounds per square foot (psf).
3. **Geotechnical Reporting.** Prior to backfilling the overexcavated area with select material, the CONTRACTOR shall obtain approval from the Engineer. The CITY will provide an independent geotechnical services firm to perform as described herein. The firm shall inspect and direct the CONTRACTOR'S excavation based upon tests (e.g. dry densities and moisture-content) of the underlying soil and compacted fill areas that substantiate the ability of the select backfill material to uniformly support the storm pipe, adjoining junction structures and retaining walls at 2,000 pounds per square foot. Upon their satisfaction, the firm shall provide the Engineer with their test reports and recommendations prior to the CONTRACTOR backfilling the overexcavated area.

D. MEASUREMENT

No measurements will be made for determining the volumes of excavation and backfill. Overexcavation will be measured in normal trench width by the cubic yard or tenth part thereof.

E. PAYMENT

1. Payment for [Excavation, Overexcavation, MoDOT Type 1 Aggregate, Backfilling, and Haul Off](#) will be made at the Contract Unit Price as listed in Section 00412, Bid Form-Unit Prices. Such payment and price shall constitute full compensation for all labor, materials, and equipment necessary to complete these items.

END OF SECTION

A. GENERAL

1. This item consists of furnishing and installing an underdrain system as specified in the Contract Drawings and appended herein.
2. All the requirements of the Kansas City Metropolitan Chapter of the American Public Works Association (APWA), *Standard Specifications and Design Criteria* apply as amended and supplemented by the Department of Public Works of the City of Kansas City, Missouri (KCMO). Sections of said Specifications will be hereinafter referred to as "APWA-KCMO."
3. All construction methods utilized shall be in accordance with APWA-KCMO 2600. All pipe sections furnished shall be of standard manufacture in accordance with the Contract Documents.

B. PRODUCTS AND EXECUTION

1. The Contractor shall have an available source of materials so that they can be quickly installed upon trench excavation.
2. Rock aggregate shall be consolidated by mechanical vibration in lifts appropriate for the equipment used. For self-propelled vibrator plate compactors, lift height shall be a maximum of six inches. Aggregate for the underdrain shall consist of 3/4" clean rock.
3. Geotextiles
 - A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:
 1. Survivability: Class 2; AASHTO M 288.
 2. Grab Tensile Strength: 157 lbf; ASTM D 4632.
 3. Sewn Seam Strength: 142 lbf; ASTM D 4632.
 4. Tear Strength: 56 lbf; ASTM D 4533.
 5. Puncture Strength: 56 lbf; ASTM D 4833.
 6. Apparent Opening Size: No. 70 sieve, maximum; ASTM D 4751.
 7. Permittivity: 0.5 per second, minimum; ASTM D 4491.
 8. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.
4. Underdrain pipe shall be laid with perforations down.
5. Under no circumstance shall the underdrain be connected to a gutter drain or sanitary sewer pipe.

C. PAYMENT AND MEASUREMENT

1. 3/4" Clean Granular Backfill
 - A. Method of Measurement – 3/4" Clean Granular Backfill will not be measured for payment. Contract quantities as listed in Section 00412, Bid Form-Unit Prices will be used in the final payment.
 - B. Basis of Payment - Payment for 3/4" Clean Granular Backfill will be made at the contract unit price per cubic yard multiplied by the contract quantity as listed in Section 00412, Bid Form – Unit Prices, which shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

2. Filter Fabric
 - A. Method of Measurement – Filter Fabric will not be measured for payment. Contract quantities as listed in Section 00412, Bid Form-Unit Prices will be used in the final payment.
 - B. Basis of Payment - Payment for Filter Fabric will be made at the contract unit price per square yard multiplied by the contract quantity as listed in Section 00412, Bid Form – Unit Prices, which shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

A. GENERAL

1. This section covers items necessary for construction and installation of all storm sewer pipe and structures indicated in the Contract Drawings.
2. Storm sewer construction shall conform to APWA-KCMO 2600.
3. Replacement of disturbed street pavement by the installation of pipe sewer construction shall be repaired in accordance with Section 02745, Street Cut Restoration.
4. Dimensions of structures (e.g. pipe, inlets) stated in the Contract Documents, are in reference to the inside dimensions.

B. SPECIAL PRODUCTS AND EXECUTION

1. **Storm Sewer Pipe.** All Poly Vinyl Chloride (PVC) pipe as called out on the Contract Drawings and listed in Section 00412, Bid Form – Unit Prices shall be of standard manufacture in accordance with the applicable sections of the Standard Specifications. Pipe materials shall meet or exceed APWA-KCMO 2600 standards for ASTM D3034, SDR 26 and Solvent Cement ASTM D2564.
2. **Flowable Fill.** CLSM (flowable fill) shall be used to backfill all storm sewer structures and storm sewers located within all pavements within street right of way, as specified in APWA-KCMO 2602.3.C.
3. **Curb Inlets.** New curb inlets shall conform to the KCMO Standard Drawings "CI-1, Curb Inlet Type 1" or "CI-2, Curb Inlet Type 2" with steel frame throat. The structure(s) shall be constructed to the size and type listed in the Bid Form-Unit Prices; the throat height(s) shall be as shown on the standard drawings unless otherwise specified on the plans and in the Bid Form-Unit Prices. Precast top slabs shall be formed with the steel frame in place. Until it is poured in place with the concrete gutter throat, the steel framework shall not be used to lift or to support the weight of the top slab. The curb inlet top slab shall have a type RC4C shallow ring & cover (with cam locks).
4. **Field Inlets & Grate Inlets.** Field inlets and grate inlets shall conform to APWA-KCMO Drawing "FI-1" and GI-1, respectively. Field inlet openings shall be as specified in the Contract Drawings.
5. **Manholes and Junction Boxes.** Manholes and Junction Boxes shall conform to KCMO Standard Drawings, MH-1 and JB-1, respectively. Sizes shall be as shown in the Contract Drawings. Shrink wrap shall be used to seal the manhole joints between the precast cone barrel and the manhole ring casting wherever storm sewer manholes are located adjacent to or within driveway or street pavements.

6. **Manhole Ring and Covers.** Inlet manhole ring and covers shall be "MH-RC4C" with cam locks. Storm sewer manhole ring and covers shall be "MH-RC3". Cam locks are required on all field inlet tops in residential areas, curb inlet tops in non-sump areas, all areas subject to flooding – such as in a floodplain or within a creek channel, and whenever bolt down rings are specified. Manhole rings are only required to be bolted-down on 'pressure' piped sewers. Vented covers will not be used in new construction.
7. **Connection To Existing System.** Where a storm sewer pipe is being connected to an existing drainage structure, the work shall be constructed by sawing and chipping a hole through its sidewall to allow a minimum of three-inches of new concrete around the pipe. The invert shall be chipped away and replaced to shape a new doghouse collar and invert. The interior concrete surfaces shall be grouted smooth with non-shrink grout. Depending on the method and extent of the sidewall demolition, reinforcing bars may need to be doveled into the existing structure at the direction of the Owner's Representative.

Pipe Trimming. Pipes connecting to structures shall be cut parallel with the inside face of structures with plane walls. Pipes connecting to other pipes shall be cut parallel with the spring line of the pipe. Projection of the pipe beyond the inside face shall not exceed one inch. Voids shall be grouted with non-shrink grout.

8. **Connection Of Existing Pipes to New Pipes.** Connection to and/or extension of an existing pipe shall be accomplished by construction of a concrete collar between the old and new pipes. The collar shall be a minimum of 6" thick and 3' long using MCIB Mix No. A558-1-2 and shall encircle the pipe. The connection shall be properly supported to prevent settlement. All work shall be performed to the satisfaction of the OWNER'S Representative.
9. **Inlet and Pipe Removal.** This section consists of removing an inlet and associated pipe. Backfill shall be in accordance with Figure 1 APWA-KCMO 2602.3.C. The existing pipe removed shall be plugged with concrete plugs. Any abandoned pipes left in place shall be filled with Fly Ash Slurry.
10. **Tunneling.** Storm sewer pipes within the drip line of a tree marked to be saved shall be installed by tunneling under the roots. There will be no separate payment for tunneling operations of 30' or less.

C. EXFILTRATION AND OUTFLOW TESTING OF SEWER LINE

Where required for gasketed storm sewers located in close proximity to water lines, exfiltration tests shall be performed by the CONTRACTOR in accordance with APWA-KCMO 2509.4.2. The CONTRACTOR shall furnish all labor, equipment, materials, and reports for the required acceptance tests. Pipelines that do not conform to the

requirements shall be repaired and/or replaced and shall be retested until the pipeline meets the project requirements. Testing shall be recorded by the CONTRACTOR and a copy shall be submitted to the Engineer. No testing shall be performed before backfill and compaction operation has been completed.

D. PAYMENT

- 1. Storm Sewer Pipe.** Poly Vinyl Chloride (PVC) pipe will be measured per linear foot along the horizontal geometric centerline of the pipe to the inside walls of the structures at each end, be the structure a PCC inlet, manhole, box culvert, concrete open channel liner, or headwall. No separate payment will be made for pressure testing of the sewer line. Payment for the various pipe sizes and types will be made at the corresponding Contract Unit Price as listed in section 00412, Bid form-Unit Prices. Such payment and price shall constitute full compensation for all labor, material, and equipment necessary to complete the items.
- 2. Curb Inlets, Field Inlets, Grate Inlets, Manholes and Junction Boxes.** Payment for these items will be made at the corresponding Contract Unit Prices as listed in Section 00412, Bid form-Unit Prices. Costs shall include fabrication, delivery, earthwork, installation, and all other items necessary to construct the structures. Such payment and price shall constitute full compensation for all labor, material, and equipment necessary to complete the items.
- 3. Bends, Wyes, and Cleanouts.** Payment for Bends, Wyes, and Cleanouts will be made at the corresponding Contract Unit Price as listed in section 00412, Bid form-Unit Prices. Such payment and price shall constitute full compensation for all labor, material, and equipment necessary to complete the items.

END OF SECTION

A. GENERAL

1. This section governs all the work and materials necessary for the construction of asphaltic concrete pavements.
2. All the requirements of the Kansas City Metropolitan Chapter of the American Public Works Association (APWA), *Standard Specifications and Design Criteria* apply as amended and supplemented by the Department of Public Works of the City of Kansas City, Missouri (KCMO). Sections of said Specifications will be hereinafter referred to as "APWA-KCMO."
3. All work included in this Section shall conform to APWA-KCMO 2600.
4. Asphaltic concrete mixes shall conform to APWA-KCMO 2205. Base course shall be Type 1; surface course and wedging shall be Type 3.
5. Surface course and wedging shall be virgin asphalt.
6. Recycled asphalt may be used for the base course.

B. MEASUREMENT

1. The length and width of Remove and Replace Existing Asphalt Pavement will be measured to the nearest foot and converted to the nearest 0.1 square yard for payment.

C. PAYMENT

1. Remove and Replace Existing Asphalt Pavement will be paid for at the Contract Unit Price as listed in Section 00412, Bid Form-Unit Prices. Such payment and price shall constitute full compensation for all labor, materials, and equipment necessary to complete the item.

END OF SECTION

A. GENERAL

1. This section covers all work associated with street cut restoration as indicated on the Contract Documents.
2. All the requirements of the Kansas City Metropolitan Chapter of the American Public Works Association (APWA), *Standard Specifications and Design Criteria* apply as amended and supplemented by the Department of Public Works of the City of Kansas City, Missouri (KCMO). Sections of said Specifications will be hereinafter referred to as "APWA-KCMO."
3. All work associated with the pavement shall conform to APWA-KCMO 2200.
4. All street surfaces removed by this construction shall be replaced in accordance with the current "Street Cut Restoration," APWA-KCMO Drawing "SR-1," except as modified by APWA-KCMO 2602.3.C and the trench backfill note on the plans.

B. MEASUREMENT

1. The restored street pavement above the sewer pipe will be measured to the nearest tenth of a foot, horizontally, along the geometric centerline of the pipe to the edges of the full depth restored pavement.
2. No measurement will be made for street cut restoration work associated with utility relocations.

C. PAYMENT

1. Payment for Asphalt Replacement at Trenches per SR-1 will be made at the Contract Unit Price as listed in Section 00412, Bid Form-Unit Prices. Such payment and price shall constitute full compensation for all labor, materials, and equipment for the performance of all the work necessary to complete the item.
2. No payment will be made for Street Cut Restoration work associated with water main or water service line relocation work. All costs associated with street cut restoration above relocated water lines shall be included in the Contract Unit Price(s) for water main item(s) as listed in Section 00412, Bid Form-Unit Prices.

END OF SECTION

A. SIDEWALKS

1. Portland cement concrete (PCC) sidewalks shall conform to APWA-KCMO 2301 and Standard Drawing "SW-1".
2. The CONTRACTOR shall protect the newly placed sidewalk until the concrete has reached a compressive strength of 3,000 psi as evidenced by the breaking of laboratory test cylinders.
3. During construction, care shall be taken to ensure public safety along the sidewalk.
4. PCC sidewalk shall be a minimum of eight (8) inches thick reinforced concrete for the ten (10) linear feet of "SW-1, Type A", ADA accessible ramps constructed at each street corner. Reinforcing shall be: Glass fiber reinforcement: 100 percent virgin polypropylene containing no reprocessed olefin materials, and specifically manufactured for use as concrete secondary reinforcement.
 - a. Specific gravity: 0.91.
 - b. Tensile strength: 55 kips per square inch.
 - c. Fiber length: Graded.
 - d. Acceptable manufacturers: Fibermesh Company or approved substitute.
5. All curb boxes, manholes, tile covers, and meter-pit covers shall be adjusted to grade and movable portions shall be left free and clean.

B. ADA ACCESSIBLE RAMPS WITH DETECTABLE WARNING

1. Detectable warnings are required standardized surface features built-in or applied to walking surfaces on sidewalks or ramps to warn visually impaired people of hazards on circulation path. ADA accessible ramps shall conform to the details as shown on the following pages in this Section. The CONTRACTOR shall be responsible for the cost of providing fill material consisting of untreated compacted aggregate within the top six (6) inches of subgrade.
2. Contractor shall submit shop drawings in accordance with Section 01330, "Shop Drawings and Material Submittals", which clearly defines the method and materials used for detectable warning. Rolled or stamped detectable warning will not be permitted.
3. Detectable warnings shall consist of raised truncated domes with a 0.9 inch nominal diameter, a nominal 0.2 inch height, and a nominal center to center spacing of 2.35 inches. They shall extend across the full walking surface of the walk or ramp, and shall be 2 feet long in the direction of pedestrian travel.

4. Detectable warnings shall contrast visually with adjoining surfaces, either light-on-dark or dark-on-light. The material used to provide contrast should contrast by at least 40%. Contrast in percent is determined by:

Contrast = $[(B1-B2)/B1] \times 100$, where:

B1 = light reflectance value (LRV) of the lighter area

B2 = light reflectance value (LRV) of the darker area

Light Reflectance Value shall be determined by ASTM D2805 for painted surfaces or by visual comparison to paint chips with LRVs determined by ASTM D2805 for non-painted surfaces. The material used to provide contrast shall be an integral part of the walking surface.

C. JOINTS

1. One-half inch thick expansion (isolation) joint material shall be placed at right angles around abutting catch basins, poles, fire hydrants, and manholes, after adjusting them to grade, to isolate reflective cracking in flatwork concrete. Expansion joints shall also be constructed where sidewalk abuts existing sidewalk, curb, driveways, and as directed by the Owner's Representative.
2. In general, contraction joints shall be tooled into the finished concrete to a depth that is a minimum of one-fifth the thickness of the flatwork. Spacing of contraction joints shall be fifteen (15) feet for sidewalks.

D. PAYMENT AND MEASUREMENT

- A. 8" Thick Reinforced Concrete Walk
 1. Method of Measurement – Sidewalks will be field measured in-place following their construction. The pay quantity will be the area in square yards of Sidewalks actually required and installed. Payment will be made for the actual quantities constructed in accordance with the Contract Documents, be they more or less than the listed quantities. The method and precision of such measurements for each respective "field measure" item is specified in the APWA Construction and Material Specifications, unless modified herein.
 2. Basis of Payment – Payment for accepted Sidewalks will be made at the contract unit price per square yard multiplied by the pay quantity, which shall be full compensation for furnishing all materials including concrete and reinforcement, labor, equipment, tools, and incidentals necessary to complete the item.

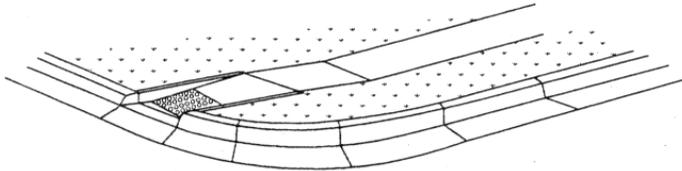
B. 4" Thick Crushed Stone Base

1. Method of Measurement – 4" Thick Crushed Stone Base will be field measured in-place following construction. The pay quantity will be the area in square yards of stone base actually required and installed. Payment will be made for the actual quantities constructed in accordance with the Contract Documents, be they more or less than the listed quantities. The method and precision of such measurements for each respective "field measure" item is specified in the APWA Construction and Material Specifications, unless modified herein.
2. Basis of Payment – Payment for accepted 4" Thick Crushed Stone Base will be made at the contract unit price per square yard multiplied by the pay quantity, which shall be full compensation for furnishing all materials including concrete and reinforcement, labor, equipment, tools, and incidentals necessary to complete the item.

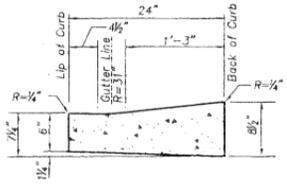
C. Detectable Warnings

1. Method of Measurement – Detectable Warnings will be field measured in-place following their construction. The pay quantity of Detectable Warnings will be the area in square feet of Detectable Warnings actually required and installed. Payment will be made for the actual quantities constructed in accordance with the Contract Documents, be they more or less than the listed quantities. The method and precision of such measurements for each respective "field measure" item is specified in the APWA Construction and Material Specifications, unless modified herein.
2. Basis of Payment – Payment for accepted Detectable Warnings will be made at the contract unit price per square foot multiplied by the pay quantity, which shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

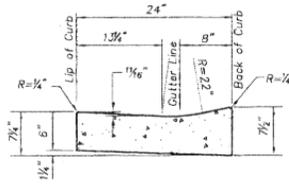
Type A Sidewalk Ramp Details



3-D View Type A Sidewalk Ramp
Not to Scale

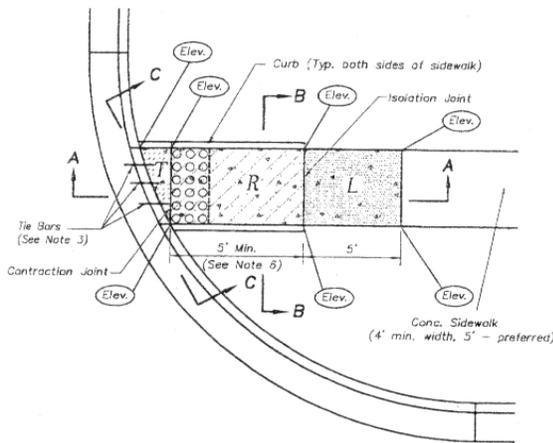


Use With Type CG-2 Curb
Scale: 1"=1'-0"

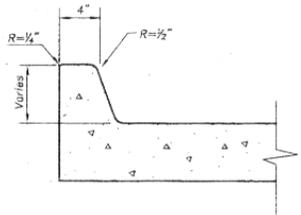


Use With Type CG-1 Curb
Scale: 1"=1'-0"

Street Curb Detail at Ramp



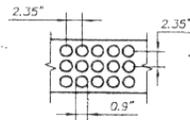
Type A Sidewalk Ramp
Scale: 1/4"=1'-0"



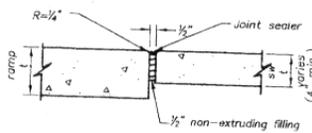
Ramp Curb Detail
Scale: 1 1/2" = 1'-0"

Legend:

- Ramp
- Landing
- 2' Wide Detectable Warning
- Transition



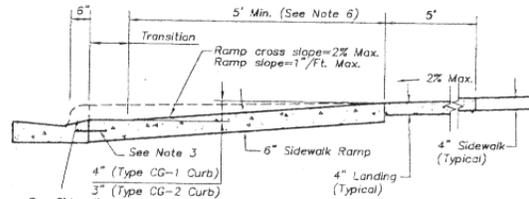
Detectable Warning Dome Spacing and Section
Not to Scale



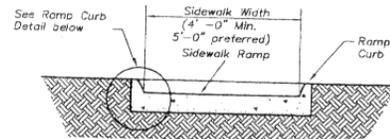
Isolation Joint
(See Note 5)

Sidewalk Ramp Notes:

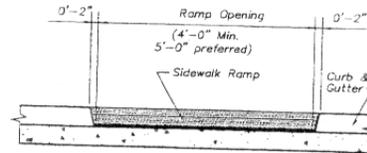
1. Sidewalk ramp location determined from the intersection of the extension of back of sidewalk and back of curb & gutter.
2. **Elev.** Spot elevations will not be provided. Grades shall not exceed those specified in note #7.
3. Key all construction joints or use tie bars #4 epoxy coated @ 12 inch o.c.
4. Longitudinal joint spacing to match width of sidewalk.
5. Isolation joints shall be placed where walk abuts driveways and similar structures, and 250' centers max.
6. Sidewalk Ramp shall be lengthened to provide ADA compliance slope but need not exceed 15'.
7. ADA maximum ramp slope = 1" / Ft.
ADA maximum cross slope = 2%.
8. Detectable warnings to comply with ADA requirements.
9. Landing for Type C ramp along entire curb return is preferred, but may be shortened to minimum ADA compliant dimension.



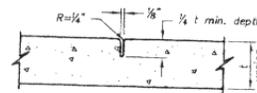
Section A-A
Type A & B Sidewalk Ramp
Scale: 1/2"=1'-0"



Section B-B
Type A & B Sidewalk Ramp
Scale: 1/2"=1'-0"

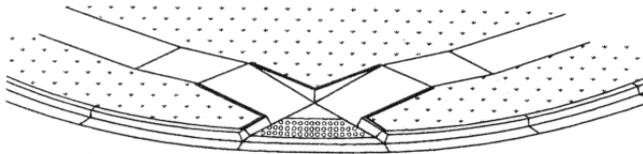


Section C-C
Type A & B Sidewalk Ramp
Scale: 1/2"=1'-0"



Contraction Joint
(See Note 4)

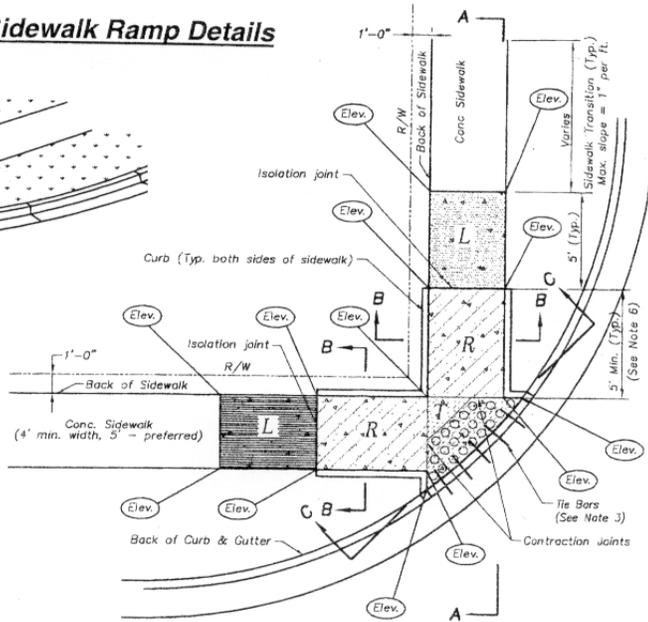
Type B Sidewalk Ramp Details



3-D View Type B Sidewalk Ramp
Not to Scale

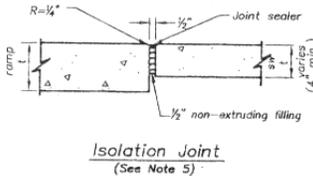
Sidewalk Ramp Notes:

1. Sidewalk ramp location determined from the intersection of the extension of back of sidewalk and back of curb & gutter.
2. **Elev.** Spot elevations will not be provided. Grades shall not exceed those specified in note #7.
3. Key all construction joints or use tie bars #4 epoxy coated @ 12 inch o.c.
4. Longitudinal joint spacing to match width of sidewalk.
5. Isolation joints shall be placed where walk abuts driveways and similar structures, and 250' centers max.
6. Sidewalk Ramp shall be lengthened to provide ADA compliance slope but need not exceed 15'.
7. ADA maximum ramp slope = 1" / Ft.
ADA maximum cross slope = 2%.
8. Detectable warnings to comply with ADA requirements.
9. Landing for Type C ramp along entire curb return is preferred, but may be shortened to minimum ADA compliant dimension.

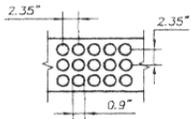


Type B Sidewalk Ramp

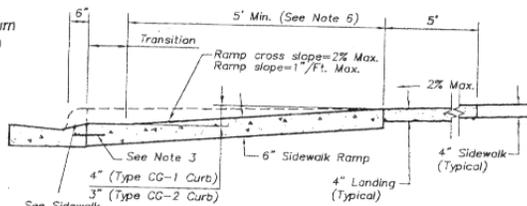
Scale: 1/4"=1'-0"



Isolation Joint
(See Note 5)

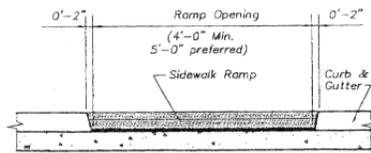


Detectable Warning Dome Spacing and Section
Not to Scale



Section A-A Type A & B Sidewalk Ramp

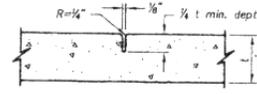
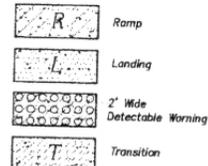
Scale: 1/2"=1'-0"



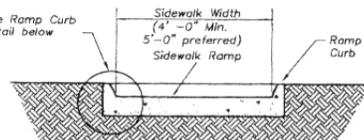
Section C-C Type A & B Sidewalk Ramp

Scale: 1/2"=1'-0"

Legend:

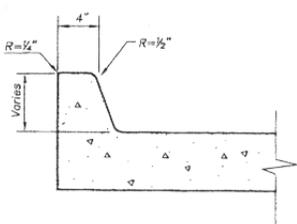


Contraction Joint
(See Note 4)



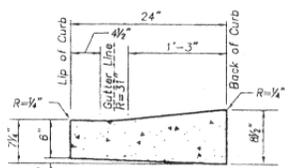
Section B-B Type A & B Sidewalk Ramp

Scale: 1/2"=1'-0"



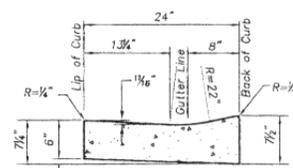
Ramp Curb Detail

Scale: 1 1/2"=1'-0"



Use With Type CG-2 Curb

Scale: 1"=1'-0"

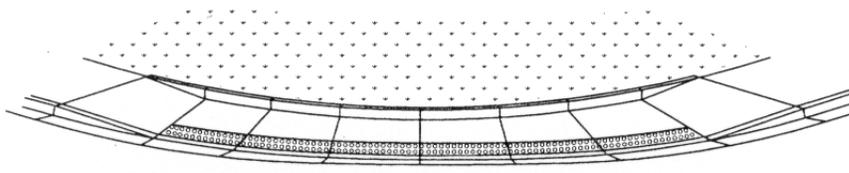


Use With Type CG-1 Curb

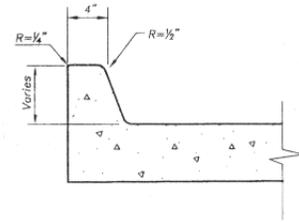
Scale: 1"=1'-0"

Street Curb Detail at Ramp

Type C Sidewalk Ramp Details

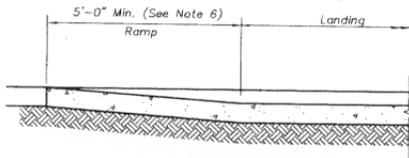


3-D View Type C Sidewalk Ramp
Not to Scale



Ramp Curb Detail

Scale: 1 1/2" = 1'-0"

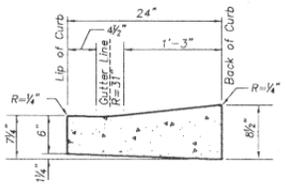


Section B-B Type C Sidewalk Ramp

Scale: 1/2" = 1'-0"

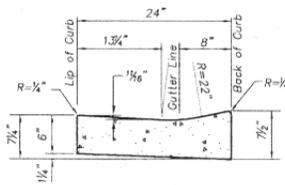
Legend:

- Ramp
- Landing
- 2' Wide Detectable Warning
- Transition



Use With Type CG-2 Curb

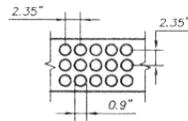
Scale: 1" = 1'-0"



Use With Type CG-1 Curb

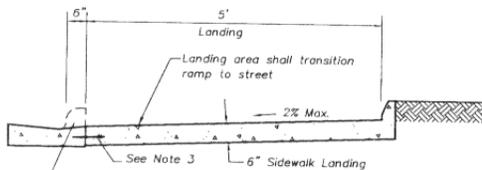
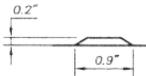
Scale: 1" = 1'-0"

Street Curb Detail at Ramp



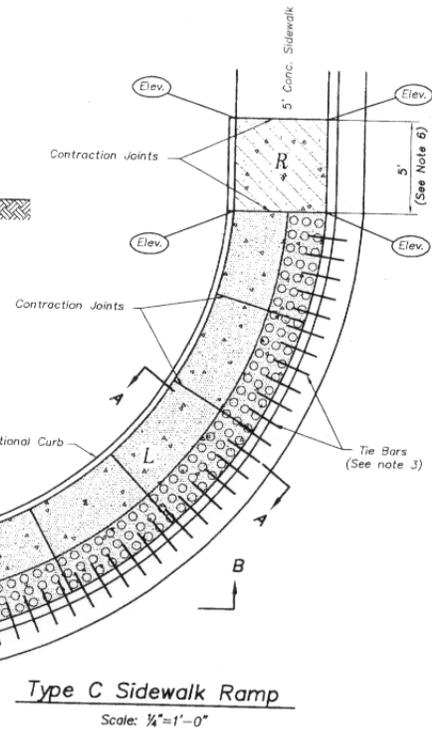
Detectable Warning Dome Spacing and Section

Not to Scale



Section A-A Type C Sidewalk Ramp

Scale: 1/2" = 1'-0"



Type C Sidewalk Ramp

Scale: 1/4" = 1'-0"

Sidewalk Ramp Notes:

1. Sidewalk ramp location determined from the intersection of the extension of back of sidewalk and back of curb & gutter.
2. (Elev.) Spot elevations will not be provided. Grades shall not exceed those specified in note #7.
3. Key all construction joints or use tie bars #4 epoxy coated @ 12 inch o.c.
4. Longitudinal joint spacing to match width of sidewalk.
5. Isolation joints shall be placed where walk abuts driveways and similar structures, and 250' centers max.
6. Sidewalk Ramp shall be lengthened to provide ADA compliance slope but need not exceed 15'.
7. ADA maximum ramp slope = 1" / Ft.
ADA maximum cross slope = 2%.
8. Detectable warnings to comply with ADA requirements.
9. Landing for Type C ramp along entire curb return is preferred, but may be shortened to minimum ADA compliant dimension.

**02775 SIDEWALKS, ADA ACCESSIBLE RAMPS,
DRIVEWAYS, AND SHOULDERS**

02775-7

END OF SECTION

A. GENERAL

1. This specification covers all cast-in-place plain and reinforced concrete construction required by the Contract Documents, including all materials, labor, equipment and appliances.
2. All the requirements of the Kansas City Metropolitan Chapter of the American Public Works Association (APWA), *Standard Specifications and Design Criteria* apply as amended and supplemented by the Department of Public Works of the City of Kansas City, Missouri (KCMO). Sections of said Specifications will be hereinafter referred to as "APWA-KCMO."
3. The current editions, as of date of opening bids for this Contract, of the "Bulletins" and Approved Sections of the "Standard Concrete Specifications" issued by the Mid-West Concrete Industry Board, Inc. of Kansas City, Missouri, are hereby made a part of this specification and shall have the same effect as if repeated herein. Said Bulletin and Specifications will be hereinafter referred to as "MCIB". The CONTRACTOR shall obtain sufficient copies of same to furnish them to his superintendents, pertinent sub-contractors and concrete and material suppliers. References to "Inspector" used in the Bulletins shall also mean "Owner's Representative" or "Engineer."
4. When the provisions of the specifications or plans for this Contract differ from MCIB or APWA-KCMO 2700, the provisions of these specifications and plans shall govern.
5. The OWNER shall provide the laboratory tests.

B. MATERIALS

1. **Cement.** Portland cement, ASTM Design. C-150, Type 1.
2. **Fine Aggregate.** MCIB Section No. 4.
3. **Coarse Aggregate.** Shall conform to the requirements of MCIB Section No. Four (4) except that only mined Bethany Falls limestone shall be used unless otherwise approved by the Owner's Representative. Also, the total shale, coal and lignite content shall not exceed one-half (1/2) percent and the clay content shall be zero percent (0 %).
4. **Mixing water.** MCIB Section No. 4.
5. **Air-Entraining Agent.** Air-entraining agents used to produce specified amounts of air entrainment shall be neutralized Vinsel Resin, Darex AEA, Protex AEA or an

approved equal conforming to the applicable requirements of ASTM Designation C260 and MCIB Bulletin No 20.

6. **Reinforcing Steel.** All reinforcing steel shall be deformed bars and shall comply with ASTM Designation A615, Grade 60. Applicable portions of MCIB Bulletin No. 12, "Reinforcing Steel-Handling and Placing," shall also be observed.
 - a. **Bar Supports.** All bolsters and chairs shall be in accordance with ACI Standard 513. On sub-grade, support on continuous chairs or on concrete brick or hard burned clay brick, at CONTRACTOR's option.
 - b. **Fabrication.** Fabrication of reinforcing steel shall be in accordance with ACI Standard 315. Requirements for laps, spacing, edge distance, length and bending of bars are given on the Plans. Reinforcing steel shall be protected from damage at all times. The bars shall be firmly tied at the alternate crossings, or closer. The steel shall be tied in correct position, positively secured against displacement, and inspected before any concrete is placed. Care shall be exercised to maintain proper clearance between the forms and the reinforcement. Bars at the top of lifts shall be held securely in correct position by means of approved metal bar supports. Before any concrete is placed, any dried mortar, loose rust or mud shall be cleaned from the reinforcing steel.
 - c. **Welded Wire Fabric.** ASTM Design. A-185.
7. **Expansion Joint Filler.** AASHTO M213.
8. **Water Reducing Admixture.** ASTM Design. C-494, Type A.
9. **Ready Mixed Concrete.** Ready mixed concrete, in accordance with ASTM Design. C-94, shall be used unless otherwise authorized by the Owner's Representative. Any concrete which is not plastic and workable when placed on the sub-grade or in the forms shall be rejected.
 - a. **Placement.** Concrete shall be completely placed in the forms within one hour after the truck leaves the ready mix plant or after water is added to the mix, whichever occurs first.
 - b. **Mix.** MCIB Mix No. A 564-3/4-4, air entrained shall be used for structures, rectangular concrete channels, and reinforced concrete box culverts. MCIB Mix No. WA610-1-4, air entrained with a water-reducing admixture shall be used for driveways, sidewalks, and curb and gutters.
 - c. **Slump.** Actual slump shall be kept as low as possible, consistent with proper handling and thorough compaction. Slump shall not exceed 4 inches unless authorized by the Owner's Representative.

10. Concrete Protective Sealer

- a. Provide Materials that conform with the following properties:**
- i. The sealer shall be formulated to coat and waterproof concrete and masonry.
 - ii. The sealer shall not produce a vapor barrier (breathes).
 - iii. The sealer shall be thermally and chemically compatible with Portland cement concrete.
 - iv. The sealer exhibits no chalking, checking, cracking, scaling, blistering or other deleterious effects.
 - v. Color shall be clear.
- b.** The Contractor shall furnish three copies of the manufacturer's certification stating that the materials furnished conform to the requirements of these specifications. The certification shall include or have attached a complete description, technical data and set of instructions and recommendations; a copy of test results from an independent laboratory regularly inspected by a national reference organization (CCRL, AMRL, etc) confirming the various properties outlined above; and material safety data sheets (MSDS).
- c.** Acceptance of the material will be based on the manufacturer's certification and visual inspection by the Design Professional.
- d. Products:** Subject to compliance with requirements, available products that may be incorporated into the work include, but are not limited to the following:
- i. Tamms Industries, Inc. – Tamms Baracade WB 244
 - ii. Sika Corporation, Inc. – Sika Film
 - iii. SpecChem, LLC - SpecFilm

C. QUALITY CONTROLS

- 1. Curing Concrete.** The proper concrete temperatures and moisture levels shall be maintained continuously for 5 days after placing.
- a. Temperature.** Concrete temperature at least 50° F. and not over 100° F.
- b. Walls & Structures.** Cover with 6 mil polyethylene film and leave forms on 5 days, except as required for rubbing.
- c. Slabs.** Polyethylene membrane 4 mil thick; lap joints 6". Hold down with 2 x 4 at laps and at 6 foot centers. Membrane to be translucent or white in hot weather; black in cold weather.

d. **Pavement, Walks, Channels, and other Approved Structures.** Spray approved membrane – 1 gallon to 200 S.F.

2. **Cold Weather Requirements.** MCIB Section 10 as amended herein shall apply.

a. No calcium chloride or other admixture shall be added to the concrete without approval of the Owner's Representative.

b. All coverings and heating equipment shall be on hand prior to beginning placement of the concrete.

3. **Hot Weather Requirements.** MCIB Section 11 shall apply.

4. **Forms - Wall**

a. Forms shall be constructed from surface finished plywood and 2 x 4 studs or approved manufactured forming system. All form material shall be in first class condition and with mortar tight joints. Provide clean-outs at bottom and remove debris.

b. Forms shall be erected true and rigid with adequate bracing to insure alignment. Provide chamfer for all exposed corners.

5. **Concrete Finish**

a. All concrete shall be finished monolithically. No "topping" or "plastering". Walls exposed to view shall be rubbed to produce uniform sandy texture without air voids, fins, form marks or offsets. Tops of all walls shall be hard trowel finish with chamfered corners.

b. Pavement slab, slope paving, and exposed slabs of structures shall receive a light broom finish.

6. **Joints**

a. **Locations.** Joints shall be constructed as shown on the Contract Drawings, and shall not be constructed unless shown on the Drawings or approved by the Owner's Representative.

b. **Finish.** All construction joint contact surfaces shall be finished with wood float finish.

c. **Normal Grout.** Furnish and install normal cement grout where called for on the plans. Mix to be 1:2 cement to sand by volume. Use minimum water

required for workability.

- d. **Expanding Grout.** Proportion by weight 1 part Portland cement, 1 part sand and 1 part Ironite compound similar and equal to Embeco (Master Builders Co.). Thoroughly dry mix and add a minimum of water to a stiff consistency as limited by placing conditions. Firmly pack mortar into hole or joint and moist cure for three days.

7. Concrete Equipment and Placing

- a. MCIB Section 8 shall apply.
- b. The CONTRACTOR's attention is called to the size of concrete pours required. He shall have sufficient crews, vibrators and other equipment to properly handle same so that no cold joints will be created and that concrete surfaces will be kept "alive." The Owner's Representative shall be advised in advance of the equipment to be used.
- c. Before delivery of concrete the CONTRACTOR shall have made all necessary preparations and shall have all necessary items on hand not only for proper placing but for covering, curing, heating, finishing, rubbing and/or as required to perform in accordance with the Contract Documents. Failure to be properly prepared may result in inability to perform properly and consequent rejection of the work.
- d. Any concrete damaged by the CONTRACTOR's equipment, or by other means during construction shall be replaced at the CONTRACTOR's expense.

8. Concrete Protective Sealer

- a. The sealer shall be applied to the top surface of the reinforced concrete trail, and to all faces of the reinforced concrete retaining wall including the top of wall, and all vertical faces.
- b. It shall be applied on a clean, dry surface of concrete not less than 28 days old, and before the trail is opened to other than essential construction traffic.
- c. All grease and oil stains shall be sand blasted to clean concrete.
- d. Additional surface preparation requirements, application methods and rates, equipment for application, temperature restrictions and other information not covered in this specification shall be in strict accordance with the manufacturer's instructions.
- e. A technical representative of the manufacturer shall be present on the job site during the application of the surface sealer. The technical representative shall be a qualified representative of the manufacturer and shall be acceptable to

03300 CAST-IN-PLACE CONCRETE

03300-6

the Design Professional. Application shall not begin until the technical representative is present. The Contractor shall be responsible for informing the technical representative of when application is scheduled to begin.

D. PAYMENT AND MEASUREMENT

A. Class B-1 Concrete - Retaining Walls

1. Method of Measurement – A. Class B-1 Concrete - Retaining Walls will be computed from the dimensions shown on the plans, or as revised in writing by the Design Professional, and will be computed to the nearest 1/10 cubic yard. No deduction will be made for the space occupied by the reinforcing steel. Final measurement will not be made except for authorized changes during construction or where appreciable errors are found in the contract quantity. The revision or correction will be computed and added or deducted from the contract quantity.
2. Basis of Payment – Class B-1 Concrete - Retaining Walls measured as provided above, will be paid for at the contract unit price per cubic yard, which shall be full compensation for furnishing, quarrying, preparing, transporting, delivering, mixing, and placing all materials including forms, falsework and joint material, concrete and reinforcement, labor, equipment, tools, and incidentals necessary to complete the item.

END OF SECTION