

**STATE OF OHIO
DEPARTMENT OF TRANSPORTATION**

**SUPPLEMENTAL SPECIFICATION 881
MICROSURFACING WITH WARRANTY**

April 18, 2008

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881.01 General. This work consists of constructing a cold laid polymer modified emulsified asphalt pavement course to fill ruts or provide one or more courses for existing pavements. Warrant the microsurfacing for two years.

881.02 Maintenance Bond. Furnish a maintenance bond for a two year period in an amount equal to 75 percent of the total amount bid for Item 881 with the performance and payment bonds specified in 103.05.

Ensure the Surety that underwrites the maintenance bond has an A.M. Best rating of “A-” or better. Include the cost of the maintenance bond in the pay item for the premium for the contract performance and payment bonds.

The effective date of the maintenance bond is the date the Department’s Form C-85 is issued for the pavement. The Department will issue a final C-85 within 30 days after all of the pavement items, including all safety items, are completed and accepted and the pavement is open to traffic. The Department will issue a partial C-85 within 30 days after the pavement is completed and accepted, and all safety items are in place to allow the pavement to be safely open to traffic during the winter months from December 1 to April 30. The Department will issue no more than one C-85 each calendar year except with approval of the Director.

After the final or partial Form C-85 is issued, the Department will notify the Surety. After the final Form C-85 is issued, the Department will also establish all final quantities for the project and the project will be finalized using standard procedures. The maintenance bond expires two years after the issuance of Form C-85.

Maintain the liability insurance specified in 107.12, insuring against Contractor or Contractor authorized operations negligently performed during the warranty period. Ensure the insurance is in effect throughout the warranty period. Send a copy of the Certificate of Insurance to the District each year.

881.03 Warranty Item Coverage. Warranty items and Remedial Actions are specified in 881.06. The warranty applies to all areas treated with Item 881. The warranty does not apply to structural problems below the microsurfacing, provided the structural problem is not the fault of the Contractor.

Do not construe meeting the minimum requirements and guidelines of this specification as a warranty, expressed or implied, as to the material properties and workmanship efforts required to meet the performance criteria specified.

881.04 Materials, Mixture, Equipment, and Quality Control. Provide material meeting the requirements of 421.02. Ensure the mixture meets the requirements of 421.03.

Use self-contained, self-propelled, continuous loading units designed for microsurfacing.

Submit a material quality control plan and final mix design to the District Engineer of Tests and Laboratory a minimum of two weeks before the start of production. Submit changes occurring in the mix design during production.

A. Surface Preparation. Prepare surface as specified in 421.08 except the Contractor is responsible for all surface preparation including cleaning, removal of any paint or plastic markings, tack coat and any other work that may effect the performance of microsurfacing.

Seal visible joints and cracks longer than 2 feet (600 mm) in length according to Item 423.

B. Test Strip. Construct a test strip for the Engineer to evaluate. Construct this test strip 1000 feet (300 m) long, and include all of the application courses specified. Construct the test strip at the same time of day or night the full production will be applied. The test strip may be constructed in 2 days or nights if 881.04.D multiple course applications are specified.

The Engineer will evaluate the completed test strip after 24 hours of traffic to determine if the mix design is acceptable. Begin full production after the Engineer accepts the test strip.

If the microsurfacing is applied between May 1 and September 30 and if during the construction season the Contractor has constructed a Department approved test strip with the same materials and mix design, the Department will waive the test strip.

C. Single Course Construction. Apply one course of microsurfacing mixture. Construct the course using 421.02 Gradation A aggregate at a minimum rate of 18 pounds per square yard (9.8 kg/m²) of dry aggregate or 421.02 Gradation B aggregate at a minimum rate of 20 pounds per square yard (11 kg/m²) of dry aggregate.

D. Multiple Course Construction. Apply a minimum of two courses of microsurfacing mixture. Apply each course separately. Restore the pavement cross section by either rut filling or leveling courses, or a combination of both. Apply this cross section correction to the driving lanes only, before placing the surface course. Apply the surface course to the entire paving pass, which may include the shoulder if specified in the plans. Apply a total combined minimum application rate of 30 pounds per square yard (16.3 kg/m²) of dry aggregate.

Rut fill pavement segments greater than 1000 feet (300 m) in length that have an average rut depth exceeding 0.5 inch (12 mm). Use a microsurfacing mix with 421.02 Gradation B aggregate. Use an approved rut box for each designated wheel track. Construct a clean overlap and straight edges between wheel tracks. Over crown each rutted wheel track to allow for proper traffic consolidation. (For each 1 inch (25 mm) of applied mix, an additional 0.125 to 0.25 inches (3 to 5 mm) crown is required for traffic consolidation.)

If leveling courses are used to profile the pavement, use a microsurfacing mix with 421.02 Gradation A or B aggregate.

Construct the final surface course using 421.02 Gradation A aggregate at a minimum application rate of 16 pounds per square yard (9 kg/m²) of dry aggregate or 421.02 Gradation B at a minimum application rate of 20 pounds per square yard (11 kg/m²) of dry aggregate.

E. Finished Pavement. Do not allow traffic on the mixture until it has cured sufficiently to prevent pickup by vehicle tires. Ensure the new surface is capable of carrying normal traffic within one hour after application without any damage occurring. Ensure filled ruts are able to sustain traffic within 2 hours after placement. Protect the new surface from potential damage at intersections and driveways.

Ensure the finished surface is free from excessive scratch marks, tears, rippling, and other surface irregularities. Ensure the surface area does not contain transverse ripples or longitudinal streaks of 0.2 inch (5 mm) or more in depth, as measured with a 10 foot (3 m) straight edge. Ensure the surface area does not exhibit tear marks greater than 0.5 inch (13 mm) wide and 4 inches (100 mm) long, or a tear mark greater than 1 inch (25 mm) wide and 3 inches (75 mm) long.

Ensure the longitudinal construction joints and lane edges coincide with the proposed painted lane lines. Construct longitudinal joints with less than a 3 inch (75 mm) overlap on adjacent passes and no more than 0.25 inch (6.5 mm) overlap thickness as measured with a 10 foot (3 meter) straight edge. If applicable, place overlapping passes on the uphill side to prevent any ponding of water. Construct neat and uniform transverse joints with no more than a 0.2 inch (5 mm) difference in elevation across the joint as measured with a 10 foot (3 m) straight edge. Ensure the edge is neat and uniform with no more than 2 inches (50 mm) of horizontal variance in any 100 feet (30 m).

Ensure the restored cross section of the pavement section between any edge line, lane line or center line as measured using a 10 foot (3 m) straight edge transversely across the pavement does not exceed 0.4 inch (10 mm), or 0.2 inch (5 mm) when measured with a 6 foot (1.8 m) straight edge. The preceding does not apply to any pavement segment that is designed with a quarter crown cross slope or any area of the pavement within 1 foot (300 mm) of the edge line, lane line or center line. These cross section requirements do not apply to 881.04.C single course microsurfacing.

881.05 Annual Review Process. The District Review Team (DRT) will review the pavement before June 1 each year during the warranty period to determine the performance of the microsurfacing. The DRT will notify the Contractor of the scheduled review. The Contractor or any other interested party may attend the annual review, for observation only. Any

comments by the Contractor or other interested party will be recorded by the DRT. The Department will issue the results in writing to the Contractor within 15 days after completion of the review.

The District Deputy Director may waive this yearly review for all or part of the project based on the results of a preliminary review by a member of the DRT. Any such waiver will be in writing to the Contractor.

881.06 Remedial Actions. Perform Remedial Actions by August 31 of the same year as the review. If an appeal process goes to Step 3, the District may revise the date for completion of the Remedial Action for the appealed item. If the Department determines that immediate repairs are necessary, due to a potential hazard to the traveling public, the Department will notify the Contractor and establish a date that all repairs are to be finished.

Provide construction traffic control when performing any work required or allowed by this specification during the warranty period in accordance with current Department policy and the Ohio Manual of Uniform Traffic Control Devices for Streets and Highways. Obtain Department Approval for the time the work will be performed. Any major change in Department construction traffic control policy from the time of bid will be considered a changed condition.

Replace pavement markings or raised pavement markers (RPM) removed or obliterated while performing a Remedial Action with pavement markings or RPMs equal to or better than the original products at no cost to the Department.

Supply all materials, equipment, and labor to perform Remedial Actions at no additional cost to the Department. Perform Remedial Actions with material meeting the requirements of 881.04. Certify the component materials and designed mix meets the requirements of 881.04. Prior to performing a Remedial Action, submit a Remedial Action plan to the Engineer for approval. State in the plan when and how the Remedial Action will be performed; what material will be used; and how traffic will be controlled. Warrant Remedial Action work for the remainder of the warranty period.

If any 1000 foot (300 meter) lane segment has repairs or defects greater than 5 percent of the area, resurface with a full lane width of microsurfacing meeting the requirements of 881.04.

Use only microsurfacing for permanent repair and resurfacing areas. Perform temporary repairs using material approved by the Engineer. Replace temporary repairs with a permanent repair as soon as weather permits.

The Contractor is not responsible for pavement damage beyond the Contractor's control (i.e., car fire, oil spill, etc.).

TABLE A – DISTRESS TYPES AND THRESHOLD LEVELS	
Distress Type	Threshold Level (6) (allowable distress levels)
Bleeding / Flushing (1)	300 square feet (28 m ²)
Surface Loss (2)	120 square feet (11 m ²)
Raveling (3)	300 square feet (28 m ²)
Rutting (4)(5)	0.25 inch (6.5 mm) continuous in any Segment.
Notes:	
(1) Excess asphalt binder that creates a shiny, reflective condition that becomes tacky to the touch at higher temperatures.	
(2) Loss of surface interlock by traffic wear, debonding, or delamination.	
(3) “Moderate” level raveling as defined in the Strategic Highway Research Program (SHRP) “Distress Identification Manual for the Long-Term Pavement Performance Project” (SHRP-P-338).	
(4) Measure the wheel path with a 4 foot (1.2 m) straight edge.	
(5) Only applies during the first 120 days after the Form C-85 is issued (see 881.02) or after any Warranty work.	
(6) Based on 500 foot (150 m) lane Segment. The beginning of a Segment is the beginning of any distress type.	

881.07 Appeal Process. Findings of the DRT may be appealed. Submit any appeal to the DCE, in writing, within 15 days after receipt of the written results of the DRT.

The DCE will evaluate appeals. This evaluation will include reviewing the disputed area in the field and consulting with the Office of Construction Administration. The evaluation may also include reviewing test data, obtaining samples, or interviewing Department (District or Central Office) or Contractor employees. The DCE’s determination will be issued in writing to the Contractor within 45 days after the DCE receives the appeal.

If in disagreement with the DCE’s determination, appeal the determination using Step 3 of Proposal Note 109 Dispute Resolution and Administrative Claim Process.

881.08 Method of Measurement. The Department will measure Microsurfacing With Warranty by the number of square yards (square meters), completed and accepted in place. The Department will base the width of the pavement course on the width shown on the plans, specified in this specification, or directed by the Engineer. The Department will measure the length along the centerline of each roadway or ramp.

881.09 Basis of Payment. The cost of surface preparation is incidental to Microsurfacing With Warranty. The Department will not pay for materials, equipment, or labor required to perform Remedial Actions. The Department will pay for accepted quantities at the contract prices as follows:

Item	Unit	Description
881	Square Yard (Square Meter)	Microsurfacing With two year Warranty, Single Course.
881	Square Yard (Square Meter)	Microsurfacing With two year Warranty, Multiple Course

Designer Note: The plans may combine multiple course microsurfacing with warranty on the driving lanes with single course microsurfacing with warranty on the shoulders.