Bid Notice

Polk County, a political subdivision of the State of Florida, requests the submittal of bids from vendors that are interested providing the necessary labor, materials, equipment, supervision, and support for the construction of asphalt pavement preservation and/or reconstruction processes, and asphalt pavement improvements., as described herein. Sealed bids must be received in the Procurement Division, prior to the due date and time listed below.

Bid Number and Title: 22-245, Pavement Preservation and Recycling Treatments

Description: Provide the necessary labor, materials, equipment, supervision, and support for the construction of asphalt pavement preservation and/or reconstruction processes, and asphalt pavement improvements.

Receiving Period: Wednesday, April 6, 2022, prior to 2:00 p.m.

Bid Opening: Wednesday, April 6, 2022, 2:00 p.m.

Special Instructions:
To receive a copy of the specifications and bid sheets please go the following FTP site: https://ftp3.polk-county.net, you will be prompted for a User ID and Password. The User ID is *procurevendor* and the password is *solicitation.* After you have logged in to the FTP site, double click on the file folder "**Bid 22-245, Pavement Preservation and Recycling Treatments.zip**", select "Open" or "Save As" to download the Bid documents, drawings, and technical specifications. If you need assistance accessing this website due to ADA or any other reason, please email Ken Brush at kenbrush@polk-county.net.

Attached are important instructions and specifications regarding responses to this Bid. Failure to follow these instructions could result in Bid disqualification.

Questions regarding this bid should be in writing and should reference the above Bid. Submit all questions to Ken Brush, Procurement Contracts Manager, via email at kenbrush@polk-county.net or via fax at (863) 534-6789 by 4:00 p.m.; Monday, March 28, 2022.

Bid Registration

You must register using this form in order to receive notice of any addenda to these documents. Please email or fax the completed form to the Procurement Division as soon as possible. It is the vendor's responsibility to verify if addenda have been issued.

Bid Number: Bid 22-245

Bid Title: Pavement Preservation and Recycling Treatments

This form is for bid registration only. Please scroll down for additional information.

Carefully complete this form and return it to the Procurement Division via e-mail to procurement@polk-county.net or fax (863) 534-6789. You must submit one form for each bid that you are registering for.

Company Name: **Asphalt Paving Systems, Inc.**

Contact Name: **Mark Rohrbach**

Mailing Address: **9021 Wire Road**

City: **Zephyrhills**

State: **FL**

Zip Code: **33540**

Phone Number: **813-788-0010**

Email: **flestimating@asphaltpavingsystems.com & ponderosamark@hotmail.com**

Bid Label

Affix this label to your sealed bid envelope to identify it as a “Sealed Bid”. Be sure to include the name of the company submitting the bid where requested.

Sealed Bid. DO NOT OPEN	
Sealed Bid Number	22-245
Bid Title	Pavement Preservation and Recycling Treatments
Due Date/Time:	**April 13, 2022** prior to 2:00 pm
Submitted by:	**Asphalt Paving Systems, Inc.**
Deliver To:	Polk County Procurement Division 330 West Church Street, Room 150, Bartow, Florida 33830

Bids may be mailed, express mailed or hand delivered. It is the Bidders responsibility to ensure their package is delivered to the Procurement Division prior to 2:00 p.m. on the Receiving date and time referenced above. Bids delivered at 2:00 p.m. or later will not be accepted.

Statement of No Bid

Bid # 22-245, Pavement Preservation and Recycling Treatments

If you do not intend to submit a bid, please complete the information below and return to the Procurement Division via fax or e-mail. If returning by mail, please be sure the bid number and title are clearly marked on the front of the envelope.

- ☐ Insufficient time to respond
- ☐ Do not offer this product
- ☐ Specifications unclear
- ☐ Specifications too restrictive
- ☐ Unable to meet specifications
- ☐ Unable to meet bond/insurance requirements
- ☐ Schedule would not permit us to perform
- ☐ Other (please specify): _____

Company Name: _____

Telephone Number: _____

Date: _____

Signature: _____

Contents

Bidder Instructions and General Information

Bidder Instructions: To ensure acceptance of the bid, follow these instructions

Bid Documents Must Be Delivered to The Procurement Division Prior to 2:00 p.m. On The Date Specified. There Will Be No Exceptions.

1. **Execution of Bid**: Bid must contain an original signature of an authorized representative in the space provided on the signature page. Bid must be typed or printed in ink. Erasable ink is not permitted. Corrections made by bidder to any bid entry must be initialed by the person who signs the bid.
2. **No Bid**: Bidders not interested in submitting a bid should return a "no bid," with an indication of the reason for no bid and the interest in future bid solicitations.
3. **Bid Opening**: It is the responsibility of the bidder to assure that their bid is delivered at the proper time and place prior to the bid opening. All bid openings shall be public, at 2:00 p.m., on the date specified in the Notice to Bidders. Bids, which for any reason are not so delivered, will not be considered. **Bid Submittal Forms Using Facsimile or Email Will Not Be Accepted.**

   Note: In accordance with Florida Statute 119.071, a listing of vendors that provide a bid submittal shall be posted to the County's website at https://www.polk-county.net/procurement/bidstatus. The sealed bids shall remain exempt from disclosure, including bid amounts, until recommendation of award or 30 days after bid opening, whichever event occurs first.

   Should the Procurement Director reject all bids, before the recommendation of award or 30 days after bid opening, and concurrently provide notice of the County's intent to reissue the bid, the rejected bids will remain exempt from Florida Statute 119.07 until such time as the County provides notice of recommendation of award of the reissued bid or until the County withdraws the reissued bid. The bid is not exempt for longer than12 months after the notice of rejection of all bids.
4. **County as Gatekeeper of Documents**: This document is issued by Polk County and as such shall be the sole distributor of all addendums and/or changes to these documents. It is the responsibility of the bidder to determine issuance of documents directly with the Procurement Division. The County is not responsible for any solicitations issued through subscriber, publications, or other sources not connected with the County and the bidder should not rely on such sources for information regarding the solicitation.

5. **Taxes**: Bidders are responsible for the payment of any applicable taxes that are connected to the purchase of any materials or subcontractors used in the execution of the bid.
6. **Discounts**: Bidders may offer a cash discount for prompt payment; however, such discounts shall not be considered in determining the lowest net cost for bid evaluation purposes. Bidders are encouraged to reflect cash discounts in the unit prices quoted.
7. **Mistakes**: Bidders are required to examine the specifications, delivery schedule, bid prices and all instructions pertaining to the requirements of this bid. Failure to do so will be at bidder's risk. In case of a mistake in extension of a unit price, the unit price will govern. Corrections made by bidder to any bid entry must be initialed by the person who signs the bid.
8. **Invoicing and Payment**: The successful bidder shall submit an invoice to the County at the prices bid. **An original invoice shall be submitted to the appropriate User Division.** The bidder shall include the bid number and/or the purchase order number on all invoices. By submitting an invoice, Bidder's Project Manager or any authorized officer is attesting to the correctness and accuracy of all charges. Invoices will be processed for payment when approved by the appropriate Division's Project Manager or designee. The County's payment of an invoice shall not constitute evidence of the County's acceptance of the Bidders performance of the Service or the County's acceptance of any work.
9. **Conflict of Interest**: All bidders must disclose, with their bid, the name of any officer, director or agent who is also an employee of the County or any of their agencies. Furthermore, all bidders must disclose the name of any County employee who owns, directly or indirectly, any interest of any amount in the bidder's firms or any of their branches. Award of this bid shall be subject to the provisions of Chapter 112, Florida Statutes.
10. **Warranty**: Unless otherwise specified, the bidder agrees that the goods furnished under this bid shall be covered by the most favorable commercial warranty the bidder gives to any customer for comparable goods, and that the rights and remedies provided herein are in addition to and do not limit any rights afforded to the County by any other provision of this bid.
11. **Addendum**: Any changes in the bid shall be made in the form of a written addendum by the Procurement Director or his representative. No other person shall be authorized to make changes verbally or in writing. If an addendum is issued, the addendum sheet should be signed and submitted with your bid submittal.
12. **Liability**: The vendor shall hold and save the County, its officers, agents and employees harmless from liability of any kind in the performance of this bid and against claims by third parties resulting from the supplier's breach of contract or the supplier's negligence.

13. **Patents and Royalties**: The bidder, without exception, shall indemnify and save harmless the County and its employees from liability of any nature or kind, including cost and expenses for, or on account of, any copyrighted, patented or non-patented invention, process or article manufactured or used in the performance of the bid, including its use by the County. If the bidder uses any design, device or material covered by letters, patent or copyright, it is mutually agreed and understood without exception that the bid prices shall include all royalties or cost arising from the use of such design, device or material in any way involved in the work.
14. **Cone of Silence**: Bidders and any prospective bidders shall not contact, communicate with or discuss any matter relating in any way to this Bid with any member of the Polk County Board of County Commissioners or any employee of Polk County other than the County Procurement Director or the individual designated in the Procurement Division. This prohibition begins with the issuance of the Bid and ends upon award or execution of the final contract. Any such communication initiated by a bidder or prospective bidder shall be grounds for disqualifying the offender from consideration for an award pursuant to this bid and for bids or contracts to be awarded pursuant to RFPs, or Requests for Bid that the County may issue in the future.
15. **Bid Protest**: Any bidder desiring to file a bid protest, with respect to a recommended award of any bid, shall do so by filing a written protest. The written protest must be in the possession of the Procurement Division within three (3) working days of the Notice of Recommended Award mailing date. All bidders who bid will be sent a Notice of Recommended Award, unless only one bid was received.

    A copy of the bid protest procedures may be obtained from the Polk County Procurement Division or can be downloaded from the County's website at https://www.polk-county.net/procurement/protest-procedures.

    "Failure to Follow Bid Protest Procedure Requirements Within the Time Frames Prescribed Herein as Established by Polk County, Florida, Shall Constitute a Waiver of Your Protest and Any Resulting Claim."

16. **Indemnification**: Vendor, to the extent permitted by law, shall indemnify, defend (by counsel reasonably acceptable to County), protect and hold the County, and its officers, employees and agents, harmless from and against any and all, claims, actions, causes of action, liabilities, penalties, forfeitures, damages, losses, and expenses whatsoever (including, without limitation, attorneys' fees, costs, and expenses incurred during negotiation, through litigation and all appeals therefrom) including, without limitation, those pertaining to the death of or injury to any person, or damage to any property, arising out of or resulting from (i) the failure of Vendor to comply with applicable laws, rules or regulations, (ii) the breach by Vendor of its

obligations under any Agreement with the County entered into pursuant to this solicitation, (iii) any claim for trademark, patent, or copyright infringement arising out of the scope of Vendor's performance or nonperformance of the Agreement, or (iv) the negligent acts, errors or omissions, or intentional or willful misconduct, of Vendor, its professional associates, subcontractors, agents, and employees; provided, however, that Vendor shall not be obligated to defend or indemnify the County with respect to any such claims or damages arising out of the County's sole negligence. The obligations imposed by this Section shall survive the expiration or earlier termination of the Agreement.

17. **Public Entity**: A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity in excess of the threshold amount provided in Section 287.017, Florida Statutes, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list. When submitting this bid, the bidder hereby certifies that they have complied with said statute.
18. **Preference for Drug Free Workplace**: Whenever two or more bids, which are equal with respect to price, quality and service, are received, preference shall be given to a bid received from a business that certifies that it has implemented a drug free workplace program in accordance with Section 287.087, Florida Statutes. In order to receive preference, a signed certification of compliance must be submitted with the bid response.
19. **Sealed Bids**: All bid submittals must be completed and submitted in a sealed parcel. **(Do Not Include More Than One Bid Submittal Per Envelope. Bid Submittal Shall Include One (1) Original.)** The **Original** bid submittal(s) shall be submitted on the forms provided by Polk County. All bids are subject to the conditions herein; failure to comply will subject bid to rejection.
20. **Prices, Terms and Payment**: Firm prices shall be bid and include all packing, handling, shipping charges and delivery to any point within Polk County. Discount time will be computed from the date of satisfactory delivery at place of acceptance. Prices bid shall be firm for forty-five (45) days.
21. **Safety Standards**: Unless otherwise stipulated in the bid, all manufactured items and fabricated assemblies shall comply with applicable requirements of Occupational Safety and Health Act (OSHA) and carry evidence of Underwriters Laboratories' Listings (UL).
22. **Packaging**: All containers shall be suitable for storage or shipment, and all prices should include standard commercial packaging.

23. **Meets Specifications**: It is understood and agreed that any item offered or shipped as a result of this bid shall be new (current model at the time of this bid) unless otherwise specified in the specifications. The bidder represents that all equipment offered under this specification shall meet or exceed the minimum requirements specified. Bidder shall strictly adhere to delivery specifications.
24. **Silence of Specifications**: The apparent silence of this specification and any supplemental specifications to any details or the omission from same of any detailed description concerning any point shall be regarded as meaning that only the best commercial practices are to prevail and that only materials of first quality and correct type, size and design are to be used. All workmanship is to be first quality. All interpretations of these specifications shall be made upon the basis of this statement.
25. **Governmental Restrictions**: In the event that any governmental restrictions may be imposed which would necessitate alteration of the material, quality, workmanship or performance of the items offered on this bid prior to delivery, it shall be the responsibility of the supplier to notify the Procurement Division at once. Their letter shall indicate the specific regulation, which required an alteration. The County reserves the right to accept any such alteration, including any price adjustments, or to cancel the contract at no expense to the County.
26. **Toxic Substances: Notice of successful vendor(s) to provide to Polk County toxic substances (As listed in Chapter 442, Appendix "G" of the FS) if applicable.**
    a. Chapter 442 of the FS states that manufacturers, importers or distributors of any toxic substance shall prepare and provide each direct purchaser of such toxic substance with Material Safety Data Sheet(s), herein referred to as MSDS, which to the best of the manufacturer's, importer's or distributor's knowledge, is current, accurate and complete based on information then reasonably available to the manufacturer, importer or distributor. Upon notification of a new or revised MSDS the manufacturer, importer or distributor, on a timely basis not to exceed three (3) months after notification, shall provide the County with the revised information as it becomes available to the manufacturer, importer or distributor.
    b. Failure to provide the MSDS, when applicable, shall be cause for rejection of bid.
27. **Inspection, Acceptance and Title**: Inspection and acceptance will be at the designated facility unless otherwise indicated. Title and risk of loss or damage to all items shall be the responsibility of the contract supplier until accepted by the County, unless loss or damage results from negligence by the County.
28. **Samples**: Samples of items, when called for, must be furnished free of expense and may, upon request, be returned at the bidder's expense. Each individual sample must be labeled with bidder's name, manufacturer's brand name and

number, bid number and item reference. Samples of successful bidder's items may remain on file with Procurement for the term of the contract. Request for return of samples shall be accompanied by instructions, which include shipping authorization and name of carrier, and must be received within ninety (90) days after bid opening date. If instructions are not received within this time, the Procurement Division shall dispose of the samples.

29. **Code of Ethics**: If any bidder violates or is a party to a violation of the code of ethics of Polk County or the State of Florida, with respect to this bid, such bidder may be disqualified from performing the work described in this bid or from furnishing the goods or services for which the bid is submitted and shall be further disqualified from bidding on any future bids for work, goods, or services for the County.

General Information

1. **Definitions**:
   - The term "County" means the Polk County, a political subdivision of the State of Florida, and its authorized designees, agents or employees.
   - The term "Contract" means this bid document, any and all Addenda issued, and the Contractors bid submittal.
   - The term "Vendor", "Contractor" means the successful bidder(s) who executes a contract with the County.
2. **Award(s):** As the best interest of the County may require, the right is reserved to make award(s) by individual item, group of items or as indicated in the Special Conditions; to reject all bids or waive any minor irregularities or technicalities in bids received. In determining the lowest responsive and responsible bidder, in addition to price, the following may be considered:
   - Vendor's evaluation – quality of performance on previous projects.
   - The ability, capacity, equipment and skill of the bidder to fulfill the contract.
   - Whether or not the bidder can fulfill the contract within the time specified, without delay or interference.
   - The character, integrity, reputation, judgment, experience and efficiency of the bidder.
   - The previous and existing compliance by the bidder with laws and ordinances relating to the contract.
   - The sufficiency of the financial resources to fulfill the contract to provide the goods and/or services.
   - The quality, availability and adaptability of the suppliers or contractual services to the particular use required.

- The ability of the bidder to provide future maintenance and service, as required or needed.
- The number and scope of conditions attached to the bid.

3. **Effective Date:** The date of issuance of a Notice to Commence by the County Procurement Division.
4. **Local Preference**: It is the policy of the Board of County Commissioners to afford local preference to Polk County entities in the award of bids. Preference shall be administered in accordance with the following:

   When bids are received that do not exceed $3,000,000.00, and the lowest price is offered by an entity located outside of Polk County, and the next lowest price is offered by an entity located in Polk County, and is within 2% of the lowest price offered, then the Polk County entity shall be given the opportunity to match the lowest price offered, and if agreement to match the lowest price is reached, the Polk County entity will be awarded the bid if the Polk County entity is otherwise fully qualified and meets all county requirements.

   When bids are received that are greater than $3,000,000.00 but do not exceed $5,000,000.00, and the lowest price is offered by an entity located outside of Polk County, and the next lowest price is offered by an entity located in Polk County, and is within 1% of the lowest price offered, then the Polk County entity shall be given the opportunity to match the lowest price offered, and if agreement to match the lowest-price is reached, the Polk County entity will be awarded the bid if the Polk County entity is otherwise fully qualified and meets all county requirements.

   When bids are received that are greater than $5,000,000.00, and the lowest price is offered by an entity located outside of Polk County, and the next lowest price is offered by an entity located in Polk County, and is within .5% of the lowest price offered, then the Polk County entity shall be given the opportunity to match the lowest price offered, and if agreement to match the lowest price is reached, the Polk County entity will be awarded the bid if the Polk County entity is otherwise fully qualified and meets all county requirements.

   For purposes of this provision the term "Polk County entity" means any business having a physical location within the boundaries of Polk County, Florida, at which employees are located and business activity is managed and controlled on a day to day basis. Additionally, the business must have been located within the boundaries of Polk County for a minimum of 12 months prior to the date the applicable solicitation is issued. This requirement may be evidenced through a recorded deed, an executed lease agreement, or other form of written documentation acceptable to the County. The County shall have the right, but not the obligation, to verify the foregoing requirements.

If a contract is being funded in whole or in part by assistance of any federal, state or local agency which disallows local preference, the County will adhere to those requirements by not applying this section.

This policy does not apply if this bid qualifies as a Sheltered Market bid.

5. **Vendor Preference**: It is the policy of the Board of County Commissioners to afford vendor preference to women or minority owned entities in the award of bids. Preference shall be administered in accordance with the following:

   When sealed bids are received that do not exceed $3,000,000.00, and the lowest price is offered by a non-women or minority owned entity located outside of Polk County, and a price is offered by a women or minority owned entity that is within 2% of the lowest price offered, then the women or minority owned entity shall be given the opportunity to match the lowest price offered, and if agreement to match the lowest price is reached, the women or minority owned entity will be awarded the bid if the women or minority owned entity is otherwise fully qualified and meets all County requirements.

   When sealed bids are received that are greater than $3,000,000.00 but do not exceed $5,000,000.00, and the lowest price is offered by a non-women or minority owned entity located outside of Polk County, and a price is offered by a women or minority owned entity that is within 1% of the lowest price offered, then the women or minority owned entity shall be given the opportunity to match the lowest price offered, and if agreement to match lowest price is reached, the women or minority owned entity will be awarded the bid if the women or minority owned entity is otherwise fully qualified and meets all County requirements.

   When sealed bids are received that are greater than $5,000,000.00, and the lowest price is offered by a non-women or minority owned entity located outside of Polk County, and a price is offered by a women or minority owned entity that is within .5% of the lowest price offered, then the women or minority owned entity shall be given the opportunity to match the lowest price offered, and if agreement to match lowest price is reached, the women or minority owned entity will be awarded the bid if the women or minority owned entity is otherwise fully qualified and meets all County requirements.

   The term “Women or Minority Owned Entity” means any business having at least 51% ownership by women or minority group members who independently control the management and day-to-day operations of the firm. Group members are Females, African Americans, Hispanic Americans, Asian-Pacific Americans, Native Americans, and Asian-Indian Americans.

If a contract is being funded in whole or in part by assistance of any federal, state or local agency which disallows this form of preference, the County will adhere to those requirements by not applying this section.

This policy in no way supersedes the Local Preference Policy.

This policy does not apply if this bid qualifies as a Sheltered Market bid.

6. **Non-Conformance to Bid Conditions**: Services not delivered as per delivery date in bid and purchase order may result in bidder being found in default, in which event any and all re-procurement costs may be charged against the defaulting vendor. This non-conformance to bid conditions may result in immediate cancellation of the purchase order.
7. **Assignment**: Any purchase order issued pursuant to this bid and the monies which may become due herein are not assignable except with the prior written approval of the Procurement Director.
8. **Disputes**: In the event of any doubt or difference of opinion as to the methods provided herein, or the level of performance rendered, the decision of the user department/division director shall be final and binding on both parties.
9. **Facilities**: The County reserves the right to inspect the bidder's facilities at any time, with prior notice.
10. **Placing of Orders**: The award of this bid does not constitute an order. Before any services can be performed, the successful bidder must receive written or oral notification in accordance with the practices of the User Division.
11. **Precedence**: Any requirement set forth in any section of the bid documents shall be binding as if called for by all sections. If there is a difference in the terms anywhere in this document, the most restrictive shall prevail.
12. **Additions/Revisions/Deletions**: Additions, revisions or deletions to the general conditions, specifications or bid price sheets that change the intent of the bid will cause the bid to be non-responsive and the bid will not be considered. The Procurement Director shall be the sole judge as to whether or not any addition, revision or deletion changes the intent of the bid.
13. **Termination/Suspension**: The County may terminate the Contract resulting from this Bid at any time, in whole or in part, in accordance with and subject to the following:
    a. The County may terminate the Contract for the County's convenience by delivering 30 days' prior written notice of termination to the Contractor.
    b. The County may terminate the Contract immediately if the User Division determines that the Contractor is in material default of its Contract obligations, has notified the Contractor of such default by delivering a Vendor Complaint Form to the Contractor specifically describing the basis of the complaint and the conditions of the Contractor's default, and ten (10) days have passed since the

Contractor's receipt of the Vendor Complaint Form without all defaults as described therein having been fully corrected. Notwithstanding anything to the contrary contained herein, the County may terminate the Contract immediately, without notice or any opportunity to cure, if the services rendered for the Contract cause or threaten endangerment to public health, safety or welfare.

c. Upon receipt of any termination notice as described above, the Contractor shall:
   - Immediately discontinue all work unless the County's notice directs otherwise, and
   - Deliver to the County any and all data, reports, summaries, and all other information and materials of any type or nature whatsoever, whether completed or in process, the Contractor may have accumulated or generated in the course of performing the work of the Contract.

d. In the event this Bid and/or the resulting Contract is terminated due to the Contractor's material default which is not cured within the allotted time period as described above, the Procurement Director may also suspend or debar the Contractor in accordance with the Suspension and Debarment Section of the County Procurement Procedures Manual. The rights and remedies of the County provided for in this Section are in addition and supplemental to any and all other rights and remedies provided by law or under the Bid and/or the resulting Contract.

14. **Cancellation**: All annual bid obligations shall prevail for at least one hundred eighty (180) days after effective date of the bid, unless bid conditions are breached as specified herein. After that period, for the protection of both parties, either party may cancel this bid in whole or part by giving thirty (30) days prior notice in writing to the other party. The County reserves the right to cancel any bid after reasonable written notice to the successful bidder should the service not be in the best interest of the County. Should the service rendered for any bid cause or threaten endangerment to public safety or welfare, the Procurement Director may cancel the bid immediately.
15. **Price Adjustments**: Any price decrease executed during the Contract period, either by reason of market change or on the part of the contractor to other customers, shall be passed on to the County.
16. **Manufacturer's Names and Approved Equivalents**: Any manufacturer's names, trade names or brand names are for information only and are not intended to limit competition. The bidder may offer any brand for which they are an authorized representative that meets or exceeds the specification for any item(s). If bids/proposals are based on equivalent products, indication should be made on the bid/proposal form of the manufacturer's name and number. Bidders shall submit with their bid/proposal, cuts, sketches, descriptive literature and/or complete specifications. Reference to literature submitted with a previous bid will not satisfy this provision. The bidder shall also explain in detail the reason(s) why the

proposed equivalent will meet the specification(s) and not be considered an exception thereto. Bids/proposals lacking any written indication of intent to bid an alternate brand will be received and considered in complete compliance with the specifications as listed on the bid form. The Procurement Division shall be notified of any proposed changes in the following:

(i) materials used;
(ii) manufacturing process; and
(iii) construction.

Changes shall not be binding upon the County unless evidenced by a Change Notice issued and signed by the Procurement Director.

17. **Plans and Specifications**: The specifications and other bid documents upon which the prices in the vendor's bid proposal are based on, are hereby made a part of the purchase order by reference hereto.
18. **Performance and Payment Bond**: If a bond is required, it will be called out in the Special Conditions section of the bid. The vendor shall furnish a performance and payment bond, in an amount equal to the amount awarded, as security for the faithful performance and payment of all the vendor's obligations under the bid documents. The bond shall remain in effect at least until one year after the date when final payment becomes due, except as provided otherwise by Laws or Regulations or by the bid documents. All bonds shall be in the form prescribed by the bid document except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department and A.M. Best rated A VIII or better.
19. **Annual Appropriations**: The vendor acknowledges that the County, during any fiscal year, shall not expend money, incur any liability, or enter into any agreement which, by its terms, involves the expenditure of money in excess of the amounts budgeted or the reduction of revenues for those budgeted agreements that may be available for expenditure during such fiscal year. Any agreement, verbal or written, made in violation of this subsection is null and void, and no money may be paid on such agreement. Nothing herein contained shall prevent the making of agreements for a period exceeding one year, but any agreement so made shall be executory only for the value of the services to be rendered or agreed to be paid for in succeeding fiscal years. Accordingly, the County's performance and obligation to pay under this agreement is contingent upon annual appropriation.
20. **Price Increases:** The Procurement Director reserves the right to increase/decrease prices after the bid has been in place for a minimum of 12-months, when it is in the

best interest of the County. Increases/decreases will be determined by the Consumer Price Index (CPI-U) unless otherwise stated in the Special Conditions.

21. **Uncontrollable Forces (Force Majeure)**: Either party hereunder may be temporarily excused from performance if an Event of Force Majeure directly or indirectly causes its nonperformance. An “Event of Force Majeure” is defined as any event which results in the prevention or delay of performance by a party of its obligations under this Agreement and which is beyond the reasonable control of the nonperforming party. It includes, but is not limited to fire, flood, earthquakes, storms, lightning, epidemic, war, riot, civil disturbance, sabotage, and governmental actions. Neither party shall be excused from performance if non-performance is due to forces which are reasonably preventable, removable, or remediable and which the non-performing party could have, with the exercise of reasonable diligence, prevented, removed, or remedied prior to, during, or immediately after their occurrence. Within five (5) days after the occurrence of an Event of Force Majeure, the non-performing party shall deliver written notice to the other party describing the event in reasonably sufficient detail, along with proof of how the event has precluded the non-performing party from performing its obligations hereunder, and a good faith estimate as to the anticipated duration of the delay and the means and methods for correcting the delay. The non-performing party’s obligations, so far as those obligations are affected by the Event of Force Majeure, shall be temporarily suspended during, but no longer than, the continuance of the Event of Force Majeure and for a reasonable time thereafter as may be required for the non-performing party to return to normal business operations. If excused from performing any obligations under this Agreement due to the occurrence of an Event of Force Majeure, the non-performing party shall promptly, diligently, and in good faith take all reasonable action required for it to be able to commence or resume performance of its obligations under this Agreement. During any such time period, the non-performing party shall keep the other party duly notified of all such actions required for it to be able to commence or resume performance of its obligations under this Agreement.

    In the event of default by the successful Bidder, the County reserves the right to utilize the next lowest Bidder as the new Awardee when the default occurs within the first term of the bid. Should this occur, the next lowest Bidder will be required to provide the bid items at the prices as noted on their bid submittal.

22. **Unauthorized Alien(s)**: The vendor agrees that unauthorized aliens shall not be employed nor utilized in the performance of the requirements of this solicitation. The County shall consider the employment or utilization of unauthorized aliens a violation of Section 274A(e) of the Immigration and Naturalization Act (8 U.S.C.

1324a). Such violation shall be cause for unilateral termination of this Agreement by the County. As part of the response to this solicitation, the successful vendor will complete and submit the attached form “Affidavit Certification Immigration Laws.”

23. **Employment Eligibility Verification (E-Verify)**

A. For purposes of this section, the following terms shall have the meanings ascribed to them below, or as may otherwise be defined in Section 448.095, Florida Statutes, as amended from time to time:

(i) “Contractor” means a person or entity that has entered or is attempting to enter into a contract with a public employer to provide labor, supplies, or services to such employer in exchange for salary, wages, or other remuneration; and

(ii) “E-Verify system” means an Internet-based system operated by the United States Department of Homeland Security that allows participating employers to electronically verify the employment eligibility of newly hired employees; and

(iii) “Subcontractor” means a person or entity that provides labor, supplies, or services to or for a contractor or another subcontractor in exchange for salary, wages, or other remuneration.

B. Pursuant to Section 448.095(2)(a), Florida Statutes, effective January 1, 2021, public employers, contractors and subcontractors shall register with and use the E-verify system in order to verify the work authorization status of all newly hired employees. The Contractor acknowledges and agrees to utilize the U.S. Department of Homeland Security’s E-Verify System to verify the employment eligibility of:

(i) All persons employed by the Contractor to perform employment duties during the term of this contract; and

(ii) All persons (including subvendors/subconsultants/subcontractors) assigned by the Contractor to perform work pursuant to this contract.

C. The Contractor acknowledges and agrees that use of the U.S. Department of Homeland Security’s E-Verify System and compliance with all other terms of this section is an express condition of this contract, and the County may treat a failure to comply as a material breach of this contract. B*y* entering into this contract, the Contractor becomes obligated to comply with the provisions of Section 448.095, Fla. Stat., "Employment Eligibility," as amended from time to

time. This includes but is not limited to utilization of the E-Verify System to verify the work authorization status of all newly hired employees, and requiring all subcontractors to provide an affidavit attesting that the subcontractor does not employ, contract with, or subcontract with, an unauthorized alien. The Contractor shall maintain a copy of such affidavit for the duration of the contract. Failure to comply will lead to termination of this contract, or if a subcontractor knowingly violates the statute, the subcontract must be terminated immediately. Any challenge to termination under this provision must be filed in the Tenth Judicial Circuit Court of Florida no later than 20 calendar days after the date of termination. If this contract is terminated for a violation of the statute by the Contractor, the Contractor may not be awarded a public contract for a period of 1 year after the date of termination. The Contractor shall be liable for any additional costs incurred by the County as a result of the termination of this contract. Nothing in this section shall be construed to allow intentional discrimination of any class protected by law.

24. **Attorney's Fees and Costs**: Each party shall be responsible for its own legal and attorney's fees, costs and expenses incurred in connection with any dispute or any litigation arising out of, or relating to this Agreement, including attorney's fees, costs and expenses incurred for any appellate or bankruptcy proceedings.
25. **Public Records Law**.

(a)The Vendor acknowledges the County's obligations under Article I, Section 24, of the Florida Constitution and under Chapter 119, Florida Statutes, to release public records to members of the public upon request and comply in the handling of the materials created under this Agreement. The Vendor further acknowledges that the constitutional and statutory provisions control over the terms of this Agreement. In association with its performance pursuant to this Agreement, the Vendor shall not release or otherwise disclose the content of any documents or information that is specifically exempt from disclosure pursuant to all applicable laws.

(b)Without in any manner limiting the generality of the foregoing, to the extent applicable, the Vendor acknowledges its obligations to comply with Section 119.0701, Florida Statutes, with regard to public records, and shall:

(i) keep and maintain public records required by the County to perform the services required under this Agreement;

(ii) upon request from the County's Custodian of Public Records or his/her designee, provide the County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law;

(iii) ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the term of this Agreement and following completion of this Agreement if the Vendor does not transfer the records to the County; and

(iv) upon completion of this Agreement, transfer, at no cost, to the County all public records in possession of the Vendor or keep and maintain public records required by the County to perform the service. If the Vendor transfers all public records to the County upon completion of this Agreement, the Vendor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Vendor keeps and maintains public records upon completion of this Agreement, the Vendor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the County, upon request from the County's Custodian of Public Records, in a format that is compatible with the information technology systems of the County.

(c) **IF THE VENDOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE VENDOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE COUNTY'S CUSTODIAN OF PUBLIC RECORDS AT:**

RECORDS MANAGEMENT LIAISON OFFICER
POLK COUNTY
330 WEST CHURCH ST.
BARTOW, FL 33830
TELEPHONE: (863) 534-7527
EMAIL: RMLO@POLK-COUNTY.NET

26. **Scrutinized Companies and Business Operations Certification; Termination**.

A. Certification(s).

(i) By its execution of this Agreement, the Vendor hereby certifies to the County that the Vendor is not on the Scrutinized Companies that Boycott Israel List, created pursuant to Section 215.4725, Florida Statutes, nor is the Vendor engaged in a boycott of Israel, nor was the Vendor on such List or engaged in such a boycott at the time it submitted its bid, proposal, quote, or other form of offer, as applicable, to the County with respect to this Agreement.

(ii) Additionally, if the value of the goods or services acquired under this Agreement are greater than or equal to One Million Dollars ($1,000,000), then the Vendor further certifies to the County as follows:

(a) the Vendor is not on the Scrutinized Companies with Activities in Sudan List, created pursuant to Section 215.473, Florida Statutes; and
(b) the Vendor is not on the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473, Florida Statutes; and
(c) the Vendor is not engaged in business operations (as that term is defined in Florida Statutes, Section 287.135) in Cuba or Syria; and
(d) the Vendor was not on any of the Lists referenced in this subsection A(ii), nor engaged in business operations in Cuba or Syria when it submitted its proposal to the County concerning the subject of this Agreement.

(iii) The Vendor hereby acknowledges that it is fully aware of the penalties that may be imposed upon the Vendor for submitting a false certification to the County regarding the foregoing matters.

B. Termination. In addition to any other termination rights stated herein, the County may immediately terminate this Agreement upon the occurrence of any of the following events:

(i) The Vendor is found to have submitted a false certification to the County with respect to any of the matters set forth in subsection A(i) above, or the Vendor is found to have been placed on the Scrutinized Companies that Boycott Israel List or is engaged in a boycott of Israel.
(ii) The Vendor is found to have submitted a false certification to the County with respect to any of the matters set forth in subsection A(ii) above, or the Vendor is found to have been placed on the Scrutinized Companies with Activities in Sudan List, or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or has been engaged in business operations in Cuba or Syria, and the value of the goods or services acquired under this Agreement are greater than or equal to One Million Dollars ($1,000,000).

27. **No Construction Against Drafter**: The Parties acknowledge that this Agreement and all the terms and conditions contained herein have been fully reviewed and negotiated by the Parties. Accordingly, any rule of construction to the effect that ambiguities are to be resolved against the drafting party shall not apply in interpreting this Agreement.

Signature Acknowledgement

(Submittal Page)

To Polk County, a Political Subdivision of the State of Florida

Date: **4/13/2022**

I certify that this bid is made without prior understanding, agreement or connection with any corporation, firm or person submitting a bid for the same construction, service or material and is in all respects fair and without collusion or fraud. I agree to abide by all conditions of this bid and certify that I have read and understand the bidding documents. I have completed and submitted all bid submittal forms, and I am authorized to sign this bid for the bidder. In submitting a bid to the County, the bidder offers and agrees that if the bid is accepted, the bidder will convey, sell, assign or transfer to the County all rights, titles and interests in and to all causes of action it may now or hereafter acquire under the Anti-Trust Laws of the United States and the State of Florida for price fixing relating to the particular commodities or services purchased or acquired by the County. At the County's discretion, such assignment shall be made and become effective at the time the County tender's final payment to the bidder.

Vendor Name: **Asphalt Paving Systems, Inc.**

Mailing Address: **9021 Wire Road**

City: **Zephyrhills**

State: **FL**

Zip Code: **33540**

(Area Code) Telephone Number: **813-788-0010**

Toll Free Number: **same as above**

Email Address: **Amandareichartaps@gmail.com; flestimating@asphaltpavingsystems.com**

Authorized Signature: _____

Name: **Robert Capoferri**

Title: **President**

This bid may be used by any other Government Agency. [ ] YES [ ] NO [ ] N/A

Bidders Incorporation Information

(Submittal Page)

The following section should be completed by all bidders and submitted with their bid submittal:

Company Name: **Asphalt Paving Systems, Inc.**

DBA/Fictitious Name (if applicable): _____

TIN #: **22-3787755**

Address: **9021 Wire Road**

City: **Zephyrhills**

State: **Florida**

Zip Code: **33540**

County: **Pasco**

Note: Company name must match legal name assigned to the TIN number. A current W9 should be submitted with your bid submittal.

Contact Person: **Robert Capoferri**

Phone Number: **813-788-0010**

Cell Phone Number: **n/a**

Email Address: **FLEstimating@asphaltpavingsystems.com**

Type of Organization (select one type)

- □ Sole Proprietorship
- □ Partnership
- □ Non-Profit
- □ Sub Chapter
- □ Joint Venture
- ☒ Corporation
- □ LLC
- □ LLP
- □ Publicly Traded
- □ Employee Owned

State of Incorporation: **New Jersey**

The Successful vendor must complete and submit this form prior to award. The Successful vendor must invoice using the company name listed above.

Drug-Free Workplace Form

(Submittal Page)

The undersigned vendor in accordance with Florida Statue 287.087 hereby certifies that, (Name of the Business): **Asphalt Paving Systems, Inc.** does:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation programs, employee assistance programs and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, plea of guilty or nolo contendere to, any violation of Chapter 1893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on or require the satisfactory participation in a drug abuse assistance or rehabilitation program, if such is available in the employee's community, by any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Vendor Signature: _____

Date: **4/13/2022**

Non-Collusion Affidavit of Prime Bidder

(Submittal Page)

State of **Florida**

County of **Pasco**

Robert Capoferri, President
being first duly sworn, deposes and says that:

1. He - She is **President** of **Asphalt Paving Systems, Inc.**, the Bidder that has submitted the attached Bid;

2. He - She is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstance respecting such Bid;

3. Such Bid is genuine and is not a collusive or sham Bid;

4. Neither the said Bidders nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with such Contract or has in any manner, directly or indirectly, sought by agreement or collusion of communication or conference with any other Bidder, firm or person to fix the price or prices in the attached bid of any other Bidder, or to fix any overhead, profit or cost element of the Bid Price or the Bid Price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the County or any person interested in the proposed Contract; and

5. The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees or parties in interest, including this affiant.

State of: **Florida**

County of: **Pasco**

The foregoing instrument was acknowledged before me by means of [X] physical presence or [ ] online notarization, this **13th** day of **April**, 2022, by **Robert Capoferri** (*name*) as **President** (*title of officer*) of **Asphalt Paving Systems, Inc.** (*entity name*), on behalf of the company, who [X] is personally known to me or [ ] has produced **n/a** as identification.

Notary Public Signature: _____

Printed Name of Notary Public: **Amanda Reichart**

Notary Commission Number and Expiration: **January 22,2026** (AFFIX NOTARY SEAL)

Insurance Requirements

The successful vendor shall purchase and maintain in force during the contract period the insurance as specified with an insurer licensed to do business in the State of Florida; rated “A” or better by A.M. Best Rating Company for Class VIII financial size category. Polk County, a political subdivision of the State of Florida, must be named as an additional insured with respect to liability arising from all work performed for Polk County, for Automobile and General Liability policies of insurance. The certificate holder must be Polk County, a political subdivision of the State of Florida, 330 W. Church St., Bartow, Florida 33830. Workers’ Compensation Insurance providing statutory benefits, including those that may be required by any applicable federal statute. Any sole proprietor or partner actively engaged in the construction industry, and any corporate officer of a construction or non-construction industry corporation who elects to be exempt from the provisions of the workers’ compensation law must provide either a workers’ compensation exemption certificate (construction industry) or a letter stating the exemption status and number of employees (non-construction industry). Commercial General Liability Insurance $1,000,000 combined single limit of liability for bodily injuries, death, and property damage, and personal injury resulting from any one occurrence, including the following coverages: Completed Operations, Broad Form CG. Comprehensive Automobile Liability Insurance $1,000,000; combined single limit of liability for bodily injuries, death and property damage resulting from any one occurrence, including all owned, hired and non-owned vehicles. The general liability and workers’ compensation policies shall contain a waiver of subrogation in favor of Polk County. An original certificate of insurance must be on file in the Procurement Division before a purchase order will be issued.

Each Certificate of Insurance must list the Certificate Holder as:

Polk County, a political subdivision of the State of Florida

330 W Church St, Room 150

Bartow, FL 33830

Certificates of Insurance for policies requiring additional insured status and/or the waiver of subrogation must include notations that these requirements apply. In addition, the Vendor shall supply to the County copies of the endorsements to verify these requirements.

The Vendor must provide, or cause to be provided, the County with 30 days’ prior written notice regarding the cancellation, suspension, or non-renewal of or material change to any policy.

All Certificates of Insurance must be submitted on ACORD 25 forms.

The Vendor must submit updated Certificates of Insurance to the County upon the expiration of or material change to any policy.

Insurance

(Submittal Page)

By signing below, the Bidder is stating that they fully understand the insurance requirements for the project and if awarded the bid will provide all insurance coverage as required in the bid.

The requirements are as follows:

- Bidder is insured with a company licensed to do business in the State of Florida
- The insurance company is rated A VIII or better by A.M. Best Rating Company (General policy)
- Polk County will be named as an additional insured for automobile liability and general liability
- The General Liability and Workers Compensation policy will contain waiver of subrogation in favor of Polk County

Company Name: **Asphalt Paving Systems, Inc.**

Bidder Signature: _____

Safety Requirements/Regulations

1.0 All Bidders are required to submit, with their Bid Proposal, the Safety Requirements/Regulations form. Any questions regarding compliance with the safety requirements/regulations provision shall be directed to the County Safety Officer, Risk Management, at (863) 534-5267.

1.1 The Vendor is responsible for observing all OSHA regulations and shall self-inspect to ensure this is accomplished. The Vendor shall ensure that all personnel are properly trained and shall be able to provide documentation for their personnel that have attended training courses. Examples of such training courses are: Hazard Communications, Traffic Work Zone Safety, Personal Protective Equipment, First Aid/CPR, Permit Required Confined Space, Lock out/Tag Out of Hazardous Energy. All Vendors are required to comply with OSHA Standards regardless of the number of employees they may have.

1.2 A County representative may periodically monitor work site safety. Should there be safety and/or health violations, classified as Serious, Willful or Criminal/Willful Violations, the County's representative may have the authority, but not the duty, to require the Vendor to correct the violation in an expeditious manner. Inspections shall be based on requirements contained in law. The definitions of serious, willful and criminal/willful violations are as follows:

Serious Violation: A serious violation shall be deemed to exist in a place of employment if there is a substantial probability that death or serious physical harm could result from a condition which exists, or from one or more practices, means, methods, operations, or processes which have been adopted or are in use, in such place of employment unless the employer did not, and could not, with the exercise of reasonable diligence, know of the presence of the violation.

Willful Violation: May exist where evidence shows that the employer committed an intentional and knowing violation of the Act.

Criminal/Willful Violation: A repeat violation of a previously cited willful violation.

Violation of Serious, Willful or Criminal violation may have the following consequences:

First violation: correction may be a verbal warning and the correction shall be done the same day. Written documentation may be maintained by the County.

Second violation: may result in work stoppage until the violation is corrected. The work stoppage shall not entitle the Vendor to additional contract time or compensation. Liquidated damages provision will remain in full force and effect.

Third violation: this may constitute a breach of contract for safety violations and may result in termination of the contract at the sole discretion of the County.

Note: The County Safety Officer may stop any job to ensure the safety of all concerned.

1.3 Should the work site be in a hazardous area, the County shall furnish the Vendor with information concerning hazards such as types or identification of known toxic material, machine hazards, Material Safety Data Sheets, or any other information that would assist the Vendor in the planning of a safe work site.

1.4 The Vendor shall be aware that while working for the County, representatives from agencies such as the United States Department of Labor, Occupational Safety and Health Administration (OSHA), and the Division of Safety, State of Florida, are invitees and need not have warrants or permission to enter the work site. These agencies, as well as the County Safety Officer, enter at the pleasure of the County.

1.5 The Vendor shall designate a competent person of its organization whose duty shall be the prevention of accidents at the site. This person shall be the Vendor’s superintendent unless otherwise designated in writing by the Vendor to the County. All communications to the superintendent shall be as binding as if given to the Vendor.

Safety Requirements/Regulations Form

Bidder must sign and have notarized:

The undersigned bidder hereby certifies that they fully understand the safety requirements/regulation provisions and will comply.

Dated this 13th day of April, 20 22

Name of Firm Asphalt Paving Systems, Inc.

By _____

Title of Person Signing: Robert Capoferri, President
(SEAL)

STATE OF Florida

COUNTY OF Pasco

The foregoing instrument was acknowledged before me by means of [x] physical presence or [ ] online notarization, this 13th day of April, 2022, by Robert Capoferri (*name*) as President (*title of officer*) of Asphalt Paving Systems, Inc. (*entity name*), on behalf of the company, who [x] is personally known to me or [ ] has produced n/a as identification.

Notary Public Signature: _____

Printed Name of Notary Public: Amanda R. Reichart

Notary Commission Number and Expiration: January 22, 2026

(AFFIX NOTARY SEAL)

Affidavit Certification Immigration Laws

POLK COUNTY WILL NOT INTENTIONALLY AWARD COUNTY CONTRACTS TO ANY CONTRACTOR WHO KNOWINGLY EMPLOYS UNAUTHORIZED ALIEN WORKERS, CONSTITUTING A VIOLATION OF THE EMPLOYMENT PROVISIONS CONTAINED IN 8 U.S.C. SECTION 1324 A(E) {SECTION 274A(E) OF THE IMMIGRATION AND NATIONALITY ACT ("INA")}.

POLK COUNTY MAY CONSIDER THE EMPLOYMENT BY ANY CONTRACTOR OF UNAUTHORIZED ALIENS A VIOLATION OF SECTION 274A(E) OF THE INA. **SUCH VIOLATION OF THE RECIPIENT OF THE EMPLOYMENT PROVISIONS CONTAINED IN 274A(E) OF THE INA SHALL BE GROUNDS FOR UNILATERAL CANCELLATION OF THE CONTRACT BY POLK COUNTY.**

BIDDER ATTEST THAT THEY ARE FULLY COMPLIANT WITH ALL APPLICABLE IMMIGRATION LAWS (SPECIFICALLY TO THE 1986 IMMIGRATION ACT AND SUBSEQUENT AMENDMENTS).

Company Name: **Asphalt Paving Systems, Inc.**

Signature: _____

Title: **Robert Capoferri, President**

Date: **4/13/2022**

State of: **Florida**

County of: **Pasco**

The foregoing instrument was acknowledged before me by means of [x] physical presence or [ ] online notarization, this **13th** day of **April**, 2022, by **Robert Capoferri** (*name*) as **President** (*title of officer*) of **Asphalt Paving Systems, Inc.** (*entity name*), on behalf of the company, who [x] is personally known to me or [ ] has produced **n/a** as identification.

Notary Public Signature: _____

Printed Name of Notary Public: **Amanda R. Reichart**

Notary Commission Number and Expiration: **January 22, 2026**

(AFFIX NOTARY SEAL)

Special Conditions

1. Award will be made based on lowest responsive bid per section, meeting its respective specification requirements. Bidders are not required to bid on all sections, but should bid on all items contained within a section in order to be considered responsive. All bid items that are part of the basis of award should be bid at a fair and reasonable price; failure to do so may cause the bid to be non-responsive. The Procurement Director shall be the sole judge of what is fair and reasonable. The Procurement Director reserves the right to reject any or all bids and/or waive any minor irregularities in the bids received, whichever would be in the best interest of the County.
2. The period of performance for this bid is from the date of award through April 30, 2023 ("termination Date"). This bid will automatically renew, extending the Termination Date, for two (2) one (1) year periods, unless otherwise terminated in accordance with General Information Items #13 and #14. If the County provides notice to the Vendor at least 30 days prior to the Termination Date that it has not put in place a new bid for the goods, then this Bid shall remain in effect on a month-to-month basis until terminated by written notice from the County Procurement Division to the Vendor, but not longer than four (4) months following the termination date.
3. **Performance of Work:** Portions of the work required under this bid may be performed by subcontractors. Should the successful vendor plan to use subcontractors from the beginning to perform the required work, the vendor must provide a list of subcontractors to the Procurement Division for approval prior to bid award. Should the successful vendor require subcontractors to perform any work during the course of the work assigned under this bid, the vendor must also provide a list of subcontractors to the Procurement Division for approval. The vendor shall be fully responsible for all acts and omissions of their subcontractors and of persons directly or indirectly employed by them and of persons for those acts any of them may be liable to the same extent as if they were employed by the vendor. All submittals required of the prime vendor shall also be required from the subcontractor. Any work performed by the successful vendor or sub-contracted out must meet all regulated deadlines.
4. All prices bid shall remain unchanged during the period of performance, as specified herein, and as may be adjusted in accordance with General Information, Item #20.
5. If it becomes necessary to revise or amend any part of this bid, an addendum will be issued and will be posted on the County's website at https://www.polk-county.net/procurement/bids. It is the sole responsibility of the bidders to check the website to ensure that all available information has been received prior to submitting a bid.

6. Successful bidder must register in our Vendor Database if you have not already done so. A purchase order cannot be issued to a vendor until they have registered. You may register at https:www.polk-county.net/procurement/vendor-registration.
7. Bidder must possess a Polk County Local Business Tax Receipt (f/k/a Business License) in order to do business with the County. A copy of such license must be provided to the Procurement Division before award is made to the successful bidder.
8. **Public Construction Bond:**

    a. For work orders that are $50,000.00 or less, a public construction bond will not be required. For work orders that are over $50,000.00 and less than $200,000.00, a determination will be made by the County as to whether or not a public construction bond will be required. Work orders $200,000.00 and over will automatically require a public construction bond.
    b. The public construction bond cost should be included in the work order proposal and will be reimbursed at cost on the first application for payment; a copy of the bond premium invoice should be attached to the first application for payment.
    c. The Contractor shall receive a purchase order from the Procurement Division; then the Contractor shall immediately furnish the Procurement Division with the original public construction bond for the exact amount of the purchase order. If the work order cost is increased due to additional work, a revised Public Construction Bond must be delivered to Procurement prior to the additional work being performed.
    d. The bonds shall be executed by a corporate surety authorized to do business in the state of Florida. The Bid Bond and Public Construction Bond shall be executed by a surety authorized to do business in the State of Florida and as named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department and AM. Best rated A VIII or better. A certified copy of the authority must accompany all bonds signed by an agent to act, which indicates that they are licensed to do business in the state of Florida.

9. Bidder should submit with their bid a letter of bondability from their bonding company agent stating their current single job limit and the aggregate limit. The bonding company shall be authorized to do business in the State of Florida and as named in the current list of “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Circular 570 (amended) by the Audit Staff, Bureau of Government Financial Operations, U.S. Treasury Department and AM. Best rated A VIII or better.

10. Any additions, deletions, or modification similar in cost or material after bid award will need to be signed off by both the user division and the successful vendor. Price for any additions, deletions, or modifications to the bid will be negotiated and agreed upon by both parties. All agreed upon additions, deletions, or modifications will also require the Procurement Director's (or designee) approval. If the addition, deletion or modification is accepted an amendment to the Bid award will be issued to the successful Bidder.
11. Bidders may attend the Bid Opening via conference call by dialing (646) 558-8656 and enter Meeting ID: 327 647 2818. Vendors that want to attend in person may do so in compliance with safe COVID 19 practices. A listing of all bidders will be posted to Procurement's website as soon as possible after bid opening.

Qualifications

1. Bidders should submit a list of three (3) projects per treatment bid, successfully completed within the last five (5) years, in which the Contractor's portion of the work exceeded $50,000, with the exception of the Fog Seal, Rejuvenator, and Crack Seal bids, where the contractor's portion of work shall have exceeded $30,000. The projects should have been for a federal, state, or local government agency. Three projects should be listed for each of the following treatments:
    a) Chip seal
    b) Micro-surfacing
    c) Crack sealing/filing
    d) Fog seal
    e) Asphalt rejuvenation
    f) Scrub seal
    g) Full depth reclamation
    h) Cold in place recycling
    i) Cape seal

    For each project identified, please include the following information:
    - Project Name
    - Governmental Agency Name
    - Contact Person
    - Email Address
    - Telephone Number
    - Project Date
    - Number of Square Yards Treated
    - Dollar Amount of the Contract
2. Bidders shall submit their FDOT or other State DOT certification to perform placement and maintenance of traffic devices. If the bidder provides other State DOT certification with their bid, the Contractor shall be certified by FDOT to perform this before award of bid.
3. Bidders shall provide with their bid three (3) letters of reference from three (3) of the projects identified above for the placement and maintenance of traffic devices in accordance with FDOT or other State DOT standards. The County reserves the right to verify references. Each reference should indicate the following:
    - Project Name
    - Governmental Agency Name
    - Contact Person
    - Email Address
    - Telephone Number
    - Project Date
    - Brief Description of Services Provided

4. The Bidder shall have a minimum of five (5) years of experience in Maintenance of Traffic in accordance with the specifications and applicable FDOT standards or other State DOT.
5. Bidders may be required to submit detailed information regarding the staff that they propose for this project.
6. Contractor shall be capable of meeting all the requirements of the specifications at the time of the bid submittal.

Scope Of Work

1. The scope of work to be done under this project consists of furnishing all labor, materials, equipment, supervision, and support for the construction of asphalt pavement preservation and/or reconstruction processes, and asphalt pavement improvements. Additional work incidental to asphalt concrete work may include, but may not be limited to, roadway edge preparation, reworking shoulders, adjusting manholes and valve covers to grade, removal and/or restoration of traffic striping, markings and RPM's, sodding, implementation of an adequate Storm Water Pollution Prevention Plan and Implementation, and Traffic Control and Safety.

Specifications

1. Except as amended in the Bid document or otherwise directed by the Roads and Drainage Division, all work shall conform to the Florida Department of Transportation Standard Specifications for Road and Bridge Construction (https://www.fdot.gov/programmanagement/specs.shtm); the Florida Department of Transportation Roadway and Traffic Design Standards (https://www.fdot.gov/design/standardplans/current/default.shtm); and the Manual of Uniform Traffic Control Devices, all current editions (https://mutcd.fhwa.dot.gov).
2. No work shall be performed under the provisions of this bid on any properties outside the limits of the project area without prior written permission of the lawful affected landowner. Any such permission shall be obtained by the Contractor(s) and shall identify the provisions under which such work is to be performed and written permission obtained shall be provided to the County Project Manager prior to the associated work being performed. The Contractor(s) shall not be compensated for any work outside the project area and shall hold the County harmless for all liabilities associated with said work outside the project area, if any work is performed without prior written permission from the County Project Manager.
3. **DEFINITIONS:** The definitions as stated in Section 1-3 of the FDOT Specifications are modified as follows:
    - The Department or FDOT: Reference is to the County as the owner of the project.

- Inspector: The person designated as an agent or representative of the County to perform construction inspection.
- The Engineer: This term has the same meaning as “Polk County Project Manager” as defined in this bid document.
- State Road: Any public roadway.
- The Department’s Acceptance Tests: Tests adopted by the County.
- The District and/or Central Labs: The Contractor’s testing subcontractor, as authorized by the County.
- The County: Project Manager, Roads & Drainage Division Director and/or Deputy County Manager.
- The Inspector: The County appointed project inspector.

4. FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION

a. The current Division II Construction Details and Division III Materials in the FDOT Standard Specifications for Road and Bridge Construction, including all revisions current at the time of the bid due date, shall apply to this Bid except as modified by Special Provisions or Technical Specifications attached to this Bid document.

b. If any conflicts exist between the specifications prescribed in this Bid document, the more stringent requirement shall apply.

5. PROJECT QUOTES AND WORK ORDERS

a. This annual bid includes asphalt roadway project work orders at various locations throughout Polk County, according to the requirements of the Bid document. The project work order locations may be anywhere within Polk County.

b. The County will use as a reference the conceptual estimate per project as generated from the Pavement Analyst Software for the year’s approved Work Plan. When Out of Scope work is determined to be needed by the Project Manager, the Contractor will be instructed to include an Out-of-Scope line item with their estimate for the project. The Contractor’s final estimates will be returned to the County Project Manager including those out-of-scope costs previously identified by the Project Manager. Once the final estimate is approved by the County Project Manager, a purchase order will be issued by Procurement, and the County Project Manager will notify the Contractor they are authorized to proceed to schedule the work with Inspection by means of the Pavement Management Work Authorization Form (see Exhibit B). If the work order is for $200,000 or more, a new Public Construction Bond for the total amount of the PO must be delivered and approved by Procurement prior to the Project Manager issuing the Notice to Proceed. Please see Special Conditions, Item 8 for more information. The approved final estimate should be attached to the

purchase order. The Contractor may then coordinate with Inspection to schedule and commence work and proceed in accordance with the approved schedule, if applicable. Payment for each project will be based on actual quantities used and unit prices from the bid, as approved by the County.

c. The Contractor may not decline to perform projects assigned by the Roads & Drainage Division.

d. The approved quote amount on any individual work order **shall be the maximum compensation payable to the Contractor for that work order.** The work order price may only be changed for altered quantities authorized by the County. If the Contractor desires to make a claim for a change in quantity or schedule of an authorized work order, any such claim shall be submitted to the County Project Manager in writing within three (3) working days of the occurrence of the event giving rise to the claim.

e. The Contractor(s) shall provide all services to properly complete the work described in the bid document, including but not limited to all labor, materials, tools, transportation, and supplies. The Contractor(s) is required to have a qualified superintendent on the job site at all times. If multiple jobs are under construction concurrently, each job is required to have a qualified superintendent on site. The Contractor(s) shall specifically identify the project superintendent and provide inspection with the person's contact information prior to beginning work. If the County determines that a job site is not being adequately supervised, a deficiency letter will be issued to the Contractor(s).

6. **PROJECT SCHEDULES:** The County will require that the Contractor submit time estimates for specific projects, at the County's request.

7. **Working Hours:** The regular working hours for Polk County are Monday – Friday, 7:00 AM to 5:30 PM. Permission to work outside of the regular work hours should be requested in writing a minimum of 5 working days in advance from the Roads & Drainage County Project Management Section. Permission to work on County holidays should also be requested in writing a minimum of 5 working days in advance from the County Project Management Section. The County reserves the right to modify the regular work hours of a given project to account for particularities of the project, such as peak traffic considerations.

8. **OUT OF SCOPE WORK:** When preparing a preliminary estimate, if it is known or reasonably anticipated that there are necessary items of construction that are not included on the price sheets of the bid or, during the course of executing a work order, the County Project Manager determines that there are necessary items of construction that are not included on the price sheets of the bid, then the County Project Manager will request a cost proposal from the Contractor for the "out of scope" work. The "out of scope" proposal shall contain all necessary costs, expenses, and time. The "out of scope" services shall not be greater than fifteen percent (15%) of the "in-scope" services. Contractor shall not commence work on any "out of scope" services until approval is received from the County

Project Manager, a PO is issued, and an original Public Construction Bond has been delivered and approved by Procurement (if applicable).

9. **TESTING AND INSPECTIONS**

   a. The Contractor is responsible for all required testing on the project except when the Bid document, laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction specifically require any Work to be inspected or tested by someone other than the Contractor. For these inspections and testing, the Contractor shall give the County Project Management Section a minimum of 48 hours' notice to prepare for the required inspections or testing.

   b. For all required inspections, tests and approvals on any work prepared, performed, or assembled away from the site, the Contractor will furnish the County Project Management Section with the required Certificates of Inspection, testing or approval. All such tests will be in accordance with the methods prescribed by the American Society for Testing and Material (ASTM) or such other applicable organizations as may be required by law or the Bid document.

   c. Material or work in place that fail to pass acceptability tests shall be removed and reconstructed according to the bid requirements at the Contractor's expense.

   d. No work shall be performed, nor materials used, without supervision and/or inspections by a representative of the County. The County representative shall have the authority to test and reject any materials and suspend the subject work at any time.

10. **EMERGENCIES:** In the event of an emergency, the Contractor shall immediately notify the County Project Management Section.

11. **DEFICIENCY NOTICES:** Authorized County personnel may issue a Notice of Deficiency to note that the Contractor is performing work in violation of the Contract conditions. Liability of any damages arising from the items listed in the Notice of Deficiency will be the responsibility of the Contractor. Causes for a Notice of Deficiency may include, but are not limited to, creating unsafe conditions for the traveling public, construction workers and County personnel, inadequate maintenance of traffic, substandard workmanship and/or materials, failure to adhere to approved work hours.

    a. Upon receiving a Notice of Deficiency, the Contractor shall sign receipt of the notice, returning a signed copy to the Inspector and retaining one for their records. Signature of the Notice does not constitute admittance of the deficiency, only receipt of the Notice. Failure to do so may result in contract termination.

    b. Deficiencies noted for safety issues such as improper MOT or workers without proper safety equipment, must be immediately addressed.

    c. If the Contractor is in disagreement with the Notice, they may submit a written appeal to the Project Manager within 5 working days of receiving

the Notice. The Project Manager shall review the appeal and make a determination as to its validity. If the Project Manager determines no cause for the deficiency, the Notice will be nullified. Otherwise, a copy of the Notice will be provided to Procurement and become part of the Contractor's evaluation for that contract year.

12. **SUSPENSION OR STOPPING WORK BY THE CONTRACTOR:** The Contractor shall not stop work on any project work order without the consent of the County Project Manager.

13. **MOBILIZATION:**

a. **Project Staging Areas:** Upon being assigned a project, the Contractor shall identify potential staging areas. County ROW or properties are preferred. Should the Contractor identify a private property as a staging area, they should provide the County with written documentation evidencing the property owner's permission to use said property as a staging area, and any required conditions for said usage. Upon completion, the staging areas should be returned to their original condition unless specifically instructed by the County or private owner to do otherwise.

b. **Project Signs:** A minimum of five (5) working days prior to mobilizing to the project area, the Contractor shall install project signs advising of upcoming works. The signs shall be furnished by and property of the County. The Contractor shall be responsible for the maintenance of these signs so long as the Contract is valid. For subdivisions, a sign shall be placed at the main entrance. For collectors or arterials, a sign shall be placed at both ends of the road. The Contractor shall remove the signs once the project is completed and return them to either the County Inspector or Project Manager. Specific treatments may require resident notifications in addition to the project signs, as indicated under the treatment's technical specification.

14. **SITE AND SURFACE PREPARATION:**

a. The Contractor shall be responsible for clipping back shoulders and removing overburden or any other vegetation or debris to ensure that the road is free of organic and deleterious material. The Contractor shall spray all cut back edges with a pre-emergent herbicide before and after treatment, unless otherwise specified under the treatment's specifications. The Contractor shall:

i. Use products as per FDOT Section 7-1.7 Insecticides, Herbicides and Fertilizers.
ii. Ensure that the herbicide carries an approved label for use under paved surfaces, and that herbicide is applied in accordance with directions on the label.
iii. Prevent damage to any adjacent vegetation during herbicide application.

iv. Replace, at no expense to the Department, any plants damaged as the result of soil treatment outside designated areas.

b. The Contractor will be responsible for sweeping or vacuuming the road ahead of any treatment, and immediately after in the case of milling operations, to make sure the road is free of loose aggregate and other debris prior to paving. The Contractor shall make every effort to keep the dust to a minimum and ensure that the broomed material is not spread onto adjacent shoulders, properties and sidewalks. Any debris inadvertently spread onto adjacent properties shall be promptly removed to the satisfaction of the Inspector or Engineer.
c. All manhole and valve covers, inlets and other service entrances, etc., shall be protected by adequate means for the treatment being done.
d. Additional site and surface preparation requirements may be specified in the treatment's technical specification.
e. There is no separate pay item for Site and Surface Preparation. The cost for this work is incidental to the bid items.

15. **MAINTENANCE OF TRAFFIC**

a. The terms Traffic Control Plan (TCP) and Maintenance of Traffic Plan (MOT Plan) are intended to be synonymous. The term Maintenance of Traffic (MOT) is the function presented in the TCP.
b. The Contractor shall provide, install and maintain traffic devices for any assigned work according to the FDOT Design Standards Index 600 series, latest edition, and applicable laws and ordinances. The traffic control shall provide a safe work zone and safe flow of traffic in and through the project site.
    i. When needed, temporary striping will be considered as part of Maintenance of Traffic.
c. Depending on the project complexity, the County may require the Contractor submit an MOT plan showing all phases of construction in advance for approval.
d. The Contractor shall have a designated Worksite Traffic Supervisor who shall be adequately certified per FDOT requirements, and responsible for initiating, installing and maintaining all temporary traffic control devices. When needed, the Contractor shall provide dedicated flaggers, adequately certified per FDOT requirements. The Contractor shall provide Inspection with the name and contact information of the Worksite Traffic Supervisor prior to beginning any project, and should be able to provide evidence of the MOT personnel certification upon request.
e. If the construction method being employed requires a lane closure longer than a day, it shall not be considered as a moving operation and the Contractor should submit a Lane Closure Request to the County for approval.
f. If the construction method being employed requires a road closure, the Contractor should submit Road Closure Request at least ten (10) working days prior to the anticipated start date of the closure. Both the Lane

Closure and Road Closure Fillable Forms can be found on the County's website or provided by the Project Manager upon request.

16. **EROSION CONTROL:** At the instruction of the Inspector or Engineer, the Contractor shall install the indicated temporary erosion control measures.

17. **SURVEY**

    a. The County Survey Section will provide any construction layout services necessary to construct a project under this contract.

    b. The County Survey Section will provide any "as-built" surveys necessary after construction is completed.

18. **UTILITY COORDINATION:** The Contractor shall be responsible for "Sunshine One Call" for all locations incorporated into the work orders.

19. **MATERIALS**

    a. The Contractor shall provide copies of all delivery tickets, or invoices, for all materials and equipment to be used for the project to the County Project Management Section immediately upon delivery or as soon thereafter as is practical.

    b. Arrangements for storage areas for materials and equipment shall be the responsibility of the Contractor. Before mobilizing or storing any materials or equipment, the Contractor shall identify the areas to be used for storage in writing to the County. If property other than County right-of-way is proposed for storage, the Contractor shall provide the County a copy of the written approval or agreement from the property owner before mobilizing or storing any materials or equipment on said property. The Contractor shall be responsible for restoring any and all damages to storage areas. Restoration of damage to public rights-of-way, easements, or private properties outside of the work zone area shall be the Contractor's responsibility. Reimbursement for restoration of storage areas outside of the work zones shall be included in the Contractor's site specific Mobilization bid price.

20. **WORKSITE VISIBILITY:** No work shall be performed when the visibility is less than two (2) times the Stopping Sight Distance for the highest regulatory posted speed through the project area as defined in the FDOT Manual of Uniform Standards for Design, Construction and Maintenance for Streets and Highways. Visibility distance shall be measured in all directions of travel and at locations and directed by the County. Project time extensions for substandard visibility shall be assessed according to FDOT Standard Specification Section 8-7.3.2.

21. **HISTORICAL AND ARCHAEOLOGICAL:** If historical or archaeological artifacts are discovered at any time on the project site, the Contractor should notify the County, the Water Management District, the Florida Department of State and the Division of Historical Resources. The Contractor shall follow any rules or requests from agencies with jurisdiction. If required to stop work, delay work or perform extra work in the affected area, delays and additional costs will be considered an unforeseen difficulty. If the Contractor desires to make a delay

claim, any such claim shall be submitted to the County Project Manager in writing within three working days of the occurrence of the event giving rise to the claim.

22. **CONTAMINATION:** Any equipment that is leaking fuel, lubricant, coolant, hydraulic fluid or any other hazardous material shall immediately be repaired by the Contractor to stop the leak. The Contractor shall immediately contact the County. The Contractor shall clean up and dispose of any leaked fluids according to all applicable laws, ordinances, rules and regulations within 24-hours of occurrence. All repairs, removal, clean-up and/or disposal shall be at no cost to the County.

23. **SAFETY**

    a. The Contractor is responsible for providing for the safety of all Contractor's or subcontractor's personnel working in the Project Area.

    b. The Contractor is required to comply with Florida Statute (F.S.), Chapter 556, Underground Facility Damage Prevention and Safety Act. The Contractor is responsible for contacting Sunshine State One-Call of Florida, Inc., at 811 or www.callsunshine.com, no less than two (2) business days (48 hours) and no more than 5 business days before beginning any excavation, the Contractor provide notification according to the procedures of the F.S. Chapter 556.

    c. The Contractor is required to comply with OSHA Respirable Crystalline Silica Standard for Construction, 29 CFR 1926.1153.

24. **STRIPING AND PAVEMENT MARKINGS:** The Contractor shall adhere to the Polk County Striping Specifications included in Exhibit A unless otherwise noted by the County Project Manager. With the exception of the Asphalt Rejuvenation Treatment, for purposes of a project quote, the Contractor shall include the striping and pavement marking quantities assuming they will restripe to the existing configuration unless otherwise instructed. The Contractor will include these quantities for both thermoplastic and traffic paint as alternatives. Once a Notice to Proceed is given for any particular project, the Inspector or Engineer will indicate per project, if the striping and pavement markings shall be thermoplastic or traffic paint, and if any changes to the striping will be done. The invoice will reflect the actual quantities of striping and pavement markings installed. The Contractor shall provide documentation supporting the quantities installed or constructed per project as supporting documentation for invoicing. Temporary Striping shall be considered as part of the MOT.

25. **WORK AREA CLEAN-UP REQUIREMENTS**

    a. During the progress of the Work, the Contractor shall keep the premises and maintained travel lanes free from accumulations of waste, discarded or surplus material, rubbish and other debris or contaminates resulting from the work.

    b. Following completion of the Work, Contractor shall remove all waste material, rubbish, debris, tools, construction equipment, machinery, and surplus material from public rights-of-way, easements, and private

properties. The Contractor shall leave the site clean and ready for occupancy by the County at final completion of the work.

26. **WORK STOPPAGE:** From time to time, it may be necessary for the Contractor to stop a portion of the work or all work to accommodate a civic function. If the Contractor will be required to stop work, the County Project Management Section shall notify the Contractor a minimum of five (5) Working Days before any requested work stoppage. Following resuming work, the Contractor and the County Project Manager shall agree to and document the number of additional days to be added to the project completion time to accommodate the requested work stoppage.

27. The Resolution Authority for this bid shall be:

    a. Polk County Inspector/Lead Inspector

    b. Polk County Project Manager

    c. Polk County Project Management Engineering Manager

    d. Polk County Roads & Drainage Division Director

28. **INVOICES:** Prior to submitting an invoice, the Contractor shall coordinate with the Inspector, providing all daily tickets, logs and other supporting documentation substantiating actual quantities of pay items installed or constructed. Once the Inspector and Contractor are in agreement of the quantities, the Contractor shall submit the appropriate invoice. Invoices may be submitted by email to the Project Manager.

29. **WARRANTY:** The vendor shall warrant against all defects in material and workmanship for a period of one year after acceptance, unless otherwise indicated in the treatment's technical specification.

Technical Specifications

1. Bid Item No. 577-70 – REWORKING SHOULDERS

a. Description: Furnish all labor, material, and equipment necessary to perform all operations to rework existing shoulders as per FDOT Specification 577, Edition 2000.

b. Method of Measurement: Reworking shoulders will be measured by the square yard of reworked area.

c. Basis of Payment: Price and payment will be full compensation for furnishing of all materials, equipment, labor and incidentals necessary to complete the work as specified.

2. Bid Item No. PC-001 – Chip Seal

a. Description: Furnish all labor, material, and equipment necessary to perform all operations for single or double application of combined layers of polymer modified liquid asphalt emulsion and spread aggregate.

b. Method of Measurement: Chip seal, single, double, or triple application, will be measured by the square yard as provided for in the Contract Documents.

a. Basis of Payment: Price and payment will be full compensation for furnishing of all materials, equipment, labor, and incidentals necessary to complete the work as specified.

3. Bid Item No. PC-002 – Micro-Surfacing

a. Description: Furnish all labor, material, and equipment necessary to perform all operations for the placement of a polymer modified microsurface on a prepared existing paved road to the thickness specified by the County.

b. Method of Measurement: Microsurfacing will be measured by the square yard, with the exception of that used for rut filling. The later will be measured per ton, as provided for in the Contract Documents.

c. Basis of Payment: Price and payment will be full compensation for furnishing of all materials, equipment, labor, and incidentals necessary to complete the work as specified.

4. Bid Item No. PC-003 – Crack Filling/Sealing

a. Description: Furnish all labor, material, and equipment necessary to perform all operations for the preparation and sealing of all surface cracks ¼” to 1” inch wide.

b. Method of Measurement: Crack Filling/Sealing shall be measured in gallons of crack seal applied to the road, as provided in the Contract Documents.

c. Basis of Payment: The unit price as shown on the Bid Sheet "Filling/Sealing" or "Routing and Sealing" shall be all inclusive to include cleaning, sealing, FDOT traffic control, mobilization and any other incidentals required to complete the work as specified.

5. Bid Item No. PC-004- Fog Seal

a. Description: Furnish all labor, material, and equipment necessary to perform all operations for the sprayed application of a bituminous fog seal material to bituminous asphaltic concrete surface courses.

b. Method of Measurement: Fog Seal will be measured by the square yard as provided for in the Contract Documents.

c. Basis of Payment: Price and payment will be full compensation for furnishing of all materials, equipment, labor, and incidentals necessary to complete the work as specified.

6. Bid Item No. PC-005 – Bituminous Asphalt Rejuvenator

b. Description: Furnish all labor, material, and equipment necessary to perform all operations for the sprayed application of an asphalt rejuvenating agent to bituminous asphaltic concrete surface courses.

c. Method of Measurement: Asphalt Rejuvenator will be measured by the square yard as provided for in the Bid Documents.

d. Basis of Payment: Price and payment will be full compensation for furnishing of all materials, equipment, labor, and incidentals necessary to complete the work as specified.

7. Bid Item No. PC-006 – Scrub Seal

e. Description: Furnish all labor, material, and equipment necessary to perform all operations for the sprayed application of a scrub seal to bituminous asphaltic concrete surface courses.

f. Method of Measurement: Scrub Seal will be measured by the square yard as provided for in the Bid Documents.

g. Basis of Payment: Price and payment will be full compensation for furnishing of all materials, equipment, labor, and incidentals necessary to complete the work as specified.

8. Bid Item No. PC-007– Full Depth Reclamation with Portland Cement

a. Description: Furnish all labor, materials, and equipment necessary to perform all operations in the preparation of a stabilized base course done by in-place pulverizing and blending of the existing pavement and base materials, and the introduction of asphalt emulsion and additives as called for under the technical specifications.

b. Method of Measurement: Full Depth Reclamation with Cement will be measured by the square yard. Refer to the technical specification for the method of measurements of additional tasks or materials associated to FDR, as per the technical specification.

c. Basis of Payment: Price and payment will be full compensation for furnishing of all materials, equipment, labor, and incidentals necessary to complete the work as specified.

9. Bid Item No. PC-008– Full Depth Reclamation with Asphalt Emulsion and Cement

a. Description: Furnish all labor, materials, and equipment necessary to perform all operations in the preparation of a stabilized base course done by in-place pulverizing and blending of the existing pavement and base materials, and the introduction of asphalt emulsion and additives as called for under the technical specifications.

b. Method of Measurement: Full Depth Reclamation with Asphalt Emulsion and Cement will be measured by the square yard. Refer to the technical specification for the method of measurements of additional tasks or materials associated to FDR, as per the technical specification.

c. Basis of Payment: Price and payment will be full compensation for furnishing of all materials, equipment, labor, and incidentals necessary to complete the work as specified.

10. Bid Item No. PC-009 – Cold-In-Place Recycling

a. Description: Furnish all labor, materials, and equipment necessary to perform all operations for the in-place construction of Cold Recycled Bituminous Base Course or CIR, as set forth in the Contract Documents.

b. Method of Measurement: CIR will be measured by the square yard. Refer to the technical specification for the method of measurements of additional tasks or materials associated to CIR, as per the technical specification.

c. Basis of Payment: Price and payment will be full compensation for furnishing of all materials, equipment, labor, and incidentals necessary to complete the work as specified.

11. Bid Item No. PC-010 – Cape Seal

d. Description: Furnish all labor, material, and equipment necessary to perform all operations for placement of combined layers of polymer modified liquid asphalt emulsion, spread aggregate and a polymer modified microsurface on a prepared existing paved or unpaved road to the thickness specified by the County.

e. Method of Measurement: Cape Seal application will be measured by the square yard as provided for in the Contract Documents.

Basis of Payment: Price and payment will be full compensation for furnishing of all materials, equipment, labor, and incidentals necessary to complete the work as specified.

PC-001CHIP SEAL SPECIFICATION

I. Description:

The work specified in this section consists of furnishing and applying a single, double or triple application of bituminous surface treatment on a paved roadway or on a prepared road base, compacted to the lines, grades, and thickness established by the County and in substantial conformance with the limits established by the owner.

Description: Chip Seal is a pavement surface treatment option that combines a layer of polymer modified liquid asphalt emulsion placed on a prepared base with a layer of aggregate spread and compacted while the asphalt is still liquid.

II. Materials:

A. Aggregates:

Crushed granite conforming to FDOT specifications section 901, table 1 for #89, #78 or #67 gradation for coarse aggregates except as modified herein. The aggregate shall be washed granite obtained from a source approved by the owner. Sampling and testing of aggregate shall be the responsibility of the Contractor. Copies of test results from the aggregate supplier shall be furnished to the owner prior to the start of the surface treatment.

All aggregate, #89, #78 and #67 shall be treated prior to application with Emulsified Asphalt Grade CSS-1H at the rate of .4% to .8% residual asphalt. All aggregate, clean broken stone, shall be pre-coated with an asphaltic material prior to the oil and chip process. All of the stone shall have 100% total coverage. A pugmill shall be used to pre-coat the stone. Stone having less than 100% total coverage shall not be used. The emulsified asphalt grade CSS-1H shall coat the entire surface of all of the aggregate. The pre-coating process is to take place at a location that is approved by the County. The County shall approve the pre-coated aggregate before the seal coat process begins

All costs for the pre-coating and placement of aggregate shall be included in the cost of the items surface treatment CRS-2P and asphaltic pre-coated cover material, clean broken stone.

Payment shall not be made for the surface treatment/pre-coated cover material, clean broken stone unless a representative of the County is present to observe the pre-coating process.

B. Liquid bituminous material for surface treatment:

CRS-2P liquid bituminous material conforming to AASHTO M 316-99. When CRS-2P is specified apply the following modifications:

1. Distill the CRS-2P at 400ºF for 20 minutes
2. Provide Polymer-Modified Cationic Emulsified Asphalt, CRS-2P produced by using polymer modified base asphalt only. The emulsion shall be pumpable and suitable for application through a distributor truck.

The Cationic mixing grade shall be homogenous and of high quality. The material shall be prepared from straight-run Venezuelan Asphalt of high ductility and shall contain a rubber hydrocarbon additive derived from latex in addition to carefully controlled amounts of selected diluents to promote work ability and minimize stripping. Additives that enhance pavement performance are subject to approval by the County. The polymer material shall be co-milled into the asphalt or added to the emulsifier solution prior to the emulsification process. The amount of polymer modifier shall not be less than 3.0% polymer solids based on the asphalt content (by weight) and will be certified by the emulsified asphalt supplier.

Cationic Asphalt Emulsion

Material Designation		
Test on Emulsion:	**Minimum**	**Maximum**
Viscosity, Saybolt Furol, 77 degrees F (25 C), s	---	---
Viscosity, Saybolt, 122 degrees F (50 C), s	100	400
Demulsibility, 35ml, 0.8 percent DSS, %	70	-

Sieve Test, %	-	0.1
Storage Stability	-	1
Residue by Distillation, 350ºF max, %	65	---
Oil distillate, % by volume of emulsion	---	0.5
Residue Test, ASTM D 244 Low Temp	Minimum	Maximum
Penetration, 77ºF, 100gr, 5 sec	70	150
Elastic Recovery, ASTM D 6084, method B, 77ºF, 5 cm/min, %	50	-
Softening Point, ºF	125	-
Solubility in Trichloroethylene, %	97.0	-

C. Material Samples:

The County will require the Contractor to sample and test each load of emulsion prior to delivery. The Contractor will also provide a sample of the emulsion, on site, prior to commencing work. The County will require the Contractor to provide sample containers and a local independent testing laboratory with no affiliation to the emulsion supplier for the analyzing of emulsion. The Contractor will be responsible for the cost of the testing. The County reserves the right to test any shipment of emulsion that is believed to be of substandard. All samples shall be shipped and stored in clean airtight sealed wide mouth jars or bottles made of plastic.

III. Equipment:

A. Distributor:

The liquid bituminous material shall be applied with a truck mounted, pressure distributor that has been calibrated within the previous twelve (12) months, for transverse and longitudinal application rate. The distributor shall be equipped, maintained, and operated so that the bituminous material can be applied at controlled temperatures and rates from .035 to 1.5 gallons per square yard. The distributor shall be capable of applying bituminous material of variable widths up to sixteen (16) feet. The distributor shall uniformly apply the bituminous material to the specified rate with a maximum allowed variation of 0.015 gallons per square yard. Distributor equipment shall include tachometer, accurate volume measuring device, a calibrated tank and a thermometer for measuring the temperature of the tank's contents. Distributors shall be equipped with a heating device, asphalt pump and full circulating spray bars adjustable laterally and vertically. Distributors and transport trailers shall be equipped with a sampling valve. Distributor trucks shall be of the pressure type with insulated tanks. The use of gravity distributors will not be permitted. The valves shall be operated by levers so that one or all valves may be quickly opened or closed in one operation. The valves which control the flow

from nozzles shall act positively so as to provide a uniform unbroken spread of bituminous material on the surface. The distributor shall be equipped with devices and charts to provide for accurate and rapid determination and control of the amount of bituminous material being applied and with a bitumeter of the auxiliary wheel type registering speed in feet per minute, and trip and total distance in feet.

B. Aggregate Spreader:

The aggregate spreader shall be a self-propelled unit capable of uniformly spreading the aggregate at the required rate on a minimum width of six (6”) inches wider than the width of the lane to be treated. The spreader shall be calibrated within the previous twelve (12) months for transverse and longitudinal application. The spreader shall be capable of extending to a width of 22 feet. The spreader shall be equipped with a computer-controlled aggregate/chip spreader in order to ensure the appropriate aggregate coverage at varying speeds, unless approved otherwise by Engineer.

C. Rollers:

The Contractor shall use one, ten (10) ton steel wheeled roller and two, eight (8) to twelve (12) ton self-propelled pneumatic tire rollers with oscillating wheels and low pressure, smooth tires. Maintain the inflation of the tires such that in no two tires the air pressure varies more than 5 psi. The rollers will be equipped with an operating water system and coco pads. A sufficient number of rollers and a sufficient number of passes shall be used to ensure cover aggregate is properly rolled. The final passes of the rolling process shall be performed by a static steel wheel roller, which shall be operated without the vibrating function.

D. Self-Propelled Rotary Power Broom:

The self-propelled rotary broom shall be designed, equipped, maintained and operated so the pavement surface can be swept clean. The broom shall have an adjustment to control the downward pressure.

E. Additional equipment:

Additional equipment will be needed to complete the operations required by this technical provision. All equipment necessary for the successful completion of projects governed by this technical provision shall be included in the unit costs associated herein. Availability of quality assurance devices (such as a 10' straight edge) shall be the responsibility of the Contractor.

IV. Construction:

A. Layout:

The Contractor will be responsible for the string lining and lay out of the roadway prior to paving.

B. Weather and Seasonal limitations:

The surface treatment shall not be applied to a wet surface or when rain is occurring, or the threat of rain is present immediately before placement. The surface treatment shall not be applied when the surface or/and air temperature is less than 50 degrees Fahrenheit in the shade. If Relative humidity is between 75% and 80%, additional time may be required to allow the emulsion to set before the lane can be opened to traffic. Operations may not continue if the relative humidity is above 80%. When applying emulsions, the temperature of the surface shall be a minimum of 55°F, and no more than 140°F.

If an unexpected rainstorm ensues, sufficient aggregate should be spread to cover all of the applied binder. If possible, the road or lane should be closed to traffic and, if not, traffic should be kept to a minimum speed during this period by use of pilot vehicles. The amount of rolling should be reduced, if not completely ceased, while the aggregate is wet, to avoid binder emerging from the voids and be picked up on the wheels of the roller.

C. Preparation of Surface:

The chip seal material shall be placed on a firm unyielding prepared roadway. Any patching or crack sealing that the Contractor is also authorized to perform for the project should be done a minimum of three (3) months prior to the chip seal application.

The Contractor shall be responsible for clipping back shoulders and removing overburden or any other vegetation or debris to ensure that the road is free of organic and deleterious material. The Contractor shall spray all cut back edges with a pre-emergent herbicide before and after treatment. The Contractor will be responsible for blowing or sweeping the road immediately ahead of the chip seal operation to make sure the road is free of loose aggregate and other debris, as well as sweeping and cleaning the streets after treatment. If, in the opinion of the Engineer, the hand cleaning is not sufficient then a self-propelled street sweeper shall be used.

All manhole and valve covers, inlets and other service entrances, etc., shall be protected from bituminous material by placing reinforced waterproof, all-purpose paper or other suitable material, approved by the Engineer.

Thermoplastic striping and pavement markings, raised pavement markers, and raised pavement marker adhesive shall be removed.

Microsurfacing may be used as rut fill if so contracted for the specific project to level bumps, waves and corrugations.

D. Resident Notification

In Residential areas, the Contractor shall distribute by hand, a typed notice to all residences and businesses on the street to be treated. The notice will be delivered no more than 24 hours prior to the treatment of the road. The notice will have a local phone number that the residents may call to ask questions. The notice shall be of the door hanger type which secures to the door handle of each dwelling. Unsecured notices will not be allowed. The Contractor shall also place the notice on the windshield of any parked cars on the street. Hand distribution of this notice will be considered incidental to the contract.

E. Traffic Control:

The Contractor shall furnish all necessary traffic control, barricades, signs and flagmen, to ensure the safety of the traveling public and to all working personnel. Traffic shall not travel on fresh mix until rolling and blotting has been completed. All traffic control shall be in accordance with the FDOT Roadway Design Standards, most current edition and TP-102. M.O.T. and associated devices shall be checked daily and periodically throughout the project for compliance; and where adjustments or corrections are needed, prompt revisions shall be made.

The Contractor shall submit an M.O.T plan indicating all facets of traffic control for the project area. The MOT plan should be approved in writing by the County prior to commencing any work.

Traffic shall not be allowed on the roadway after placement of the chip seal for a minimum of two hours. During and after placement of the chip seal, pilot cars should escort traffic at a speed of 20 mph (30 kph) over the chip sealed surface for two to 24 hours. **For Collector Roads, pilot cars will be required unless otherwise instructed by Inspection.** Once all the loose aggregate is removed from the new chip seal surface, pilot cars are no longer needed.

F. Application of bituminous material:

Liquid bituminous material shall be applied by means of a pressure type distributor in a uniform, continuous spread over the section to be treated. The distributor shall be moving forward at the proper speed when the liquid is discharged onto the pavement to provide an even and consistent application at the rate prescribed. If any areas are deficient the operation shall be stopped and corrected immediately. The liquid shall not be applied more than two hundred (200') feet in advance of the aggregate spreader when the ambient air temperature is above 75 degrees or one hundred (100') feet if the air temperature is below 75 degrees.

- **Single Chip Seal:** Application of the liquid bituminous material shall be

applied at a rate of .38 -.45 gallons per square yard depending on the composition of the existing roadbed, surface texture and the size of the aggregate in use.

- **Double Chip Seal:** The second application of liquid bituminous material shall be applied at a rate of .38 - .42 gallons per square yard depending upon the size of the first layer of aggregate that the liquid is sprayed upon, and the size of the aggregate being placed over the first application of surface treatment.
- **Triple Chip Seal:** The third application of liquid bituminous material shall be applied at a rate of .32 - .38 gallons per square yard depending upon the size of the first two layers of aggregate that the liquid is sprayed upon, and the size of the aggregate being placed over the first and second applications of surface treatment.

G. Application of cover Aggregate:

Immediately following the spray application of the liquid bituminous material, cover aggregate shall be spread over the liquid material at a rate of 18 – 30 lbs. square yard depending upon the type of road base and/or the size of the existing aggregate that is being resurfaced. If the chip seal application calls for more than one layer, these shall be spread independently.

H. Rolling:

Immediately following the first application of the cover material, roll the entire surface with a pneumatic roller, rolling first along the edge line. The second pass shall be done about the centerline. A steel drum roller shall be used for the final passes without the vibrating function, covering the entire surface.

The total number of coverages for a Single Seal is three: the first by the pneumatic tire roller and the third by the steel wheel roller with the second pass being completed by a combination of the two rollers. Each successive lift is rolled in the same manor so the number of complete coverages for a Double Seal is six and for the Triple Seal is nine. Remember; to obtain a complete coverage two or three passes by each individual roller may be required depending on the width of the pull.

Apply the second application of liquid and cover material the same day as the first application, as far as it is practicable and consistent with the setting of the liquid bituminous material.

I. Sweeping or Vacuuming:

After sufficient time has passed for the residual binder to cure and bond to the aggregate, lightly broom the loose aggregate in a manner not to dislodge the aggregate embedded in the liquid. Sweep loose material from the center first, working towards the edges of the road bed. Following second application again

broom loose aggregate from the road bed prior to the application of the fog seal. If temperatures exceed 85 degrees, it may be necessary to wait 24 hours before sweeping the first application of chip seal.

The roadway shall be swept or vacuumed again within 3 to 7 days of the chip seal having been performed. The Contractor will be responsible for maintaining the roadsides clear of accumulated aggregate for a two (2) week period after the chip seal is performed.

J. Fog Seal:

Upon direction from the engineer, fog seal is to be applied as a separate pay item. When surface treatment has set, a fog seal is to be applied at a rate of .1 to .15 gallons per square yard to the entire surface treatment. The liquid for fog seal shall be a cationic mixing type emulsion diluted forty (40%) percent with water. If sanding is needed, the fog seal shall be lightly sanded at a rate of plus or minus two (2) pounds per square yard by means of a mechanical spreader.

K. Pavement Striping and Markings

As part of the Maintenance of Traffic, the Contractor shall provide the necessary temporary striping and pavement markings during the different construction phases and maintained for a minimum of two (2) weeks following the completion of the chip seal operation.

Permanent striping and pavement markings, including the installation of reflective pavement markers shall be performed after the two (2) week period. Prior to applying the permanent striping and markings, the Contractor shall broom the roadway. The Contractor shall be responsible for maintaining the permanent striping and markings for a minimum of two (2) weeks after installation.

L. Deliverables:

Upon completion of the project, the Contractor shall provide Inspection with logs showing the daily and running totals of aggregate and bituminous material. If a Cape Seal was performed, the daily production logs for the microsurfacing shall also be provided as backup documentation for invoicing.

M. Warranty:

The Contractor shall provide the County upon final acceptance of the Chip Seal work, a warranty period of two (2) years which shall include all labor, materials, hauling, traffic control and striping to repair the defective areas. Defective areas shall include debonding/delamination, bleeding, excessive raveling and aggregate loss. The Contractor shall perform all warranty work at no cost to the City or County.

N. General Performance:

Provide completed pavement which performs to the satisfaction of the engineer without bleeding, rutting, shoving, raveling, stripping, or showing other types of pavement distress or unsatisfactory performance.

V. Method of Measurement:

If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. Any item necessary for Chip Seal, and not specifically listed in another item in the Bid Form, shall be included in this item. Should the Contractor be directed to place Fog Seal as a secondary application to Chip Seal, it shall be measured separately as listed in the Technical Provision for Fog Seal.

VI. Basis of Payment:

The accepted quantities, determined as provided above for each of the pay items listed below which is included in the contract, will be paid for at the contract unit price per unit of measurement. The Unit price includes all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Chip Seal, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications, except that at the direction of the County. Fog Seal shall be applied and paid separately as listed in the Specification for Fog Seal.

Payment will be made under:

Pay Item	***Pay Unit***
Chip Seal (Single application)	Square Yard
Chip Seal (Double application)	Square Yard
Chip Seal (Triple application)	Square Yard

END OF SECTION

PC-002 MICRO SURFACING SPECIFICATION

I. Description

Construct a micro surfacing pavement with the type of mixture specified in the Contract Documents. Micro surfacing is a mixture of polymer-modified emulsified asphalt, mineral aggregate, mineral filler, water, and other additives, properly proportioned, mixed, and spread on a paved surface.

The mix shall be capable of being spread in variable thickness cross-sections (wedges, ruts, scratch courses and surfaces) which, after curing and initial traffic consolidation, resists compaction throughout the entire design tolerance range of asphalt binder content and variable thickness to be encountered. The end product shall maintain a skid-resistant surface in variable thick sections throughout the service life of the micro surfacing. The mix shall be a quick-traffic system that will be able to accept straight rolling traffic one hour after application.

II. Materials

A. Emulsified Asphalt:

1. General Requirements:

Provide a quick-traffic, polymer-modified emulsified asphalt conforming to the requirements specified in AASHTO M 208 for CSS-1h as listed in **Table 1**. The cement mixing test shall be waived for this product.

The polymer material shall be co-milled into the asphalt or added to the emulsifier solution prior to the emulsification process. The amount of polymer modifier shall not be less than 3.0% polymer solids based on the asphalt content (by weight) and will be certified by the emulsified asphalt supplier.

The Engineer may waive the five-day settlement test, provided job-stored emulsified asphalt is used within 36 hours from the time of the shipment or the stored material has had additional emulsified asphalt blended into it prior to use.

2. Quality Tests:

The emulsified asphalt, and emulsified asphalt residue, shall meet the requirements of AASHTO M 208 for CSS-1h, with the following additions:

Table 1: Quality Tests for Emulsified Asphalt

AASHTO Test No.	Emulsified Asphalt Property	Specification Requirements
AASHTO T 59	Residue after Distillation (1)	62% Minimum
AASHTO T 59	Cement Mixing	Not Required
Quality Tests for Emulsified Asphalt Residue		
AASHTO T 53	Softening Point	135°F (57°C) Minimum
(1) Maintain the test temperature at 350°F (177°C) for 20 minutes.		

3. Sampling, Certification, and Verification:

For the first load of emulsified asphalt produced for the project, the supplier shall submit a sample to the Engineer for testing before use. A pretest number will then be assigned by the Engineer, and the pretest number shall be furnished with all emulsified asphalt delivered to the project.

At any time during application, the Engineer may sample and test all subsequent loads of emulsified asphalt delivered to the project to verify and determine compliance with specification requirements. Where these tests identify material outside specification requirements, the Engineer may require the supplier to cease shipment of that pre-tested product. Further shipment of that pre-tested product to the owning agency's projects will remain suspended until the cause of the problem is evaluated and corrected by the supplier to the satisfaction of the Engineer**.**

B. Aggregate:

1. General:

Use an aggregate consisting of 100% crushed stone. The aggregate shall be a crushed stone such as granite, slag, limestone, chat, or other high-quality aggregate, or a combination thereof. To assure the material is 100 percent crushed, the parent aggregate will be larger than the largest stone in the gradation used. Use aggregate source(s) from the list of aggregates available on the Florida Department of Transportation's website and also meeting the requirements of this specification. The URL for obtaining the list of approved aggregate products for Friction Courses is: https://mac.fdot.gov/smoreports .

2. Aggregate Quality Tests:

In addition to the requirements of FDOT Standard Specification Sections 901 and 902, meet the minimum aggregate requirements of **Table 2**.

Table 2: Quality Tests for Aggregate

AASHTO Test No.	Aggregate Property	Specification Requirements
AASHTO T 176	Sand Equivalent	65 Minimum
AASHTO T 104	Soundness	15% Maximum using Na_2SO_4 or 25% Maximum using $MgSO_4$
AASHTO T 96	Abrasion Resistance (1)	30% Maximum
(1) The abrasion test will be performed on the parent aggregate.		

3. Gradation Requirements:

When tested in accordance with FM 1-T 027 and FM 1-T 011, the target (mix design) aggregate gradation, including the mineral filler, shall be within the gradation range for a Type II mixture shown in **Table 3**, Column II.

Table 3: Mix Design Gradation Requirements		
Sieve Size	**Type II Mix Design Range Percent Passing**	**Stockpile Tolerance from Mix Design Percent Passing**
3/8 inch	100	N/A
No. 4	90 – 100	± 5%
No. 8	65 – 90	± 5%
No. 16	45 – 70	± 5%
No. 30	30 – 50	± 5%
No. 50	18 – 30	± 4%
No. 100	10 – 21	± 3%
No. 200	5 – 15	± 2%

The aggregate will be accepted from the stockpile located at the project. The stockpile will be accepted based on five quality control gradation tests conducted in accordance with FM 1-T 002. If the average of the five gradation tests is within the stockpile tolerances shown in **Table 3**, Column III for all of the sieve sizes, then the stockpile is accepted. If the average of the five gradation tests is not within the stockpile tolerances shown in **Table 3**, Column III, for any sieve size, remove the stockpiled material and replace it with new aggregate or blend other aggregate sources with the stockpiled material. Aggregates used in blending should meet the quality tests shown in **Table 2** before blending and should be blended in a manner to produce a consistent gradation and sand equivalent value. If new aggregate is obtained or blending of aggregates is performed resulting in an aggregate that is not represented by the mix design, submit a new mix design to the Engineer for approval prior to production of the mix.

The Engineer may obtain stockpile samples at any time. If the average of five gradation tests conducted in accordance with FM 1-T 002 is not within the gradation tolerances shown in **Table 3**, Column III for any sieve size, cease production until the problem is corrected to the satisfaction of the Engineer. Screen all stockpiled aggregates at the stockpile area prior to delivery to the paving machine to remove oversize material and non-desirable particles.

C. Mineral Filler:

If mineral filler is utilized in the mix design, use non-air-entrained Portland cement or hydrated lime that is free from lumps. The Engineer will accept the mineral filler by visual inspection. The type and amount of mineral filler shall be determined by a laboratory mix design and will be considered as part of the aggregate gradation. An increase or decrease of less than one percent mineral filler may be permitted during production if it is found to result in better

consistency or set times. Any changes to the percentage of mineral filler should meet the requirements of **Table 5**.

D. Water:
Utilize water that is potable and free of harmful soluble salts, reactive chemicals, or any other contaminants.

E. Additives:
Additives may be added to the mixture or any of the component materials to provide control of quick-trafficking properties. The additives to be used should be indicated on the mix design and be compatible with the other components of the mix.

F. Crack Filler:
Utilize a crack filler meeting the material requirements of the PC-003 Crack Filling/Sealing Specification.

G. Mix Design
Before work begins, the Contractor shall submit a mix design to the Engineer. The mix design should have an aggregate source used on five (5) similar projects and have been developed using the specific materials to be used on the project. The mix design shall be developed by an independent, accredited laboratory with no affiliation to the emulsion supplier and is endorsed by the International Slurry Surfacing Association (ISSA) and has experience in designing micro surfacing mixtures.

Submit the proposed mix design with supporting test data indicating compliance with all mix design criteria. Allow the Engineer a maximum of two weeks to either conditionally verify or reject the mix design.

Meet the requirements provided in **Table 4.** After the mix design has been approved, no substitutions to the mix design will be permitted, unless approved by the Engineer. The Engineer will consider inadequate field performance of a mix as sufficient evidence that the properties of the mix related to the mix design have changed, and the Engineer will no longer allow the use of the mix design. The project will be stopped until it is demonstrated that those properties, or issues, have been sufficiently addressed.

Table 4: Mix Design Testing Requirements

ISSA(1) Test No.	Property	Specification Requirements
ISSA TB-139(2)	Wet Cohesion: @ 30 Minutes Minimum (Set) @ 60 Minutes Minimum (Traffic)	12 kg-cm Minimum 20 kg-cm or Near Spin Minimum
ISSA TB-109	Excess Asphalt by Loaded Wheel Tester (LWT) Sand Adhesion	50 g/ft^2 Maximum
ISSA TB-114	Wet Stripping	90% Minimum

Table 4: Mix Design Testing Requirements		
ISSA TB-100	Wet-track Abrasion Loss: One-hour Soak Six-day Soak	 50 g/ft^2 Maximum 75 g/ft^2 Maximum
ISSA TB-147	Lateral Displacement Specific Gravity after 1,000 Cycles of 125 lb.	5% Maximum 2.10 Maximum
ISSA TB-113(2)	Mix Time @ 77°F (25°C)	Controllable to 120 Seconds Minimum
(1) ISSA = International Slurry Surfacing Association (2) The Cohesion test and Mixing Time test should be checked and reported for the highest temperatures expected during construction.		

The mix design should clearly show the proportions of aggregate, emulsified asphalt, mineral filler, water, and additive usage based on the dry weight of the aggregate. Meet the mix design component material requirements provided in **Table 5**.

Table 5: Mix Design Component Material Requirements	
Component Materials	**Specification Requirements**
Residual Asphalt	5.5 to 10.5% (by dry weight of aggregate)
Mineral Filler	0.5 to 3.0% (by dry weight of aggregate)
Polymer-based Modifier	Minimum of 3.0% (solids based on asphalt weight content)
Additives	As needed
Water	As required to produce proper mix consistency

The materials (aggregates, emulsion, mineral filler, and additives) should be from the same source, grade and type used to develop the approved mix design. Any substitutions or alternate supplies should be preapproved by the Engineer. Changes in the aggregate source or emulsion source requires re-validating the mix design and the performance properties. Blending, co-mingling and otherwise combining materials from two or more sources, grades or types is strictly prohibited. Aggregate stockpiles and emulsion material should be located at or near the job site in sufficient quantity for the job or designated parts of the job.

III. Equipment

A. General:

Maintain all equipment, tools, and machines used in the performance of this work in satisfactory working condition at all times to ensure a high-quality product.

B. Mixing Equipment:

Use a machine specifically designed and manufactured to place micro surfacing.

Truck mounted and self-loading continuous machines are acceptable. The material shall be mixed by an automatic-sequenced, self-propelled Microsurfacing mixing machine, which shall be a continuous-flow mixing unit able to accurately deliver and proportion the aggregate, emulsified asphalt, mineral filler, control setting additive, and water to a revolving multi-blade, double-shafted mixer and to discharge the mixed product on a continuous-flow basis.

The machine shall have sufficient storage capacity for aggregate, emulsified asphalt, mineral filler, control additive and water to maintain an adequate supply to the proportioning controls.

The machine shall be equipped to allow the operator to have full control, from the rear of the machine, of the forward and reverse speeds during applications of the Microsurfacing material and be equipped with opposite-side driver stations to assist in alignment. The self-loading device, opposite-side driver stations, and forward and reverse speed controls shall be original equipment manufacturer design.

In the case that Self-loading continuous machines are used, these shall be capable of loading materials while continuing to lay micro surfacing, thereby minimizing construction joints. Self-loading continuous machines shall be equipped to allow the operator to have full control of the forward and reverse speeds during applications of the micro surfacing material and shall be equipped with opposite-side driver stations to assist in alignment. The self-loading device, opposite-side driver stations, and forward and reverse speed controls shall be original equipment-manufacturer design.

C. Proportioning Device:
Provide and properly mark individual volume or weight controls for proportioning each material to be added to the mix (i.e., aggregate, mineral filler, emulsified asphalt, additives, and water).

D. Spreading Equipment:
Agitate and spread the mixture uniformly in the spreader box by means of twin-shafted paddles or spiral augers fixed in the spreader box. Provide a front seal to ensure no loss of the mixture at the road contact point. The rear seal shall act as a final strike-off and shall be adjustable. The spreader box and rear strike-off shall be so designed and operated that a uniform consistency is achieved and a free flow of material is provided to the rear strike-off. The spreader box shall have suitable means to hydraulically adjust the box width automatically while traveling behind the mixing unit, and be able to side shift the box to compensate for variations in the pavement geometry.

1. Secondary Strike-off:
Provide a secondary strike-off to improve surface texture. The secondary strike-off shall have the same adjustments as the spreader box. No burlap

drags will be permitted on the final applications.

2. Rut-filling Equipment:
When required by the Contract Documents, micro surfacing material may be used to fill ruts, utility cuts, depressions in the existing surface, etc. When rutting or deformation is less than 1/2 inch, a full width scratch course may be applied with the spreader box using a metal or stiff rubber strike-off. Ruts of 1/2 inch or greater in depth shall be filled independently with a rut-filling box, either five or six feet in width. Ruts that are in excess of 1 1/2 inch in depth may require multiple applications with the rut-filling box to restore the cross-section.

When a rut box is used, emulsified asphalt content may be reduced by 0.5% of the mix design target. Any reduction of emulsified asphalt content should be within the tolerance of the job mix formulation listed in the mix design. Material placed with the rut-filling box shall have a 1/4 inch crown to allow for traffic consolidation. Before placing subsequent lifts, allow all rut-filling material to cure under traffic for at least 24 hours.

E. Calibration

Calibrate each mixing unit to be used in the performance of the work in the presence of the Engineer prior to the start of construction. Previous calibration documentation covering the exact materials to be used may be acceptable, provided that no more than 60 days have lapsed. Document the individual calibration of each material at various settings, which can be related to the machine metering devices. Do not utilize any mixing unit on the project until the calibration has been completed and approved by the Engineer. Any component replacement affecting material proportioning requires that the machine be recalibrated. No machine will be allowed to work on the project until the calibration has been completed and accepted.

F. Auxiliary Equipment:

Provide suitable surface preparation equipment, traffic control equipment, hand tools, and any other support and safety equipment necessary to perform the work.

IV. Construction

A. Weather Limitations

Do not apply micro surfacing if either the pavement or air temperature is below 50°F. Do not apply micro surfacing when there is the possibility that the finished product will freeze within 24 hours. Do not apply micro surfacing in the rain or when there is standing water on the pavement. The mixture shall not be applied when weather conditions prevent opening to traffic within a reasonable amount of time, as determined by the Engineer.

B. Resident Notification

In Residential areas, the Contractor shall distribute by hand, a typed notice to all residences and businesses on the street to be treated. The notice will be delivered no more than 24 hours prior to the treatment of the road. The notice will have a local phone number that the residents may call to ask questions. The notice shall be of the door hanger type which secures to the door handle of each dwelling. Unsecured notices will not be allowed. The Contractor shall also place the notice on the windshield of any parked cars on the street. Hand distribution of this notice will be considered incidental to the contract.

C. Traffic Control

The Contractor shall furnish all necessary traffic control, barricades, signs and flagmen, to ensure the safety of the traveling public and to all working personnel. If requested by the County, the Contractor shall submit an M.O.T plan indicating all facets of traffic control for the project area. The MOT plan should be approved in writing by the County prior to commencing any work. All traffic control shall be in accordance with the FDOT Roadway Design Standards, most current edition and TP-102. M.O.T. and associated devices shall be checked daily and periodically throughout the project for compliance; and where adjustments or corrections are needed, prompt revisions shall be made.

D. Surface Preparation

The micro surface material shall be placed on a firm unyielding prepared roadway. Any patching or crack sealing that the Contractor is also authorized to perform for the project should be done a minimum of three (3) months prior to the microsurfacing application.

The Contractor shall be responsible for clipping back shoulders and removing overburden or any other vegetation or debris to ensure that the road is free of organic and deleterious material. The Contractor shall spray all cut back edges with a pre-emergent herbicide before and after treatment. The Contractor will be responsible for blowing or sweeping the road immediately ahead of the operation to make sure the road is free of loose aggregate and other debris. If water is used for cleaning, allow any unsealed cracks to dry thoroughly before applying micro surfacing. If, in the opinion of the Engineer, the hand cleaning is not sufficient then a self-propelled street sweeper shall be used.

All manhole and valve covers, inlets and other service entrances, etc., shall be protected from bituminous material by placing reinforced waterproof, all-purpose paper or other suitable material, approved by the Engineer. The Engineer will approve the surface preparation prior to micro surfacing. No loose aggregate, either spilled from the lay-down machine or existing on the road, will be permitted.

Thermoplastic striping and pavement markings, raised pavement markers, and raised pavement marker adhesive shall be removed. Provide temporary striping as necessary to comply with Contract Documents.

Microsurfacing may be used as rut fill if so contracted for the specific project to level bumps, waves and corrugations.

E. Cracks:

Pre-treat any cracks in the surface of the pavement with a crack filler meeting the requirements of PC-003 Crack Filling/Sealing Specification prior to the application of the micro surfacing. Fill any cracks with a width greater than 1/4 inch. Do not overfill the cracks. Crack filling material should cure for a minimum of 30 days prior to application of the micro surfacing.

F. Rumble Strips:

Where shoulders are not to be micro surfaced, prevent material from being applied to or entering any rumble strip depressions. If necessary, remove any material that enters the depressions. When rumble strips are to be micro surfaced, place a scratch course to fill the depressions prior to placing the final surface course.

G. Tack Coat:

Place a tack coat on all collector roads prior to constructing a micro surfacing course. A tack coat is not required on residential roads or between the leveling (scratch) course and the surface course provided the surface course is placed within 30 days of the leveling (scratch) course. If required, the tack coat should be type SS, type CSS, or the micro surfacing emulsified asphalt. It may consist of one part emulsified asphalt to three parts water and should be applied with a standard distributor. The distributor shall be capable of applying the tack evenly at a rate of 0.05-0.15 gal/yd^2.

H. Application

Pre-wet the surface by fogging ahead of the spreader box with water. Adjust the rate of application of the fog spray to suit temperatures, surface texture, humidity, and dryness of the pavement.

The micro surfacing shall be of the desired consistency upon leaving the mixer. Carry a sufficient amount of material in all parts of the spreader box at all times so that complete coverage is obtained. Avoid overloading of the spreader box. Do not allow lumping, balling, or unmixed aggregate in the micro surfacing mixture.

Do not leave streaks, such as those caused by oversized aggregate, in the

finished surface. If excess streaking develops, stop production until the situation has been corrected. Excessive streaking is defined as more than four drag marks greater than 1/2 inch wide and 4 inches long, or 1 inch wide and 3 inches long, in any 30 yd^2 area. Do not permit transverse ripples or longitudinal streaks of 1/4 inch in depth or greater, when measured by placing a 10-foot straight edge over the surface.

I. Rate of Application

The average application rate shall be in accordance with **Table 6**, unless otherwise specified in the Contract Documents. Full width application rates should be maintained within ± 2 lbs/yd^2 of the specified rate. Application rates are based upon the weight of dry aggregate in the mixture. The maximum thickness of any single layer of micro surfacing at the edge of the pavement shall be 1/4 inch.

Table 6: Application Rates

AGGREGATE TYPE	LOCATION	APPLICATION RATE(1)	
Type II	Collectors, Local Roads, and Airport Runways	Single Application: 20-24 lbs/yd^2	Double Application (two lifts): Bottom: 14-18 lbs/yd^2 Top: 16-20 lbs/yd^2 Total: 30-34 lbs/yd^2
	Scratch or Leveling Course	As Required --- 12 lb/yd^2 (minimum)	
Type III	Wheel Rut Depth	Application Rate	
	0.5-0.75 inches	20-30 lbs/yd2	
	0.75-1.00 inches	25-35 lbs/yd2	
	1.00-1.25 inches	28-38 lbs/yd2	
	1.25-1.50 inches	32-40 lbs/yd2	

(1) Application rates are based upon the weight of dry aggregate in the mixture.

J. Joints:

Prevent excessive buildup, uncovered areas, or unsightly appearance on longitudinal and transverse joints. Provide suitable-width spreading equipment to produce a minimum number of longitudinal joints throughout the project. Place

longitudinal joints on lane lines, where possible. Use half passes and odd-width passes only when absolutely necessary. Do not apply a half pass as the last pass of any area. Do not overlap longitudinal lane line joints by more than three inches. Do not construct joints having more than a 1/4 inch difference in elevation when measured by placing a 10-foot straight edge over the joint and measuring the elevation drop-off. Construct longitudinal joints so that water is not held at the joint. Construct transverse joints at the beginning and end project limits so that the elevation difference between the micro surfacing and the adjacent pavement does not exceed 1/4 inch.

K. Mix Stability:
Produce a micro surfacing mixture that possesses sufficient stability so that premature breaking of the material in the spreader box does not occur. The mixture shall be homogeneous during and following mixing and spreading. The mixture shall be free of excess water or emulsified asphalt and free of segregation of the emulsified asphalt and aggregate fines from the coarser aggregate. Do not spray water directly into the spreader box while applying micro surfacing material under any circumstances.

L. Handwork:
Utilize hand squeegees to provide complete and uniform coverage of micro surfaced areas that cannot be reached with the mixing machine. Lightly dampen the area to be hand worked prior to mix placement, if necessary. Care shall be exercised to leave no unsightly appearance from handwork. When performing handwork, provide the same type of finish as that applied by the spreader box.

M. Lines:
Construct straight lines along curbs and shoulders. Do not permit runoff on these areas. Keep lines at intersections straight to provide a good appearance. If necessary, utilize a suitable material to mask off the end of streets to provide straight lines. Edge lines shall not vary by more than 2 inches horizontally.

N. Cleanup:
Remove micro surfacing mixture from all areas such as manholes, gutters, drainage structures, rumble strips, and as otherwise specified by the Engineer. On a daily basis, remove any debris resulting from the performance of the work.

O. Post Sweeping:
If required by the Engineer, broom the surface of any loose material within 48 hours after the completion of the micro surfacing. If directed by the Engineer, perform this operation again approximately seven to ten days after completion of the micro surfacing as needed. Additionally, clean the surface, as necessary, prior to application of the final pavement markings.

V. Quality Assurance

A. Material Monitoring:

Provide a computerized material monitoring system with integrated material control devices that are readily accessible and positioned so the amount of each material used can be determined at any time. Ensure the computer system is functional at the beginning of work and during each calibration. Provide a back-up electronic materials counter that is capable of recording running count totals for each material being monitored. Equip the mixer with a radar ground measuring device. The computer system shall have the capability to record, display and print the following information:

a. Individual sensor counts for emulsion, aggregate, cement, water, and additive
b. Aggregate, emulsion, and cement output in pounds per minute
c. Ground travel distance
d. Spread rate in pounds per square yard
e. Percentages of emulsion, cement, water, and additive
f. Cumulative totals of aggregate, emulsion, cement, water, and Additive
g. Scale factor for all materials.

B. Sampling and Testing:

The Engineer shall obtain one sample of micro-surfacing mixture each day of production. The Engineer shall test each sample in accordance with FM 5-563 and FM 1-T 030 to determine the residual asphalt content and the gradation of the sample. Evaporate all water from the sample prior to testing. Determine the deviation of the test results for each sample from the mix design target values. Compare the deviation from the mix design to the mixture control tolerances shown in **Table 7.**

Table 7: Aggregate and Emulsified Asphalt - Acceptance Limits

Aggregate	**Tolerance from Mix Design Target Values**
Percent Passing No. 4 Sieve	± 6 percent
Percent Passing No. 8 Sieve	± 7 percent
Percent Passing No. 50 Sieve	± 6 percent
Percent Passing No. 200 Sieve	± 3.0 percent
Emulsified Asphalt	--
Residual Asphalt Content of Mixture	± 0.6 percent

C. Application Rate:

Control the application rate for micro surfacing on a lot basis to within the "Total" range specified in **Table 6**. A lot will be considered as 0.10 lane miles. No additional compensation will be paid for micro surfacing application rates placed in excess of the "Total" specified range. The unit price for each deficient lot will be reduced by ten percent for each lb/yd^2 rate less than the "Total" specified range. For application rates outside the "Total" specified range, stop production of the mixture and make adjustments to correct the problem to the satisfaction of the Engineer prior to resuming production. Accept a pay reduction for deficient lot production or overlay the deficient area at full plan width and depth at no additional cost.

VI. Warranty:

The Contractor shall provide the City or County upon final acceptance of the micro surfacing work, a warranty period of three (3) years which shall include all labor, materials, hauling, traffic control and striping to repair the defective areas. Defective areas shall include debonding/delamination, bleeding, excessive raveling and aggregate loss exposing the old roadway surface. The Contractor shall perform all warranty work at no cost to the City or County.

VII. Method of Measurement

If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. Any item necessary for Microsurfacing, and not specifically listed in another item in the Bid Form, shall be included in this item.

VIII. Basis of Payment

The accepted quantities, determined as provided above for each of the pay items listed below which is included in the contract, will be paid for at the contract unit price per unit of measurement. The Unit price includes all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Microsurfacing, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications, except that at the direction of the County.

Crack sealing, if required, shall be paid for under the appropriate pay item.

Payment will be made under:

Pay Item	***Pay Unit***
Micro surfacing	Square Yard
Rut fill/scratch course	Ton

PC-003 CRACK FILLING/SEALING SPECIFICATION

I. Description

The work consists of applying a hot-applied, single component polymer/rubber modified Type 3 sealant supplied in solid form, to seal or fill cracks or joints in asphalt concrete or Portland cement concrete pavements. Cracks or joints that will be sealed shall be a minimum of one quarter (1/4) inch and have a maximum width of one (1) inch.

II. Materials

A. Polymer/rubber Modified Asphalt Material: Materials shall be a premixed, single component mixture of asphalt cement, aromatic extender oils, polymers, and granulized rubber in a closely controlled manufacturing process. Materials shall conform to the following specifications when heated in accordance to ASTM D5078 to the manufacturer's maximum safe heating temperatures.

Property	Specification
Cone Penetration, (ASTM D5329)	20 – 40
Resilience, (ASTM D5329)	30 % min.
Softening Point (ASTM D36)	210°F min.
Ductility, 77.0°F (ASTM D113)	30 cm min.
Flexibility, 1/8" specimen, 90º bend, 10 sec., 1" mandrel (ASTM D3111 Modified)	Pass at 30ºF
Flow 140°F (60°C) (ASTM D5329)	3mm max.
Viscocity, 400ºF (ASTM D2669)	100 Poise max.
Asphalt Compatibility (ASTM D5329)	Pass
Bitumen Content (ASTM D4)	60% min.
Tensile Adhesion 1" thickness (ASTM D5329)	400% min.
Maximum Heating Temperature	400°F (204°C)
Minimum Heating Temperature	380°F (193°C)

B. Blotting Material: If required, the blotting material shall be an aggregate such as cement dust, specialized release or detacking agent, or other cover aggregate approved by the Project Manager.

III. Equipment

A. **Crack Sealant Application Equipment:** Equipment used to install the sealant into the cracks shall be as specified by the manufacturer and shall have the ability to fill cracks with two wands at the same time and maintain the proper temperature of the sealant throughout the sealing process. This heating unit shall be a jacketed double boiler melter and shall be equipped with an agitation system. The applicator hose's shall have a recirculation system or be equipped with a temperature controlled heating system. Pouring pots or gravity-fed sealant applicators shall not be used for sealing cracks and joints.

B. **Compressor:** The compressor shall be 75 C.F.M. capacity, or more, to ensure an adequate supply of air to effectively clean the joints. Any pneumatic tool lubricator should be bypassed and a filter installed on the discharge valve to keep water and oil out of the lines.

C. **Hot Compressed Air Equipment:** A hot compressed air lance shall be used to clean, dry and pre-heat cracks prior to applying sealant. The air lance shall consist of a compressor propane system providing a high temperature, high velocity blast of air.

D. **Crack Cleaning Equipment:** Cleaning of excess debris shall be done by means
of power sweepers, hand brooms, or air brooms.

IV. Construction

A. Submittals

At the beginning of this Contract, the Contractor shall submit to the Project Manager the specifications sheets along with the manufacturer's suggested installation procedures and equipment of the type of crack seal that is to be used for approval. Once approved, these documents shall be complementary documents to this specification.

If the Contractor intends to change to another product meeting this specification over the life of the Contract, they shall have to resubmit the above mentioned information for the new product for approval prior to its use.

During the crack seal operations, the Contractor shall maintain a log sheet, the original of which shall be supplied to the Inspector at the end of the project and become supporting documentation for invoicing purposes. A minimum of the following information shall be recorded:

1. Date, time and amount added to the melter. The lot number of each box added shall also be recorded.

2. Road name, date, time application process starts, amounts installed, time application process ends.
3. Weather conditions

The Contractor shall supply the Inspector with tickets and the corresponding actual lot numbers removed from the boxes, showing the amount of gallons used for each road.

A log of all herbicides, if any, shall be kept and a copy shall be supplied to the Inspector within one (1) week of spraying. This log shall include the type of material, mixture rate, application rate, location, date, and time of application.

B. Traffic Control: The Contractor shall furnish all necessary traffic control, barricades, signs and flagmen, to ensure the safety of the traveling public and to all working personnel. If requested by the County, the Contractor shall submit an M.O.T plan indicating all facets of traffic control for the project area. The MOT plan should be approved in writing by the County prior to commencing any work. All traffic control shall be in accordance with the FDOT Roadway Design Standards, most current edition and TP-102. M.O.T. and associated devices shall be checked daily and periodically throughout the project for compliance; and where adjustments or corrections are needed, prompt revisions shall be made.

C. Weather: No sealant shall be installed unless the ambient and pavement temperature are 40°F and rising. There shall be no fog and no chance of rain. Any cracks that are not sealed the same day they are prepared shall be blown out with compressed air before the sealing operation continues. If rain or fog delays the sealing operation, the cracks shall be allowed to dry and shall have additional cleaning as required to remove any debris that may have been washed into the crack by rain. The cracks shall be completely dry before the seal treatment can resume. The Contractor may use the Hot Compressed Air Lance method of cleaning and drying the cracks with the approval of the Inspector. Care shall be taken to not overheat the existing asphaltic concrete surface if this method is used.

D. Surface Preparation: Prior to starting any application process the Contractor shall be responsible for removing any deleterious materials, including dirt, old sealant, incompressibles and organic materials that is on the asphalt, and that the cracks and joints are sufficiently dry.

E. Crack Cleaning: When vegetation exists in the cracks and joints, it shall be removed by either using propane torch or treated with an herbicide that sterilizes the soil. The method of removal is subject to the approval of the Project Manager. If an herbicide is used it shall be applied according to the manufacturer's specifications and shall be applied ahead of the operations so that the weed is totally browned. The applicator of the herbicide shall have the proper State of Florida Pesticide Applicators License. A copy of this license shall be supplied to the Project Manager upon request. A log of all herbicides shall be kept as specified in the Submittals section of this specification, and a copy shall be supplied to the Project Manager. All cracks are to be clean and are sufficiently dry before any crack sealing material is applied. All cracks shall be blown clean by high pressure air. All old material and other debris removed from the cracks shall be removed from the pavement surface immediately. Any cracks that are not sealed the same day they are prepared shall be blown out with compressed air before the sealing operation continues.

F. Sealant Heating: The temperature of the sealant shall be heated and maintained using the manufacturer's recommended procedures. The sealant compound shall be melted slowly with constant agitation until it is in a lump-free, free-flowing state, within the temperature range recommended by the manufacturer for application. Care shall be taken to insure that the sealant is not heated above the manufacturer's recommended maximum temperature or for

longer than the recommended application life. The Project Manager shall have the right to reject the product if it is determined that this has occurred.

G. Sealant Application: The sealant shall be applied in the crack or joint reservoir uniformly from the bottom to the top and shall be filled without formation of entrapped air or voids. The sealant shall be installed so that it is recessed approximately one eight (1/8) inch below the pavement surface to prevent tracking. Sealant shall be applied to slightly overfill the reservoir and then struck off using a “V” shaped squeegee. The remaining squeegee material shall be flush with the pavement surface. In no case shall the width of excess material on the pavement surface exceed (4) inches. At no time shall the sealant be in excess of one sixtieth (1/16) inch above the adjacent surface and shall extend no more than one and a half (1.5) inches from the crack edges. Each wand shall have removable heads so that variable width discs from two (2) to four (4) inches may be installed at the Inspector’s request.

H. Blotting Application: When traffic requires immediate use of the roadway, a blotting material shall be broadcast or sprayed over the fresh sealant to prevent it from being picked up and tracked. Any excessive or spilled sealer shall be removed by the Contractor using approved methods.

V. Liability and Deficiencies:

During the period of construction and the warranty period the Contractor shall be responsible for processing any and all claims for property damage and or bodily injury caused by the failure of the Crack Sealing including but not limited to, motor vehicles or pedestrians. The Contractor shall be responsible for the payment of all property damage and bodily injury claims and agrees to save and hold harmless the COUNTY from all such claims. Claims not handled by the Contractor or their representative in the proper manner, will be settled by the COUNTY. The COUNTY shall recover all costs from the Contractor.

1. The Contractor shall be responsible for any claims of tracking as part of this specification. If there is a claim the Contractor shall be responsible for:
    a) Applying more blotting material as necessary
    b) Address the tracked material by either removing or repairing the object that was affected.
2. Where the sealant subsides in the crack by more than 1/8 inches below the adjacent pavement surface, except where the pavement will be immediately overlaid, the surface of the sealant shall be cleaned and topped up.

The sealant shall be removed, the routed crack rerouted at the Inspector’s discretion, and resealed if any of the following occur:

a) The sealant contains embedded foreign material other than dusting material.
b) The sealant contains entrapped air bubbles.
c) The sealant has de-bonded or pulled away from the crack
d) The sealant has been excessively heated.

VI. Method of Measurement

If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. Any item necessary for Crack Filling/Sealing, and not specifically listed in another item in the Bid Form, shall be included in this item.

The measurement shall be made in the amount of gallons of crack seal applied to the road, and shall be supported by the required submittals outlined in this specification. The amount of crack sealer shall be reported and invoiced for each road.

VII. Basis of Payment

The accepted quantities, determined as provided above for each of the pay items listed below which is included in the contract, will be paid for at the contract unit price per unit of measurement. The Unit price includes all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Crack Filling/Sealing, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications, except that at the direction of the County.

Payment will be made under:

Pay Item	***Pay Unit***
Crack Filling/Sealing	Per gallon

END OF SECTION

PC-004 FOG SEAL SPECIFICATION

I. Description

The work specified in this section consists of furnishing and applying fog seal on existing roads at application rates described here-in. Fog seals are a method of adding asphalt to an existing pavement surface to improve sealing or waterproofing, prevent further stone loss by holding aggregate in place, or simply improve the surface appearance. Generally, fog seal is a light spray application of diluted asphalt emulsion used primarily to seal an existing asphalt surface to reduce raveling and enrich dry and weathered surfaces. However, inappropriate use can result in slick pavements and tracking of excess material.

II. Materials

The emulsion types recommended for fog seals may be cationic (i.e., a positive surface charge on the asphalt particles), or anionic (i.e., a negative surface charge on the asphalt particles). The primary types used are CSS-1h and SS-1h. In some circumstances, CQS-1h (and LMCQS-1h) will give a faster set.

A. **Liquid emulsified bituminous material for dilution:** CSS-1h liquid bituminous material conforming to the requirements of AASHTO M 208 or SS-1h conforming to the requirements of AASHTO M 140 (except as modified herein) shall be utilized. The Contractor shall certify the liquid bituminous material meets the aforementioned specifications
The asphalt emulsion may contain up to 43% water prior to dilution. Original emulsion water and dilution water shall be limited to and not exceed for any reason 50% by volume. Therefore, residual asphalt shall equal 50% (+1%, -0%).

B. **Dilution Water and Emulsion Water:** Water introduced into the asphalt should be potable and free from detectable solids or incompatible soluble salts (hard water).

C. **Material Samples:**
The County will require the Contractor to sample and test each load of emulsion prior to delivery. The Contractor will also provide a sample of the emulsion, on site, prior to commencing work. The County will require the Contractor to provide sample containers and a local independent testing laboratory for the analyzing of emulsion. The Contractor will be responsible for the cost of the testing. The County reserves the right to test any shipment of emulsion that is believed to be of substandard. All samples shall be shipped and stored in clean airtight sealed wide mouth jars or bottles made of plastic.

III. Equipment:

A. Distributor:

The liquid bituminous material shall be applied with a truck mounted, pressure distributor that has been calibrated within the previous twelve (12) months, for transverse and longitudinal application rate. The distributor shall be equipped, maintained and operated so that the bituminous material can be applied at controlled temperatures and rates from .03 to .22 gallons per square yard with nozzles adjusted to allow minimum overlap of 3x. The distributor shall be capable of applying bituminous material of variable widths up to sixteen (16) feet. The distributor shall uniformly apply the bituminous material to the specified rate with a maximum allowed variation of 0.015 gallons per square yard. Distributor equipment shall include tachometer, accurate volume measuring device, a calibrated tank and a thermometer for measuring the temperature of the tank's contents. Distributors shall be equipped with an asphalt pump and full circulating spray bars adjustable laterally and vertically. Distributors and transport trailers shall be equipped with a sampling valve. Distributor trucks shall be of the pressure type with insulated tanks. The use of gravity distributors will not be permitted. The valves shall be operated by levers so that one or all valves may be quickly opened or closed in one operation. The valves which control the flow

from nozzles shall act positively so as to provide a uniform unbroken spread of bituminous material on the surface. The distributor shall be equipped with devices and charts to provide for accurate and rapid determination and control of the amount of bituminous material being applied and with a bitumeter of the auxiliary wheel type registering speed in feet per minute, and trip and total distance in feet.

B. Additional equipment:

Additional equipment will be needed to complete the operations required by this technical provision. All equipment necessary for the successful completion of projects governed by this technical provision shall be included in the unit costs associated herein. Availability of quality assurance devices shall be the responsibility of the Contractor.

IV. Construction

A. Layout:

The Contractor will be responsible for the lay out of the roadway and project planning and sequencing to meet traffic control requirements prior to beginning.

B. Weather and Seasonal limitations:

The fog seal shall not be applied to a wet surface or when rain is occurring or the threat of rain is present immediately before placement. The surface treatment shall not be applied when the temperature is less than 50 degrees Fahrenheit in the shade. When applying emulsions, the temperature of the surface shall be a minimum of 59°F, and no more than 140°F.

If unexpected rain occurs prior to the emulsion breaking, the area shall be re-fogged at no cost to the County. Further, the Contractor's traffic control and project monitoring shall continue until the surface is either free of emulsion or the emulsion applied has broken, and the resultant surface is not slippery or dangerous to vehicular travel.

C. Preparation of Surface:

The Contractor shall be responsible for clipping back shoulders and removing overburden or any other vegetation or debris to ensure that the road is free of organic and deleterious material. The Contractor shall spray all cut back edges with a pre-emergent herbicide before and after treatment. The Contractor will be responsible for blowing or sweeping the road immediately ahead of the operation to make sure the road is free of loose aggregate and other debris, as well as sweeping and cleaning the streets after treatment. If, in the opinion of the Engineer, the hand cleaning is not sufficient then a self-propelled street sweeper shall be used.

All manhole and valve covers, inlets and other service entrances, etc., shall be protected from bituminous material by placing reinforced waterproof, all-purpose paper or other suitable material, approved by the Engineer.

Thermoplastic striping and pavement markings, raised pavement markers, and raised pavement marker adhesive shall be removed.

D. Resident Notification

In Residential areas, the Contractor shall distribute by hand, a typed notice to all residences and businesses on the street to be treated. The notice will be delivered no more than 24 hours prior to the treatment of the road. The notice will have a local phone number that the residents may call to ask questions. The notice shall be of the door hanger type which secures to the door handle of each dwelling. Unsecured notices will not be allowed. The Contractor shall also place the notice on the windshield of any parked cars on the street. Hand distribution of this notice will be considered incidental to the contract.

E. Application of bituminous material:

The emulsion shall be diluted no more than 24 hours before its intended use to avoid settlement of the diluted emulsion. Water shall be introduced into the emulsion. Introducing emulsion into water is not permitted. The emulsion shall be circulated using a centrifugal or other suitable pump to ensure uniformity as needed.

Properly calibrated distributor trucks with 4 to 5 mm (1/8” to 3/16”) opening spray nozzles shall be used to apply the emulsion. The emulsion may be heated to 122°F maximum, or may be applied at ambient temperatures conforming to the requirements of this technical provision. The emulsion shall be sprayed at a rate as directed in the field by the county. Application will be determined dependent upon the surface conditions.

- **Tight Surface** (low absorbance and relatively smooth) - .09-.14 gal/sy
- **Open Surface** (relatively porous and absorbent with open voids) - .18-.22 gal/sy

F. Exceptions:

When fog seal is required as a subsequent treatment to chip seal, OGCM, or other method described in this contract, materials, equipment and application shall be as described in this technical provision and as amended in the technical provision appropriate to the work the fog seal is subsequent to. If discrepancies occur, the County shall determine the appropriate specification.

G. Traffic Control

The Contractor shall furnish all necessary traffic control, barricades, signs and flagmen, to ensure the safety of the traveling public and to all working personnel. Traffic shall not travel on fresh fog seal until material is sufficiently broke such that tire pickup does not occur. The Contractor shall submit an M.O.T plan indicating all facets of traffic control for the project area. The MOT plan should be approved in writing by the County prior to commencing any work. All traffic control shall be in accordance with the FDOT Roadway Design Standards, most current edition and TP-102. M.O.T. and associated devices shall be checked daily and periodically throughout the project for compliance; and where adjustments or corrections are needed, prompt revisions shall be made.

V. Method of Measurement

If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. Any item necessary for Fog Seal, and not specifically listed in another item in the Bid Form, shall be included in this item.

VI. Basis of Payment

The accepted quantities, determined as provided above for each of the pay items listed below which is included in the contract, will be paid for at the contract unit price per unit of measurement. The Unit price includes all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Fog Seal, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications, except that at the direction of the County.

Payment will be made under:

Pay Item	***Pay Unit***
Fog Seal “Tight Surfaces” (.09-.14 gal/sy)	Square Yard
Fog Seal “Open Surfaces” (.18-.22 gal/sy)	Square Yard

END OF SECTION

PC-005 BITUMINOUS PAVEMENT REJUVENATION

Note in this specification, the term “rejuvenation product” will carry the same connotation as the term “rejuvenator” or “rejuvenator/sealer.” The term “rejuvenation product” will be used throughout this specification for the purpose of recognizing rejuvenation performance for each class of rejuvenation products.

I. Description

This item governs all work, labor, material, and equipment necessary for the application of an asphalt pavement rejuvenation product to a previously placed hot mix asphalt (HMA) surface. The purpose of this product is the rejuvenation of the upper 3/8 inch (9 mm) of oxidized or otherwise aged asphalt binder without causing an unacceptable reduction in the friction characteristics (skid resistance) of the pavement section. Additionally, the rejuvenation product should not introduce unacceptable pavement distresses such as raveling, high temperature deformation (rutting), and loss of strength. The rejuvenation product should not contribute to accelerated deterioration of the pavement.

II. Material

A. Rejuvenator Agent:

The asphalt rejuvenating agent shall be an emulsion composed of a petroleum resin oil base uniformly emulsified with water. Each bidder should submit with their bid a certified statement from the asphalt rejuvenator manufacturer showing that the asphalt rejuvenating emulsion conforms to the required physical and chemical requirements.

	TEST METHOD		REQUIREMENTS	
TESTS	ASTM	AASHTO	MIN.	MAX.
Tests on Emulsion:				
Viscosity # 25°C, SFS	D-244	T-59	15	40
Residue, % W[1]	D-244 (mod)	T-59 (mod)	60	65
Miscibility Test[2]	D-244 (mod)	T-59 (mod)	No Coagulation	
Sieve Test, %W[3]	D-244 (mod)	T-59 (mod)	--	0.1
Particle Charge Test	D-244	T-59	Positive	
Percentage Light Transmittance[4]	GB	GB	--	30
Tests on Residue from Distillation:				
Flash Point, COC, °C	D-92	T-48	196	--
Viscosity @ 60°C, cst	D-445	--	100	200

Asphaltenes, %w	D-2006-70	--	--	1.00
Maltene Dist. Ratio	D-2006-70	--	0.3	0.60
$\frac{PC + A_1{}^5}{S + A_2}$				
PC/S Ratio[5]	D-2006-70	--	0.5	--
Saturated Hydrocarbons, S[5]	D-2006-70	--	21	28

[1] ASTM D-244 Modified Evaporation Test for percent of residue is made by heating 50 gram sample to 149 C (300 F) until foaming ceases, then cool immediately and calculate results.
[2] Test procedure identical with ASTM D-244-60 except that 0.02 Normal Calcium Chloride solution shall be used in place of distilled water.
[3] Test procedure identical with ASTM D-244 except that distilled water shall be used in place of two percent sodium oleate solution.
[4] Test procedure is attached.
[5] Chemical composition by ASTM Method D-2006-70: PC = Polar Compounds A_1 = First Acidaffins
A_2 = Second Acidaffins S= Saturated Hydrocarbons

B. Material Performance

The rejuvenating agent shall have a record of at least five years of satisfactory service as an asphalt rejuvenating agent and in-depth sealer. The asphalt rejuvenating agent shall have the capability to penetrate the asphalt pavement surface. The asphalt rejuvenating agent shall be absorbed and incorporated into the asphalt binder. Verification that said incorporation of the asphalt rejuvenating agent into the asphalt binder has been effected shall be by analysis of the chemical properties of said asphalt binder i.e. viscosity shall be improved to the following extent. The viscosity shall be reduced by a minimum of forty, (40%) percent as determined by dynamic shear rheometer (DSR) method for asphalt testing in accord with AASHTO T315-05. This analysis shall apply to extracted asphalt binder, taken from cores extracted fifteen to thirty days following application, in the upper 3/8” of pavement. In addition the treated areas shall be sealed in-depth to the intrusion of air and water.

The rejuvenating agent shall have a record of at least five years of satisfactory service as an asphalt rejuvenating agent and in-depth sealer. Satisfactory service shall be based on the capability of the material to decrease the viscosity of the asphalt binder and provide an in-depth seal.

The bidder should submit with their bid the manufacturer’s certification that the material proposed for use is in compliance with the specification requirements. The bidder should submit with their bid, previous use documentation and test data conclusively demonstrating that; the rejuvenating agent has been used successfully for a period of five years by government agencies such as cities,

counties, etc.; and that the asphalt rejuvenating agent has been proven to perform, as heretofore required, through field testing by government agencies as to the required change in the asphalt binder viscosity and penetration number. Testing data shall be submitted indicating such product performance on a sufficient number of projects, each being tested for a minimum period of three years to insure reasonable longevity of the treatment, as well as product consistency. In addition, testing data shall be submitted to indicate said product performance over a testing period of three years to ensure reasonable life expectancy.

III. Equipment

Any equipment which is not maintained in full working order, or is proven inadequate to obtain the results prescribed, shall be repaired or replaced at the direction of the Engineer.

A. Distributer Tank:

The distributor for spreading the emulsion shall be self-propelled and shall have pneumatic tires. The distributor shall be designed and equipped to distribute the asphalt rejuvenating agent uniformly on variable widths of surface at readily determined and controlled rates from 0.05 to 0.5 gallons per square yard of surface, and with an allowable variation from any specified rate not to exceed 5 percent of the specified rate.

Distributor equipment shall include full circulation spray bars, pump tachometer, volume measuring device and a hand hose attachment suitable for application of the emulsion manually to cover areas inaccessible to the distributor. The distributor shall be equipped to circulate and agitate the emulsion within the tank.

A check of distributor equipment as well as application rate accuracy and uniformity of distribution shall be made when directed by the Engineer.

The truck used for sanding shall be equipped with a spreader that allows the sand to be uniformly distributed onto the pavement. The spreader shall be able to apply 1/2 pound to 3 pounds of sand per square yard in a single pass. The spreader shall be adjustable so as not to broadcast sand onto driveways or lawns.

B. Sand Truck:

Sand blotters may be used to allow early opening to traffic, if so determined by the Engineer. The truck used for sanding shall be equipped with a spreader that allows the sand to be uniformly distributed onto the pavement. The spreader shall be able to apply 1/2 pound to 3 pounds of sand per square yard in a single pass. The spreader shall be adjustable so as not to broadcast sand onto driveways or lawns.

The sand to be used shall be free flowing, without any leaves, dirt stones, etc. Any wet sand shall be rejected from the job site.

C. Additional equipment:

Additional equipment will be needed to complete the operations required by this technical provision. All equipment necessary for the successful completion of projects governed by this technical provision shall be included in the unit costs associated herein. Availability of quality assurance devices (such as a 15' straight edge) shall be the responsibility of the Contractor.

IV. Construction

A. Layout

The Contractor will be responsible for the lay out of the roadway and project planning and sequencing to meet traffic control requirements prior to beginning.

B. Weather

The rejuvenation product should be applied only when the existing surface is dry and the weather forecast is in accordance with the manufacturer's recommendations for application and curing. The rejuvenation product shall be applied only when the existing surface is thoroughly dry. Additionally, application of the asphalt rejuvenating agent shall be prohibited when weather forecasts indicate a chance of a rain event in the work area, which would produce in excess of 0.10 inches of rain within four hours of the application of the asphalt rejuvenating agent. If weather conditions interfere with application and/or curing, the Inspector may at his discretion suspend the job or require remedial action as deemed necessary.

C. Resident Notification

The Contractor shall distribute by hand, a typed notice to all residents and businesses on the street to be treated. The notice will be delivered no more than 24 hours prior to the treatment of the road. The notice will have a local phone number that the residents may call to ask questions. The notice shall be of the door hanger type which secures to the door handle of each dwelling. Unsecured notices will not be allowed. The Contractor shall also place the notice on the windshield of any parked cars on the street. Hand distribution of this notice will be considered incidental to the contract.

D. Preparation of Surface

The Contractor shall be responsible for clipping back shoulders and removing overburden or any other vegetation or debris to ensure that the road is free of organic and deleterious material. The Contractor shall spray all cut back edges with a pre-emergent herbicide before and after treatment. The Contractor will be responsible for blowing or sweeping the road immediately ahead of the operation

to make sure the road is free of loose aggregate and other debris, as well as sweeping and cleaning the streets after treatment. If, in the opinion of the Engineer, the hand cleaning is not sufficient then a self-propelled street sweeper shall be used.

All manhole and valve covers, inlets and other service entrances, etc., shall be protected from bituminous material by placing reinforced waterproof, all-purpose paper or other suitable material, approved by the Engineer.

E. Traffic Control

The Contractor shall schedule his operations and carry out the work in a manner to cause the least disturbance and/or interference with the normal flow of traffic over the areas to be treated. Treated portions of the pavement surfaces shall be kept closed and free from traffic until, in the opinion of the Inspector, the rejuvenator has sufficiently penetrated the surface and the area is suitable for traffic.

When, in the opinion of the Inspector, traffic should be maintained at all times on a particular street, then the Contractor shall apply asphalt rejuvenating agent to one lane at a time. Traffic shall be maintained in the untreated lane until traffic may be switched to the completed lane.

The Contractor shall be responsible for all traffic control and signing required to ensure safe travel. The Contractor shall notify the police and fire departments as to the streets that are to be treated each day. If, in the opinion of the Engineer, proper signing is not being used, the Contractor shall stop all operations until safe signing and barricading is achieved.

F. Application of the Rejuvenation Product

The asphalt rejuvenating agent shall be applied by a distributor truck at the temperature recommended by the manufacturer and at the pressure required for the proper distribution. The emulsion shall be applied so that uniform distribution is obtained at all points of the areas to be treated. Distribution shall be commenced with a running start to insure full rate of spread over the entire area to be treated. Areas inadvertently missed shall receive additional treatment as may be required by hand sprayer application.

Application of asphalt rejuvenating agent shall be on one-half width of the pavement at a time. When the second half of the surface is treated, the distributor nozzle nearest the center of the road shall overlap the previous application by at least one-half the width of the nozzle spray. In any event the centerline construction joint of the pavement shall be treated in both application passes of the distributor truck.

Before spreading, the asphalt rejuvenating agent shall be blended with water at the rate of two (2) parts rejuvenating agent to one (1) part water, by volume or as specified by the manufacturer. The combined mixture of asphalt rejuvenating agent and water shall be spread at the rate of 0.05 to 0.10 gallons per square yard, or as approved by the Engineer.

Where more than one application is to be made, succeeding applications shall made as soon as penetration of the preceding application has been completed and approval is granted for additional applications by the Inspector.

Grades or super elevations of surfaces that may cause excessive runoff, in the opinion of the Inspector, shall have the required amounts applied in two or more applications as directed. After the street has been treated, the area within one foot of the curb line on both sides of the road shall receive additional treatment of the asphalt rejuvenating emulsion. Said treatment shall be uniformly applied by a method acceptable by the Inspector. After the rejuvenating agent has penetrated, a coating of dry sand or approved blotting agent shall be applied to the surface in sufficient amount to protect the traveling public as required by the Inspector.

All blotting agent used during the treatment should be removed no later than 48 hours after treatment of the street, either by hand or mechanical means. All turnouts, cul-de-sacs, etc. should be cleaned of any material to the satisfaction of the Inspector. Post- construction street cleaning will be included in the price bid per square yard for asphalt rejuvenating agent.

If, after the blotting agent is swept and in the opinion of the Engineer, a hazardous condition exists on the roadway, the Contractor should apply additional blotting agent and sweep same no later than 24 hours following reapplication. No additional compensation will be allowed for reapplications and removal of sand.

G. Quality Assurance and Testing

1. **Deliverables:** Upon project completion, the Contractor shall furnish a quality inspection report showing the source, manufacturer, and the date shipped, for each load of asphalt rejuvenating agent. The report shall also indicate the actual area treated per road and serve as supporting documentation for invoicing. When directed by the Engineer, the Contractor shall take representative samples of material for testing.

The County, at their option, may require testing to be performed on extracted asphalt cement from a pavement to a depth of three eights inch (3/8"). The testing protocol shall be extraction and recovery of the top 3/8” layer from a 4-inch or 6-inch core by ASTM D2172 and ASTM D1856. The recovered binder

can be tested for complex viscosity @ 60ºC, Pas, using the Dynamic Shear Rheometer (DSR) by AASHTO T315, or viscosity @ 60ºC, Poises, using the Absolute viscosity @ 60ºC, Poises, by ASTM D2171. Costs associated with testing shall be included in bid price.

V. Method of Measurement

Asphalt rejuvenating agent 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 asphalt rejuvenating agent.

VI. Basis of Payment

The accepted quantities, determined as provided above for each of the pay items listed below which is included in the contract, will be paid for at the contract unit price per unit of measurement. The Unit prices include all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Asphalt Rejuvenating Agent, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications.

Payment will be made under:

Pay Item	Pay Unit
Asphalt Rejuvenating Agent	Square Yard

END OF SECTION

PC-006 SCRUB SEAL SPECIFICATION

II. Description

Scrub Seal shall consist of the application of a slow setting, anionic or cationic asphalt emulsion or specialty emulsions developed specifically for scrub sealing, followed by a cover aggregate. The emulsion may be polymer modified.

III. Materials

A. Asphalt Emulsions

The asphalt emulsions employed for Scrub Seals shall be slow to medium setting anionic or cationic SS-1, SS-1H, CSS-1H; ASTM specifications for anionic (SS) emulsions are listed in D977 and for cationic (CSS) emulsion in D2397. Suppliers of other specialty emulsions for Scrub Sealing should supply specifications for these emulsions. Asphalt emulsions may be modified with a polymer additive.

B. Cover Aggregates

Mineral Aggregates for scrub seal shall conform to **Table 1**.

Table 1: Scrub Seal Aggregate Gradation Limits		
Sieve Size	**Percent Passing**	**Tolerance**
3/8 inch (9.5mm)	100	0
No. 4 (4.75mm)	96	+3
No. 10 (2.0mm)	60	±20
No. 50 (300µm)	18	±12
No. 100 (150µm)	5	±5
No. 200 (74µm)	5	±3

Where washed aggregates are used, they should be 'surface dry' at the time of application. Moisture content shall not exceed 1.5% by weight of aggregate. Sampling and testing of aggregate shall be the responsibility of the Contractor. Copies of test results from the aggregate supplier shall be furnished to the owner prior to the start of the surface treatment.

C. Compatibility of Emulsion and Aggregate

Compatibility or affinity between the asphalt emulsion and the aggregate can be variable. The Contractor shall verify with the emulsion supplier whether an anionic, cationic or non-ionic emulsion is preferable for a given cover aggregate.

D. Material Samples

The County will require the Contractor to sample and test each load of emulsion prior to delivery. The Contractor will also provide a sample of the emulsion, on site, prior to commencing work. The County will require the Contractor to provide sample containers and a local independent testing laboratory for the analyzing of emulsion. The Contractor will be responsible for the cost of the testing. The County reserves the right to test any shipment of emulsion that is believed to be of substandard. All samples shall be shipped and stored in clean airtight sealed wide mouth jars or bottles made of plastic.

IV. Equipment

A. Emulsion Distributor

The liquid bituminous material shall be applied with a truck mounted, pressure distributor that has been calibrated within the previous twelve (12) months, for transverse and longitudinal application rate. The distributor shall be equipped, maintained and operated so that the bituminous material can be applied at controlled temperatures and rates from .035 to 1.5 gallons per square yard. The distributor shall be capable of applying bituminous material of variable widths up to sixteen (16) feet. The distributor shall uniformly apply the bituminous material to the specified rate with a maximum allowed variation of 0.015 gallons per

square yard. Distributor equipment shall include tachometer, accurate volume measuring device, a calibrated tank and a thermometer for measuring the temperature of the tank's contents. Distributors shall be equipped with a heating device, asphalt pump and full circulating spray bars adjustable laterally and vertically. Distributors and transport trailers shall be equipped with a sampling valve. Distributor trucks shall be of the pressure type with insulated tanks. The use of gravity distributors will not be permitted. The valves shall be operated by levers so that one or all valves may be quickly opened or closed in one operation. The valves which control the flow from nozzles shall act positively so as to provide a uniform unbroken spread of bituminous material on the surface. The distributor shall be equipped with devices and charts to provide for accurate and rapid determination and control of the amount of bituminous material being applied and with a bitumeter of the auxiliary wheel type registering speed in feet per minute, and trip and total distance in feet.

B. Emulsion Scrub Broom

Furnish an emulsion scrub broom assembly of similar design to Figures 1 or 2, or as approved by the Engineer, and having the following characteristics:

- Rigid frame construction
- Attached to, and pulled by, the Emulsion Distributor
- Of such weight that it does not squeegee the emulsion off the road surface
- Leading and trailing broom heads angled at 10 to 15 degrees of the centerline of the supporting member
- Stiff bristles with a minimum height of five inches
- Hinged wing assemblies or other means of adjusting the total broom width.
- Be attached to and pulled by the distributor truck.
- Have means to mechanically lift the scrub broom off of the roadway surface at intermediate points of completion and remain elevated during transit.

C. Aggregate Spreader

The aggregate spreader shall be a self-propelled unit capable of uniformly spreading the aggregate at the required rate on a minimum width of six (6") inches wider than the width of the lane to be treated. The spreader shall be calibrated within the previous twelve (12) months for transverse and longitudinal application. The spreader shall be equipped with a computer-controlled aggregate/chip spreader in order to ensure the appropriate aggregate coverage at varying speeds, unless approved otherwise by Engineer.

D. Pneumatic Tire Rollers

The Contractor shall use eight (8) to twelve (12) ton self-propelled pneumatic tire rollers with oscillating wheels and low pressure, smooth tires. Maintain the inflation of the tires such that in no two tires the air pressure varies more than 5 psi. The rollers will be equipped with an operating water system and coco pads. A sufficient number of rollers and a sufficient number of passes shall be used to ensure cover aggregate is properly rolled.

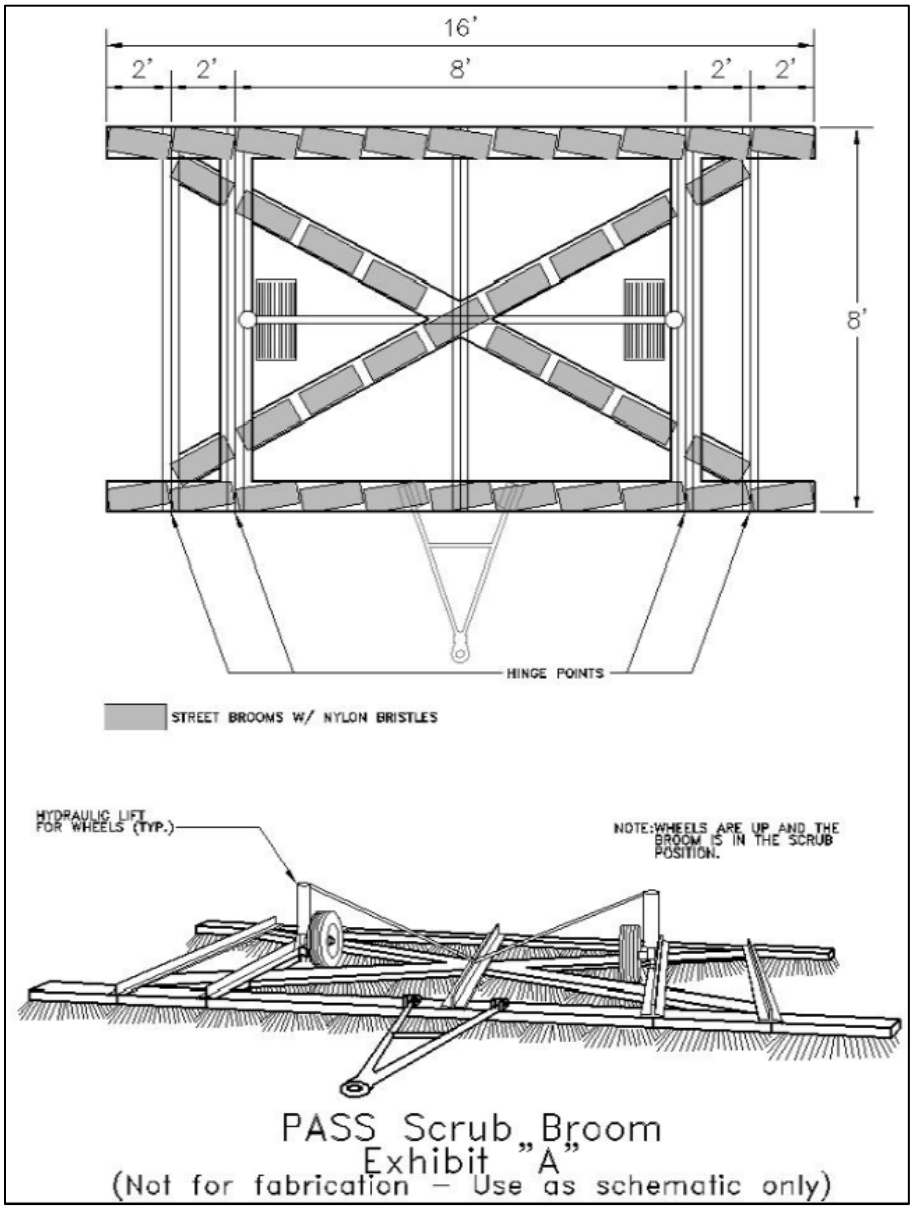

Figure 1: Typical Emulsion Scrub Broom Assembly

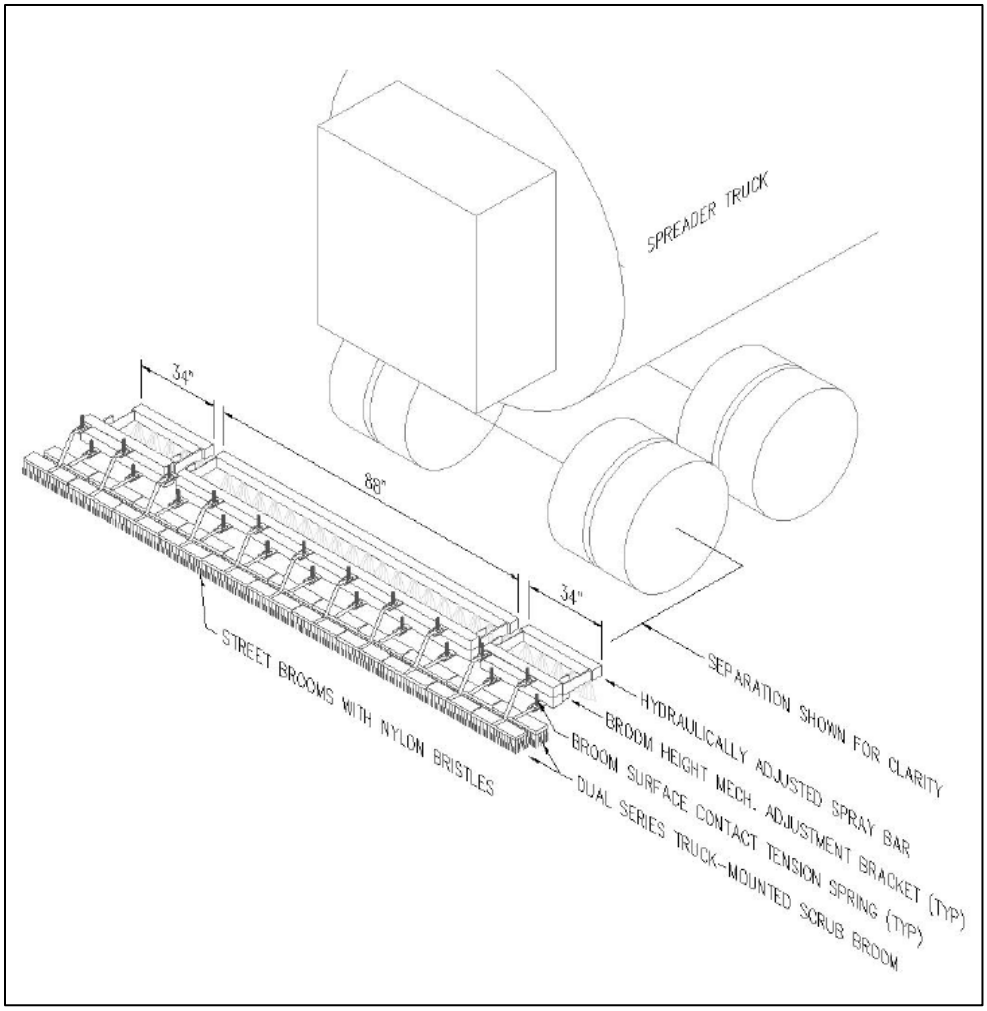

Figure 2: Truck Mounted Emulsion Scrub Broom Assembly

E. Self-Propelled Rotary Power Broom

The self-propelled rotary broom shall be designed, equipped, maintained and operated so the pavement surface can be swept clean. The broom shall have an adjustment to control the downward pressure. Brooming is required before and after the chip seal operation.

F. Additional equipment

Additional equipment will be needed to complete the operations required by this technical provision. All equipment necessary for the successful completion of projects governed by this technical provision shall be included in the unit costs associated herein. Availability of quality assurance devices (such as a 15' straight edge) shall be the responsibility of the Contractor

V. Construction

A. Weather

The surface treatment shall not be applied to a wet surface or when rain is occurring, or the threat of rain is present immediately before placement. The surface treatment shall not be applied when the temperature is less than 50 degrees Fahrenheit in the shade, and humidity should be 50% or lower. When applying emulsions, the temperature of the surface shall be a minimum of 55°F, and no more than 140°F.

Additionally, application of the asphalt rejuvenating agent shall be prohibited when weather forecasts indicate a chance of a rain event in the work area, which would produce in excess of 0.10 inches of rain within four hours of the application of the asphalt rejuvenating agent.

B. Resident Notification

In Residential areas, the Contractor shall distribute by hand, a typed notice to all residences and businesses on the street to be treated. The notice will be delivered no more than 24 hours prior to the treatment of the road. The notice will have a local phone number that the residents may call to ask questions. The notice shall be of the door hanger type which secures to the door handle of each dwelling. Unsecured notices will not be allowed. The Contractor shall also place the notice on the windshield of any parked cars on the street. Hand distribution of this notice will be considered incidental to the contract.

C. Site Preparation

The Contractor shall be responsible for clipping back shoulders and removing overburden or any other vegetation or debris to ensure that the road is free of organic and deleterious material. The Contractor shall spray all cut back edges with a pre-emergent herbicide before and after treatment. The Contractor will be responsible for blowing or sweeping the road immediately ahead of the operation to make sure the road is free of loose aggregate and other debris, as well as sweeping and cleaning the streets after treatment. If, in the opinion of the Engineer, the hand cleaning is not sufficient then a self-propelled street sweeper shall be used.

All manhole and valve covers, inlets and other service entrances, etc., shall be protected from bituminous material by placing reinforced waterproof, all-purpose paper or other suitable material, approved by the Engineer.

Thermoplastic striping and pavement markings, raised pavement markers, and raised pavement marker adhesive shall be removed.

D. Traffic

The Contractor shall furnish all necessary traffic control, barricades, signs and flagmen, to ensure the safety of the traveling public and to all working personnel. Traffic shall not travel on fresh mix until rolling and blotting has been completed. The Contractor shall submit an M.O.T plan indication all facets of traffic control for the project area. The MOT plan should be approved in writing by the County prior to commencing any work. All traffic control shall be in accordance with the FDOT Roadway Design Standards, most current edition and TP-102. M.O.T. and associated devices shall be checked daily and periodically throughout the project for compliance; and where adjustments or corrections are needed, prompt revisions shall be made.

Traffic shall not be allowed on the roadway after placement of the aggregate cover for a minimum of two hours. During and after placement of the chip seal, pilot cars should escort traffic at a speed of 20 mph (30 kph) over the chip sealed surface for two to 24 hours. Once all the loose aggregate is removed from the new chip seal surface, pilot cars are no longer needed.

E. Application of Asphalt Emulsion:

Asphalt emulsion shall be applied by means of a pressure type distributor in a uniform, continuous spread over the section to be treated. The distributor shall be moving forward at the proper speed when the liquid is discharged onto the pavement to provide an even and consistent application at the rate prescribed. If any areas are deficient the operation shall be stopped and corrected immediately. The liquid shall not be applied more than two hundred (200') feet in advance of the aggregate spreader when the ambient air temperature is above 75 degrees or one hundred (100') feet if the air temperature is below 75 degrees.

F. Scrubbing

Immediately following application, the asphalt emulsion shall be scrubbed into the existing pavement surface with a scrub broom conforming to Section III-B. Scrubbing shall fill cracks and voids, force the emulsion into the existing pavement surface, and distribute the emulsion uniformly over the roadway cross section.

G. Termination

Application of the emulsion shall be terminated on building paper or other similar material approved by the Engineer, spread over the entire application width. Bu9lding paper shall also be placed over the treated surface for a sufficient length at the beginning of a spread to avoid spraying existing pavement or previously placed screenings, and so that the nozzles are spreading properly

when the uncovered surface is reached. The building paper shall then be removed and disposed of in a manner satisfactory to the Engineer.

H. Application of cover Aggregate:

Screenings shall be uniformly spread by the aggregate spreader immediately following the scrubbing. The spreading rate shall be from 18 to 30 pounds per square yard. The initial rate of spreading shall be 24 pounds per square yard. The Contractor may propose a different initial rate. The Contractor shall spread screenings on a 100-foot test strip as requested by the Engineer to verify and determine the initial rate of spreading. The spreading rate shall be adjusted up or down so that no bleeding occurs during rolling. The initial rate of spreading, and any adjustments thereto during spreading, shall be subject to approval by the Engineer.

The joint between adjacent applications of screenings shall coincide with the line between designated traffic lanes.

Operating the chip spreader at speeds which causes the chips to roll after striking the emulsion covered surface will not be permitted.

The transverse termination of screenings shall be complete and any excess screenings shall be removed from the surface prior to resuming operations.

Stockpiling of screenings prior to placing will be permitted where space allows, however, any contamination resulting during storage or from reloading operations will be cause for rejection.

Screenings shall be surface damp at the time of application, but excess water on the aggregate surface will not be permitted. Screenings shall be re-dampened in the haul trucks prior to delivery to the chip spreader when so directed by the Engineer.

The scrubbed pavement surface shall be covered with screenings before setting or “breaking’ of the emulsion occurs.

After the screenings have been spread, piles, ridges, or uneven distribution shall be carefully removed to ensure against permanent ridges, bumps or depressions in the completed surface. Additional screenings shall be spread in whatever quantities may be required to prevent picking up by the rollers or traffic.

I. Rolling:

Initial rolling shall begin immediately behind the chip spreader and shall consist of one pass completely covering the screenings applied. Asphalt emulsion and

screenings shall not be spread more than 2,500 feet ahead of completion of initial rolling operations.

Secondary rolling shall begin immediately after completion of the initial rolling. The amount of secondary rolling shall be that necessary to seat the screenings and in no case shall be less than 2 passes.

J. Sweeping:

After rolling of the application of cover aggregate, lightly broom the loose aggregate in a manner not to dislodge the aggregate embedded in the liquid. Sweep loose material from road bed.

K. Finishing:

1. Flush Coat

Flush Coat shall consist of an application of a fog seal coat followed by a sand cover to the surface of the scrub seal coat.

Flush coat shall be applied at the discretion of the Engineer, immediately after initial sweeping and removal of excess screenings and prior to opening the lane to uncontrolled (not controlled with pilot cars) traffic.

2. Fog Seal

Fog seal coat shall not be applied when the atmospheric temperature is below 40°F.

When surface treatment has set, a fog seal is to be applied at a rate of 0.03 to 0.06 gallons per square yard to the entire surface treatment. The liquid for fog seal shall be a cationic mixing type emulsion diluted forty (40%) percent with water.

3. Sand Cover

Sand cover shall be applied immediately following application of the fog seal coat. Sand shall be spread by a chip spreader at a rate of 1 to 2 pounds per square yard. The exact rate will be determined by the Engineer. Spreading shall not vary more than 5 percent from the exact application rate.

L. Maintenance

Scrub seal coated surfaces shall be maintained, including the traffic control required for maintenance operations, for a period of 4 consecutive calendar days, beginning on the day screenings are applied to the asphalt emulsion. Maintenance shall include sweeping and distribution of screenings over the surface to absorb any free emulsion, to cover any area deficient in cover material and to prevent formation of corrugations. Clean sand may be used in lieu of

screenings to cover any excess emulsion which comes to the surface. The use of roadside material for this purpose will not be permitted.

The surface shall be swept as often as necessary during the 4-day maintenance period to maintain the surface free of loose screenings. At the end of the fourth day, any excess screenings shall be removed from the paved area.

VI. Method of Measurement

If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. Any item necessary for Scrub Seal, and not specifically listed in another item in the Bid Form, shall be included in this item. Should the Contractor be directed to place Fog Seal as a secondary application to the Scrub Seal, it shall be measured separately as listed in the Technical Specification for Fog Seal

VII. Basis of Payment

The accepted quantities, determined as provided above for each of the pay items listed below which is included in the contract, will be paid for at the contract unit price per unit of measurement. The Unit price includes all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Scrub Seal, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications, except that at the direction of the county, Fog Seal shall be applied and paid separately as listed in the Technical Specification for Fog Seal.

Payment will be made under:

Pay Item	Pay Unit
Scrub Seal (emulsion)	Square Yard
Cover Aggregate	Square Yard

END OF SECTION

PC-007 FULL DEPTH RECLAMATION WITH PORTLAND CEMENT SPECIFICATION

I. Description

This work shall consist of the preparation of a stabilized base course composed of a mixture of the existing bituminous concrete pavement, existing base course material, Portland cement and other additives. The manufacturing of the stabilized base course shall be done by in-place pulverizing and blending of the existing pavement and base materials, the introduction of cement additives, and other additives (if called for in the Mix Design). The process which results in a stabilized base course, shall be

accomplished in accordance with these specifications and conform to the lines and grades established by the engineer.

Existing asphalt pavement shall be pulverized by a method that does not damage the material below the plan depth as shown on the appropriate roadway section.

II. Material

A. RAP

Materials should meet all requirements specified in the current Florida Department of Transportation Standard Specifications for Road and Bridge Construction 283-2, except that 98% of all material is required to pass through a 50 mm (2 inch) sieve.

B. Additional Base Materials

Additional base materials may be needed for adjusting grade elevations as directed by the engineer, or for widening. When such additional material is required, it shall be among those bases listed in FDOT Design Standards as General Use Optional Base Materials and meet applicable FDOT requirements for such.

C. Portland Cement

Portland Cement shall be type I or II and conform to the latest standard requirements of ASTM C150 and AASHTO M85, for the type specified.

D. Water

The water for the base course shall be clean and free from sewage, oil, acid, strong alkalies, or vegetable matter and it shall be in sufficient supply for mixing and curing. Water of questionable quality shall be tested in accordance with the requirements of AASHTO T 26. The Contractor shall be responsible of identifying the water source prior to beginning.

E. Soil

The soil base to be reclaimed shall be evaluated by a professional geotechnical engineering laboratory to determine suitability in the stabilization process. The soil shall be free of roots, sod, weeds, and shall not contain gravel or stone retained on a 1-inch (25 mm) sieve, or more than 45% retained on a No. 4 (4.75 mm) sieve, as determined by ASTM C 136.

III. Equipment:

A. Road Reclaimer

Shall be originally designed for pavement reclaiming, capable of pulverizing and mixing pavement, base materials, and subgrade soil to a minimum of 12 inches in a single pass. The reclaimer shall have automatic forward sped control that responds to the on-board load sensing mechanisms and have a minimum cutting

drum width of 8 feet.

It shall have the capability of introducing and metering additives uniformly and accurately and that positive displacement pumps accurately meter the planned amount of additives into the mixture. The reclaiming machine shall mix the cement additive thoroughly with the RAP and soil materials. The pump shall be mechanically or electronically interlocked with the ground speed of the machine. The metering system and water metering system shall be capable of continuously monitoring (GPM) flow and totaling the quantity of water applied into the mixing chamber. Additives shall be uniformly distributed and mixed with the pulverized material; any existing underlying material as specified.

B. Motor Grader

Shall be of sufficient size and horsepower to adequately rough grade the pulverized base and rough and finish grade the mixed and compacted base. The equipment shall be in good working order free from leaks and capable of maintaining an accurate grade and cross-slope.

C. Rollers

Shall be in good working order free from leaks and capable of compacting the mix to the requirements of this specification: Vibratory rollers shall be a minimum of 10 tons and capable of rolling in either vibratory or static mode. Three-wheel static rollers shall be a minimum of 11 tons. Pneumatic tire rollers shall have a minimum of 9 oscillating wheels with smooth, low-pressure tires (pressure shall be equally matched in all tires within 5 PSI) and weigh at least 28 tons. Initial compaction shall be accomplished by either single or dual drum vibratory or three-wheel roller static rollers.

D. Cement Delivery Equipment

Cement may be placed on grade in dry powder form using a bulk spreader with a calibrated screw-type distributor and curtain to accurately place the amount of cement required by the mix design onto the roadbed for mixing.

An integrated binder spreader system, capable of spreading in various widths by opening or closing panels and micro processer-controlled metering cells for precise metering of the cement may also be used. The spreader shall be mounted on the Road Reclaimer, have digital and automated controls and be dust free.

For either method, the Contractor should take steps to minimize the amount of airborne cement dust to the satisfaction of the Engineer and in accordance with OSHA regulations.

E. Additional equipment

Additional equipment such as water trucks, haul trucks, etc., will be needed to complete the operations required by this technical provision. All equipment necessary for the successful completion of projects governed by this technical provision shall be included in the unit costs associated herein. Availability of quality assurance devices (such as a 10' straight edge) shall be the responsibility of the Contractor.

IV. Construction

A. Layout

The Contractor will be responsible for the string lining and lay out of the roadway prior to paving. Elevations of the existing road should be referenced at sufficient intervals to ensure the roadway elevation is not changed in any location after final surface is placed. Method for layout and line and elevation reference should be approved by the engineer prior to beginning work. It is imperative that roadway elevations remain unchanged except cross slope correction or as approved by the engineer.

B. Weather and Seasonal limitations

The soil-cement base shall not be mixed or placed while the atmospheric temperature is below 35 F (2 C) or when conditions indicate that the temperature may fall below 35 F (2 C) within 24 hours, or when the weather is foggy or rainy, or when the soil or sub grade is frozen.

C. Site Preparation

The Contractor shall be responsible for clipping back shoulders and removing overburden or any other vegetation or debris to ensure that the road is free of organic and deleterious material. The Contractor shall spray all cut back edges with a pre-emergent herbicide before and after treatment.

The Contractor shall be responsible for calling utility locates prior to beginning and providing the Inspector with the ticket information upon request. All manhole and valve covers, inlets and other service entrances, etc., protected. Should utility adjustment be required, the Contractor is responsible for coordinating with the utility owner, prior to beginning work.

D. Traffic Control

The Contractor shall furnish all necessary traffic control, barricades, signs and flagmen, to ensure the safety of the traveling public and to all working personnel. Traffic control shall be in accordance with the FDOT Roadway Design Standards, most current edition and TP-102. MOT and associated devices shall be checked

daily and periodically throughout the project for compliance; and where adjustments or corrections are needed, prompt revisions shall be made.

The Contractor shall submit an MOT plan indicating all facets of traffic control for the project area. The MOT plan should be approved in writing by the County prior to commencing any work. If prolonged lane or road closure is required to complete the work, the Contractor shall complete and submit the appropriate Closure Request Form for approval together with the MOT plans.

E. Mix Design

Prior to base course construction, a minimum of one (1) core sample should be taken for every 5,000 square yards of the roadway. Representative samples of the RAP material, underlying base material and virgin materials, where applicable, shall be supplied to a nationally accredited laboratory for preliminary testing to determine the optimum moisture content and proportions of cement needed to produce a finished base course with a mix design target of 300 PSI and a final in place base compressive strength of 200 to 400 PSI. Laboratory tests of material to be reclaimed and virgin materials for use as base shall be performed to determine compliance with 3-day and 7-day minimum compressive strength requirements of the mixture and the quantity of cement required in the mix. Test specimens containing various amounts of cement are to be compacted in accordance with ASTM D558, and the optimum moisture for each amount of cement is to be determined. Actual application quantities for the Portland cement will be derived from the mix design. The minimum compressive strength requirements of the mixture shall be determined by the engineer of record. The mix design and laboratory testing shall be performed by a geotechnical engineering laboratory and all reports sealed by a professional engineer.

F. Widening

When the existing base is to be widened, the Contractor shall excavate the shoulder from the edge of the existing pavement to at least 6 inches beyond the planned new width of the base prior to pulverization. All costs involved in collecting, hauling, and disposing of these materials shall be borne by the Contractor.

The bottom of the trench shall be kept free of loose soil and vegetation. Approved base material (those bases listed in FDOT Design Standards as General Use Optional Base Materials) shall be placed in the excavation uniformly and without loss or contamination. The Contractor shall correct all areas of irregular grade or deficient thickness and shall remove and replace material contaminated with soil, organic material, or debris.

After the final pass of the reclaimer, soil shall be drawn up against the widening material to close the excavation, and the shoulder shall be graded and compacted to produce a firm, even surface.

G. Milling

In the case of a curbed or closed section, where milling is necessary to remove excess material and maintain existing grades, the work shall be done under the appropriate line item for milling based on the average milled depth, but shall not exceed two and a half (2.5”) inches.

In the case of an open section, all existing asphalt shall be mixed in the pulverization process and any excess material shall be bladed out to the edges. If during blading/grading it becomes evident that material should be removed to achieve or maintain final grades, the excess material shall be removed as excavation and paid for under the appropriate line item for Excavation.

H. Additional Material

When additional material is to be added to correct cross slope deficiencies or change elevation as directed by the engineer, approved base material (those bases listed in FDOT Design Standards as General Use Optional Base Materials) shall be placed on the roadway prior to final pass for pulverization and mixed uniformly with the existing material.

I. Pulverization

The existing pavement and base material shall be pulverized and blended to the depth required so the entire mass of material shall be uniformly graded to the following gradation:

SIEVE SIZE	PERCENT PASSING
2”	98 - 100
1-1/2”	95

Material gradation may vary due to local aggregates and conditions. Multiple passes of the reclaimer may be necessary to achieve the required gradation.

The cement and water shall be introduced into the mix through the reclaimer uniformly and accurately and metered such that areas are of equal consistency and moisture content. Alternately, the cement may be introduced by means of a spreader bar with curtain on the cement distributor. Cement shall not be introduced by means of a spreader bar or hose from the cement delivery tanker.

The reclaimed material, cement and water shall be combined in place to meet the requirements specified in such proportions that the reclaimed mixture is of acceptable composition and stability. Before the start and at the end of each day's work and at any time requested, the engineer should be permitted access to the mixing equipment in order to read the meter to verify the quantity of cement applied during the day's work. Field adjustments shall be made as necessary to the recommended mix design under the guidance of a knowledgeable and competent technician to obtain a satisfactory reclaimed mixture of consistent composition and stability throughout the Project.

After the material has been processed, it shall be compacted to the lines, grades, and depth required. Water may be applied to ensure optimum moisture content at the time of mixing and compaction.

J. Compaction

Commence rolling with self-propelled rollers as required by this technical provision at the low side of the course, except leave 3 to 6 inches from any unsupported edge or edges unrolled initially to prevent distortion. Density readings shall be taken by Contractor's licensed nuclear gauge operator and witnessed by the Engineer/inspector. A control strip of not less than 500 feet shall be constructed to develop proper rolling/compaction patterns and methods to obtain desired density. Whenever there is a change in the reclaimed material or compaction method, equipment or unacceptable results occur, a new control strip shall be constructed, tested, and analyzed.

Rollers shall move at a uniform speed that shall not exceed 8 km/hour (5 miles/hour). For static rollers, the drive drum normally shall be in the forward position or nearest to the paver. Vibratory rollers shall be operated at the speed, frequency and amplitude required to obtain the required density and prevent defects in the mat.

The number, weight and type of rollers furnished shall be sufficient to obtain the required compaction of the reclaimed material. The field density of the compacted mixture shall be at least 95 percent of the maximum density of laboratory specimens prepared from samples of the cement-treated base material taken from the material in place. The specimens shall be compacted in accordance with ASTM D 558. The in-place field density shall be determined in accordance with ASTM D 2922.

Any pavement shoving or other unacceptable displacement shall be corrected. The cause of the displacement shall be determined, and corrective action taken immediately and before continuing rolling. Care shall be exercised in rolling the

edges of the reclaimed mixture, so the line and grade of the edge are maintained.

At the end of each day's production, a transverse construction joint shall be formed by a header or by cutting back into the compacted material to form a true vertical face free of loose material. The protection provided for construction joints shall permit the placing, spreading, and compacting of base material without injury to the work previously laid. Where it is necessary to operate or turn any equipment on the completed base course, sufficient protection and cover shall be provided to prevent damage to the finished surface. A supply of mats or wooden planks shall be maintained and used as approved and directed by the Engineer.

K. Finishing

Finishing operations shall be completed and the base course shall conform to the required lines, grades, and cross section. If necessary, the surface shall be lightly scarified to eliminate any imprints made by the compacting or shaping equipment. The surface shall then be recompacted to the required density. Correct all irregularities greater than ½" over ten feet to the satisfaction of the engineer.

Adjacent shoulders shall be redressed and sodded within the limits determined by the Inspector.

L. Protection and Curing

After the base course has been finished as specified herein, it shall be protected against drying for a period of 2 to 3 days by the application of a prime coat as specified in FDOT Standard Specifications section 300 at a rate of not less than 0.15 gal/sy. The curing method shall begin as soon as possible, but no later than 24 hours after the completion of finishing operations. The finished base course shall be kept moist continuously until the curing material is placed.

At the time the prime coat is applied, the surface shall be dense, free of all loose and extraneous material, and shall contain sufficient moisture to prevent penetration of the bituminous material. Water shall be applied in sufficient quantity to fill the surface voids immediately before the bituminous curing material.

The curing material shall be maintained and re-applied as needed by the Contractor during the 2 to 3-day protection period so that all of the soil-cement will be covered effectively during this period. Finished portions of soil-cement that are used by equipment in constructing an adjoining section shall be protected to prevent equipment from marring or damaging the completed work.

When the air temperature may be expected to reach the freezing point, sufficient protection from freezing shall be given the soil-cement for 2 to 3 days after its construction and until it has hardened.

M. Thickness

The average thickness of the base constructed during one day shall be within 1/2 inch (12 mm) of the thickness required, except that the thickness of any one point may be within 3/4 inch (19 mm) of that required. Where the average thickness shown by the measurements made in one day's construction is not within the tolerance given, the Engineer shall evaluate the area and determine if, in his/her opinion, it shall be reconstructed at the Contractor's expense or the deficiency deducted from the total material in place.

N. Sampling and Testing

The depth of Reclaimed Bituminous Base Course shall be determined by measuring uncompacted reclaimed material immediately behind the screed in conjunction with measuring the milling depth prior to placement of reclaimed material. One depth measurement for each 250 square yards of completed base course shall be made. Any section deficient by 0.5 in (12 mm) or more from the specified depth shall be removed and satisfactorily replaced by the Contractor at no additional cost. At the county's option, cores may be taken by the engineer in the finished product to further ensure base thickness meets requirements.

Control Testing for Full Depth Reclamation Field Sampling and Testing			
Type of Test	**Method**	**Frequency**	**Size and Location**
RAP and Soil Cement Base Gradation	ASTM D-136	Each 3000 SY (not less than once per day)	20 lb min sampled from hopper
Moisture Density Relationship of Soil Cement Mixtures	ASTM D-558	Each 1000 SY (not less than once per day)	33 lb min sampled from pulverized base
Compressive Strength of Molded Soil Cement Cylinders	ASTM D-1633	Each 3000 SY (not less than once per day)	33 lb min sampled from pulverized and mixed base
In-place Field Density	ASTM D-2922	Each 250 SY (not less than once per day)	Random locations after spreading and compacting

All delivery tickets and notes regarding any materials brought to the project site to complete this Contract should be given to the Engineer/Inspector upon delivery to the project site

Additional sampling and testing may be required if major changes in RAP characteristics are observed, such as a much coarser or finer gradation or a noticeable difference in asphalt content, or when considerable variability is occurring in the field test results.

V. Warranty:

The Contractor shall provide the County upon final acceptance of the Full Depth Reclamation work, a warranty period of three years (36 months) which shall include all materials and workmanship.

VI. Method of Measurement

If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. Any item necessary for Full Depth Reclamation with Cement, and not specifically listed in another item in the Bid Form, shall be included in the SY Price for Pulverization including but not limited to shaping, compacting, finish grading, prime coat, sanding prime coat, etc. Cost for introduction of cement into the mixture shall be included in the per TN cost for Cement. Cost for excavation for widening will be included in the CY Price for Excavation. Cost for additional materials needed for widening or adjustment of grade as directed by the engineer shall be included in the CY Price for General Use Optional Base Material.

VII. Basis of Payment

The accepted quantities, determined as provided above for each of the pay items listed below which is included in the contract, will be paid for at the contract unit price per unit of measurement. The Unit price includes all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Full Depth Reclamation with Portland Cement, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications, except that at the direction of the County.

Payment will be made under:

Pay Item	***Pay Unit***
Full Depth Reclamation (Pulverization)	Per Square Yard
Portland Cement	Per Ton
Excavation	Per Cubic Yard
General Use Optional Base Material	Per Cubic Yard

END OF SECTION

PC-008 FULL DEPTH RECLAMATION WITH ASPHALT EMULSION AND CEMENT BLEND SPECIFICATION

I. Description

This work shall consist of the preparation of a stabilized base course composed of a mixture of the existing bituminous concrete pavement, existing base course material, emulsified asphalt, Portland cement and other additives per the mix design. The manufacturing of the stabilized base course shall be done by in-place pulverizing and blending of the existing pavement and base materials, and the introduction of asphalt emulsion, cement, and additives if called for in the Special Conditions or design mix formula. The process which results in a stabilized base course shall be accomplished in accordance with these specifications and conform to the lines and grades established by the engineer.

Existing asphalt pavement shall be pulverized by a method that does not damage the material below the plan depth as shown on the appropriate roadway section.

II. Materials:

A. RAP

Materials should meet all requirements specified in the 2017 Florida Department of Transportation Standard Specifications for Road and Bridge Construction 283-2, except that 98% of all material is required to pass through a 50 mm (2 inch) sieve.

B. Additional Base Materials

Additional base materials may be needed for adjusting grade elevations as directed by the engineer, or for widening. When such additional material is required, it shall be among those bases listed in FDOT Design Standards as General Use Optional Base Materials and meet applicable FDOT requirements for such.

C. Asphalt Emulsion:

When the mix design calls for stabilization with asphalt emulsion, utilize CSS-1h or CMS-2h, meeting the requirements of AASHTO M 208-01 (2009) and approved by the State Materials Office prior to use.

D. Portland Cement

When a blend of asphalt emulsion and Portland cement is specified the Portland cement shall be type I or II and conform to the latest standard requirements of ASTM C150 and AASHTO M85. When cement is added with the emulsion no more than 2.5% shall be used on the project, unless approved by the Engineer.

E. Water:

The water for the base course compaction and foaming additive shall be clean and free from sewage, oil, acid, strong alkalies, or vegetable matter and it shall be in sufficient supply for mixing and curing. Water of questionable quality shall be tested in accordance with the requirements of AASHTO T 26. The Contractor shall be responsible for identifying a suitable water source prior to beginning.

F. Soil:

The soil base to be reclaimed shall be evaluated by a professional geotechnical engineering laboratory to determine suitability in the stabilization process. The soil shall be free of roots, sod, weeds, and shall not contain gravel or stone retained on a 1-inch (25 mm) sieve, or more than 45% retained on a No. 4 (4.75 mm) sieve, as determined by ASTM C 136.

III. Equipment:

A. Road Reclaimer

Shall be originally designed for pavement reclaiming, capable of pulverizing and mixing pavement, base materials, and subgrade soil to a minimum of 12 inches in a single pass. The reclaimer shall have automatic forward sped control that responds to the on-board load sensing mechanisms and have a minimum cutting drum width of 8 feet.

It shall have the capability of introducing and metering additives uniformly and accurately and that positive displacement pumps accurately meter the planned amount of additives into the mixture. The reclaiming machine shall mix the cement additive thoroughly with the RAP and soil materials. The pump shall be mechanically or electronically interlocked with the ground speed of the machine. The metering system and water metering system shall be capable of continuously monitoring (GPM) flow and totaling the quantity of water applied into the mixing chamber. Additives shall be uniformly distributed and mixed with the pulverized material; any existing underlying material as specified.

B. Motor Grader

Shall be of sufficient size and horsepower to adequately rough grade the pulverized base and rough and finish grade the mixed and compacted base. The equipment shall be in good working order free from leaks and capable of maintaining an accurate grade and cross-slope.

C. Rollers

Shall be in good working order free from leaks and capable of compacting the mix to the requirements of this specification: Vibratory rollers shall be a minimum of 10 tons and capable of rolling in either vibratory or static mode. Three-wheel static rollers shall be a minimum of 11 tons. Pneumatic tire rollers shall have a minimum of 9 oscillating wheels with smooth, low-pressure tires (pressure shall be equally matched in all tires within 5 PSI) and weigh at least 28 tons. Initial compaction shall be accomplished by either single or dual drum vibratory or three-wheel roller static rollers.

D. Cement Delivery Equipment

Cement may be placed on grade in dry powder form using a bulk spreader with a calibrated screw-type distributor and curtain to accurately place the amount of cement required by the mix design onto the roadbed for mixing.

An integrated binder spreader system, capable of spreading in various widths by opening or closing panels and micro processer-controlled metering cells for precise metering of the cement may also be used. The spreader shall be mounted on the Road Reclaimer, have digital and automated controls and be dust free.

For either method, the Contractor should take steps to minimize the amount of airborne cement dust to the satisfaction of the Engineer and in accordance with OSHA regulations.

E. Additional equipment

Additional equipment such as water trucks, haul trucks, etc., will be needed to complete the operations required by this technical provision. All equipment necessary for the successful completion of projects governed by this technical provision shall be included in the unit costs associated herein. Availability of quality assurance devices (such as a 10' straight edge) shall be the responsibility of the Contractor.

IV. Construction:

A. Layout

The Contractor will be responsible for the string lining and lay out of the roadway prior to paving. Elevations of the existing road should be referenced at sufficient

intervals to ensure the roadway elevation is not changed in any location after final surface is placed. Method for layout and line and elevation reference should be approved by the engineer prior to beginning work. It is imperative that roadway elevations remain unchanged except cross slope correction or as approved by the engineer.

B. Weather and Seasonal limitations

The base shall not be mixed or placed while the atmospheric temperature is below 35 F (2 C) or when conditions indicate that the temperature may fall below 35 F (2 C) within 24 hours, or when the weather is foggy or rainy, or when the soil or sub grade is frozen.

C. Site Preparation

The Contractor shall be responsible for clipping back shoulders and removing overburden or any other vegetation or debris to ensure that the road is free of organic and deleterious material. The Contractor shall spray all cut back edges with a pre-emergent herbicide before and after treatment.

The Contractor shall be responsible for calling utility locates prior to beginning. All manhole and valve covers, inlets and other service entrances, etc., shall be protected and when necessary, coordinating with Utility Owners for any adjustments needed before construction begins.

D. Traffic Control

The Contractor shall furnish all necessary traffic control, barricades, signs and flagmen, to ensure the safety of the traveling public and to all working personnel. Traffic control shall be in accordance with the FDOT Roadway Design Standards, most current edition and TP-102. MOT and associated devices shall be checked daily and periodically throughout the project for compliance; and where adjustments or corrections are needed, prompt revisions shall be made.

The Contractor shall submit an MOT plan indicating all facets of traffic control for the project area. The MOT plan should be approved in writing by the County prior to commencing any work. If prolonged lane or road closure is required to complete the work, the Contractor shall complete and submit the appropriate Closure Request Form for approval together with the MOT plans.

E. Mix Design

Prior to construction, obtain an adequate number of core samples to develop the mix design(s). Representative samples of the asphalt pavement material, underlying base material, and virgin materials, where applicable, shall be supplied to a nationally accredited laboratory with no affiliation to the emulsion supplier, for testing to determine the proportions of asphalt emulsion and cement

needed to produce a mix design meeting the requirements of **Table 1**. The optimum binder content shall be the binder content that results in the highest wet tensile strength while also having 70% retained tensile strength compared to the dry strength and additionally has a minimum 2500 pounds Marshall stability. Cement shall be used at a minimum dosage rate of 1% and at a maximum dosage rate of 2.5% by dry weight of reclaimed material. Cement amounts greater than 2.5% will only be allowed if approved by the engineer. The mix design shall be signed and sealed by a professional engineer and submitted to the Engineer prior to use for approval.

Table 1: Mix Design Criteria		
Test	**Test Method Number**	**Criteria**
Gradation of reclaimed material	AASHTO T 27-11	Report
Determination of optimum binder content		
Compaction effort at optimum fluids content. Marshall Compactor; 50 blows/side or Superpave Gyratory Compactor, 100 mm diameter specimens, 30 gyrations. Density determination.	Asphalt Institute MS 14, Appendix F. ASTM D6926-10 AASHTO T 312-12 FM 1-T 166	Report
Marshall stability Cure at 60°C to constant weight. Test at 40°C.	ASTM D6927-06	2500 lbs. minimum stability
Resistance of compacted bituminous mixture to moisture induced damage. 55 to 75% vacuum saturation, water bath at 25°C for 23 hours, last hour in water bath at 40°C.	AASHTO T 283-07 (2011)	70% minimum retained tensile strength

F. Widening

When the existing base is to be widened, the Contractor shall excavate the shoulder from the edge of the existing pavement to at least 6 inches beyond the

planned new width of the base prior to pulverization. All costs involved in collecting, hauling, and disposing of these materials shall be borne by the Contractor.

The bottom of the trench shall be kept free of loose soil and vegetation. Approved base material (those bases listed in FDOT Design Standards as General Use Optional Base Materials) shall be placed in the excavation uniformly and without loss or contamination. The Contractor shall correct all areas of irregular grade or deficient thickness and shall remove and replace material contaminated with soil, organic material, or debris.

After the final pass of the reclaimer, soil shall be drawn up against the widening material to close the excavation, and the shoulder shall be graded and compacted to produce a firm, even surface.

G. Additional Material

When additional material is to be added to correct cross slope deficiencies or change elevation as directed by the engineer, approved base material (those bases listed in FDOT Design Standards as General Use Optional Base Materials) shall be placed on the roadway prior to final pass for pulverization and mixed uniformly with the existing material.

H. Milling

In the case of a curbed or closed section, where milling is necessary to remove excess material and maintain existing grades, the work shall be done under the appropriate line item for milling based on the average milled depth but shall not exceed two and a half (2.5”) inches.

In the case of an open section, all existing asphalt shall be mixed in the pulverization process and any excess material shall be bladed out to the edges. If during blading/grading it becomes evident that material should be removed to achieve or maintain final grades, the excess material shall be removed as excavation and paid for under the appropriate line item for Excavation.

I. Pulverization

The existing pavement and base material shall be pulverized and blended to the depth required so the entire mass of material shall be uniformly graded to the following gradation:

Table 2 – Pulverization Gradation	
SIEVE SIZE	**PERCENT PASSING**
2”	98 - 100
1-1/2”	95

Material gradation may vary due to local aggregates and conditions. Multiple passes of the reclaimer may be necessary to achieve the required gradation.

The asphalt emulsion or asphalt and water (to produce a foamed asphalt) shall be introduced into the mix through the reclaimer uniformly and accurately and metered such that areas are of equal consistency and moisture content. The reclaimed material and additives shall be combined in place to meet the requirements specified in such proportions that the reclaimed mixture is of acceptable composition and stability. Before the start and at the end of each day’s work and at any time requested, the engineer should be permitted access to the mixing equipment in order to read the meter to verify the quantity of asphalt emulsion applied during the day’s work. Field adjustments shall be made as necessary to the recommended mix design under the guidance of a knowledgeable and competent technician or superintendent to obtain a satisfactory reclaimed mixture of consistent composition and stability throughout the Project

After the material has been processed, it shall be compacted to the lines, grades, and depth required. Water may be applied to ensure optimum moisture content at the time of mixing and compaction.

J. Compaction

Commence rolling with self-propelled rollers as required by this technical provision at the low side of the course, except leave 3 to 6 inches from any unsupported edge or edges unrolled initially to prevent distortion. Density readings shall be taken by Contractor’s licensed nuclear gauge operator and witnessed by the Engineer/inspector.

Rollers shall move at a uniform speed that shall not exceed 8 km/hour (5 miles/hour). For static rollers, the drive drum normally shall be in the forward position or nearest to the paver. Vibratory rollers shall be operated at the speed, frequency and amplitude required to obtain the required density and prevent defects in the mat.

The number, weight and type of rollers furnished shall be sufficient to obtain the required compaction of the reclaimed material. The field density of the compacted mixture shall be at least 94 percent of the maximum density of laboratory specimens prepared from samples of the base material taken from the material in place. The specimens shall be compacted in accordance with AASHTO T-180. The in-place field density shall be determined in accordance with ASTM D 2922.

Any pavement shoving or other unacceptable displacement shall be corrected. The cause of the displacement shall be determined, and corrective action taken immediately and before continuing rolling. Care shall be exercised in rolling the edges of the reclaimed mixture, so the line and grade of the edge are maintained.

At the end of each day's production, a transverse construction joint shall be formed by a header or by cutting back into the compacted material to form a true vertical face free of loose material. The protection provided for construction joints shall permit the placing, spreading, and compacting of base material without injury to the work previously laid. Where it is necessary to operate or turn any equipment on the completed base course, sufficient protection and cover shall be provided to prevent damage to the finished surface. A supply of mats or wooden planks shall be maintained and used as approved and directed by the Engineer.

K. Finishing

Finishing operations shall be completed and the base course shall conform to the required lines, grades, and cross section. If necessary, the surface shall be lightly scarified to eliminate any imprints made by the compacting or shaping equipment. The surface shall then be recompacted to the required density. Correct all irregularities greater than ½” over ten feet to the satisfaction of the engineer.

L. Protection and Curing

After the base course has been finished as specified herein, it shall be protected against drying for a period of 2 to 3 days by the application of a prime coat as specified in FDOT Standard Specifications section 300 at a rate of not less than 0.15 gal/sy. The curing method shall begin as soon as possible, but no later than 24 hours after the completion of finishing operations. The finished base course shall be kept moist continuously until the curing material is placed.

At the time the prime coat is applied, the surface shall be dense, free of all loose and extraneous material, and shall contain sufficient moisture to prevent

penetration of the bituminous material. Water shall be applied in sufficient quantity to fill the surface voids immediately before the bituminous curing material is applied.

To prevent equipment from marring or damaging the completed work, protect finished portions of base used by equipment.

Do not allow traffic on the reclaimed base until it is assured the reclaimed base surface will not distort, shove, or ravel under the anticipated vehicular loading.

M. Thickness

The average thickness of the base constructed during one day shall be within 1/2 inch (12 mm) of the thickness required, except that the thickness of any one point may be within 3/4 inch (19 mm) of that required. Where the average thickness shown by the measurements made in one day's construction is not within the tolerance given, the Engineer shall evaluate the area and determine if, in his/her opinion, it shall be reconstructed at the Contractor’s expense, or the deficiency deducted from the total material in place.

N. Quality Control and Sampling and Testing

Perform the following quality control tests at the prescribed frequency. Randomly determine sample locations in accordance with ASTM D 3665-12 or equivalent. Correct all deficiencies unless otherwise approved by the Engineer. Reclaimed material gradation: Determine the percent passing the following sieve sizes: 3 inches, 2 inches, No. 4, and No. 200. Obtain a sample at a frequency of one sample per 5,000 SY. Meet the requirements of **Table 2**. If the requirements of **Table 2** are not met, adjust the pulverization operation so that the resultant material will meet specification requirements or to the satisfaction of the Engineer.

Moisture/density relationship of reclaimed base: Establish a wet/dry density relationship for density specification compliance by obtaining a sample at a frequency of once per 5000 square yards for Modified Proctor (AASHTO T-180) determination. Determine the moisture content in accordance with AASHTO T 110-03 (2011), AASHTO T 265-12, or ASTM D 4643-08.

In-place field density: Perform one nuclear density test per 1000 square yards. The dry field density (i.e. corrected gauge wet density) of the compacted mixture shall be at least 96.0 percent of the maximum laboratory dry density as determined by modified proctor. No individual density test shall be lower than 94.0 percent of the maximum laboratory dry density. If one density test is below 94.0 percent or two consecutive density tests are below 96.0 percent of the

maximum laboratory dry density, cease production and resolve the issue to the satisfaction of the Engineer before resuming production.

O. Marshall stability

Perform Marshall stability testing twice per day or once per day if less than 1500 square yards is reclaimed. Meet the requirements of **Table 1**. If the Marshall stability does not meet the requirements of **Table 1**, cease production, and resolve the issue to the satisfaction of the Engineer before resuming production. Retained tensile strength: Perform retained tensile strength testing twice per day or once per day if less than 1500 square yards is reclaimed. Meet the requirements of **Table 1.** If the retained tensile strength does not meet the requirements of **Table 1,** cease production and resolve the issue to the satisfaction of the Engineer before resuming production.

P. Depth of mixing

Determine the depth of mixing at least once per 250 square yards. Meet the requirements of **Section V.M.**

Cross slope measurement: Meet the requirements of the current FDOT Specification **Table 330-4.**

Additional sampling and testing may be required if significant changes in the characteristics of the reclaimed material are observed, such as a much coarser or finer gradation or a noticeable difference in asphalt content, or when there is considerable variability in the field test results.

All delivery tickets and notes regarding any materials brought to the project site to complete this Contract should be given to the Engineer/Inspector upon delivery to the project site.

V. Warranty:

The Contractor shall provide the County upon final acceptance of the Full Depth Reclamation work, a warranty period of three years (36 months) which shall include all materials and workmanship.

VI. Method of Measurement

If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. Any item necessary for Full Depth Reclamation with Asphalt Emulsion, and not specifically listed in another item in the Bid Form, shall be included in the SY Price for Pulverization including but not limited to shaping, compacting, finish grading, prime coat, sanding prime coat, etc. Cost for introduction of asphaltic cement into the mixture shall be included in the per GL cost for Asphalt Emulsion. Cost for excavation for widening will be included in the CY Price for Excavation. Cost for

additional materials needed for widening or adjustment of grade as directed by the engineer shall be included in the per TON Price for General Use Optional Base Material.

VII. Basis of Payment:

The accepted quantities, determined as provided above for each of the pay items listed below which is included in the contract, will be paid for at the contract unit price per unit of measurement. The Unit price includes all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Full Depth Reclamation with Asphalt Emulsion and Cement Blend, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications, except that at the direction of the County.

Payment will be made under:

Pay Item	***Pay Unit***
Full Depth Reclamation (Pulverization)	Per Square Yard
Asphalt Emulsion	Per Gallon
Portland Cement	Per Ton
Excavation	Per Cubic Yard
General Use Optional Base Material	Per Cubic Yard

END OF SECTION

PC-009 COLD IN-PLACE RECYCLED BITUMINOUS MATERIAL SPECIFICATIONS

I. Description

The work specified in this Technical Provision consists of the in-place construction of a Cold Recycled Bituminous Base Course, using either reclaimed asphalt pavement (RAP) material and/or reclaimed aggregate material (RAM), combined with virgin aggregates and/or bituminous material. It is the intent of this contract to recycle 100% of the existing asphalt pavement and a predetermined portion of the base, as necessary to ensure that the completed recycled base course will be of a consistent material and thickness throughout, including, but not limited to, all existing asphalt pavement and base adjacent to all concrete curbing, storm sewer inlets, manholes, sanitary sewer manholes, and all utility valve boxes. The existing asphalt pavement and base in the above-described locations should be included in the recycling process in order to construct a bituminous base course with a uniform thickness throughout 100% of the

proposed area. The intent of this contract is to utilize the specified process which is clearly defined within this specification. Therefore, Full Depth Reclamation or any variation of Full Depth Reclamation will not be accepted.

II. Materials

A. Asphalt Emulsion

When the mix design calls for stabilization with asphalt emulsion, utilize CSS-1h or CMS-2h, meeting the requirements of AASHTO M 208-01 (2009) and approved by the State Materials Office prior to use.

B. Portland Cement

When a blend of asphalt emulsion and Portland cement is specified the Portland cement shall be type I or II and conform to the latest standard requirements of ASTM C150 and AASHTO M85. If cement is added with emulsion no more than 2.5% shall be used on the project unless approved by the Engineer.

C. Cold Pulverized Material

The cold pulverized recycled asphalt pavement (hereinafter referred to as RAP) material shall meet the following gradation requirement prior to the addition of the asphalt emulsion.

STANDARD		**METRIC**	
Sieve Size	%Passing	Sieve Size	%Passing
2”	95	51 mm	95

D. Mixture Design

A mix design(s) conducted by an independent, accredited laboratory with no affiliation to the emulsion supplier, using materials obtained directly from the project site and conforming to the requirements of this Technical Specification shall be submitted to the County at the Pre-Construction Conference. Based on RAP consistency throughout project limits, more than one mix design may be required. A traffic control plan may be required in accordance with TP-102 for collecting materials. Mix design formulations shall be conducted in accordance with the following guidelines:

E. Mix Design Procedures for CIR (Cold In-place Recycling) Material

1. Sampling and Processing

Prior to materials sampling in the roadway, obtain approval from the County. A traffic control plan may be required in accordance with TP-102 for collecting materials. Obtain 6” minimum inside diameter cores from the areas to be recycled. If cores show significant differences in various areas, such as different type or thickness of layers between cores, then separate mix designs shall be performed for each of these pavement segments. It is recommended that a minimum of one location be sampled for each 1000’ in each lane. Additionally, samples should be taken where

visual differences in the pavement are noticed. Immediately patch all core holes neatly with asphalt cold patch. Cores shall be cut in the laboratory to the depth specified for the CIR project. Cores shall be crushed in the laboratory.

The mix design shall be performed on this crushed sample. Gradation of the sample after crushing shall be determined by ASTM C117 and C136 (dried at no greater than 40°C). Samples shall be prepared with a sample splitter. An alternative method is to dry, screen and recombine the sample in the laboratory to target gradation.

2. Mixing

Calculate the amount of RAP required to produce a 61.0 mm to 66.0 mm (2.4 to 2.6 inch) tall specimen by determining the maximum specific gravity of the RAP in accordance with ASTM D2041.

Number of specimens: 4 per emulsion content for a total of 4 for long-term stability and 4 for moisture testing for the 3 emulsion contents. Two specimens are required for Rice specific gravity; test at the highest emulsion content in the design and back calculate for the lower emulsion contents.

Recommended emulsion contents: 2.0%, 2.5%, 3.0%, 3.5%. Choose three emulsion contents that bracket the estimated recommended emulsion content.

Add moisture that is expected to be added at the milling head, typically 1.5 to 2.5 percent.

If any additives are in the mixture, introduce the additives in a similar manner that they will be added during field production.

Mixing of test specimens shall be performed with a mechanical bucket mixer. Mix the CIR RAP millings thoroughly with water first, then mix with emulsion. Mixing shall occur at ambient temperature. One specimen shall be mixed at a time. Mixing time with emulsion should not exceed 60 seconds.

3. Compaction

Specimens shall be compacted immediately after mixing. Place paper disks on the top and bottom of the specimen before compaction. Specimens shall be compacted with a Superpave gyratory compactor (SGC) in a 100 mm mold at 1.25° angle, 600 kPa ram pressure, and 30 gyrations. The mold shall not be heated.

4. Curing after compaction

Extrude specimens from molds immediately after compaction. Carefully remove paper disks.

Place specimens in 60°C forced draft oven with ventilation on sides and top. Place each specimen in a small container to account for material loss from the specimens. Care should be taken not to over-dry the specimens. Cure compacted specimens to constant weight but no more than 48 hours and no less than 16 hours. Constant weight is defined here as 0.05% change in weight in 2 hours. After curing, cool specimens at ambient temperature a minimum of 12 hours and a maximum of 24 hours.

5. Measurements

Determine bulk specific gravity (density) of each compacted (cured and cooled) specimen according to ASTM D2726. Determine specimen heights according to ASTM D3549 or equivalent. Alternatively, the height can be obtained from the SGC readout. Determine Rice (maximum theoretical) specific gravity, ASTM D2041, except as noted in Item 4 of this procedure, and do not break any agglomerates which will not easily reduce with a flexible spatula. Perform the supplemental dry-back procedure to adjust for uncoated particles. Determine percent air voids in accordance with ASTM D3203 for each design emulsion content.

Determine corrected Marshall Stability by ASTM D1559 at 40°C after 2 hour temperature conditioning in a forced draft oven.

6. Moisture Susceptibility

Perform same conditioning and volumetric measurements on moisture-conditioned specimens as on other specimens. Vacuum saturate to 55 to 75 percent, soak in a 25°C water bath for 23 hours, followed by a one hour soak at 40°C. Determine corrected Marshall Stability. The average moisture conditioned specimen strength divided by the average dry specimen strength is referred to as retained stability.

7. Emulsion Content Selection

The properties of the specimens at design emulsion content shall meet the properties in **Table 1**.

8. Report

The report shall contain the following minimum information: Gradation of RAP; amount and gradation of virgin aggregate or additional RAP, if any; recommended water content range as a percentage of dry RAP; optimum emulsion content as a percentage of dry RAP and corresponding density;

air void percentage; absorbed water percentage; Marshall Stability and Retained Stability at design moisture and emulsion contents; Raveling percentage; and Thermal Cracking initiation temperature. Include the mix design emulsion designation, supplier name, plant location, and emulsion testing results detailed in **Table 4**.

The mix design(s) shall meet the Mix Design Performance Criteria of **Table 1** and be approved by the County prior to construction.

Table 1 – Mix Design Performance Criteria

100 mm specimens shall be prepared in a Superpave Gyratory compactor. The mixture should meet the following criteria at the selected design asphalt emulsion content:

Property	***Criteria***	***Purpose***
Compaction effort, Superpave Gyratory Compactor AASHTO T312	1.25° angle, 600 kPa stress, 30 gyrations	Density Indicator
Density, ASTM D2726 or equivalent	Report	Compaction Indicator
Gradation for Design Millings, ASTM C117	Report	
*Marshall stability, ASTM D6926-10, D6927-06, 40°C	2500 lbs. minimum stability	Stability Indicator
**Resistance of Compacted Bituminous Mixture to Moisture Induced Damage AASHTO T283-07 Retained stability based on cured stability	70 % min.	Ability to withstand moisture damage

** Cured stability tested on compacted specimens after 60°C (140°F) curing to constant weight.*

***Vacuum saturation of 55 to 75 percent, water bath 25°C 23 hours, last hour at 40°C water bath*

F. Other Additives

If necessary, additives may be used to meet the requirements in **Table 1**. In the case that an additive is used, the type and allowable usage percentage should be described in the submitted design recommendation.

G. Addition of Imported Crushed Reclaimed Asphalt Pavement (RAP) material

If available, imported RAP material may be added at the discretion of the County Engineer if the RAP material meets the requirements in **Table 2**. The crushed

RAP shall be free from vegetation and all other deleterious materials, including silt and clay balls. It shall meet the requirements for Deleterious Materials given in **Table 2**. The crushed RAP shall not exceed the maximum size requirement in this Technical Specification and when blended with the design millings, shall produce a product which meets the specifications given in **Table 1**.

Table 2 - Imported Crushed RAP Criteria		
Property	***Method***	***Limit***
Deleterious Materials: Clay Lumps and Friable Particles in Aggregate, %	ASTM C 142 or AASHTO T112	0.2% maximum
Maximum size and Distribution	ASTM C 136 or AASHTO T 27	5% retained on 2" seive

H. Additional Aggregate

Based on the results of mix design testing or other requirements, the CIR Contractor shall determine if additional aggregate is required to comply with mix design performance criteria specified in **Table 1.** Any additional aggregate shall meet the criteria specified in **Table 3**, and it shall be graded to produce a pavement layer which meets the mix design performance criteria specified in **Table 1.**

Table 3 - Additional Aggregate Criteria		
Property	***Method***	***Limit***
Los Angeles abrasion value, % loss	AASHTO T96	40% maximum
Sand Equivalent,%	ASTM D2419	60% minimum
Maximum size and Distribution	ASTM C 136 or AASHTO T 27	Section 334-2.2
Water absorption %	AASHTO T 85	5%_ max.

III. Equipment

A. Milling Machine

A 10 foot and a 12 foot mill, self-propelled, bi-directional, down-cutting, lateral/horizontal mixing, cold milling machine capable of pulverizing the existing asphalt (and base material as needed) in a single pass to the depth shown on

the plans will be required. The machine shall have automatic depth controls to maintain the cutting depth to within ± ¼ in (6 mm) of that shown on the plans and shall have a positive means for controlling cross slope elevations. A 30 foot non-contact averaging beam should be used on the mill. The use of a heating device to soften the pavement will not be permitted. Up-cutting machines shall not be permitted. Machines that only provide vertical mixing will not be permitted.

The milling machine should be equipped with a liquid metering device capable of adjusting the flow of asphalt emulsion to compensate for any variation in the speed of the machine. The metering device shall deliver the amount of asphalt emulsion to within ± 0.2 percent of the required design amount by weight of pulverized bituminous material (for example, if the design requires 3.0 percent, the metering device shall maintain the emulsion amount between 2.8 percent and 3.2 percent). The asphalt emulsion pump should be of sufficient capacity to allow emulsion contents up to 3.5% by weight of pulverized bituminous material. Also, automatic digital readings will be displayed for both the flow rate and total amount of pulverized bituminous material and asphalt emulsion in appropriate units of weight and time.

B. Bituminous Paver

A self-propelled high density paver having tamper bar compaction, electronic grade and cross slope control for the screed shall be utilized. The equipment shall be of sufficient size and power to spread and lay the mixture in one smooth continuous pass to the specified section and according to the plans. A 30-foot non-contact averaging beam should be used on the bituminous paver. To reduce material segregation, the bituminous paver should utilize a hopper insert.

C. Rollers

All rollers shall be self-propelled. The number, weight and types of rollers shall be as necessary to obtain the required compaction. At least one pneumatic-tired roller shall have a minimum gross operating weight of not less than 50,000 lbs. (22,600 kg). Pneumatic rollers should have properly working scrapers and water spraying systems. At least one double drum vibratory steel-wheeled roller shall have a gross operating weight of not less than 20,000 lbs. (9,000 kg) and a width of 78 inches (1980 mm). Double drum vibratory rollers should have properly working scrapers and water spraying systems.

D. Cement Delivery Equipment

Cement may be placed on grade in dry powder form using a bulk spreader with a calibrated screw-type distributor and curtain to accurately place the amount of cement required by the mix design onto the roadbed for mixing.

An integrated binder spreader system, capable of spreading in various widths by opening or closing panels and micro processer-controlled metering cells for precise metering of the cement may also be used. The spreader shall be mounted on the Road Reclaimer, have digital and automated controls and be dust free.

For either method, the Contractor should take steps to minimize the amount of airborne cement dust to the satisfaction of the Engineer and in accordance with OSHA regulations.

IV. Construction

A. Layout

The Contractor will be responsible for the string lining and lay out of the roadway prior to paving. Elevations of the existing road should be referenced at sufficient intervals to ensure the roadway elevation is not changed in any location after final surface is placed. Method for layout and line and elevation reference should be approved by the engineer prior to beginning work. It is imperative that roadway elevations remain unchanged except cross slope correction or as approved by the engineer.

B. Weather Limitations

Cold In-Place recycling operations shall be completed when the atmospheric temperature measured in the shade and away from artificial heat is 40^0 F (10°C) and rising. Also, the weather shall not be foggy or rainy. The weather forecast shall not call for freezing temperature within 48 hours after placement of any portion of the project.

C. Site Preparation

The Contractor shall be responsible for clipping back shoulders and removing overburden or any other vegetation or debris to ensure that the road is free of organic and deleterious material. The Contractor shall spray all cut back edges with a pre-emergent herbicide before and after treatment.

The Contractor shall be responsible for calling utility locates prior to beginning. All manhole and valve covers, inlets and other service entrances, etc., shall be protected and when necessary, coordinating with Utility Owners for any adjustments needed before construction begins.

D. Traffic Control

The Contractor shall furnish all necessary traffic control, barricades, signs and flagmen, to ensure the safety of the traveling public and to all working personnel. Traffic control shall be in accordance with the FDOT Roadway Design Standards, most current edition and TP-102. MOT and associated devices shall be checked

daily and periodically throughout the project for compliance; and where adjustments or corrections are needed, prompt revisions shall be made.

The Contractor shall submit an MOT plan indicating all facets of traffic control for the project area. The MOT plan should be approved in writing by the County prior to commencing any work. If prolonged lane or road closure is required to complete the work, the Contractor shall complete and submit the appropriate Closure Request Form for approval together with the MOT plans.

E. Pre-Milling

In the case of a curbed or closed section, where milling is necessary to remove excess material and maintain existing grades, the work shall be done under the appropriate line item for milling based on the average milled depth, but shall not exceed two and a half (2.5”) inches.

The existing pavement shall be milled to the required depth and width as indicated on the plans. Recycling shall be in a manner that does not disturb the underlying subbase material in the existing roadway. The milling operation shall be conducted so that the amount of fines occurring along the vertical faces of the cut will not prevent bonding of the cold recycled materials. Use a small milling machine, if necessary, to mill longitudinally to the required depth as indicated on the plans along all curbs and gutters, radius returns, utilities, inlets, around all manholes and any other structures not accessible or practical to be milled by the milling/mixing machine utilities. The millings produced by the small mill will be the same as the large mill and of equal gradation to produce a uniform recycled pavement layer. Inlets/Catch Basins should be covered during the milling and recycling operation to prevent milled material from entering the catch basin area where it could contaminate and/or block the storm water system.

F. Processing

When a paving fabric is encountered during the CIR operation, the Contractor shall make the necessary adjustments in equipment or operations so that at least ninety percent (90%) of the shredded fabric in the recycled material is no more than 5 in^2 (3200 mm^2). Additionally, no fabric piece shall have any dimension exceeding a length of 4 inches (100 mm). These changes may include, but not be limited to, adjusting the milling rate and adding or removing screens in order to obtain a specification recycled material. The Contractor shall be required to waste material containing over-sized pieces of paving fabric as directed by the Engineer.

G. Spreading

The material shall be spread using a self-propelled paver meeting the requirements under the current FDOT Standard Specifications for Road and

Bridge Construction, Section 330-5. Heating of the paver screed will not be permitted. The recycled material shall be spread in one continuous pass, without segregation and to the lines and grades established by the Engineer.

H. Compaction

Compaction of the recycled mix shall be completed using rollers meeting the requirements of the current FDOT Standard Specifications for Road and Bridge Construction Section 330-7. During initial construction, rolling patterns and sequences shall be established through the construction of a control strip produced with the CIR equipment and within the pavement section, to determine the target wet density, using a nuclear moisture-density gauge in accordance with ASTM D2950, backscatter measurement mode. In all cases, the longitudinal joint should first be rolled followed by the rolling pattern established by the test strip. The initial pass for the rolling pattern established by the test strip should begin on the low side and progress to the high side by overlapping of longitudinal passes parallel to the pavement centerline. Initial rolling should not begin until the emulsion has started to break. Rollers shall be operated at speeds appropriate for the type of roller and necessary to obtain the required degree of compaction and prevent defects in the mat. Rolling shall be continued until no displacement is occurring or until the pneumatic roller(s) is (are) walking out of the mixture. Final rolling to eliminate pneumatic tire marks and to achieve density shall be done by double drum steel roller(s), either operating in a static or vibratory mode. Vibratory mode should only be operated at a speed, frequency and amplitude shown not to damage the pavement. The selected rolling pattern shall be followed unless changes in the recycled mix or placement conditions occur and the established rolling pattern is causing damage to the mat or the required degree of compaction is unachievable. These circumstances require the establishment of new rolling patterns and sequences through the construction of a control strip produced with the CIR equipment and within the pavement section. Rolling shall start no more than 30 minutes behind the paver. Finish rolling shall be completed no more than one hour after milling is completed. When possible, rolling shall not be started or stopped on uncompacted material but with rolling patterns established so that they begin or end on previously compacted material or the existing pavement.

I. Return of Traffic

After the completion of compaction of the recycled pavement layer, no traffic shall be permitted on the completed recycled material for at least one (1) hour. After one hour rolling traffic may be permitted on the recycled material. This time may be adjusted by the Contractor to allow establishment of sufficient cure so traffic will not initiate raveling. After opening to traffic, the surface of the recycled

pavement layer shall be maintained in a condition suitable for the safe movement of traffic.

J. Protection and Damage

Protect the recycled pavement layer in accordance with the *current FDOT Standard Specifications for Road and Bridge Construction, Section 330-10*. After the base course has been finished as specified herein, it shall be protected against drying for a period of 2 to 3 days by the application of a prime coat as specified in FDOT Standard Specifications section 300 at a rate of not less than 0.15 gal/sy. The curing method shall begin as soon as possible, but no later than 24 hours after the completion of finishing operations. The finished base course shall be kept moist continuously until the curing material is placed. Any damage to the completed Cold In Place Recycled bituminous material shall be repaired by the Contractor prior to the placement of the hot mix asphalt concrete surface course, or other applicable surface treatment, and as directed by the Engineer

K. Finished Recycled Pavement Layer Smoothness

The completed cold recycled pavement layer surface shall not vary more than ½ in (12 mm) from the lower edge of a 10-foot (3-meter) straight edge placed on the surface parallel and transversely to the centerline at locations selected by the County. Irregularities exceeding the specified limit shall be corrected at the expense of the Contractor by grinding/cold milling or leveling with cold or hot mix asphalt. The corrected areas shall be retested to determine compliance with smoothness.

L. Quality Control

1. Contractor Responsibility

The Contractor shall be responsible for providing field and laboratory quality control testing of materials during construction. The County or its subconsultant may conduct sampling and testing whenever or as often as desired for verification purposes. The Contractor shall acquire an adequate amount of material for each sample to be tested in the laboratory so that an ample amount of material is left over in case of the need for resolution testing. Resolution testing will be required and provided at the expense of the Contractor if similar laboratory samples tested by the Contractor and the County do not coincide within reasonable values as determined by the County. The resolution laboratory will be selected by the County and the testing results provided by this lab will be used for materials acceptance purposes. All materials testing laboratories shall be accredited by the AASHTO Materials Reference Laboratory (AMRL) or Construction Materials Engineering Council (CMEC). The Contractor shall submit all documentation of field inspection and

laboratory testing results required herein to the County Engineer prior to payment and upon request. Copies of all delivery tickets and notes regarding any materials brought to the project site shall be given to the County upon delivery to the project site. These tickets shall be signed by an approved representative of the Contractor at the time of delivery.

2. Crushed RAP Material Sizing

A sample shall be obtained from the receiving hopper of the paver each ½ mile or as specified by engineer (0.8 km) and screened using a 2 in. (51mm) sieve (or smaller sieve if required) to determine maximum particle size requirement compliance. The resulting gradations shall be compared to the mix design gradations to determine any necessary changes to emulsion content. Gradation results shall be shared with the County by the end of the following day. Sampling procedures shall be in accordance with ASTM D979 or AASHTO T168.

3. Asphalt Emulsion

The asphalt emulsion shall be received on the job site within the temperature ranges specified by the emulsion supplier. The emulsion supplier shall provide testing results for each shipment indicating the emulsion is in compliance with the criteria specified in **Table 4.** The County Engineer may require the Contractor to obtain emulsion samples from each shipping trailer prior to unloading into the Contractor's storage units for quality control testing if desired. The testing shall meet the following requirements:

Table 4 – Emulsion *Criteria*

Property	***Method***	***Limit***
*Residue from distillation, %	ASTM D244	64.0 to 66.0 %
*Oil distillate by distillation, %	ASTM D244	0.5% maximum
Sieve Test, %	ASTM D244	0.1% maximum
**Residue Penetration, 25°C, dmm	ASTM D5	-25 to +25%

**Modified ASTM D244 procedure – distillation temperature of 177°C with 20 minute hold.*

**To be determined during CIR design phase prior to emulsion formulation and manufacture for project. Penetration value range will be determined and submitted to the County Engineer for approval prior to project start*

4. Asphalt Emulsion Content and Yield

Total emulsion quantity and yield shall be monitored and recorded daily and for each segment in which the target emulsion percentage is adjusted. This information shall be gathered from the calibrated emulsion metering device. Emulsion content adjustments shall be made appropriately when multiple and specific mix designs for different road segments of varying composition exist.

5. Water Content and Yield

Total water quantity and yield shall be monitored and recorded daily and for each segment in which the target water percentage is adjusted. This information shall be gathered from the water metering device. Water content adjustments shall be made appropriately when multiple and specific mix designs for different road segments of varying composition exist. Water content adjustments shall also be made based on mixture consistency, coating, and dispersion of the recycled materials.

6. Mixture Testing

At the discretion of the County Engineer and if the recycled pavement layer quality and workmanship seem suspect, the Contractor may be required to sample, in accordance with ASTM D3665 and D979, the recycled mixture for determining compliance with design criteria specified in **Table 1**. If samples of the recycled asphalt pavement mixture are taken after the addition of additives and e emulsion, the specimens should be compacted within 15 minutes of sampling and tested as required in **Table 1.** If the recycled mixture is sampled prior to the addition of additives and emulsion, the sample should immediately be transferred to air-tight plastic container to prohibit loss of moisture. Samples should be mixed in the laboratory with the field additives and emulsion within 24 hours and tested as required in **Table 1.**

7. Depth of Pulverization (Milling)

The depth shall be checked and recorded daily and every 1/8 mile (0.2 km). on both outside vertical faces of the cut. Measure depth by placing a rigid measuring device perpendicular to the bottom of the milled surface and near the vertical faces of the cut.

8. Compacted Density

Degree of compaction of the recycled pavement layer shall be monitored for compliance with target wet density established during the initial control strip construction. Wet density shall be determined every 1/4 mile (0.4 km) using a nuclear moisture-density gauge in accordance with ASTM D2950, backscatter measurement mode. Ensure that all nuclear gauges are operated by licensed individuals and have been calibrated within the last 12 months. The acceptable degree of compaction shall be 96 to 98 percent of target wet density. Care shall be taken not to over-roll the mat based on visual observations of check cracking or shoving. A new control strip and target density shall be established if the consistency of the material being recycled changes. The County shall be notified prior to the construction of a new control strip.

9. Cross-Slope and Smoothness

The recycled pavement layer cross slope shall be checked regularly during spreading. A minimum 2 % Cross-Slope shall be maintained through the length of the project. The recycled pavement layer shall be checked for smoothness regularly behind the paver and after rolling. The smoothness shall not vary more than ½ in (12 mm) from the lower edge of a 10-foot (3-meter) straight edge placed on the surface parallel and transversely to the centerline after rolling is completed. The edge of the mat should be rolled first and progress to the center or high side to prevent excessive edge sloughing.

Table 5 – Quality Control Testing and Inspection Criteria		
Property	**Method**	**Limit**
RAP Maximum Particle Size	ASTM C 136 or AASHTO T27	Section 334-2.2
RAP Particle Size Distribution	ASTM C 136 or AASHTO T27	Determined by Mix Design(s)
Emulsion and Water Yield	Calibrated Metering Device	Determined by Mix Design(s)
*Mixture Testing	Table 1	Table 1
**Depth of Milling	Section 334-5.7	Determined by Mix Design(s)
Compacted Density	ASTM D2950 AASHTO T-180	96 to 98% of target density
Cross-Slope	FM 5-509	Minimum 2%
Smoothness	FM 5-509	Maximum 0.5 in (12 mm) deviation from planeness
**Mixture Testing frequency shall be at the County Engineer's discretion*		
***Depth of Milling may need to be adjusted for localized unexpected pavement conditions*		

10. Documentation

Delivery Tickets - All delivery tickets and notes regarding any materials brought to the project site to complete this item shall be given to the County upon delivery. Tickets shall be signed by an approved representative of the Contractor at the time of delivery.

V. Warranty:

The Contractor shall provide the County upon final acceptance of the Cold-In-Place work, a warranty period of three years (36 months) which shall include all materials and workmanship.

VI. Method of Measurement:

If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. Any item necessary for Cold-In-Place Recycled Bituminous Paving, and not specifically listed in another item in the Bid Form, shall be included in this item, including but not limited to Maintenance of Traffic as specified in TP-102.

VII. Basis of Payment:

The accepted quantities, determined as provided above for each of the pay items listed below which is included in the contract, will be paid for at the contract unit price per unit of measurement. The Unit price includes all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Full Depth Reclamation with Asphalt Emulsion and Cement Blend, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications, except that at the direction of the County.

Payment will be made under:

Pay Item	***Pay Unit***
Cold-In-Place Recycling Bituminous Paving	Per Square yard
Asphalt Emulsion	Per Gallon
Portland Cement	Per Ton
Excavation	Per Cubic Yard
Added RAP	Per Ton
Added Aggregate for mixing	Per Ton

END OF SECTION

PC-010 CAPE SEAL SPECIFICATION

I. Description:

The work specified in this section consists of furnishing and applying multiple bituminous surface treatments composed of an asphalt emulsion chip seal followed by the application of asphalt emulsion microsurface on a paved roadway or on a prepared road base, compacted to the lines, grades, and thickness established by the County and in substantial conformance with the limits established by the owner.

II. Materials:

A. Cover Aggregate for the Chip Seal:

Cover aggregate for the chip seal shall conform to FDOT specifications section 901, table 1 for #89, #78 or #67 gradation for coarse aggregates except as modified under the Chip Seal Specification in this bid package. The aggregate shall be washed granite obtained from a source approved by the owner. Sampling and testing of aggregate shall be the responsibility of the Contractor. Copies of test results from the aggregate supplier shall be furnished to the owner prior to the start of the surface treatment.

B. Liquid bituminous material for surface treatment:

CRS-2P liquid bituminous material conforming to AASHTO M 316-99, and the Chip Seal Specification in this bid package. When CRS-2P is specified apply the following modifications:

3. Distill the CRS-2P at 400ºF for 20 minutes
4. Provide Polymer-Modified Cationic Emulsified Asphalt, CRS-2P produced by using polymer modified base asphalt only. The emulsion shall be pumpable and suitable for application through a distributor truck.

C. Aggregate for Microsurface

Use an aggregate consisting of 100% crushed stone. The aggregate shall be a crushed stone such as granite, slag, limestone, chat, or other high-quality aggregate, or a combination thereof, and conform to the Microsurfacing Specification in this bid package.

D. Microsurface Emulsion

Provide a quick-traffic, polymer-modified emulsified asphalt conforming to the requirements specified in AASHTO M 208 for CSS-1h as listed in **Table 1 of the** Microsurface Specification in this bid package.

E. Mineral Filler:

If mineral filler is utilized in the microsurface mix design, use non air-entrained Portland cement or hydrated lime that is free from lumps, consistent with the requirements of the Microsurface Specification in this bid package.

F. Water:

Utilize water that is potable and free of harmful soluble salts, reactive chemicals, or any other contaminants.

G. Additives:

Additives may be added to the mixture or any of the component materials to provide control of quick-trafficking properties. The additives to be used should be indicated on the mix design and be compatible with the other components of the mix.

H. Crack Filler:

When required for the project, utilize a crack filler meeting the material requirements of the PC-003 Crack Filling/Sealing Specification. Crack filling should be completed a minimum of three (3) months prior to microsurfacing.

I. Material Samples:

The County will require the Contractor to sample and test each load of emulsion prior to delivery. The Contractor will also provide a sample of the emulsion, on site, prior to commencing work. The County will require the Contractor to provide sample containers and a local independent testing laboratory with no affiliation to the emulsion supplier for the analyzing of emulsion. The Contractor will be responsible for the cost of the testing. The County reserves the right to test any shipment of emulsion that is believed to be of substandard. All samples shall be shipped and stored in clean airtight sealed wide mouth jars or bottles made of plastic.

III. Equipment:

F. Asphalt Emulsion Distributor:

The liquid bituminous material shall be applied with a truck mounted, pressure distributor that has been calibrated within the previous twelve (12) months, for transverse and longitudinal application rate. The distributor shall be equipped, maintained and operated so that the bituminous material can be applied at controlled temperatures and rates from .035 to 1.5 gallons per square yard. The distributor shall be capable of applying bituminous material of variable widths up to sixteen (16) feet. The distributor shall uniformly apply the bituminous material to the specified rate with a maximum allowed variation of 0.015 gallons per square yard. Distributor equipment shall include tachometer, accurate volume measuring device, a calibrated tank and a thermometer for measuring the temperature of the tank's contents. Distributors shall be equipped with a heating device, asphalt pump and full circulating spray bars adjustable laterally and vertically. Distributors and transport trailers shall be equipped with a sampling valve. Distributor trucks shall be of the pressure type with insulated tanks. The use of gravity distributors will not be permitted. The valves shall be operated by levers so that one or all valves may be quickly opened or closed in one operation. The valves which control the flow from nozzles shall act positively so as to provide a uniform unbroken spread of bituminous material on the surface. The distributor shall be equipped with devices and charts to provide for accurate and rapid determination and control of the amount of bituminous material being applied and with a bitumeter of the auxiliary wheel type registering speed in feet per minute, and trip and total distance in feet. Two distributor trucks will be required on all projects.

G. Aggregate Spreader:
The aggregate spreader shall be a self-propelled unit capable of uniformly spreading the aggregate at the required rate on a minimum width of six (6”) inches wider than the width of the lane to be treated. The spreader shall be calibrated within the previous twelve (12) months for transverse and longitudinal application. The spreader shall be capable of extending to a width of 22 feet. The spreader shall be equipped with a computer-controlled aggregate/chip spreader in order to ensure the appropriate aggregate coverage at varying speeds, unless approved otherwise by Engineer.

H. Rollers:
The Contractor shall use one, ten (10) ton steel wheeled roller and two, eight (8) to twelve (12) ton self-propelled pneumatic tire rollers with oscillating wheels and low pressure, smooth tires. Maintain the inflation of the tires such that in no two tires the air pressure varies more than 5 psi. The rollers will be equipped with an operating water system and coco pads. A sufficient number of rollers and a sufficient number of passes shall be used to ensure cover aggregate is properly rolled. The final passes of the rolling process shall be performed by a static steel wheel roller, which shall be operated without the vibrating function.

I. Self-Propelled Rotary Power Broom:
The self-propelled rotary broom shall be designed, equipped, maintained and operated so the pavement surface can be swept clean. The broom shall have an adjustment to control the downward pressure.

J. Mixing Equipment:
Use a machine specifically designed and manufactured to place micro surfacing consistent with the requirements of the Microsurfacing Specification of this bid package. Truck mounted and self-loading continuous machines are acceptable.

K. Spreading Equipment:
The spreading equipment should be a mechanical squeegee type equipped with flexible material in contact with the surface to prevent loss of the microsurfacing slurry from the distributing box. There should be a flexible rear strike-off which is adjustable in width and capable of producing a uniform surface its full width. For detailed requirements, refer to the Microsurfacing Specification of this bid package.

L. Additional equipment:
Additional equipment will be needed to complete the operations required by this technical provision. All equipment necessary for the successful completion of projects governed by this technical provision shall be included in the unit costs associated herein. Availability of quality assurance devices (such as a 10' straight edge) shall be the responsibility of the Contractor.

IV. Construction:

A. Layout:

The Contractor will be responsible for the string lining and lay out of the roadway prior to paving.

B. Weather and Seasonal limitations:

The surface treatment shall not be applied to a wet surface or when rain is occurring, or the threat of rain is present immediately before placement. The surface treatment shall not be applied when the surface or/and air temperature is less than 50 degrees Fahrenheit in the shade. If Relative humidity is between 75% and 80%, additional time may be required to allow the emulsion to set before the lane can be opened to traffic. Operations may not continue if the relative humidity is above 80%. When applying emulsions, the temperature of the surface shall be a minimum of 55°F, and no more than 140°F.

If an unexpected rainstorm ensues, sufficient aggregate should be spread to cover all of the applied binder. If possible, the road or lane should be closed to traffic and, if not, traffic should be kept to a minimum speed during this period by use of pilot vehicles. The amount of rolling should be reduced, if not completely ceased, while the aggregate is wet, to avoid binder emerging from the voids and be picked up on the wheels of the roller.

C. Preparation of Surface:

The chip seal material shall be placed on a firm unyielding prepared roadway. Any patching or crack sealing that the Contractor is also authorized to perform for the project should be done a minimum of three (3) months prior to the chip seal application.

The Contractor shall be responsible for clipping back shoulders and removing overburden or any other vegetation or debris to ensure that the road is free of organic and deleterious material. The Contractor shall spray all cut back edges with a pre-emergent herbicide before and after treatment. The Contractor will be responsible for blowing or sweeping the road immediately ahead of the chip seal operation to make sure the road is free of loose aggregate and other debris, as well as sweeping and cleaning the streets after treatment. If, in the opinion of the Engineer, the hand cleaning is not sufficient then a self-propelled street sweeper shall be used.

All manhole and valve covers, inlets and other service entrances, etc., shall be protected from bituminous material by placing reinforced waterproof, all-purpose paper or other suitable material, approved by the Engineer.

Thermoplastic striping and pavement markings, raised pavement markers, and

raised pavement marker adhesive shall be removed.

Microsurfacing may be used as rut fill if so contracted for the specific project to level bumps, waves and corrugations.

D. Resident Notification

In Residential areas, the Contractor shall distribute by hand, a typed notice to all residences and businesses on the street to be treated. The notice will be delivered no more than 24 hours prior to the treatment of the road. The notice will have a local phone number that the residents may call to ask questions. The notice shall be of the door hanger type which secures to the door handle of each dwelling. Unsecured notices will not be allowed. The Contractor shall also place the notice on the windshield of any parked cars on the street. Hand distribution of this notice will be considered incidental to the contract.

E. Traffic Control:

The Contractor shall furnish all necessary traffic control, barricades, signs and flagmen, to ensure the safety of the traveling public and to all working personnel. Traffic shall not travel on fresh mix until rolling and blotting has been completed. All traffic control shall be in accordance with the FDOT Roadway Design Standards, most current edition and TP-102. M.O.T. and associated devices shall be checked daily and periodically throughout the project for compliance; and where adjustments or corrections are needed, prompt revisions shall be made.

The Contractor shall submit an M.O.T plan indicating all facets of traffic control for the project area. The MOT plan should be approved in writing by the County prior to commencing any work.

Traffic shall not be allowed on the roadway after placement of the chip seal for a minimum of two hours. During and after placement of the chip seal, pilot cars should escort traffic at a speed of 20 mph (30 kph) over the chip sealed surface for two to 24 hours. **For Collector Roads, pilot cars will be required unless otherwise instructed by Inspection.** Once all the loose aggregate is removed from the new chip seal surface, pilot cars are no longer needed.

F. Chip Seal

Normal good practices shall be followed for the chip seal construction as outlined in the Chip Seal Specification of this bid package.

Some of the more important construction procedures required are:

1. Calibration of the asphalt emulsion distributor with the use of proper nozzle size and single and spray bar height above the surface.

2. Immediately after the asphalt emulsion has been applied, it shall be covered with the chips.
3. Rolling should begin as soon as possible after the cover aggregate has been applied with pneumatic tired units preferred. The rolling should consist of a minimum of 3 coverages. After the initial rolling has been completed with pneumatic tired units, further rolling may be carried out with a 5 to 8 ton steel wheeled unit (optional). To avoid excessive chip crushing, only one complete coverage should be made.

The surface should be clean with the surface broomed prior to the application of any tack coat or microsurfacing to remove excess chips, dirt and other objectionable matter.

G. Microsurfacing

Once the chip seal application has been allowed a minimum of seven days to settle, the Contractor shall apply a double micro-surface 30-34 lbs/sy in one lift. Normal good practices shall be followed for the chip seal construction as outlined in the Microsurfacing Specification of this bid package.

Some of the more important or unique construction procedures required are:

1. Each microsurfacing unit to be used should be previously calibrated.
2. Immediately prior to the placement of the microsurfacing seal, the surface shall be cleaned by power brooming.
3. Microsurface may be used as rut fill to level dips in the pavement.
4. Not less than seven days, nor more than four weeks after the chip application, the microsurface shall be applied.
5. The Cape Seal should not be opened to traffic until the microsurface seal has cured sufficiently so as to not exhibit pickup by the tires of regular traffic.

H. Pavement Striping and Markings

As part of the Maintenance of Traffic, the Contractor shall provide the necessary temporary striping and pavement markings during the different construction phases, and maintained for a minimum of two (2) weeks following the completion of the chip seal operation.

Permanent striping and pavement markings, including the installation of reflective pavement markers shall be performed after the two (2) week period. Prior to applying the permanent striping and markings, the Contractor shall broom the roadway. The Contractor shall be responsible for maintaining the permanent striping and markings for a minimum of two (2) weeks after installation.

I. Deliverables:

Upon completion of the project, the Contractor shall provide Inspection with logs showing the daily and running totals of aggregate and bituminous material during the chip seal stage, as well as the daily production logs for the microsurfacing stage. These logs shall become backup documentation for invoicing.

J. Warranty:

The Contractor shall provide the County upon final acceptance of the Cape Seal work, a warranty period of three (3) years which shall include all labor, materials, hauling, traffic control and striping to repair the defective areas. Defective areas shall include debonding/delamination, bleeding, excessive raveling and aggregate loss. The Contractor shall perform all warranty work at no cost to the City or County.

K. General Performance:

Provide completed pavement which performs to the satisfaction of the engineer without bleeding, rutting, shoving, raveling, stripping, or showing other types of pavement distress or unsatisfactory performance.

V. Method of Measurement:

If a pay item is listed on the Bid Form for work required in this Technical Provision, the quantity to be paid shall be as specified in the Bid Form including all items of work described herein. Any item necessary for Cape Seal, and not specifically listed in another item in the Bid Form, shall be included in this item.

VI. Basis of Payment:

The accepted quantities, determined as provided above for each of the pay items listed below which is included in the contract, will be paid for at the contract unit price per unit of measurement. The Unit price includes all items listed in the contract, including all General Conditions, Special Conditions and Technical Provisions pertaining to Cape Seal, including all items of work described herein. No additional payment will be provided for any item necessary for the completion of this contract as detailed in the specifications, except that at the direction of the County.

Payment will be made under:

Pay Item	***Pay Unit***
Cape Seal (Single Chip w/Double Micro application)	Square Yard
Cape Seal (Double Chip w/Double Micro application)	Square Yard
Crack Filling/Sealing	Per gallon

END OF SECTION

BID SHEET

The Bid Sheets for this bid are available on the following FTP site: https://ftp3.polk-county.net, you will be prompted for a User ID and Password. The User ID is procurevendor and the password is solicitation. After you have logged in to the FTP site, double click on the file folder “Bid 22-245, Pavement Preservation and Recycling Treatments.zip”, select “Open” or “Save As” to download the Bid documents, drawings, and technical specifications. If you need assistance accessing this website due to ADA or any other reason, please email Ken Brush at kenbrush@polk-county.net.

All Bid Sheets are in Excel format and are to be submitted on a USB drive with your Bid Package along with the hard copy. The USB drive must be labeled with the company name and Bid number.

Deviation from the Bid Sheets is strictly prohibited and will not be accepted. The Bid Sheets are locked, and you need only enter the unit cost. The Bid Sheet will automatically calculate the extension; therefore, you must enter the Unit Cost per the Unit Packaging as requested on the Bid Sheets.