

## DETAILED SPECIFICATIONS

The project shall consist of the resurfacing of Madison Ave SE in two segments.

The first part extends from 11<sup>th</sup> St SE to 3<sup>rd</sup> St SE. It is a composite pavement of reinforced concrete base and an asphalt surface. The work consists of removing the entire asphalt course, repairing the concrete base joints with asphalt, installing a Chip Seal interlayer, and placing a new asphalt surface.

The second segment extends from 3<sup>rd</sup> St SE to Tuscarawas St E. It is a reinforced 9-inch concrete pavement (without an asphalt overlay.) The work consists of repairing the concrete joints with concrete.

The entirety of Madison Ave. SE will have pavement markings re-applied and ADA compliant curb ramps installed.

The existing Madison Ave SE pavement (11<sup>th</sup> St SE to 3<sup>rd</sup> St SE) is 9" reinforced concrete base and 2.5" asphalt overlay. The post construction pavement will be repaired 9" reinforced concrete base, Fiber Reinforced Bituminous Membrane Surface (FIBER-SAMI, per City of Canton Supplement Specification 06), and 2" 441 Asphalt Concrete Surface Course, Type 2, (448), PG-70-22M, As per plan.

The existing Madison Ave SE pavement (3<sup>rd</sup> St NE to Tuscarawas St E.) is 9" reinforced concrete pavement. The concrete will be repaired with 256 Bonded Patching of Portland Cement Concrete.

### A. Detailed Specifications

The following specifications shall apply in conjunction with the General Conditions. In case of a conflict between the General Conditions and Detailed Specifications, the Detailed Specifications shall take precedence.

### B. Applicable Specifications

All materials and work shall conform to State of Ohio, Department of Transportation 2019 Construction and Materials Specifications (CMS) in conjunction with applicable City of Canton standard specifications and project specific specifications included herein.

Exception: CMS 104.02(D), as it pertains to adjustment of unit prices due to the increase or decrease in quantities by greater than 25%, shall not be applicable to this contract.

### C. Asphalt Concrete

Contractor shall submit applicable approved JMF for acceptance by the Engineer prior to use. Associated reports and daily plant production reports shall be submitted. Asphalt delivery tickets shall include JMF number. Contractor must supply the Engineer with applicable tons-to-cubic yard conversion factor, prior to paving.

**D. Asphalt Binder Price Adjustment**

This project will comply with CMS 401.20 Asphalt Binder Price Adjustment and ODOT Proposal Note 534.

**E. Contingency Quantities**

When specified, contingency quantities are to be performed only under direction of the City Engineer. The Contractor shall not order any contingency material or perform any work until directed by the Engineer.

**F. Maintaining Traffic**

Maintenance of traffic shall be the responsibility of the contractor and incidental to the contract price. Temporary traffic control shall conform to all applicable City and State standards.

One lane of traffic in each direction shall be open at all times and access to properties must be maintained.

The contractor shall be responsible for installation of temporary “No Parking” signs one day prior to paving operations and their subsequent removal. Signs shall not remain posted on days when no work is to take place (i.e. street is paved more than one day after milling and signs remain posted during the entire period). The City will provide the signs to the contractor. The contractor shall return all signs that are unused or in reusable condition at the completion of the program.

**G. Pavement Markings**

The Contractor is responsible for the spotting and installation of pavement markings in their original pattern.

**H. Pre-Construction Meeting**

A Pre-Construction Meeting, with the contractor, affected utilities, and City of Canton Engineering Department is required before work may begin.

**I. Bid Item Notes**

1. Curb Returns

Situations exist at various intersections throughout the project in which the pavement in the area of the curb returns will require planing and paving. Approximately 10% of the intersections within the project may require such work, which will be at the direction of the Engineer.

2. Item 251 – Partial Depth Pavement Repair

A quantity of this item shall be provided for use as directed by the Engineer. The item shall consist of repairing existing locations exhibiting surface deterioration. Repair shall be performed as follows: Remove existing asphalt base and replace with 3” of Item 448 Asphalt Concrete, Type 2. The asphalt concrete shall be compacted with a Type I pneumatic tire roller and a steel wheel roller as per 401.13.

Unless otherwise directed by the Engineer, this item shall be performed after the completion of pavement planing. It is not the intent to repair every deteriorated area with the project. The Engineer shall determine which areas are to be repaired. Payment shall be based on the actual number of square yards of pavement repair. The following estimated quantity has been carried to the contract bid tab:

251, Partial Depth Pavement Repair, 100 S.Y.

3. Item 253 – Pavement Repair

A quantity of this item shall be provided for use as directed by the Engineer. This item shall consist of cutting and removing deteriorated pavement full depth and replacing with new material as follows:

Composite brick and composite concrete pavement: Remove brick/concrete and base material up to 12” and replace with like depth of Item 304 Aggregate Base and Item 452 Concrete. Concrete depth shall be 6” minimum and 9” maximum.

Asphalt pavement: Remove existing asphalt base up to 12” and replace with Item 201 Asphalt Concrete Base, PG64-22. The maximum compacted depth of any one lift shall be 6 inches.

Unless otherwise directed by the Engineer, this item shall be performed after the completion of pavement planing. It is not the intent to repair every deteriorated area with the project. The Engineer shall determine which areas are to be repaired. This item may also be used to repair areas on streets that are not part of the paving program. Payment shall be based on the actual number of square yards of pavement removed and replaced to the limits designated by the Engineer. The following estimated quantity has been carried to the contract bid tab:

252, Full Depth Pavement Sawing, 100 FT

253, Pavement Repair, 100 S.Y.

4. Item 254 – Pavement Planing, Asphalt Concrete, Variable Depth, 1 ½” Max., as per plan

The contractor shall remove the asphalt to a depth up to 1 ½”. The depth of planing may be constant or varied in order to adjust the cross slope of the road. The depth and cross slope will be determined by the Engineer prior to planing operations.

The following estimated quantity has been carried to the contract bid tab for use as directed by the Engineer.

254, Pavement Planing, Asphalt Concrete 100 S.Y.

5. Item 254 – Pavement Planing, Asphalt Concrete, Variable Depth, 3” Max., as per plan

The contractor shall remove the asphalt to a depth between 1 ½” and 3”. The depth of planing may be constant or varied in order to adjust the cross slope of the road. The depth and cross slope will be determined by the Engineer prior to planing operations.

6. Item 254, Patching Planed Surface

The following estimated quantity has been carried to the contract bid tab for use as directed by the Engineer.

Item 254, Patching Planed Surface 100 S.Y.

7. Item Special – Concrete Pavement Joint Repair

Concrete pavement joint repair shall consist of removal of degraded concrete and replacement with asphalt concrete as described below.

Milling

All concrete pavement joints showing deterioration shall be surface milled to a width of 12-24 inches and a depth of 1-1/2 to 3 inches. The width and depth shall be determined at each location based on the conditions with a goal of reaching sound concrete.

Surface Preparation

Areas to be treated shall be free of all vegetation and loose or un-bound material. Immediately prior to material placement these areas shall be cleaned to maximum width and depth by use of compressed, oil-free air, at a minimum 125 cfm, and 100 p.s.i. After air cleaning there shall be no visible signs of standing moisture.

Asphalt Concrete

The exposed concrete shall be tacked using 407 - Tack Coat, 702.13 immediately prior to placing of asphalt concrete material. The void created by the previous milling shall be filled using 441 - Asphalt Concrete Intermediate Course, Type 1, (448). The asphalt concrete shall be placed to be flush with the surrounding concrete surface after compaction.

Exact limits of this work shall be determined by the Engineer. All equipment, labor, tools, and incidentals necessary to complete this item shall be included in the unit price bid for Item Special, Concrete Pavement Joint Repair. The following estimated quantity has been carried to the general summary:

Item Special, Concrete Pavement Joint Repair 7,000 sq. Ft.

8. Item 304 – Aggregate Base

The following estimated quantity has been carried to the contract bid tab for use as directed by the Engineer.

304, Aggregate Base 100 C.Y

9. 305, 9" Concrete Base

The following estimated quantity has been carried to the contract bid tab for use as directed by the Engineer.

305, 9" Concrete Base 10 S.Y.

10. Item 407 – Tack Coat and Item 407 Tack Coat for Intermediate Course

The rate of application of the 407 Tack Coat shall be subject to adjustment as directed by the Engineer. For estimating purposes only, the plan quantities indicate an average application rate of:

407, Tack Coat	0.075 Gal./S.Y.
407, Tack Coat, 702.13	0.075 Gal./S.Y.
407, Tack Coat for Intermediate Course	0.04 Gal./S.Y.

11. Item 441 – Asphalt Concrete Surface Course, Type 2, (448), PG70-22M, as per plan

The asphalt mixture composition of this item shall be per 2013 ODOT CMS Table 441.02-1, Asphalt Mixture Composition, Type 2 Surface Course, Medium Traffic.

This item shall be installed at a depth of 2" unless otherwise directed by the Engineer.

12. Item 608 – 5" Concrete Walk

This item is intended for use in conjunction with Catch Basin Adjusted to Grade or Reconstructed to Grade when walk replacement is required to accommodate the adjustment/reconstruction. The following estimated quantity has been carried to the contract bid tab for use as directed by the Engineer.

608, 5" Concrete Walk 100 S.F.

13. Item 609 – Curb, Canton City Standard, as per plan

This item is intended for use in conjunction with Catch Basin Adjusted to Grade or Reconstructed to Grade when curb replacement is required to accommodate the adjustment/reconstruction. The following estimated quantity has been carried to the contract bid tab for use as directed by the Engineer.

609, Curb, Canton City Standard 50 Ft.

14. Item 611 Adjustments and Reconstructions

All 611 Adjusted to Grade and Reconstructed to Grade items shall include all necessary materials as per the CMS. The City may provide castings. If the Engineer determines

that a casting must be replaced and casting is not provided by the City, payment for the casting will be made under Item Special – Miscellaneous Metal.

The following estimated quantities have been carried to the contract bid tab for use as directed by the Engineer.

611, Catch Basin Adjusted to Grade 20 Each  
611, Sanitary Manhole Adjusted to Grade 8 Each  
611, Storm Manhole Adjusted to Grade 12 Each  
611, Catch Basin Reconstructed to Grade 2 Each  
611, Sanitary Manhole Reconstructed to Grade 1 Each  
611, Storm Manhole Reconstructed to Grade 1 Each

15. Item 611 – (By Type) Manhole Adjusted to Grade  
Manhole adjustments shall be made according to Canton City Standard Drawing No. 13.

16. Water Valve Box Adjustments  
The Canton Water Department is responsible for the adjustment of water valves boxes. The Contractor shall coordinate with the City Water Department on all water valve adjustments.

Canton Water Department  
2664 Harrisburg Rd. N.E.  
Canton, Ohio 44705  
330-489-331513,  
Attn: Terry Boylan

If the City Water Department cannot perform the work on any valve boxes that requires adjustment, the Contractor shall make necessary adjustments as directed by the Engineer. The Canton Water Department will provide the necessary castings to the Contractor. Payment for such work will be performed under Item 638 – Valve Box Adjusted to Grade.

The following estimated quantity has been carried to the contract bid tab for use as directed by the Engineer.

638, Valve Box Adjusted to Grade 5 Each

17. Item Special – Miscellaneous Metal  
Existing Castings may prove to be unsuitable for reuse, as determined by the Engineer. It shall be the Contractor's responsibility to provide the castings of the required type, size, and strength (heavy or light duty) for the particular structure in question. All material shall meet City standards and Item 611 of the CMS and shall have the prior approval of the Engineer.

The following estimated quantity has been carried to the contract bid tab for use as directed by the Engineer.

Special, Miscellaneous Metal 1000 Pounds

The contractor is cautioned to use extreme care in the removal, storage and replacement of all existing castings. Castings damaged by the negligence of the contractor, as determined by the Engineer, shall be replaced with the proper new casting at the expense of the contractor.

## Supplemental Specification 01-00

### PROJECT DOCUMENTATION AND SUBMITTAL REQUIREMENTS FOR ALL PUBLIC WORK PROJECTS AND SUBDIVISION DEVELOPMENTS

September, 2000

\* Revised August, 2009

**Project Submittals:** The following listed items are the full responsibility of the Contractor. These items become part of the administrative duties imposed upon this Contract. The Contractor shall be responsible for submitting all detail items prior to the contract Notice of Commencement, or as directed by the City's Project Manager. A typewritten letter shall accompany all items, on Company letterhead; clearly describe each item submitted. If Contractor elects to fax any documentation due to expediency, the Contractor will be responsible for submitting hard copy for project documentation. The City will reject any information not clearly legible. **Submit four copies of the project submittals.**

Contractor will clearly affix a label or stamp identifying the submittal and its status for project review. All actions other than "no exception taken" will require supporting notation or information for project review.

Allow at least 10 business days for City's review and execution. The City Project Manager shall assist the Contractor with any questions or clarification during this process to ensure timely response to the Contractor.

The City will not pay directly for the performance of the work listed. This work is a subsidiary obligation of the Contractor.

1. Shop Drawings
2. Preconstruction Video
3. Progress Schedule
4. Release Statement for Disposal of Excavated Material
5. Traffic Control Plan
6. Contractor and Subcontractor Emergency Contact List
7. Statements of Final Compliance

#### 1. Shop Drawings

- a) Upon written request from the Engineer, the Contractor shall submit detailed drawings, acceptable catalog data, specification and material certifications for all materials and/or equipment specialized or required for the proper completion of the work.
- b) Contractor shall submit shop drawings in not less than four (4) copies to the Engineer.
- c) Contractor shall submit shop drawings in proper sequence of construction to cause no delay in the work. The Engineer will have ten (10) business days to review submittals. The Contractor's failure to transmit appropriate submittals to the Engineer sufficiently in advance of work shall not be grounds for time extension. No work shall be performed



- requiring shop drawings until same the Engineer has approved these shop drawings.
- d) Label each shop drawing with the following:
    1. Project Name
    2. Name of Contractor
    3. Name of Subcontractor (if applicable)
    4. Name and Address of Supplier and/or Manufacturer
    5. Log Reference Number
  - e) The Contractor is responsible for reviewing and approving all shop drawings prior to submittal. The Engineer's review does not make him responsible for the accuracy of said drawings.
2. **Preconstruction Video:** Prior to actual construction, the Contractor shall take video recording of the entire length and width of the work site.
- a) The Contractor shall notify the Engineering Department prior to scheduling the video recording of the site. A representative of the Engineering Department shall be present when the recording this video.
  - b) The video and audio recordings shall be on DVD or pre-approved alternative for replay. Contractor must submit alternative medium to the Engineer and approval received prior to scheduling.
  - c) The video portion shall have continuous time and date incorporated into it, locations and person(s) doing the work.
  - d) Audio comments during the recording must address each item in the field of view as it may pertain to the project construction. The recording technician will need to become familiar with the project plans to know what subject matter is pertinent. Further, contractor must incorporate a post recording review and audio comments into the recording.
  - e) Submitted copies of all recordings are the property of the Engineer. Contractor must submit the recording and be accepted in full by the Engineering Department prior to the start of construction.
3. **Progress Schedule:** The Contractor shall provide to the City, as mutually agreed upon at the Contract's Preconstruction meeting, a graphic progress schedule, which shall include the following:
- a) Progress schedule as a minimum to be prepared in **CRITICAL PATH METHOD FORMAT (CPM)**. The schedule shall be submitted, as a minimum, on 11" x 17" format for clarity and any necessary notations. Progress schedule shall include all work activities relative to the project, as further described in the Contract. Activities and rate of expected progress to secure completion as set forth in the Contract shall be shown on the schedule. Contractor to annotate any milestones that may be indicated in the Contract. Project completion date shall be clearly defined on the original schedule and all ensuing schedules provided.
  - b) Schedules shall be updated, as a minimum, every 30 days, or as agreed to by the City's Project Manager.

**4. Release Statement for Disposal of Excavated Materials**

- (a) The Contractor shall provide to the City a written consent statement from all property owners whose property is a landfill depository for all surplus or unsuitable excavated material from the project site.
- (b) The Contractor shall follow ODOT 105.16 for specific guidelines and name the “City of Canton” in lieu of “the Department” on all forwarded documents. The City requires a contract or permit that contains the language stating that the City is not party to the contract or permit, the material is not the City’s, and that the contractor and the property owner will hold the City harmless from claims that may arise from this contract or permit.
- (c) See attached sample copy for referencing purposes.

**5. Traffic Control Plan:** Contractor shall submit a graphical presentation or written document detailing the signage to be used and its location for maintenance of traffic. If traffic control will be performed in stages, submit a plan for each stage. Any proposed detours should be approved by the Engineer prior to plan submission.

**6. Contractor and Subcontractor Emergency Contact List:** Contractor shall submit to the Engineer, prior to commencing construction, a complete list of the Contractor’s personnel associated with the project. List should include name, title, and emergency contact phone numbers for each individual.

**7. Statements of Final Compliance:** The Contractor shall submit to the City the following documentation, in addition to the Project’s General Conditions. All submittals shall be completed and approved prior to the release of the final retainer.

- a) Certificates of Substantial and Final Completion. Contractor shall submit in writing, the date on which work is substantially completed and upon Final Completion. Any deviation from the stated contract completion date to what is being submitted shall be explained further by the Contractor. The City, at their discretion, will further review this subject, as needed.
- b) Final Waiver of Lien  
Contractor shall furnish a written report indicating the resolution of any and all property damage claims filed with Contractor by any party during the contract period. The information shall include the name of claimant; date filed with Contractor; name of Insurance Company and/or Adjustor handling the claim; how the claim was resolved; if claim was not resolved for the full amount, a statement indicating the reason for such action. If there were no damage claims filed with the Contractor, then this shall be so stated in the report.

**(SAMPLE COPY)**  
**Waste Disposal Agreement for Projects in the City of Canton**

*Items 1, 3 - 9 are optional and discretionary to the undersigned*

THIS WASTE AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_, by and between \_\_\_\_\_ (called "Contractor"), and \_\_\_\_\_ of \_\_\_\_\_ (called "Land Owner"), concerning a certain construction contract between the Contractor and \_\_\_\_\_ in the City of Canton, OH for the \_\_\_\_\_ (project), as follows:

1. **MANNER OF WASTING:** Land Owner grants to Contractor the exclusive right to place dirt, earth, rock, topsoil, subsurface, unsuitable and/or other excess material (called "waste material") upon the area described in the following paragraph without requirement, limit, or restriction as to depth, amount, manner, or time.
2. **WASTE AREA:** The property upon which Contractor is permitted to place material is commonly known as \_\_\_\_\_ (address).
3. **TITLE TO WASTE AREA:** The Land Owner warrants that it has title to and the right to contract for placement of waste material in said area and agrees to defend and indemnify Contractor against any claim, suit, or damage arising out of such title or right to contract.
4. **ACCESS AND USE:** Land Owner hereby grants Contractor the right of ingress and egress to the waste area in locations to be selected by Contractor for all purposes necessary to the complete fulfillment of this agreement, and the right of quiet enjoyment in the intended use of such area.
5. **PAYMENT:** Contractor agrees to pay and Land Owner agrees to accept as full and final compensation for all rights granted and covenants contained herein and all claims of every nature the sum of \_\_\_\_\_ payable \_\_\_\_\_.
6. **BASIS OF MEASUREMENTS:** It is mutually agreed that measurement of the amount of materials wasted, where required, shall be made on the following basis: \_\_\_\_\_ and said measurement shall be binding upon the parties hereto for all purposes.
7. **DAMAGES:** Land Owner hereby waives any and all claims for damage to the waste area and to the area of ingress and egress except as specifically noted herein.
8. **RELEASE:** Upon receipt of final payment hereunder, and provided all terms of this agreement have been fulfilled, Land Owner hereby releases Contractor from further liability of any kind or nature hereunder.

WITNESSES:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CONTRACTOR:

\_\_\_\_\_  
Authorized Signature & Title

LANDOWNER:

\_\_\_\_\_  
Signature

9. **ENTIRE AGREEMENT:** It is agreed that the terms and conditions of this agreement are fully covered in the foregoing, and that any oral or written statements made by either party, or agents claiming to represent either party, not set forth herein, are not binding on the parties and are not considered as part of this Agreement.
10. **DISCLAIMER:** The City of Canton is not a party to the here above agreement. The Contractor and Landowner shall indemnify and save harmless the City of Canton from any claim that may arise from the here above agreement. The waste material is the property of the Contractor, not the City of Canton.

## Supplemental Specification 06

### FIBER REINFORCED BITUMINOUS MEMBRANE SURFACE TREATMENT (FIBER-SAMI)

March 2015

- 06.01 Description
- 06.02 Specifications and Materials
- 06.03 Equipment
- 06.04 Weather Limitations
- 06.05 Construction
- 06.06 Application of Fiber Reinforced Bituminous Binder
- 06.07 Quality Control
- 06.08 Documentation
- 06.09 Acceptance
- 06.10 Placement of Asphalt Overlay
- 06.11 Method of Measurement
- 06.12 Basis of Payment

**06.01 DESCRIPTION.** This work shall consist of furnishing all materials, equipment, labor and preparation necessary for the application of a Fiber Reinforced Bituminous Membrane Surface Treatment used as a standalone finished surface (Type A) or as a Stress Absorbing Membrane Interlayer (SAMI) (Type B). The applied material shall completely seal the entire pavement surface and provide a uniform textured surface, suitable for placement of hot mixed asphalt, micro-surfacing or as a finished surface.

This is accomplished by using a specific applicator, which can be mounted on an asphalt distributor modified for applying the surface treatment of bituminous binder reinforced with glass fibers. The applicator comprises of an open bottomed spray bar housing fan or blower for producing a down draft in the housing, and at least one spray bar mounted on the housing and adapted to extend transversely in the direction of movement of the asphalt distributor on which the unit can be mounted.

A number of nozzles spaced longitudinally along the spray bar for spraying bituminous material, means of controlling the nozzles, and a number of sources for dispensing the cut glass fibers through the open bottomed housing to the surface of the bituminous material previously sprayed shall also be included.

#### **06.02 SPECIFICATIONS AND MATERIALS**

##### POLYMER MODIFIED BITUMINOUS BINDER

<u>EMULSION PROPERTY</u>	<u>MIN.</u>	<u>MAX.</u>	<u>TEST METHOD</u>
S.F. VISCOSITY, 50 C (sec)	100	250	ASTM D 244
PERCENT SOLIDS (%)*	65	---	ASTM D 244
STORAGE STABILITY, 24 hrs. (%)	---	1.0	ASTM D 244
SIEVE TEST, #20 mesh (%)	---	0.1	ASTM D 244

<u>RESIDUE PROPERTY</u>	<u>MIN.</u>	<u>MAX.</u>	<u>TEST METHOD</u>
PENETRATION, 100g, 5 sec, 25 C (dmm)	100	200	ASTM D 5
ELASTIC RECOVERY, 10 C, 10 cm (%)**	50	---	ASTM D 113

\* By distillation or evaporation

\*\*The specimen is extended 20 cm. The extended area is severed in the middle using a pair of shears. After 1 hour, at the test temperature the severed ends are returned to contact and the ductilometer reading is made again. The sample must recover at least 50 percent of the original 20 cm distance.

The polymer modifier shall be a SBS or a SBR type polymer. The minimum amount of solid or dry polymer modifier shall 3%, based upon the asphalt weight. The polymer materials shall be milled or blended into the asphalt or blended through the emulsion mill as the emulsion is being produced.

## **COURSE AGGREGATE**

The course aggregate shall be 100% crushed material from quarried stone, natural gravel or other high quality aggregate and meet the following requirements:

### **PHYSICAL REQUIREMENTS**

<u>TEST</u>	<u>DESCRIPTION</u>	<u>SPECIFICATION</u>
AASHTOT96	L.A. Abrasion Test	40% max.
S1029*	Deleterious Material	1.0 max.
S1021*	Crushed Pieces	100%
AASHTOT104	Sodium Sulfate Soundness Test, 5 Cycle	15

### **GRADING REQUIREMENTS – ASTM C-117**

SIEVE SIZE		TYPE A	TYPE B
½ inch	(12.5mm)	100	100
No. 4	(4.75mm)	5-25	5-25
No. 8	(2.36mm)	0-10	0-10
No. 200	(75um)	2	2

## **FIBER**

The glass fiber is E Class from an approved source. The glass fiber spools are supplied internally wound, in coils or cheeses. The spools are cut in-place into 60 mm, (2.38") lengths which are distributed uniformly across and between the two parallel applications of modified asphalt emulsion. Glass fiber spread rates are up to 120 g/m<sup>2</sup>, (4oz.), with additional asphalt emulsion rates of spread, depending upon the site requirements.

**06.03 EQUIPMENT.** All equipment required for performance of the work shall be approved before construction is to begin, and shall be maintained in satisfactory operating condition. The Contractor shall furnish an accurate thermometer, hand brooms and other small tools and equipment essential for the completion of the work.

### **PRESSURE DISTRIBUTOR/FIBER APPLICATOR**

The pressure distributor shall have a computerized rate control that automatically adjusts the distributor's pump to the ground speed. The pressure distributor shall be capable of heating and re-circulating the bituminous binder to the specified temperature. The proper nozzles shall be used for the material and rate specified. There shall be two separate spray bars, one in front of the fiber applicator housing and one following it. The fiber cutter and distributor shall be an integrated unit. The integrated applicator shall be comprised of an open bottomed spray bar housing, a fan or blower producing a down draft in the housing, and at least one spray bar mounted on the housing and adapted to extend transversely in the direction of movement of the vehicle on which the applicator is mounted. A number of sources for dispensing cut glass fiber through the open bottomed housing to the surface of the binder material previously sprayed shall also be included.

The integrated applicator shall have been calibrated within the previous 12 months for transverse and longitudinal distribution application rates according to ASTM 02995, Practice for Determining Application Rate of Bituminous Applicator or other suitable method. The bituminous fiber applicator shall be equipped, maintained, and operated so that the bituminous materials can be applied at controlled rates from 0.1 l/m<sup>2</sup> (0.022 gal/SY) to 2.7 l/m<sup>2</sup> (0.56 gal/SY). The fiber is applied at controlled rates from nominally 30 to 120 g/m<sup>2</sup> (approx. 1-4 oz/SY). These applications shall be such that a uniform first layer of asphalt emulsion is applied followed by uniform layer of glass fibers that is chopped in-place and covered with a uniform layer of asphalt emulsion.

### **AGGREGATE SPREADER**

The aggregate spreader shall be self-propelled and shall be equipped with hoppers, revolving cylinders and adjustments necessary to produce a uniform distribution of material at the specified rate.

### **PNEUMATIC TIRE ROLLER**

The pneumatic tire rollers shall conform to 2013 CMS 401.13 type P-2.

**06.04 WEATHER LIMITATIONS.** The fiber reinforced bituminous membrane surface treatment shall be placed when the pavement and atmospheric temperature is 50° F or above. Placement is not permitted if it is raining, when the pavement surface is wet, or when temperatures are forecasted to be below 32° F within 24 hours of placement

**06.05 CONSTRUCTION.** The Contractor shall follow the construction methods as described.

1. Preparation of the surface shall be in accordance with 2013 CMS 407.05. The surface shall be cleaned by the Contractor and shall be dry when the bituminous binder is applied. Material cleaned from the surface shall be disposed of in accordance with 2013 CMS 203.01.
2. The specified aggregate shall be spread uniformly onto the bituminous binder/fiber within 30 seconds of the bituminous spray and shall be placed in accordance with 2013 CMS 410.04, except that three-wheel rollers will not be required.
3. Projects greater than 12,000 sy<sup>2</sup> shall use a minimum of two rollers. Rollers shall proceed at maximum speed of 5 mph. The entire surface shall receive a minimum of two roller passes. The first roller pass shall be performed within one minute of aggregate spreading.
4. Brooming of the completed surface shall be accomplished prior to unrestricted use by traffic. The entire surface shall be clean of all loose material within 24 hours and prior to placement of surface course material.
5. The Contractor shall protect all utility castings using tarpaper or other approved material. All covers shall be properly fitted to the casting and removed prior to sweeping.

**06.06 APPLICATION OF FIBER REINFORCED BITUMINOUS MEMBRANE SURFACE TREATMENT.** Fibers and bituminous materials shall be applied by means of a pressure distributor in a uniform, continuous spread over the section to be treated and within the temperature range, sandwiching the in-place chopped fibers between the two layers of asphalt emulsion. The distributor shall be moving forward at the proper application speed at the time the spray bar and fiber chopper bars are opened. If any skipped areas or deficiencies occur, the operation shall be immediately stopped. Junctions of spreads shall be carefully made to assure a smooth riding surface and the deficient areas corrected in a manner approved by the Engineer.

### **BITUMINOUS BINDER**

The bituminous binder shall be applied at a temperature of 150 F to 180 F, and at the rate specified.

### **COURSE AGGREGATE**

- Stockpiling and loading methods shall permit ready identification of material and to minimize segregation and contamination of the aggregate.
- The moisture content of the course aggregate shall be below 4% and maintained throughout the project.

- Course aggregate shall be spread uniformly without ridges or gaps at the specified rates.
- Spreading of the aggregate shall be adjusted to produce a minimum of excess loose particles and shall provide complete coverage after rolling.
- The spreading operation shall be accomplished in such a manner that the tires of trucks or the spreader at no time comes into contact with the newly applied bituminous material.

## MATERIAL APPLICATION RATES

### BINDER/FIBER APPLICATION RATE Gallons per Square Yard

<u>APPLICATION TYPE</u>	<u>Emulsion</u>	<u>Tolerance</u>	<u>Fiber</u>
Type A	0.44-0.55	±0.02	1-4 oz.
Type B	0.44-0.60	±0.02	1-4 oz.

Aggregate application rate shall be as determined by the supplier of the Fiber Reinforced Bituminous Membrane Surface Treatment binder and shall produce a completed surface with no exposed binder. The supplier of the Fiber Reinforced Bituminous Membrane Surface Treatment binder shall determine the application rate for emulsion and aggregate, based on the existing pavement condition and aggregate size. This information shall be reported to the Engineer prior to beginning work and shall include an aggregate gradation on the job specific materials.

**06.07 QUALITY CONTROL.** The Contractor to measure compliance shall use the methods described in this section.

- Aggregate gradation
- Aggregate Moisture Content
- Yield Check on Bituminous Binder
- Yield Check on Fiber
- Temperature Check on Bituminous Binder

If the Contractor's test results exceed any of the identified quality control tolerances, the Engineer shall be immediately notified. The Engineer will review the explanation and the corrective action taken by the Contractor. Another test will be taken and if the results still exceed the quality control tolerance, placement shall stop. The Contractor shall immediately notify the Engineer, and identify the cause of the excessive deviation and detail corrective action necessary to bring the deficiency into compliance. The Engineer will give approval prior to resuming work.

## BITUMINOUS BINDER

The application rate shall not exceed a tolerance of 0.02 gallons per square yard from the specified rate, and within the temperature range as specified in 1512.07.



## **COURSE AGGREGATE**

The aggregate shall be clean and uniform, and shall be within the gradation range as specified in 06.02, Moisture content shall not exceed the tolerance as specified in 06.06.

**06.08 DOCUMENTATION**. The Contractor shall provide the Engineer a daily report with the following information:

- Control Section/Project Number/County/Route
- Date/Air Temperature/Pavement Temperature
- Bituminous Binder Temperature (3 per day)
- Station Location per Test
- Beginning and Ending Stations
- Yield Check on Bituminous Binder (3 per day)
- Yield Check on Fiber (3 per day)
- Aggregate Gradation & Moisture (1 per day)
- Length/Width/Total Area

Other required documentation shall include:

Bill of lading on aggregate, fiber and bituminous binder, to be provided as requested or at project completion.

**06.09 ACCEPTANCE**. The Contractor shall inspect the completed Treatments during the application process for any deficiencies. The deficiencies will be limited to flushing, surface patterns and loss of stone retention.

Workmanship shall be inspected for the following:

- Untreated areas (missed)
- No overlap on longitudinal joints
- No overlap on construction joints

All corrective work shall be accomplished prior to resurfacing with bituminous materials, or within 24 hours. The Contractor shall furnish materials, equipment and labor to make corrections at no additional cost to the Contract. The Engineer shall give final approval on inspection and corrective work.

**06.10 PLACEMENT OF ASPHALT OVERLAY**. If the Fiber Reinforced Bituminous Membrane Surface Treatment application is used as an intermediate layer for an asphalt overlay, a minimum period of 24 hours shall be observed prior to the placement of the asphalt surface course after placement of the Fiber Reinforced Bituminous Membrane Surface Treatment material. This time limit may be increased or decreased by the Engineer dependent on ambient temperatures and conditions.

## **06.11 METHOD OF MEASUREMENT**

Fiber Reinforced Bituminous Membrane Surface Treatment will be measured by the square yard as provided for in the Contract Documents. The accepted quantities, measured as provided for above, will be paid for at the contract unit price for Fiber Reinforced Bituminous Membrane Surface Treatment.

**06.12 BASIS OF PAYMENT**

Fiber Reinforced Bituminous Membrane Surface Treatment shall be paid for per square yard for furnishing all preparation, materials, equipment, labor, clean up, and incidentals necessary to complete the work as specified.

<u>Item</u>	<u>Description</u>	<u>Unit</u>
SPEC	Fiber Reinforced Bituminous Membrane Surface Treatment, Type A	Square Yard
SPEC	Fiber Reinforced Bituminous Membrane Surface Treatment, Type B	Square Yard

1. CUT AND REMOVE THE ASPHALT PAVEMENT, AROUND THE EXISTING MANHOLE CASTING, IN A CIRCULAR FASHION WITH A MINIMUM DIAMETER OF 54" AND CENTERED ABOUT THE FRAME. DISPOSE OF ALL ASPHALT, CONCRETE, BRICK AND ROAD DEBRIS.
2. REMOVE THE CASTING (MANHOLE RIM AND COVER) FROM THE TOP OF THE MANHOLE. INSPECT THE RIM AND COVER FOR DEFECTS. IF DEFECTS ARE PRESENT, REPLACE WITH NEW RIM/COVER AS NEEDED. IF DEFECTS ARE NOT PRESENT, CLEAN & RETAIN FOR USE IN RECONSTRUCTION.
3. CONCRETE MANHOLE  
REMOVE ALL ADJUSTING RINGS TO THE TOP OF THE CONCRETE CONE. DISPOSE OF THIS MATERIAL.
3. MASONRY MANHOLE  
REMOVE MASONRY TO THE LEVEL SPECIFIED IN FIG. 2.M. DISPOSE OF THIS MATERIAL.
4. REMOVE ALL AGGREGATE AROUND THE MANHOLE THAT HAS BEEN EXPOSED BY THE ASPHALT REMOVAL AND DISPOSE OF THIS AGGREGATE. THE AGGREGATE MUST BE REMOVED TO A MINIMUM OF 3" BELOW THE LEVEL OF THE TOP OF THE CONCRETE CONE/REMAINING MASONRY.
5. CONCRETE MANHOLE  
CLEAN AND INSPECT THE TOP SURFACE OF THE CONCRETE CONE SECTION. THE SURFACE SHOULD BE SMOOTH AND FREE OF BUMPS AND PITS THAT MAY PREVENT A GOOD WATER TIGHT SEAL. GRIND THE SURFACE AS NEEDED TO REMOVE PROTRUSIONS. UTILIZE COMPRESSED AIR TO BLOW DUST AND DEBRIS FROM THE SURFACE AFTER GRINDING. UTILIZE A HYDRAULIC CEMENT, ACCORDING TO MANUFACTURERS RECOMMENDATIONS, TO FILL IN DEPRESSIONS.
5. MASONRY MANHOLE  
CLEAN AND INSPECT THE TOP SURFACE OF THE MASONRY. THE SURFACE MUST BE STRUCTURALLY SOUND. UTILIZE COMPRESSED AIR TO BLOW DUST AND DEBRIS FROM THE SURFACE. THE ENGINEER SHALL INSPECT THE MASONRY MANHOLE FOR STRUCTURAL INTEGRITY.
6. BRING THE AREA AROUND THE CONE/MASONRY BACK TO FLUSH WITH THE TOP OF THE MASONRY USING ODOT 703.01 #57 AGGREGATE.

Existing Manhole (Sectional View)

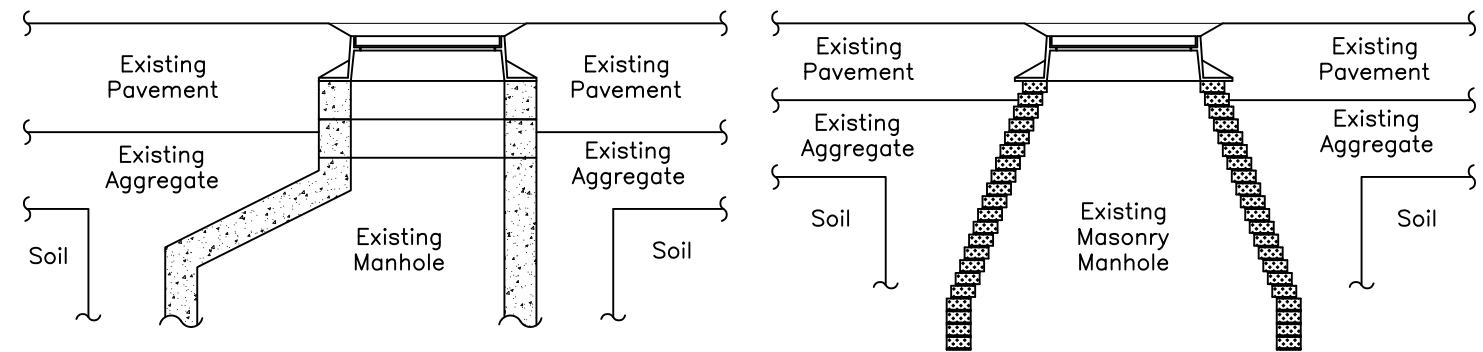


FIG. 1.C

FIG. 1.M

Legend

- = Concrete
- = Masonry

Chimney Removed (Sectional View)

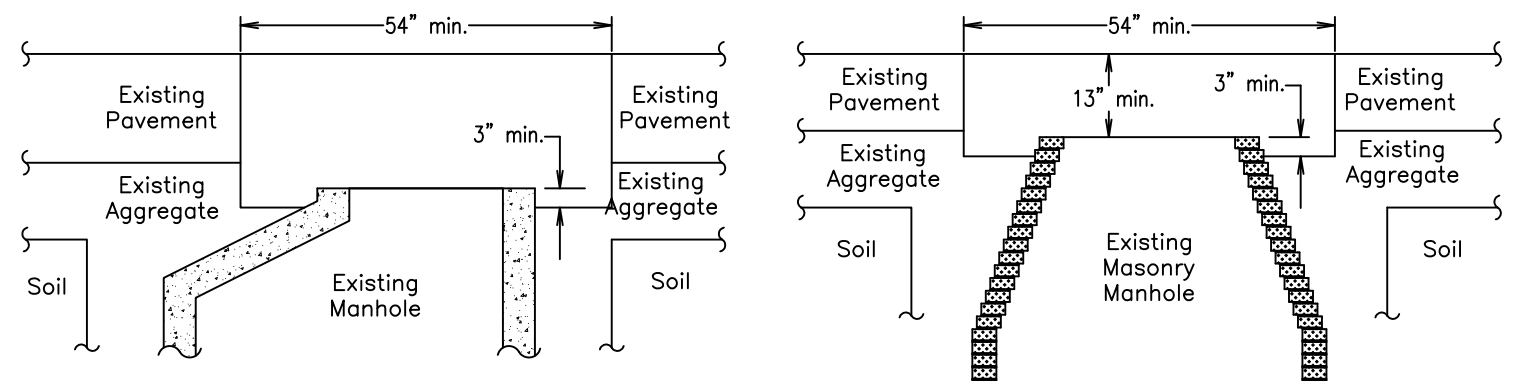


FIG. 2.C

FIG. 2.M



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APPROVED DATE: APRIL 2015

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DESCRIPTION	DATE	BY

STANDARD DRAWING NO. 13

MANHOLE ADJUSTMENTS

SHEET 1 OF 2

7. APPLY MORTAR TO THE TOP OF THE MASONRY AND IMMEDIATELY INSTALL A CONCRETE COLLAR/ADJUSTING RING (2" MIN. THICKNESS) ON TOP OF THE MORTAR. THE CONCRETE COLLAR/ADJUSTING RING MUST HAVE AN INSIDE DIAMETER OF 24 INCHES. THE OUTSIDE DIAMETER MUST BE SUCH THAT THERE IS A MINIMUM OF 3 INCHES OF THE CONCRETE COLLAR/ADJUSTING RING BEARING ON MASONRY ALL THE WAY AROUND THE MANHOLE. (MASONRY MANHOLES ONLY)
8. A PVC PIPE SHALL BE USED AS A CHIMNEY LINER (SEE CHIMNEY LINER SPECIFICATIONS) AND MUST BE CUT TO THE EXACT PROFILE OF THE ROAD IN ALL DIRECTIONS SUCH THAT WHEN THE MANHOLE RIM AND COVER ARE RESTING ON TOP OF THE LINER, THE TOP OF THE CASTING SHALL BE EXACTLY 0.25" BELOW FLUSH WITH THE PAVEMENT SURFACE IN ALL DIRECTIONS.
9. THE LINER SHALL BE MARKED IN SUCH A WAY, UPON COMPLETION OF THE CUTTING PROCESS, THAT ROTATION DOES NOT OCCUR, WHICH COULD BE DETRIMENTAL TO THE END PRODUCT. THE TOP AND/OR BOTTOM OF THE LINER SHALL ALSO BE MARKED TO PREVENT THE LINER FROM BEING INSTALLED UP SIDE DOWN, WHICH COULD BE DETRIMENTAL TO THE END PRODUCT.
10. APPLY A LIBERAL AMOUNT OF SEALANT TO THE BOTTOM OF THE LINER AND SET IN PLACE ON TOP OF THE CONCRETE COLLAR/ADJUSTING RING WHILE MAKING SURE IT IS PROPERLY ALIGNED. THIS WILL CREATE A WATER TIGHT SEAL BETWEEN THE LINER AND THE CONCRETE COLLAR/ADJUSTING RING.
11. APPLY A LIBERAL AMOUNT OF SEALANT TO THE TOP OF THE LINER. SET THE MANHOLE RIM CASTING ON THE LINER WHILE MAKING SURE IT IS PROPERLY ALIGNED. THIS WILL CREATE A WATER TIGHT SEAL BETWEEN THE LINER AND THE MANHOLE RIM CASTING.
12. PLACE THE MANHOLE LID ON THE RIM CASTING TO LESSEN THE POSSIBILITY OF DEBRIS ENTERING THE MANHOLE.
13. PLACE EPOXY COATED #3 REBARS AS SHOWN IN FIG. 3.C & 3.M. THE CIRCULAR SHAPED REBARS SHALL HAVE A 6" MINIMUM OVERLAP.
14. APPLY WATERSTOP AS SHOWN IN FIG. 3.C & 3.M AND SPECIFIED IN THIS STANDARD DRAWING. THIS WILL ADD AN ADDITIONAL WATER TIGHT SEAL WHERE THE LINER MEETS THE CONCRETE COLLAR/ADJUSTING RING.
15. UTILIZE ODOT-CLASS C CONCRETE WITH BLACK DYE TO CAST A CONCRETE COLLAR AROUND THE RIM CASTING AND LINER. THE SURFACE OF THE CONCRETE SHALL BE FINISHED FROM FLUSH WITH THE PAVEMENT TO FLUSH WITH THE RIM CASTING. THE EDGE OF THE CONCRETE SHALL BE ROUNDED (1/4" RADIUS) WHERE IT MEETS THE ASPHALT. THIS WILL CREATE A SMALL GROOVE FOR A JOINT SEALER AT THIS LOCATION.
16. FILL THE GROOVE WITH A COLD POUR CRACK SEALER. THIS WILL PREVENT WATER FROM ENTERING THE CIRCULAR SEAM WHERE THE CONCRETE COLLAR MEETS THE ASPHALT.
17. APPLY AN ACRYLIC POLYMER CONCRETE CURING AND SEALING COMPOUND TO THE SURFACE OF THE CONCRETE COLLAR.
18. BARRICADE THE AREA AROUND THE CONCRETE TO PROTECT IT UNTIL THE CONCRETE ATTAINS A MODULUS OF RUPTURE OF 400 POUNDS PER SQUARE INCH. A CHEMICAL ADMIXTURE THAT ACTS AS A CONCRETE ACCELERATOR MAY BE USED TO SPEED UP THE PROCESS IF THE ROADWAY NEEDS TO BE OPENED SOONER.
19. IN ORDER TO MINIMIZE INCONVENIENCE TO MOTORISTS, THE CONTRACTOR PERFORMING THE WORK DESCRIBED IN THIS SPECIFICATION MUST BE CAPABLE OF PERFORMING ALL OF BOTH STEPS OF THIS SPECIFICATION IN 1.5 HOURS OR LESS.
20. THE CONTRACTOR SHALL WARRANT THE RECONSTRUCTED MANHOLE CHIMNEY TO BE LEAK FREE AND STRUCTURALLY SOUND FOR A MINIMUM OF 5 YEARS FROM THE DATE OF RECONSTRUCTION.

### Chimney Reconstruction (Sectional View)

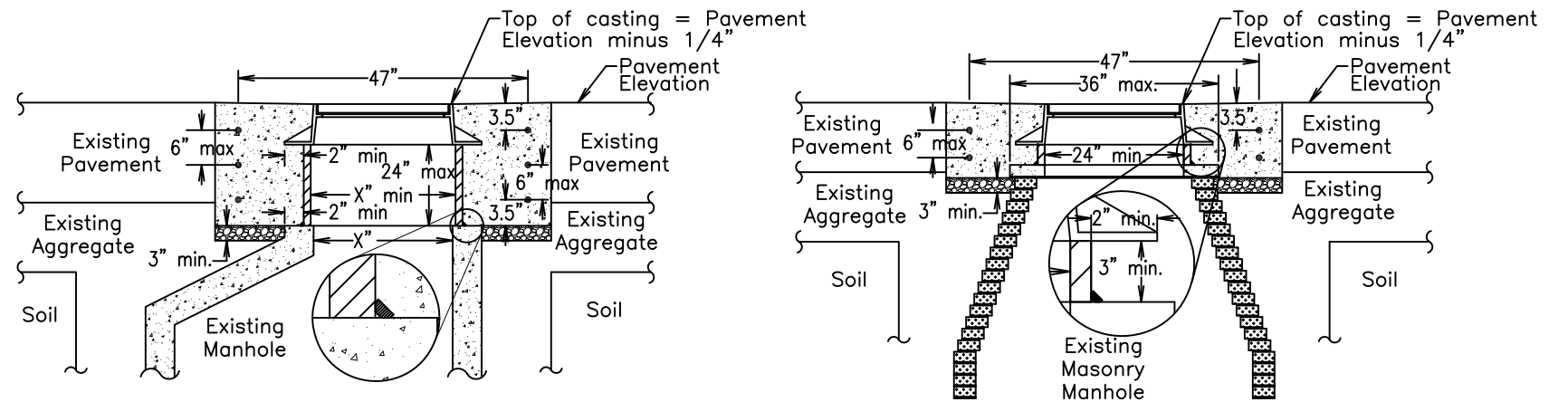


FIG. 3.C

FIG. 3.M

Legend

- [Concrete Pattern] = Concrete
- [Aggregate Pattern] = ODOT #57 Aggregate
- [Rebar Symbol] = Epoxy Coated #3 Rebar
- [Waterstop Symbol] = Waterstop
- [PVC Pipe Pattern] = PVC pipe
- [Masonry Pattern] = Masonry

CHIMNEY LINER SPECIFICATIONS:

THE CHIMNEY LINER MUST BE MADE FROM POLYVINYL CHLORIDE COMPOUNDS WHICH COMPLY WITH THE REQUIREMENTS FOR A MINIMUM CELL CLASSIFICATION OF 12364 AS DEFINED BY ASTM D-1784.

THE CHIMNEY LINER MUST ALSO MEET ALL THE FOLLOWING PHYSICAL REQUIREMENTS:

PIPE STIFFNESS – MINIMUM PIPE STIFFNESS SHALL BE 46 PSI WHEN TESTED IN ACCORDANCE WITH ASTM D-2412

IMPACT RESISTANCE – NO VISUAL CRACKING OR SPLITTING OF THE WATERWAY WALL SHALL BE EVIDENCED WHEN TESTED IN ACCORDANCE WITH ASTM D-2444 WITH A 20 LB. WEIGHT, TUP B, FLAT PLATE HOLDER B TO A LEVEL OF 220 FT. LBS.

FUSION QUALITY – THERE SHALL BE NO SIGN OF FLAKING OR DISINTEGRATION WHEN IMMERSSED IN ANHYDROUS ACETONE FOR 20 MINUTES AS DESCRIBED IN ASTM D-2152.

DUCTILITY – THERE SHALL BE NO EVIDENCE OF CRACKING OR SPLITTING WHEN PIPE IS FLATTENED IN A CIRCUMFERENTIAL ORIENTATION BETWEEN TWO FLAT PLATES BY SIXTY PERCENT (60%) OF THE ORIGINAL DIAMETER.

AIR TIGHTNESS – EACH LENGTH OF PIPE SHALL PASS A FACTORY 3.5 PSI AIR TEST AS DESCRIBED IN ASTM F-1803.

WATERSTOP SPECIFICATIONS:

THE WATERSTOP MUST MEET ALL OF THE FOLLOWING PHYSICAL REQUIREMENTS:

SPECIFIC GRAVITY – SHALL BE 1.55 +/- 5% WHEN TESTED IN ACCORDANCE WITH ASTM D-71.

VOLATILE MATTER – SHALL NOT EXCEED 1% WHEN TESTED IN ACCORDANCE WITH ASTM D-6.

APPLICATION TEMPERATURE – MUST BE ABLE TO BE APPLIED FROM -10 DEGREES F TO 125 DEGREES F AS A MINIMUM.

SERVICE TEMPERATURE – MUST BE ABLE TO FUNCTION PROPERLY IN SERVICE FROM -30 DEGREES F TO 180 DEGREES F AS A MINIMUM.



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**REVISIONS**

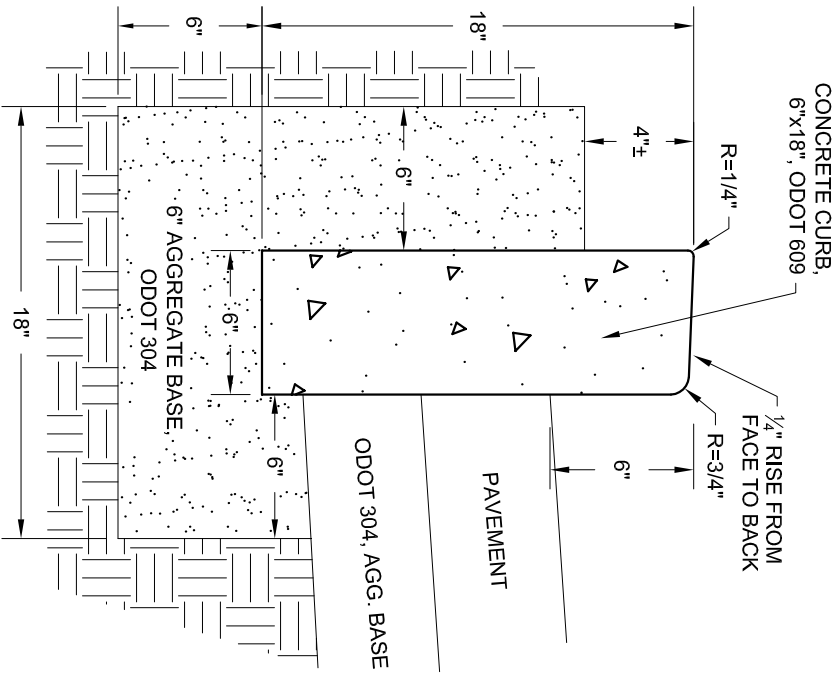
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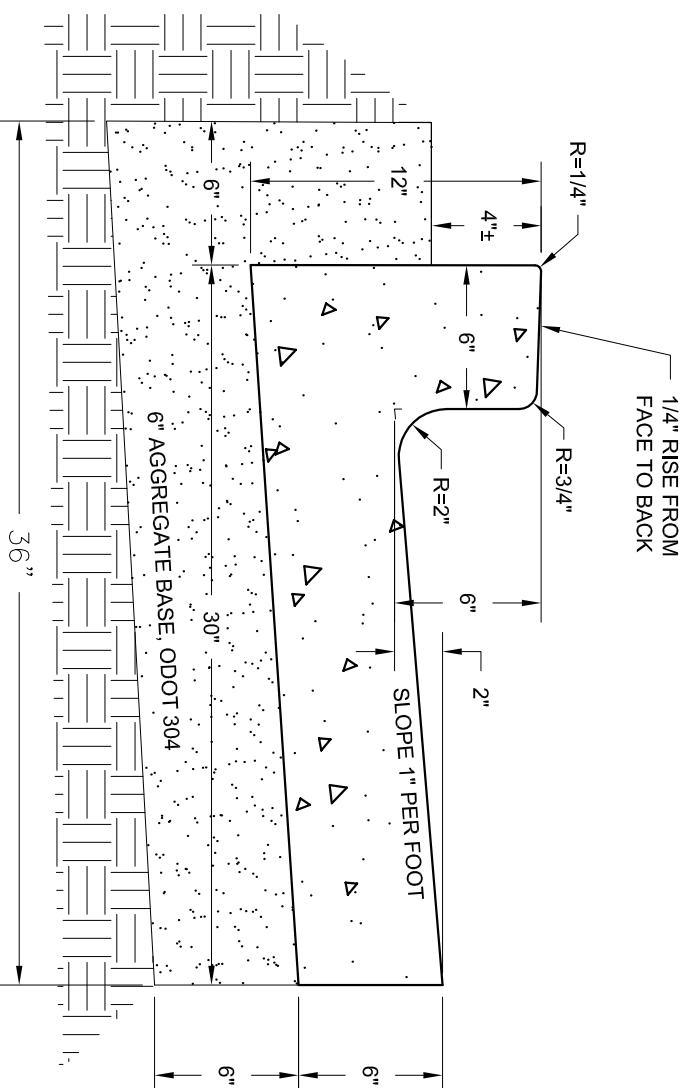
**MANHOLE ADJUSTMENTS**

SHEET 2 OF 2

CANTON TYPE 1  
STANDARD CONCRETE CURB



CANTON TYPE 2  
STANDARD CONCRETE COMBINED  
CONCRETE & GUTTER



NOTES:

1. CURB CONSTRUCTION MUST TO CONFORM TO ODOT 609 AND THE CURRENT CITY OF CANTON SPECIFICATIONS FOR THE CONSTRUCTION, REPAIR, AND REPLACEMENT OF SIDEWALKS, CURBS, AND DRIVEWAYS.
2. CONCRETE MATERIAL FOR CURB AND WALK MUST BE ODOT 499 CLASS 'C' CONCRETE WITH LIMESTONE AGGREGATE.
3. NO FOUNDRY SAND OR SLAG PERMITTED IN AGGREGATE BASE, ODOT 304.
4. CURB CONTRACTION JOINT MUST BE SPACED 10 FEET TYPICALLY; WALK CONTRACTION JOINTS MUST BE SPACED 5 FEET TYPICALLY, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. CURB EXPANSION JOINTS MUST BE INSTALLED AT CURB INLET CATCH BASIN AND AT ANY OTHER RIGID STRUCTURES. CURB EXPANSION AND CONTRACTION JOINTS MUST BE DOWELED WITH TWO (2) #5 THRU #8 SMOOTH BARS, 18" LONG, EXTENDING 9" INTO EACH CURB.
5. CONCRETE WALK REPLACED OR INSTALLED ADJACENT TO EXISTING CONCRETE CURB MUST BE DOWELED TO THE EXISTING CURB, UNLESS DETERMINED OTHERWISE BY THE CITY ENGINEER (SEE CITY STD. DWG. 29).
6. ODOT REFERENCES ARE FROM THE CURRENT ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS, ANY DISCREPANCIES SHALL BE SUBJECT TO THE CITY ENGINEER'S DISCRETION.
7. ODOT CURB TYPE 6 AND TYPE 2 (ODOT STD CONST. DWG. BP-5-1) ARE ACCEPTABLE OPTIONS RESPECTIVELY TO CITY STANDARD CURB TYPE 1 AND 2 FOR NEW ROADWAY OR CITY PROJECTS, AS APPROVED BY THE CITY ENGINEER. WHEN A CANTON CURB TYPE ABUTS AN ODOT CURB TYPE, THE CONTRACTOR MUST TRANSITION THE CURB FACE AND TOP TO MATCH THE EXISTING CURB FACE AND TOP WITHIN A 4' LENGTH, BUT NOT LESS THAN 1' LENGTH.



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DESCRIPTION	DATE	BY

**STANDARD DRAWING NO. 30**  
**CONCRETE CURB AND**  
**COMBINED CURB & GUTTER**

## **PN 534- 04/20/2018 - Asphalt Binder Price Adjustment**

### **A. Eligibility**

If the Department's asphalt binder index has increased or decreased in excess of 10%, asphalt concrete may be eligible for a price adjustment. The total price adjustment must be more than \$400.

### **B. Price Adjustment Criteria and Conditions:**

The Department will establish and publish the asphalt binder Bidding Index (BI) and Placing Index (PI) for each month of each calendar year. The asphalt binder indexes will be posted on the Department's website.

The Department will establish the asphalt binder indexes based on the data provided in the Potem & Partners, Inc., Asphalt Weekly Monitor<sup>®</sup> (AWM) (<http://www.poten.com/copyright.asp>).

The Department will use the selling price for PG 64-22 paving grade asphalt from the Midwest/Mid-continent Markets of Illinois/Michigan/Ohio/Indiana/Kentucky for the Ohio cities/areas listed. The Department will average the Ohio cities/areas low and high selling prices as published in the last weekly publishing period of each month that includes the last Friday of the month to calculate the BI and PI. The calculated asphalt binder BI will be posted by the Department as the index for the following month. The calculated asphalt binder PI will be posted by the Department as the index for the current month.

The Director will determine the asphalt binder indexes in the event data from the AWM is unavailable for any reason.

### **C. Price Adjustment Calculations**

If the ratio of the PI to the BI is greater than 1.10 or less than 0.90, the Department will adjust the compensation the contractor receives for eligible quantities of asphalt concrete. The adjustment is based on the bid month and the month of asphalt concrete placement. The adjustment will apply to the price for asphalt binder used in eligible asphalt concrete quantities according to the following formula:

**For a price increase:**

$$PA = \left( \frac{PI}{BI} - 1.10 \right) \times C \times Q$$

**For a price decrease:**

$$PA = \left( \frac{PI}{BI} - 0.90 \right) \times C \times Q$$

Where:

PA = Price Adjustment

BI = Bidding Index, the asphalt binder index for the month the project is bid

PI = Placing Index, the asphalt binder index for the month the asphalt concrete is placed

C = BI x percent virgin asphalt binder / 100

Q = Eligible quantity of asphalt concrete in tons (metric tons)

The percent of virgin asphalt binder used to calculate C is determined from the approved Job Mix Formula (JMF).

The eligible quantity of asphalt concrete, Q, is the complete, in-place, and accepted quantity in tons (metric tons) placed in the month being considered for price adjustment. If the quantity is paid in cubic yards (cubic meters), the Department will convert the volume into tons (metric tons) using the conversion factor established according to the Department's Construction and Material Specifications Item 401.21.

If eligible asphalt concrete is placed beyond an approved Contract Completion Date, the Department will base price adjustments on either the PI for the last month of the approved Contract Completion Date, or the PI for the actual month of placing, using whichever PI is less.

At a minimum, the Department will calculate and apply price adjustments at the end of each construction season and as soon as practical after the completion of the project.

**D. Extra Work/Force Account:**

When new asphalt concrete pay items are added to the contract as Extra Work, in accordance with the provisions of C&MS Section 109.05, no price adjustments will be made.

**Designer Note PN 534 – 04/17/2015 - Asphalt Binder Price Adjustment**

**For use with the 2013 C&MS**

This note will be used on all projects that specify asphalt concrete with a minimum of 1000 CY (765 m<sup>3</sup>) for any contract item listed in the Schedule of Contract Items; or on design-build projects where a minimum of 1000 CY (765 m<sup>3</sup>) is expected to be used on any contract item listed in the Schedule of Contract Items.

DESIGNERS WHO HAVE QUESTIONS ON APPLICATION OF THIS NOTE SHOULD CONTACT:

Pavement Staff Specialist, Office of Construction Administration at (614) 644-6622