

State of Utah
Division of Facilities Construction and Management

Dixie State College of Utah
225 South 700 East
St. George, Utah

Paving Improvements

Technical Specifications

DFCM Project #09100640

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Slurry Seal and Striping Project

DFCM Project #09100640

Index to Technical Specifications

Section Title

02575 Pavement Repair
02577 Slurry Sealing
02580 Pavement Marking

**SECTION 02575
PAVEMENT REPAIR**

PART 1 GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To
 - 1. Repair cracks in existing pavement as described in Contract Documents.

1.2 REFERENCES

- A. American Society For Testing And Materials
 - 1. ASTM D 36-86 (1989), "Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)"
 - 2. ASTM D 113-86, "Standard Test Method for Ductility of Bituminous Materials"
 - 3. ASTM D 1557-91, "Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort"
 - 4. ASTM D 3407-78, "Standard Methods of Testing Joint Sealants, Hot-Poured, for Concrete and Asphalt Pavements"

1.3 SUBMITTALS

- A. Quality Assurance - Submit certification from manufacturer confirming crack sealant properties.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Crack Sealant
 - 1. Homogeneous blend of asphalt cement and plasticizers combined in such a manner as to produce material with following properties -
 - a. Material shall pour readily and penetrate large cracks at temperatures below 400 deg F.
 - b. Cone Penetration at 77 deg F - 50 Maximum
 - c. Flow at 140 deg F when tested in accordance with ASTM D 3407 - 3 mm Maximum
 - d. Resilience at 77 deg F when tested in accordance with ASTM D 3407 - 50 percent Minimum
 - e. Softening Point when tested in accordance with ASTM D 36 - 210 deg F minimum.
 - f. Ductility at 77 deg F, 5 cm/min when tested in accordance with ASTM D 113 - 30 cm
 - g. Flexibility - 1/8 inch thick specimen of product conditioned to minus 20 deg F shall be capable of being bent to 90 deg angle over one inch mandrel in two seconds without cracking.
 - h. Asphalt Compatibility when tested in accordance with ASTM D 3407 - Pass
 - i. Curing - Product shall contain no water or volatile solvents and shall cure immediately upon cooling to sufficient viscosity to prevent tracking by traffic.
- B. Soil Sterilant
 - 1. Approved Products -
 - a. Arsenal
 - b. Mixture of Roundup and Surflan
 - c. Approved equal

PART 3 EXECUTION

3.1 PREPARATION

- A. One week prior to beginning crack repair operations, treat cracks with soil sterilant at maximum rate recommended by Manufacturer to kill existing weeds.
- B. After weeds have died, remove by using wire wheel on crack cleaner/edger.

3.2 PERFORMANCE

A. Crack Repair

1. Using carbide tipped router bit, rout existing cracks measuring between 1/8 to 3/8 inch width to be 1/2 inch wide minimum. Rout cracks to be 3/4 inch deep minimum. Do not rout cracks containing previously applied crack sealant without facility managers's approval.
2. Clean routed and unrouted cracks with compressed air at 60 psi and 100 cu ft per minute minimum. Do not perform cleaning operations when cracks are wet or muddy.
3. Apply crack sealant to full depth of crack. Smooth applied sealant with squeegee or device on handwand leaving sealant flush with parking lot. Bandaid on top of crack shall be 3 inches maximum. At cracks between asphalt paving and concrete, do not allow excess sealant on concrete.

3.3 CLEANING

- #### **A. Upon completion of repair operations, clean up and remove debris.**

END OF SECTION

**SECTION 02577
SLURRY SEALING**

PART 1 GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To
 - 1. Furnish and apply slurry sealing as described in Contract Documents.

1.2 REFERENCES

- A. American Society For Testing And Materials
 - 1. ASTM C 131-89, "Test Method for Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine"
 - 2. ASTM D 242-85, "Specifications for Mineral Filler for Bituminous Paving Mixtures"
 - 3. ASTM D 977-86, "Specifications for Emulsified Asphalt"
 - 4. ASTM D 2397-85, "Specifications for Cationic Emulsified Asphalt"

1.3 SYSTEM DESCRIPTION

- A. Design Requirements - This specification meets requirements of International Slurry Seal Association, Type II.

1.4 PROJECT/SITE CONDITIONS

- A. Environmental Requirements - Do not apply slurry seal at temperatures below 60 deg F.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Asphalt Emulsion
 - 1. Conform to requirements of ASTM D 977 or ASTM D 2397.
 - 2. Minimum percent of emulsion to aggregate shall be 18 percent.
- B. Latex Additive
 - 1. Add at plant at rate of 2.5 parts latex to 100 parts emulsified asphalt.
 - 2. Approved Manufacturers -
 - a. Ultrapave by Textile Rubber & Chemical Co, La Mirada, CA (714) 521-2233
 - b. Equal as approved by Engineer prior to bidding.
- C. Aggregate
 - 1. Mineral aggregate consisting of natural or manufactured sand, slag, or combination thereof.
 - a. Smooth textured sand of less than 1.25 percent water absorption shall not exceed 50 percent of total combined aggregate.
 - b. Material shall be clean and free from organic matter and other deleterious substances and show loss of not more than 35 when tested in accordance with ASTM C 131.
 - c. Mineral fillers shall meet requirements of ASTM C117/AASHTO T11 and ASTM C136/AASHTO T27 and following gradation requirements -

<u>Sieve</u>	<u>Percent Passing by Weight</u>
#4	90 to 100
#8	65 to 90
16	45 to 70
30	30 to 50
50	18 to 30
100	10 to 21
200	5 to 15

The percentage passing shall not vary from the high limit to the low limit on any two consecutive sieves.

- D. Water - Potable and free from harmful soluble salts.

PART 3 EXECUTION

3.1 PREPARATION

- A. Immediately prior to applying slurry, clean surface of loose material, silt spots, vegetation, oil spots, and other objectionable material. Power brooms, power blowers, air compressors, water flushing equipment, and hand brooms shall be suitable for cleaning existing pavement.
- B. Apply tack coat of one part emulsion, 3 parts water at rate of 0.05 to 0.10 gallons per sq yd.

3.2 APPLICATION

- A. Equipment, tools, and machines used in performance of work of this Section shall be maintained in satisfactory working order during performance of work of this Section.
 - 1. Slurry mixing machine shall be continuous flow mixing unit capable of delivering accurately predetermined proportion of aggregate, water, and asphalt emulsion to mixing chamber and to discharge thoroughly mixed production on continuous basis.
 - 2. Attach to mixer mechanical type squeegee distributor equipped with flexible material in contact with surface to prevent loss of slurry from distributor.
- B. Surface may be pre-wetted by fogging ahead of slurry box providing no water is accumulated in front of slurry box.
- C. Maintain adequate amounts of slurry in spreader to insure complete coverage. No lumping, balling, unmixed aggregate, or streaking due to oversize aggregate shall be permitted.
- D. Use approved squeegees to spread slurry in areas not accessible to slurry mixer.
- E. Apply at rate of 6 to 10 lbs per sq yd based on dry aggregate weight.
- F. Roll with 6 to 8 ton pneumatic tired roller with minimum contact pressure of 40 psi after emulsion has broken.
- G. No unsightly joints or other visual imperfections are permitted on finished product.

3.3 PROTECTION

- A. Protect all manhole covers, valve boxes, concrete walkways, waterways, approaches, etc. from slurry mix and emulsion tracking.
- A. Allow treated areas to cure 24 hours minimum before opening to traffic.

END OF SECTION

**SECTION 02580
PAVEMENT MARKING**

PART 1 GENERAL

1.1 SUMMARY

- A. Includes But Not Limited To
 - 1. Furnish material and apply pavement and curb markings as described in Contract Documents.

1.2 QUALITY ASSURANCE

- A. Regulatory Requirements - Paint handicap spaces to conform to ADA Standards and local code requirements.

1.3 PROJECT/SITE CONDITIONS

- A. Environmental Requirements
 - 1. Apply only on dry surfaces and during favorable weather.
 - a. Atmospheric temperature above 50 deg F.
 - b. When temperature is not anticipated to drop below 50 deg F during drying period.
 - c. When damage by rain, fog, or condensation not anticipated.

PART 2 PRODUCTS

2.1 MATERIAL

- A. Paint
 - 1. Acrylic emulsion or alkyd, non-reflectORIZED.
 - 2. Colors -
 - a. Match existing colors – ADA parking stalls and designated routes are to comply with current codes and regulations

PART 3 EXECUTION

3.1 PREPARATION

- A. Apply two coats - the first after asphalt emulsion seal coat and Type II Slurry Seal has cured and then again after 30 days minimum.
- B. Surfaces shall be dry and free of grease and loose dirt particles. Scrape and wire brush chipped or damaged paint on existing curbs.
- C. Perform layout with chalk or lumber crayon only.

3.2 APPLICATION

- A. Site Tolerances
 - 1. General - Make lines parallel, evenly spaced, and with sharply defined edges.
 - 2. Line Widths -
 - a. Plus or minus 1/4 inch variance on straight segments.
 - b. Plus or minus 1/2 inch variance on curved alignments.
- B. Provide two coat application, each coat with coverage of 150 sq ft/gal.

3.3 CLEANING

- A. Remove drips, overspray, improper markings, and paint material tracked by traffic by sand blasting, wire brushing, or other method approved by Engineer prior to performance.

END OF SECTION