(This Section requires SP00503 when bridge deck AC removal is required.)

SECTION 00557 - PREMIXED POLYMER CONCRETE OVERLAYS

(Follow all instructions. If there are no instructions above a subsection, paragraph, sentence, or bullet, then include them in the project. The specifications may be modified to include project specific specifications, but all additions, deletions, or modifications must be sent to the ODOT Technical Resource and Senior Specifications Engineer for review and approval.)

Section 00557, which is not a Standard Specification, is included in this Project by Special Provision.

Description

00557.00 Scope - This work consists of constructing premixed polymer concrete (PPC) pavement overlays as shown or specified.

00557.01 Definitions:

PPC System - The combination of compatible resins and primers, mixed with aggregates and other specified ingredients and applied as specified, that produces an acceptable PPC pavement overlay.

System Provider - The polymer concrete supplier experienced in PPC mix design and the application of PPC systems.

00557.02 Public Safety Plan - Provide a Public Safety Plan (PSP) for the use of methacrylate resin and premixed polymer concrete. Include in the PSP:

- All materials, equipment, and methods to be used.
- All potential health and safety risks.
- Precautions that will be taken by personnel performing or inspecting the work.

Obtain the Engineer's approval of the PSP before beginning PPC pavement overlay work.

If the Engineer determines that the measures used by the Contractor are not adequate to provide for public safety associated with use of methacrylate resin and premixed polymer concrete, the Engineer will direct the Contractor to revise his operations and his Public Safety Plan. Such directions will be in writing and will specify the items of work for which the Contractor's Public Safety Plan is deemed inadequate. Do not perform further work on the items specified until the revised Public Safety Plan has been approved.

Within 14 Calendar Days after receiving a revised PSP, the Engineer will notify the Contractor, in writing, of the approval or rejection of the revised PSP.

(Use the following subsection .03 on projects in "sensitive" urban areas. Check with Bridge Designer.)

00557.03 Airborne Emissions Monitoring Plan - Monitor emissions at a minimum of three points including the point of mixing, the point of application, and the point of nearest public contact. At the completion of work, submit a report, prepared by the CIH, with the results of the airborne emissions monitoring.

00557.04 Pre-placement Conferences:

(a) Supervisory Personnel - Hold a mandatory pre-placement conference with all supervisory personnel, subcontractors, suppliers, the system provider's technical representative (SPTR), the quality control technician (ACI Concrete Field Testing Technician Grade 1), and all other personnel who will be involved in the PPC pavement overlay work. Meet at a mutually agreed time approximately two weeks before placing the PPC pavement overlay including the trial overlay. Schedule the pre-placement conference after all submittals have been reviewed and approved. Present and discuss all phases of the PPC pavement overlay work.

(b) Placement Crew - Hold a second pre-placement conference with the Engineer, the entire PPC pavement overlay crew, the quality control technician (ACI Concrete Field Testing Technician Grade 1), and the SPTR at the job site one-half hour before the first placement begins to discuss placement duties and procedures. Do not begin PPC pavement overlay work until this meeting is held.

Materials

(Use one of the following subsection .10's as instructed below. Check with Bridge Designer. Delete the one that does not apply.)

[Use this .10 on projects in sensitive urban areas.]

00557.10 Resin Primer - Furnish a wax-free, low odor, high molecular weight methacrylate resin prime coat that has a maximum volatile content of 30 percent before adding an initiator, when tested according to ASTM D2369, and meeting the following requirements:

[Use this .10 when the above .10 is not used]

00557.10 Resin Primer - Furnish a wax-free, high molecular weight methacrylate resin prime coat meeting the following requirements:

(Use the following table when either of the two .10's above are used.)

High Molecular Weight Methacrylate (HMWM) Resin		
Property	**Requirement**	**Test Method**
Viscosity*	25 cps max. (Brookfield RVT with UL adaptor, 50 RPM at 77° F)	ASTM D2196

Specific Gravity*	0.90, min. at 77 °F	ASTM D1475
Flash Point*	180° F, min.	ASTM D3278
Vapor Pressure*	0.039 in. Hg, max. at 77° F	ASTM D323
Tack-free time	400 minutes, max. at 77° F	California Test 551**
* Perform test before adding initiator. ** Copies of California Test 551 are available from the Engineer.		

00557.12 Concrete - Furnish premixed polymer concrete consisting of polyester resin binder and dry aggregate.

(a) Polyester Resin Binder - Furnish unsaturated isophthalic polyester-styrene co-polymer resin binder meeting the following requirements:

Polyester Resin Binder		
Property	**Requirement**	**Test Method**
Viscosity*	75 - 200 cps (RVT, No. 1 Spindle, 20 RPM at 77 °F)	ASTM D2196
Specific Gravity*	1.05 to 1.10 at 77 °F	ASTM D1475
Elongation	35% min. Type I at 0.45 in./min. Thickness = 0.25 ± 0.03 inch	ASTM D638
	Sample Conditioning: 18/25/50 + 5/70	ASTM D618
Tensile Strength	2,500 psi min. Type I at 0.45 in./min. Thickness = 0.25 ± 0.03 inch	ASTM D638
	Sample Conditioning: 18/25/50 + 5/70	ASTM D618
Styrene Content*	40 to 50 % (by weight)	ASTM D2369
Silane Coupler**	1.0% min. (by weight of polyester styrene resin)	n/a
PCC Saturated Surface-Dry Bond Strength	500 psi, min. at 24 hours and 70 ± 2 °F	California Test 551***
* Perform test before adding initiator. ** An organosilane ester, gammamethacryloxypropyltrimeth-oxysilane. *** Copies of California Test 551 are available from the Engineer. Perform bond test using mixed PPC and primer.		

Provide a promoter that is compatible with suitable methyl ethyl ketone peroxide.

Initiate and thoroughly blend the polyester resin binder just prior to mixing with aggregate.

(b) Initiator - Provide an initiator system for the methacrylate resin consisting of a metal drier and peroxide. If the initiator is supplied separately from the resin, do not directly mix the metal drier with the peroxide.

Store containers in a manner that prevents leakage or spillage from one material to contact the containers or material of the other.

(c) Accelerators and Inhibitors - Provide accelerators and inhibitors, if required, as recommended by the system provider.

(d) Aggregate - Furnish 3/8" - 0 size aggregate that:

- Meets the following combined gradation according to AASHTO T 27 and AASHTO T 11:

Sieve Size	Percent Passing (by Weight)
3/8"	100
No. 4	62 - 85
No. 8	45 - 67
No. 16	29 - 50
No. 30	16 - 36
No. 50	5 - 20
No. 100	0 - 7
No. 200	0 - 3

- Does not exceed one percent combined aggregate absorption according to AASHTO T 84 and AASHTO T 85.
- The moisture content does not exceed one half of the aggregate absorption at the time of mixing with the polyester resin binder according to AASHTO T 255.
- Provide maximum size No. 4 washed, clean, dry aggregate with the largest size not exceeding one-half the minimum depth of the overlay
- Furnish No. 8 to No. 200 aggregate, consisting of natural sand only, with aggregate retained on the No. 8 and No. 4 sieves having a maximum of 45 percent crushed particles with at least one fractured face when tested according to AASHTO T 335.

Deliver aggregate to the mixer in containers that maintain the specified moisture content.

(e) Surface Texture Sand - Furnish dry commercial quality blast sand, meeting the absorption and moisture content requirements of the aggregate with 95 percent of the sand passing the No. 8 sieve, and 95 percent of the sand retained on the No. 20 sieve.

00557.14 PPC Mixture Tolerances and Limits - Provide a uniform, consistent, workable PPC mixture with a polyester resin content, by weight, of 12 ± 1% of the aggregate weight.

00557.16 Acceptance of Premixed Polymer Concrete:

(a) General - Acceptance of PPC will be based on Contractor's modulus of elasticity and bond strength test results.

(b) Required Properties and Tolerances - The properties and requirements of the PPC are:

Property	**Requirement**	**Test Method**
Compressive Strength for Traffic	2,000 psi, min. before opening to traffic	ASTM C805
Surface Tolerance	See (d) below	n/a
Bond Strength	250 psi, min.	See (e) below
Set Time	30 to 90 minutes	Visual
Density	See (g) below	ASTM C138
Modulus of Elasticity at 7 days	1,000 ksi, min. 2,000 ksi, max.	ASTM C469
Surface Preparation Depth	1/16 inch, min.	ASTM E965

Perform acceptance testing according to the referenced tests, and furnish samples to the Engineer as required. Failing test results may be cause for rejection of the mix with removal and replacement of the affected material at no additional cost to the Agency.

(c) Modulus of Elasticity - Sample PPC within one minute of mixing. Cast two sets of three 4 by 8 inch cylinder specimens from each batch of PPC placed on the Project. Cast the PPC cylinders with a minimum of two lifts, rodding 25 times for each lift. Keep the cylinders stationary until PPC overlay rebound test has been completed.

A batch is defined as "per mixer" or "portion of it placed". Test one set according to ASTM C469 to determine modulus of elasticity at 7 days. Retain the second set and submit to the Engineer for verification testing. Use a CSTT to perform modulus testing.

Do not allow traffic and equipment on the PPC overlay until the overlay has reached a minimum compressive strength of 2,000 psi as verified by the rebound number determined according to ASTM C805. Test the deck surface at locations as directed.

(d) Surface Tolerance - The finished surface of the PPC overlay, when tested with a 12 foot straightedge, shall not vary by more than 1/4 inch. Furnish the straightedge and operate it under the direction of the Engineer.

Correct all non-specification surface tolerance with a diamond grinder.

(e) Bond Strength - Perform at least two bond tests for each day of placement in the presence of and at locations designated by the Engineer between 24 hours and 48 hours after placing the PPC overlay. Cut 2 inch or 3 inch diameter cores from in-place PPC and conduct bond tests on the cores.

The bond test consists of:

- Coring through the PPC overlay and approximately 1 inch into the existing concrete.
- Attaching a device to the top of the core.
- Exerting a tensile load to the core sufficient to cause failure or achieve 250 psi, whichever occurs first.

A successful test is the failure of the concrete substrate or bond failure above 250 psi.

After coring and testing, restore the area voided by the cores by blowing with compressed air and filling with PPC.

(f) Set Time - Use an appropriate amount of initiator to achieve the required set time. Accelerators or inhibitors may be required as recommended by the polyester resin binder supplier and as approved by the Engineer.

(g) Density - Determine the unit weight of the PPC mixture according to AASHTO T 121 (ASTM C138). Submit test results to the Engineer. The correlation factor established through density testing will be used to determine equivalency between weight and volume for purposes of payment. Perform density testing at the rate of one test per batch.

00557.17 Portland Cement Concrete Repair - Furnish PCC repair material meeting the requirements of Section 02015.

00557.18 Submittals, Samples, and Notifications - 21 Calendar Days before the pre-placement conference, provide the following information and samples to the Engineer for approval:

- The Public Safety Plan (PSP) for the use of methacrylate resin and premixed polymer concrete.
- Test results, from an independent testing laboratory, for the first lot of primer manufactured for use on this Project, showing that the primer complies with the requirements of these Specifications. Provide a Certificate of Compliance from the manufacturer for each subsequent lot of primer, indicating that the primer was manufactured to the same formulation as the first lot.
- Test results, from an independent testing laboratory, for the first lot of polyester resin binder manufactured for use on this Project, showing that the binder complies with the requirements of these Specifications. Provide a Certificate of Compliance from the manufacturer for each subsequent lot of resin binder, indicating that the additional polyester resin binder was manufactured, to the same formulation as the first lot.
- A Certificate of Compliance certifying by lot that the primer and resin binder will not expire prior to use on this Project based on the published shelf life and manufacture date.
- The traffic control and work plan.
- Rebound Hammer calibration documentation and correlation number established per ASTM C805 used to determine when to open the overlay to traffic.
- The type of scarifying equipment that will be used for deck preparation.

- The method and materials used to contain, collect, and dispose of all concrete debris generated by the scarifying process, including provisions for protecting adjacent traffic from flying debris.
- The method and materials used to contain the HMWM resin and the PPC mixture within the deck area that will receive the overlay.
- The PPC mix design.
- Certification from the System Provider stating that the polyester resin and the primer are approved and are fully compatible with one another and that they are compatible with the PCC repair material used for repairing Class 2 and Class 3 areas.
- Notice when bulk resin will be used on the Project. Bulk resin is resin that is stored in containers exceeding 55 gallons.
- A Material Safety Data Sheet for the polyester resin binder and high molecular weight methacrylate resin.
- The personnel qualifications according to 00557.30.
- 100 pounds of the blended aggregate.

(Use the following bullet when subsection 00557.03 is included in the project special provisions. Check with Bridge Designer.)

- If required, the airborne emissions monitoring plan, prepared by a Certified Industrial Hygienist (CIH).

Provide all material delivery receipts upon availability, but no later than one hour after the end of the work shift.

Equipment

00557.20 General - Remove all equipment that leaks oil or other contaminants from the jobsite until they are repaired. Before PPC placement, protect the prepared deck or pavement from contaminant spills by covering with clear plastic, overlapped to prevent contaminants from contacting the deck or pavement Do not use equipment until the equipment is approved.

00557.22 Surface Preparation Equipment:

(a) Sawing Equipment - Furnish power-driven concrete saws adequate for sawing joints and for surface texture.

(b) Scarifying Equipment - Furnish power-operated diamond grinding, micro-milling, or shot blasting scarifying equipment capable of uniformly removing the existing surface to depths required.

(1) Diamond Grinding - Furnish power-driven self-propelled machines with the cutting head made up of diamond cutting blades.

(2) Micro-milling - Furnish cold plane or rotomill grinding machines using carbide cutting tools on a rotary drum. Provide equipment with tooth spacing of not more than 1/4 inch, capable of leaving a smooth, uniform pattern of striations. Limit

machines to a gross operational weight of no more than 35 tons and a forward speed to 2.5 feet per minute. Operate at a drum speed of at least 120 RPM.

(3) Shot-Blasting - Furnish mono-directional or bi-directional ~~electric-powered~~ shot blast machines with single or multiple blast wheels that cover at least 2.5 feet per pass, and conform to EPA air pollution requirements by containing dust and steel abrasive media. If the equipment is not equipped for simultaneous bi-directional blasting, make separate passes in opposite directions to ensure equal cleaning on all sides of the exposed aggregate.

(c) Power-Driven Hand Tools - Furnish power-driven hand tools for removal of unsound concrete meeting the following requirements:

- **Class 2 Preparation Equipment** - For Class 2 deck preparation, use chipping hammers equal to or less than a nominal 15 pound class.

- **Class 3 Preparation Equipment** - For Class 3 deck preparation, use jackhammers equal to or less than a nominal 30 pound class.

(d) Hand Tools - Furnish hammers and chisels to remove final particles of unsound concrete and to achieve the required depth.

(e) Air Compressor - Furnish air compressors equipped with functioning oil traps. Ensure air used for blow-down of prepared surfaces is free of oil.

00557.24 Mixing Equipment - Furnish mechanically operated continuous mixers specifically built or modified for PPC that:

- Employ an auger screw or chute device.
- Is equipped with a positive-displacement pump that is calibrated yearly and is connected to an adjustable catalyst pump.
- Is equipped with a metering device that is calibrated yearly and automatically measures and records the aggregate weight and the corresponding resin weight.
- Has a readout gage, visible to the Engineer at all times, which displays the weights being recorded.

Record the batch weights at no greater than five minute intervals along with the time and date of each recording.

Furnish a batch ticket to the Engineer at the end of each work shift or as requested. Batch tickets shall contain the following information:

- Name of PPC supplier.
- Serial number of the delivery ticket.
- Date; starting time, and finishing time.
- Identification number of batching and mixing equipment.
- Name of purchaser.
- Specific designation of the job (Name, Location and Contract Number).

- Aggregate weight in pounds.
- Resin weight in pounds.
- Sampled PPC Unit Weight in pounds per cubic yard.
- Amount of PPC in cubic yards.
- Signature or initials of the person operating the batching or mixing equipment.

Batch tickets may be computer generated, hand written, or a combination of both.

00557.26 Finishing Equipment - Furnish slip-form finishing equipment with an automatic grade control device to strike off the PPC mixture to the established grade and cross section. Fit the finishing equipment with vibrators or other means of consolidating the PPC.

00557.28 Miscellaneous Equipment:

(a) Hand Tools - Furnish hand tools for placing and finishing the PPC. Use manual type screeds with approved vibrators attached to consolidate and finish smaller areas where it is impractical to use a finishing machine.

(b) Straightedge - Furnish a 12 foot metal straightedge.

(c) Coring Equipment - Furnish core cutting equipment that can cut a core at least 2 inches in diameter.

(d) Bond Testing Equipment - Furnish bond testing equipment that:

- Is compatible with the core tested.
- Can exert a tensile load to the core sufficient to exceed 250 psi.
- Is equipped with a measuring device capable of reading tensile force exerted within 1 percent accuracy.

(e) Diamond Grinders - Furnish power-driven self-propelled machines with the cutting head made up of diamond cutting blades to correct non-specification surface variations.

Labor

00557.30 Personnel Qualifications - Perform the PPC pavement overlay work using a company and personnel experienced in PPC pavement overlay work. Demonstrate the company's qualifications and experience and the qualifications of personnel scheduled to perform the PPC pavement overlay work by providing the Engineer the following:

- The name of the company that will be performing the PPC pavement overlay work.
- A project reference list of at least one PPC pavement overlay project, successfully completed within the last five years, that has used the same PPC pavement overlay system and materials that will be used on this Project. The minimum PPC overlay qualification area is 2,000 square feet. Include the following information for each qualifying project:
  - A brief description of each project.
  - Each project's name.

    - The owner’s contact person’s name, title, and current phone number for each project.
    - Alternate owner's contact person's name, title, and current phone number for each project.
    - The amount of PPC overlay material used on each project.
- Identify a SPTR, the mixer operators, and the finishing machine operators that will perform the PPC pavement overlay work. Include documentation that they have relevant experience with PPC pavement overlay work and that they have completed at least one PPC pavement overlay project within the last three years.
- A brief description of experience using slip-form screeds for either PPC or PCC roadway wearing surfaces.

The Engineer may suspend the PPC pavement overlay work if the Contractor substitutes unapproved personnel during construction. Submit requests for substitution of SPTR, mixer operators, and finishing machine operators to the Engineer. The Engineer will respond within seven Calendar Days of each request.

00557.32 Quality Control Personnel - Provide the following certified technicians:

(a) Certified Aggregate Technician (CAgT) - Duties:

- Sample and test the blended aggregate from the conveyor belt during the trial overlay to verify gradation, and moisture content.
- Provide split of blended aggregate samples to the Engineer.
- Provide test results to the Engineer before placing PPC overlay.

(b) Quality Control Technician (ACI Concrete Field Testing Technician Grade 1) - Duties:

- Attend pre-placement meetings.
- Be at the PPC placement site when PPC placement is in progress.
- Performs applicable field testing.
- Notify the Contractor and the Engineer immediately when the PPC is not in compliance with Specifications.

(c) Concrete Strength Testing Technician (CSTT) - Duty:

- Modulus testing.

(d) System Provider's Technical Representative (SPTR) - Duties:

- Guide development of the PPC mix design.
- Attend pre-placement meetings and be present at the trial overlay placement.
- Verify that the primer gels, as mixed and applied.
- Guide the calibration of each mechanically operated mixer used on the Project.
- Be present throughout all mixing to control adjustments to the mix, if necessary.

- Be at the PPC placement site during PPC placement and evaluate each batch delivered and control adjustments to the mix, if necessary.

Construction

00557.40 Trial Overlay Strip - Before constructing the trial overlay strip, in the presence of the Engineer, verify weights of resin and aggregate being recorded by calibrating each mechanical mixer used on the Project using certified scales. Use the calibrated mixer to conduct one or more trial overlays on a concrete base approved by the Engineer to determine the initial set time and to demonstrate the effectiveness of deck preparation, mixing, placing, and finishing equipment proposed. Roughen the surface of the trial overlay strip leaving an exposed aggregate surface texture depth profile of at least 1/16 inch, determined according to ASTM E965 (standard volumetric test).

Construct trial overlays meeting the acceptance criteria of 00557.16, except test the modulus of elasticity at 24 ± 1 hours. Perform testing at locations designated by the Engineer. Construct each trial overlay 12 feet wide by at least 20 feet long, and at the same thickness as the final PPC overlay. Construct trial overlays when weather conditions are similar to those expected during construction of the PPC overlay. Use the same equipment, including deck preparation equipment, that will be used for the PPC overlay.

Sample the blended aggregate from the conveyor belt and test according to 00557.12(d) while constructing the trial overlay strip.

Do not proceed with PPC overlay work until the Engineer approves the trial overlay strip.

Remove and dispose of the trial overlay and the concrete base according to 00290.20.

00557.42 Surface Preparation:

(a) General - Remove surface concrete by approved hand methods that cannot be reached by power-driven equipment.

Repair all damage to abutting concrete surfaces or other surfaces that are damaged by Contractor's operations at no additional cost to the Agency.

Remove existing asphalt concrete wearing surfaces according to Section 00503.

(b) Bridge Deck Drains - Temporarily block all deck drains and catch basins while preparing the surface. Do not allow scarifying, chipping, sawing, sandblasting, shot-blasting, or sweeping material to enter them.

(c) Expansion Joints - Block out expansion joints with rigid polyethylene foam or other approved material, compatible with the resin and primer, before constructing the PPC overlay. Do not create the expansion joint opening by hand troweling the PPC. Block out the joint so that the formed finished surface, when tested, as directed, with a 12 foot straightedge, does not vary by more than 1/8 inch.

Remove material that is within 12 inches of all joints in a manner acceptable to the Engineer. Do not damage the joints.

(Use the following paragraph (d) when the Project includes crack sealant removal. If not used, delete paragraph and re-alphabetize remaining paragraphs.)

(d) Sealant Removal - Remove all existing crack sealant from deck surface by grinding, bush hammering, or other approved method. Do not exceed 1/4 inch of surface deck removal.

(e) Initial Surface Preparation - Perform surface preparation far enough in advance of resurfacing so that all further deck preparation can be satisfactorily completed. Prepare bridge deck and concrete pavement preparation according to the following:

(1) Class 1 Preparation:

- Roughen the existing concrete surface to an exposed aggregate surface texture depth profile of at least 1/16 inch, determined according to the standard volumetric test (ASTM E965).
- Protect visible reinforcing steel and reinforcing steel where the plans show it to be within 1/2 inch of the surface.

(2) Class 2 Preparation - In Class 2 areas, remove concrete with 12 pound hand hammers or nominal 15 pound powered chipping hammers as follows:

- Remove all unsound concrete from the lower limit of Class 1 preparation down to sound concrete.
- Remove a minimum of 3/4 inch of concrete around and below reinforcing steel that is not at least 50 percent embedded in the existing concrete surface.
- Sandblast reinforcing steel coated or pitted with rust to a bright finish.

(3) Class 3 Preparation - When Class 3 preparation is required, it will be designated by the Engineer and performed according to 00140.30.

Perform Class 3 preparation as follows:

- Remove the full thickness of deck or pavement remaining below the lower limit of Class 2 preparation, using jackhammers.
- Sandblast reinforcing bars pitted with rust to remove all rust.

Where concrete is removed to the limits of Class 2 and Class 3 preparation, repair the deck with a PCC repair material that is compatible with the PPC overlay. Cure the repair material according to the manufacturer's recommendations. Place the repair material at least 5 Calendar Days before placing the PPC or as recommended by the PPC manufacturer.

(f) Final Surface Preparation - Prepare all surfaces that are to be in contact with the PPC, including vertical contact areas as follows:

- Clean the entire surface by shot-blasting within 24 hours of placing the PPC.
- Sweep the area magnetically to remove metal residue.
- Blow clean the surfaces with compressed air.

- If the prepared surface becomes contaminated by spills, rain, or other contaminant before placing the PPC, prepare the surface again according to this subsection.

00557.44 Prime Coat - Before applying the prime coat, dry the area by methods approved by the Engineer and blow clean with compressed air to remove accumulated dust and all other loose material. Apply the prime coat only when the surface temperature is at least 45 °F and has been dry the preceding 72 hours. Do not allow the primer coat to leak from cracks or other openings in the deck.

Flood the deck surface with the resin primer at a rate of 75 to 100 square feet per gallon. Allow the resin primer to penetrate into the concrete and fill all cracks. Redistribute and work the applied resin primer into cracks with squeegees or brooms in a manner that does not cause foaming. Maintain free flowing consistency of the resin primer at all times. Only use enough initiated promoted resin that is needed to apply a prime coat. A noticeable increase in viscosity of the prime coat resin before it is placed will be cause for rejection. Do not allow traffic on the primed surface.

Allow the prime coat to pond and penetrate into the deck surface a minimum of 15 minutes before placing the PPC. If the primed surface becomes contaminated, or if the prime coat fails, clean the contaminated area by abrasive blasting, and re-prime at no additional cost to the Agency.

00557.46 Premixed Polymer Concrete Pavement:

(a) Mixing - Mix PPC on-site. Do not allow packaging to enter the mix.

Use initiators to produce a set time of between 30 and 90 minutes after placement. Use accelerators or inhibitors, if required for the 30 to 90 minute set time, as recommended by the resin supplier.

Initiate and thoroughly blend the polyester resin binder before introduction of aggregate to the binder. Use all bags or other containers of aggregate that are opened at the time of mixing, otherwise discard them.

(b) Placing PPC - Place premixed polymer concrete:

- Before it gels or within 15 minutes after the addition of the initiator, whichever is first. Discard the PPC if it is not placed within this time.
- During the same work shift the prime coat is applied.
- When the surface temperature is 45 °F and rising.

00557.48 Roadway Finish:

(a) Sand Surface Treatment - After overlay strike-off and before gelling occurs, uniformly apply surface texture sand or PPC fine aggregate to the overlay surfaces at a rate of 1.8 pounds per square yard.

(b) Surface Texturing - After application of the surface texturing sand and before gelling occurs, texture the PPC by one of the following methods:

- A steel-tined tool with 1/8 inch wide tines that will mark the finished PPC to a depth of 1/8 to 3/16 inch. Randomly space the markings from 3/4 to 1 1/2 inch as approved.
- A finned float having a single row of fins that will groove the finish approximately 3/16 inch wide by 1/8 inch deep. Randomly space the markings from 3/4 to 1 1/2 inch as approved. Perform this operation so the texture will be achieved while minimizing displacement of the larger aggregate particles.
- Orient the texturing perpendicular or longitudinal to the roadway centerline and full width of the roadway width except leave smooth strips 14 inches wide along each curb faces. Do not overlap texturing.

Correct all non-specification surface texturing, at no additional cost to the Agency, according to the following:

- Correct texturing after PPC curing and before opening the roadway to traffic.
- Cut grooves 1/8 inch wide and 1/8 to 3/16 inch deep.
- Unequally space grooves from 3/4 to 1 1/2 inch apart.
- Remove saw slurry and laitance from the sawing operation while cutting the grooves.
- Orient the grooves perpendicular or longitudinal to the roadway centerline and full width of the roadway width except leave smooth strips 14 inches wide along each curb faces. Do not overlap grooves.

Measurement

00557.80 Measurement - The quantities of work performed under this Section will be measured according to the following:

- **Class 2 Preparation** - Class 2 preparation will be measured on the area basis.

- **Furnishing Premixed Polymer Concrete** - Furnishing premixed polymer concrete material will be measured on the volume basis. The quantities will be determined by converting the weight identified on the mixer's automatic metering device to volume, using the yield factor according to AASHTO T 121 (ASTM C138).

- **Constructing Premixed Polymer Concrete Overlay** - Constructing premixed polymer concrete overlays will be measured on the area basis. Field measurement of the area will not be made. The area will be determined by calculating the area from the dimensions shown.

(Use the following bullet when the Project includes crack sealant removal. Insert the estimate quantity in the blank.)

- **Crack Sealant Removal** - No measurement of quantities will be made for crack sealant removal.

  The estimated quantity of crack sealant to be removed is _____ feet.

(Use the following paragraph when removal of existing asphalt wearing surfaces is required.)

Removal of existing asphalt wearing surfaces will be measured according to 00503.80.

Payment

00557.90 Payment - The accepted quantities of work performed under this Section will be paid for at the Contract unit price, per unit of measurement, for the following items:

Pay Item	Unit of Measurement
(a) Class 2 Preparation	Square Yard
(b) Furnish Premixed Polymer Concrete	Cubic Yard
(c) Construct PPC Overlay	Square Yard

(Use the following pay item (d) when the Project includes crack sealant removal.)

(d) Crack Sealant Removal	Lump Sum

Payment will be payment in full for furnishing and placing all materials, and for furnishing all equipment, labor, and incidentals necessary to complete the work as specified.

No separate or additional payment will be made for Class 1 preparation work or for constructing and disposing of the trial overlays.

Class 3 preparation will be paid for according to 00195.20.

(Use the following paragraph when removal of existing asphalt wearing surfaces is required.)

Removal of existing asphalt wearing surfaces will be paid for according to 00503.90.