



MONROE COUNTY
R O A D
COMMISSION

840 S. Telegraph Road • Monroe, Michigan 48161 • Phone: (734) 240-5102 • Fax: (734) 240-5101

PROPOSAL

FOR

2024 SPECIAL PAVEMENT MARKING PROGRAM

BID OPENING:

Wednesday, November 29, 2023 at 10:00 a.m.

BOARD OF COUNTY ROAD COMMISSIONERS
OF THE COUNTY OF MONROE

Greg W. Stewart, Chairman
Dan Minton, Vice Chairman
Jack Thayer, PE, Member
William Kipf, Member
James S. Jacobs, Member

**MONROE COUNTY ROAD COMMISSION
INVITATION TO BID**

Sealed bids will be received by the Board of County Road Commissioners of the County of Monroe until 10:00 a.m. local time on Wednesday, November 29, 2023 at their office located at 840 South Telegraph Road, Monroe, Michigan, 48161 for the following:

- 2024 Supplemental Heavy Equipment Services – All Seasons
- 2024 Aggregates
- 2024 Calcium Chloride
- 2024 Plastic Pipe
- 2024 Corrugated Metal Pipe
- 2024 Reinforced Concrete Pipe
- 2024 HMA Mixtures
- 2024 Uniform Traffic Control Devices
- 2024 Pavement Marking
- 2024 Pavement Marking Special

Bids will be publicly opened and read aloud by the Bid Committee at 10:00 a.m. Proposals may be downloaded from the Road Commission's website at <https://www.mcrc-mi.org/Bids.aspx>.

BOARD OF COUNTY ROAD COMMISSIONERS
OF THE COUNTY OF MONROE, MICHIGAN

**MONROE COUNTY ROAD COMMISSION
PROPOSAL
2024 SPECIAL PAVEMENT MARKING PROGRAM**

TO: The Board of County Road Commissioners of the County of Monroe, Michigan

FOR: 2024 SPECIAL Pavement Marking Program for Monroe County, Michigan

Ladies and Gentlemen:

The undersigned bidder hereby affirms that:

1. The proposal is in all respects fair and without any collusion or fraud.
2. The undersigned have examined the site of the proposed project and have made a personal investigation and estimate of quantities.
3. The undersigned will contract to furnish all labor, equipment, tools and material necessary for the complete construction of the above described project at the unit prices stated on the attached bid forms and to complete the work in the time specified to the satisfaction of the Board of County Road Commissioners of the County of Monroe, Michigan.

Company: _____

Address: _____

City, State, ZIP: _____

Telephone: _____

By: _____

Title: _____

Date: _____

NOTE: If the bidder is a co-partnership, each member must sign the proposal.

Corporations must execute the proposal by duly authorized officers in accordance with Articles of Incorporation.

INSTRUCTIONS TO BIDDERS
and
GENERAL CONDITIONS

The Michigan Department of Transportation current Standard Specifications for Construction are incorporated as part of these bidding documents and shall govern except as provided in the Invitation to Bid, Instructions to Bidders and General Conditions, Proposal, Contract, Supplemental Specifications, Special Provisions and Plans. Reference to the Department or Commission in the Michigan Department of Transportation current Standard Specifications for Construction shall for this project mean the Board of County Road Commissioners of the County of Monroe, hereinafter referred to as "Board", unless otherwise specified.

OWNER

The owner of the project is the Board of County Road Commissioners of the County of Monroe, also referred to as the "Board."

ENGINEER

The Engineer is the County Highway Engineer or the individual assigned by the County Highway Engineer to be in charge of the project. The person assigned as the Project Engineer may be an employee of the board, a consultant or an outside contractor hired by the Board.

BIDDER

The Bidder is one who submits a signed bid with the required documentation directly to the Board at the time and place specified.

BID FORMS

Sealed proposals must be submitted on the bid forms furnished by the Board. The proposal shall be submitted in its entirety with no modifications or changes except as authorized by an addendum and with no pages removed. Unit prices as listed will govern in determining the correct total of the bid. All proposals must be filled out in ink or typewritten and shall be legibly signed, giving the complete name and address of the bidder.

All bids must be in a sealed envelope and clearly marked "**Bid for 2024 SPECIAL Pavement Marking Program**". Bids failing to meet this requirement will not be considered.

OPENING OF BIDS

Bids will be received by the Board of Monroe County Road Commissioners at 840 S. Telegraph Road, Monroe, Michigan, 48161, until **10:00 A.M.**, local time on **Wednesday, November 29, 2023**, at which time they will be publicly opened and read aloud.

BIDDER'S SURETY

Each proposal must be accompanied by a cashier's check, certified check, or a bid bond made payable to the Board of County Road Commissioners of Monroe County, Michigan, in the sum of five percent (5%) of the amount of the bid. Upon awarding and signing of a contract, or in the event of bid rejection, such bid surety will be returned to the bidder. Bids may be held for a period of forty (40) days.

ACCEPTANCE AND/OR REJECTION OF BIDS

The Board reserves the right to accept, reject and/or modify any or all bids, to waive irregularities therein, and to make the award in any manner deemed to be in the best interest of the Monroe County Road Commission.

TITLE VI ASSURANCE

The Monroe County Road Commission, in accordance with Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC 2000d to 2000d-4) and Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, hereby notifies all bidders that it assures that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, gender, age, or disability in consideration for an award.

PROHIBITION OF DISCRIMINATION

In accordance with Act No. 453, Public Acts of 1976, the Contractor and subcontractors hereby agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, sex, height, weight, or marital status. Further, in accordance with Act No. 220, Public Acts of 1976 as amended by Act No. 478, Public Acts of 1980, the Contractor and subcontractors hereby agree not to discriminate against an employee or applicant for employment tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of a disability that is unrelated to the individual's ability to perform the duties of a particular job or position. A breach of the above covenants shall be regarded as a material breach of this contract.

CONTRACT EXECUTION

The bidder to whom the contract is awarded shall, within ten (10) calendar days, after notice of award, enter into a written contract with the Board of Monroe County Road Commissioners and furnish bonds as hereinafter specified. Failure to execute a contract or furnish satisfactory bonds will be considered cause for annulment of award and forfeiture of the proposal guarantee. Please note that this contract is a one-year contract and will last for the year of 2024.

EXTENSION OF CONTRACT

Upon mutual agreement of both parties, the Board may extend the length of the Contract for up to three additional one-year terms. The pricing, terms, and conditions of the original contract will remain the same for any subsequent one-year extensions. Requests for a contract extension must be made in writing to the Monroe County Road Commission by November 1st.

PERFORMANCE AND LIEN BONDS

The successful bidder to whom the contract is awarded shall furnish two (2) surety bonds as follows:

- A. Performance Bond - To the Board of Monroe County Road Commissioners for the faithful fulfillment of the terms of the contract in the amount of one-hundred percent (100%) of the total contract amount.
- B. Lien Bond - To the Board of Monroe County Road Commissioners for the payment of all labor and materials used in the work in the amount of fifty percent (50%) of the total contract amount.

INCREASED OR DECREASED QUANTITIES

The Board of Monroe County Road Commissioners reserves the right to increase or decrease quantities from those originally estimated and such changes will be paid for at the unit price bid so long as the total contract amount is not changed more than ten percent (10%). Changes in excess of that amount will be individually negotiated.

CALLBACK PROVISION FOR PAVEMENT MARKING CONTRACT

The Contractor may be required to make up to 6 trips this year. The first trip phase (Phase I) will be the primary part of the pavement marking program and *multiple trips for the second phase* (Phase II) will be in the late Summer to Late Fall to provide paint for roads which have been resurfaced in the interim. There will be no callback or mobilization fee paid for Phase II trips, regardless of mileage.

TIME OF COMPLETION

Phase I work is to be completed no later than June 30, 2024. All work is to be completed not later than **November 15, 2024** unless approved by the Engineer.

For Phase I, the Engineer will provide the contractor a map and list of roads that are ready for striping no later than April 15, 2024. The contractor will have until June 30, 2024 to complete this work.

For Phase II, at the end of each month (June, July, August, September), the Engineer will provide the contractor a list of roads that are ready for striping. The contractor will have **30 days** to complete the striping of the listed roads. The list for October and any outstanding work shall be completed by **November 15, 2024**.

NOTE – If contractor is unable to meet the above timeline at any stage of work, the Monroe County Road Commission reserves the right to select a contractor that would be available to complete the work within the

desired timeline.

PAYMENTS TO CONTRACTOR

The Contractor shall invoice the Monroe County Road Commission for their work on the contract. The invoice shall contain, at a minimum, the following information: road name and limits, the quantities of work completed and the contract unit prices.

FAILURE TO COMPLETE ON TIME

Liquidated damages will be assessed in accordance with Section 108.11 of the Michigan Department of Transportation Standard Specifications for Construction (2020 Edition). For the purpose of charging liquidated damages, this project will be assessed using the time of completion dates provided within this document and each phase will be assessed individually. Liquidated Damages will be assessed as of July 1, 2024 for Phase I work and after the 30-day mark on each of Phase II lists up to the final which will be assessed on November 16, 2024.

PROGRESS SCHEDULE

In no case shall any work be commenced prior to receipt of formal notice of award by the Board.

The low Bidder for the work covered by this proposal will be required to meet with the Engineer to review the Contractor's proposed work schedule. *The schedule for this meeting will be set within one (1) week prior to work starting.* The Board's representative will arrange the time and place for the meeting.

FINAL INSPECTION, ACCEPTANCE AND FINAL PAYMENT

The engineer will make a final inspection of all work included in the contract each year, and notify the contractor of defects to be remedied prior to final acceptance for that year. Upon satisfactory completion of the work by the contractor, a yearly final estimate will be prepared. Payment for all work completed and accepted, less previous payments, will be made within thirty (30) days of final acceptance.

DISPUTES

The County Highway Engineer's written decision on any question arising under the contract between the Board and Contractor shall be final and binding upon both the Board and the Contractor in the absence of fraud, bad faith, or abuse of discretion.

ARBITRATION

All claims, disputes and other matters in question between the Board and the Contractor arising out of, or relating to, the Contract Documents or the breach thereof (except for claims which have been waived by the making or acceptance of final payment) will be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining subject to the limitations of this section. This agreement so to arbitrate and any other agreement or consent to arbitrate entered into in accordance herewith will be specifically enforceable under the prevailing laws of any court having jurisdiction.

No demand for arbitration of any claim, dispute or other matter that is required to be referred to Engineer initially for decision will be made until the earlier of (a) the date on which Engineer has rendered a decision or (b) the tenth day after the parties have presented their evidence to Engineer if a written decision has not been rendered by Engineer before that date. No demand for arbitration of any such claim, dispute or other matter will be made later than thirty (30) days after the date on which Engineer has rendered a written decision in respect thereof; and the failure to demand arbitration within said thirty (30) days' period shall result in Engineer's decision being final and binding upon Board and Contractor. If Engineer renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but will not supersede the arbitration proceedings, except where the decision is acceptable to the parties concerned. No demand for arbitration of any written decision of Engineer will be made later than ten (10) days after the party making such demand has delivered written notice of intention to appeal.

Notice of the demand for arbitration will be filed in writing with the other party to the Agreement and with the American Arbitration Association, and a copy will be sent to Engineer for information. The demand for arbitration will be made within the thirty (30) day or ten (10) day period specified above as applicable, and in all other cases within a reasonable time after the claim, dispute or other matter in question has arisen, and in no event shall any

such demand be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

No arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder or in any other manner any other person or entity who is not a party of this contract unless:

- a) the inclusion of such other person or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration;
- b) such other person or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings, and;
- c) the written consent of the other person or entity sought to be included and of Board and Contractor has been obtained for such inclusion, which consent shall make specific reference to this paragraph; but no such consent shall constitute consent to arbitration of any dispute not specifically described in such consent or to arbitration with any party not specifically identified in such consent.

Notwithstanding the above paragraph, if a claim, dispute or other matter in question between Board and Contractor involves the Work of a Subcontractor, either Board or Contractor may join such Subcontractor as a party to the arbitration between Board and Contractor hereunder. Contractor shall include in all subcontracts a specific provision whereby the Subcontractor consents to being joined in arbitration between Board and Contractor involving the Work of such Subcontractor. Nothing in this paragraph nor in the provision of such subcontract consenting to joinder shall create any claim, right or cause of action in favor of Subcontractor and against Board or Board's Consultants that does not otherwise exist.

The award rendered by the arbitrators will be final, judgment may be entered upon it in any court having jurisdiction thereof, and it will not be subject to modification or appeal.

TAXES

The Contractor shall include, and will be deemed to have included, in its base bid and contract price all applicable Michigan Sales and Use taxes which have been enacted into law as of the date the bid is submitted.

BOARD RESPONSIBILITY

The Board shall not supervise, direct or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences or procedures of construction or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with laws and regulations applicable to the furnishing or performance of the work unless otherwise specified in the Special Provisions. Board will not be responsible for Contractor's failure to perform or furnish the Work in accordance with the Contract Documents.

INDEMNIFICATION, DAMAGE LIABILITY AND INSURANCE

Indemnification. The Contractor must hold harmless, indemnify, defend and represent the Board and its officers, agents and employees against any and all claims for bodily injury or property damage, or any other claim arising out of performance of the work on this contract. The Contractor will not be responsible for claims that result from the sole negligence or willful acts of said indemnitee.

Workers' Compensation Insurance. The Contractor must carry the necessary Workers' Compensation Insurance and submit a certification that it carries Workers' Compensation to the Board.

Bodily Injury and Property Damage. The Contractor must carry adequate insurance, satisfactory to the Board, to afford protection against all claims for damage to public or private property and injuries to persons arising out of performance of the work. Copies of completed certificates must be submitted to the Board.

1. **General Liability, Bodily Injury and Property Damage.** The Contractor must provide the following minimum limits of property damage and bodily injury liability:

Bodily Injury and Property Damage Liability:

| | |
|-----------------|-------------|
| Each Occurrence | \$1,000,000 |
| Aggregate | \$2,000,000 |

2. **Automobile Liability, Bodily Injury and Property Damage.** The Contractor must provide the following minimum limits of property damage and bodily injury liability:

| | |
|--|-------------|
| Bodily Injury and Property Damage Liability: | |
| Each Person | \$500,000 |
| Each Occurrence | \$1,000,000 |

| | |
|----------------------------|-------------|
| Property Damage Liability: | |
| Each Occurrence | \$1,000,000 |

| | |
|--|-------------|
| Combined Single Limit for Bodily Injury and Property Damage Liability: | |
| Each Occurrence | \$2,000,000 |

3. **Umbrella Policy.** The Contractor may meet the requirements of above minimum limits of bodily injury and property damage liability through an umbrella policy.

Additional Insured and Endorsement. The Bodily Injury and Property Damage Policy must include the following endorsements, verbatim:

“Additional Insured: The Board of County Road Commissioners of the County of Monroe, the Monroe County Road Commission and its officers, agents and employees.”

“Provide written notice ten (10) days prior to cancellation, expiration, termination or reduction in coverage for nonpayment of the premium and written notice thirty (30) days prior to cancellation, expiration, termination or reduction in coverage for all other reasons.”

Notice. The Contractor must ensure that all insurance policies and binders include an endorsement by which the insurer agrees to notify the Department in writing at least 30 days before there is a cancellation or material change in coverage. The Contractor must stop operations if any insurance is canceled or reduced, and must not resume operations until new issuance is in force.

Reports. The Contractor or insurance carrier shall report to the Board any claims received, inspections made and the disposition of claims. The Board will withhold final payment release until either the Contractor pays the claim or until final disposition of the claim by the Contractor’s insurance company has been received by the Board.

SPECIFICATIONS

All work not otherwise specified shall be done in accordance with the Michigan Department of Transportation current Standard Specifications for Construction. Within these specifications, all references to the Michigan Department of Transportation shall mean the BOARD.

MATERIALS

All materials to be incorporated into the project shall be per the Michigan Department of Transportation *Material Source Guide* and/or as otherwise permitted by the BOARD. The CONTRACTOR shall submit MDOT form 0501 *Materials Source List* for all materials to be used on the PROJECT prior to use, for review and approval.

COMMUNICATIONS

Any questions regarding this bid shall be directed to the Monroe County Road Commission’s purchasing agent listed below:

Name: Elizabeth Johnson
 Phone: 734-240-5122
 Email: EJohnson@mcrc-mi.org

**PAVEMENT MARKINGS
FOR INFORMATIONAL PURPOSES ONLY**

The Monroe County Road Commission has also decided to bid out the spot pavement marking – SPECIAL Pavement Marking Program in the 2024 season using Waterborne paint.

For the bidders' information, to be used for reference only, all work completed prior to the **Phase I** (approximately 70% of work) includes work on roads not a part of the 2024 Monroe County Road Commission construction program. The remainder, roads scheduled for construction, will be completed during **Phase II and completed prior to the deadline of November 15.**

For bidding purposes, our in house lists of special pavement marking locations is provided in this document as **Attachment A.**

NOTE – Due to the amount of traffic, some roads will require flagging (MDOT Typical M0140a) during the time of painting until the paint has dried and the road can be reopened. These roads are as follows:

Stewart Road from Bluebush Road to Vivian Road; Mall Road at all locations; Dunbar Road between US24 (Telegraph Road) to M125 (Monroe Street); Albain Road between US24 (Telegraph Road) to M125 (Monroe Street); Sterns Road from Lewis Avenue to Monroe Road; Secor Road from Ohio State Line north to Summerfield Road.

In the past, there has been a time delay between the preconstruction meeting and the actual start of Phase I work. As such, the Monroe County Road Commission reserves the right to change Phase I up to the actual start of the painting.

**MONROE COUNTY ROAD COMMISSION
2024 SPECIAL PAVEMENT MARKING PROGRAM
Waterborne Pavement Marking Material**

TO: Board of County Road Commissioners of Monroe County, Michigan

The undersigned, having full knowledge of the site, proposal, plans and specifications for the **2024 SPECIAL Pavement Marking Program** in Monroe County, Michigan including Bidders' Addenda _____ and the conditions of these Contract Documents, hereby agrees to furnish all services, labor, materials, tools, equipment, transportation, and incidentals necessary to perform the entire Work; to complete the contract by the date specified in the Instructions to Bidders and General Provisions, according to the Proposal, Plans and Specifications, and to accept in full, compensation for all work necessary to complete the project at the unit prices named below:

| |
|--------------------------|
| ITEMIZED PROPOSAL |
|--------------------------|

| ITEM | ITEM OF WORK | APPROX. QUANTITY | UNIT | UNIT PRICE BID | TOTAL AMOUNT BID |
|--------------|---|------------------|------|----------------|------------------|
| 1 | Pavt, Mrkg, Waterborne, Railroad Symbol | 240 | EA | | |
| 2 | Pavt, Mrkg, Waterborne, 24 inch, Stop Bar | 5500 | FT | | |
| 3 | Pavt, Mrkg, Waterborne, Lt Turn Arrow Sym | 210 | EA | | |
| 4 | Pavt, Mrkg, Waterborne, Rt Turn Arrow Sym | 65 | EA | | |
| 5 | Pavt, Mrkg, Waterborne, Only | 176 | EA | | |
| 6 | Pavt, Mrkg, Waterborne, School | 73 | EA | | |
| 7 | Pavt, Mrkg, Waterborne, Thru Arrow Sym | 5 | EA | | |
| 8 | Pavt Mrkg, Waterborne, 6 inch, Crosswalk | 1000 | FT | | |
| 9 | Pavt Mrkg, Waterborne, Bike Symbol | 20 | EA | | |
| 10 | Pavt Mrkg, Waterborne, Bike Arrow | 4 | EA | | |
| 11 | Pavt Mrkg, Waterborne, Sharrow Symbol | 8 | EA | | |
| 12 | Pavt Mrkg, Waterborne, Left/Thru Arrow | 9 | EA | | |
| 13 | Pavt Mrkg, Waterborne, Right/Thru Arrow | 2 | EA | | |
| 14 | Pavt, Mrkg, Waterborne, 12 inch, Stop Bar | 73 | FT | | |
| TOTAL | | | | | |

TOTAL OF BID: _____
Use words

_____ Dollars

Quantities are not guaranteed. Bidder agrees that the unit cost for these items are valid until the project completion date of **November 15, 2024**. Final payment will be based on actual quantities. (Note - We anticipate that the contractor will have to mobilize for several trips. Please include mobilization into the unit costs as it will not be paid as an extra work item.)

Bidder agrees that the work will be completed and ready for final payment in accordance with the General Conditions. All work on the **2024 Pavement Marking Program** is to be completed by **November 15, 2024** as detailed in the Time of Completion section above.

Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the work on time.

The following documents are attached to and made a condition of this Bid:

Required Bid Security in the form of either:

Certified Check or a Bidder's Bond in the amount of:

_____ Dollars (\$ _____)

Communications concerning this Bid shall be addressed to the Bidder's representative.

Name of Representative: _____

Address: _____

City, State, ZIP: _____

Telephone Number: _____

Fax Number: _____

E-Mail Address: _____

The terms used in this Bid, which are defined in subsection 101.03 of the Michigan Department of Transportation 2020 Standard Specifications of the Construction, have the meanings assigned to them in the Standard Specifications for Construction.

SUBMITTED on: _____, 2023

**SPECIAL PROVISION
FOR
PAVEMENT MARKING APPLICATIONS**

Description

This work covers the furnishing and application of reflectorized pavement markings as specified by the Engineer, the proposal, and/or plans.

Equipment

The pavement marker shall be trucked mounted and capable of applying three (3) yellow 4-inch minimum width centerlines or one (1) white 4-inch minimum width edge lines in one pass of the equipment. The equipment shall have sufficient paint and bead capacity to enable sustained pavement marking operations and shall be equipped so as to assure uniform application of the paint and beads. The equipment shall have pressurized bead dispensers. In general, the equipment shall be that necessary to accomplish the marking in a safe and efficient manner. The department reserves the right to inspect the bidders equipment before making an award of contract.

All vehicles used in marking operation in traffic shall be equipped with rotating or oscillating flashers, which are visible from both the front and rear of the vehicle and an illuminated Target Arrow, capable of being visible from either the front or rear of the vehicle.

The contractor shall use an accurate dashing mechanism, capable of being easily adjusted, to retrace existing lane or centerline markings as specified in the plans or as directed by the Engineer. The contractor shall equip the pavement marking machine with a method of measuring the flow rate of the material to the applied line. Flowmeter, graduated tanks, or other method approved by the Engineer is acceptable of measuring flow rate. The contractor's equipment shall include linear footage meter to measure the length of applied line. The Engineer may check calibration of any metering device at the department's discretion.

MATERIALS

Description

The specification covers white and yellow ready-mixed paints to be used with pressure spray equipment to mark either Portland cement or bituminous concrete pavements. The paints shall be suitable for spray application without thinning when heated at temperatures up to 110° F and shall also be suitable for retaining glass beads applied by the drop-on method.

The paints shall be uniformly ground and, with reasonable redispersion, be suitable for application after a year of outdoor storage.

Paint Ingredients

The traffic paint ingredients shall meet the following requirements. Unless specified otherwise, the values required for the ingredients are in percent by weight.

| <u>Ingredients</u> | <u>White</u> | <u>Yellow</u> |
|---|--------------|---------------|
| <u>Pigment:</u> | | |
| <i>Titanium Dioxide Pigment, Type III (Rutile) ASTH D 476</i> | 24-28 | ----- |
| <i>Chrome Yellow, Type III, ASTH D 211</i> | ----- | 30-34 |
| <i>Calcium Carbonate, Type GC, Grade I or II, ASTH D 1199</i> | 48-52 | 48-52 |
| <i>Magnesium Silicate, ASTH D 605</i> | 20-24 | 14-18 |
| <i>Pigment Suspending Agent, Fed. Spec/ TT-P-115c</i> | 0.4-0.5 | 0.4-0.5 |
| <u>Vehicle:</u> | | |
| <i>Alkyd Resin Solids, Type I, Fed. Spec. TT-P-115c, except that a minimum phiallic anhydride content of 34 percent</i> | 41.5 | 41.5 |
| <i>VH L P Haptha, Type 1, Fed. Spec. TT-P-115c</i> | 41-43 | 41-43 |

High-Volatile Petroleum Thinner (Specific Gravity at 60/60 F: 0.680 to 0.700; Initial Boiling Point: 118 to 150 F; Dry Point: 200F max):
 Driers, Fed. Spec. TT-P-115c; and Anti-Skinning Agents, Fed. Spec. TT-P-115c
 c. Finished Paint – The finished paint shall meet the following requirements. Unless otherwise noted, tests used for determining compliance with the requirements shall be in accordance with Federal Standard No. 141.

| | <u>White</u> | <u>Yellow</u> |
|---|--------------|---------------|
| Pigment, percent by weight | 55-58 | 56-59 |
| Vehicle, percent by weight | 45 max | 44 max |
| Fineness of Grind, Hegman | 3 min | 3 min |
| Weight per Gallon at 77 F, lb. | 11.7 min | 12.1 min |
| Consistency, Viscosity at 77 F, KU | 80-95 | 80-95 |
| Drying Time, minutes to no-pick-up, on stripes tested under laboratory conditions with beads dropped on the stripes at a rate of 6 lb/gal. Laboratory tests will be conducted in accordance with ASTH D 711. | 30 max | 30 max |
| *Bleeding, ASTH D 969, Asphalt Substrate Test Panel, beaded stripes | 4 min | 4 min |
| *Settling, ASTH 869 | 6 min | 6 min |
| Reflectance, ASTH E 97, daylight 45 deg, 0 deg luminous directional reflectance, percent | 80 min | ----- |
| <u>Color</u> – The color of yellow paint shall be within the limits of the Color Tolerance Chart for Highway Yellow, PR Color #1 of the Federal Highway Administration, except that the green tolerance limit shall have C.I.E. coordinates of x=0.491 and y=0.460, and except that the minimum lightness shall be 50.7 percent. Tests may be conducted in accordance with ASTH E308, using Standard Illuminant C or by visual comparison with color standards. Fluorescence in paints will not be permitted. | | |
| Flexibility and Adhesion, Water Resistance, *Skinning, and *Condition in the Container shall be as specified in Fed. Spec. TT-P-115c. | | |

*Properties preceded with an asterisk are not usually performed for acceptance testing.

Marking

Each container shall plainly show in weather resistant markings, the name of the producer description of the material, batch number, date of packaging, and volume of contents.

CONTROL OF MATERIALS

Section 105.05 of the 2020 Standard Specifications for Construction and the following special provisions will apply:

The materials used shall meet the department's current minimum specification requirements, herein.

Written certification from the supplier that the paints meets MDOT requirements will be required prior to being applied to the roadway. The County reserves the right to sample and test the material if required by the Engineer. Should the paint fail to comply with the specifications, the contract shall be required to reapply with materials that meet specifications at no cost to the County.

Storage

The County will not provide buildings to store contractor's materials and equipment; however, arrangements can be made to store materials and equipment on County right-of-ways. The contractor is responsible for disposing of all containers and waste material.

CONSTRUCTION METHODS

General

Pavement markings shall be Waterborne/Polyurea paint applied on bituminous or concrete surfaces. Markings shall be either white or yellow in the lengths and widths specified in this proposal or as directed by the Engineer. Typical pavement marking lane line applications are illustrated in Part III of the Michigan Manual of Uniform Traffic Control Devices.

Skip Line

Skip lines of the color specified shall be applied as a 4-inch wide line on a cycle of 12 ½-foot segments and 37 ½-foot gaps. The paint shall be applied uniformly at a minimum rate of four (4) gallons of paint per mile of skip line.

Solid Line

Solid line of the color specified shall be applied as a solid 4-inch wide line. The paint shall be applied uniformly at a minimum rate of sixteen (16) gallons per mile of solid line.

APPLICATION METHODS

General

Markings shall be applied so that they adhere adequately to the surface. Glass beads for reflectorization for Waterborne pavement marking shall be applied uniformly on all markings in accordance with the 2012 Standard Specifications for Construction. Glass beads shall be applied to the wet marking material so that the beads are uniformly embedded and retained in the material and uniformly cover the surface of the marking material to the point where there are loose beads on the surface of the wet line.

Surface Preparation

Prior to the application of pavement marking, it shall be the contractor's responsibility that the pavement surfaces are clean, dry, and free of all foreign materials. The contractor shall be responsible for removal of heavy and/or hardened deposits of foreign material, not easily removed by a power broom, such as, but not limited to, shoulder pullback gravel, or gravel deposits on the roadway.

Loading Paint Machine

The paint and beads shall be loaded on the paint machine in a manner that will not interfere nor delay traffic.

Layout for Marking

All layout work necessary for the location and placing of pavement markings shall be the responsibility of the Engineer.

Tolerances

New markings shall be applied as specified. Unless otherwise directed, existing markings are to be retraced with markings of equal length, allowing for a longitudinal tolerance of one-foot and a transverse of two-inches. The width applied shall be the width specified plus or minus 1/4 inch.

Applied markings shall be sharp, well defined, provide uniform retro reflectivity, be free of uneven edges, over spray, or other readily visible defects which, in the opinion of the Engineer, detract from the appearance or function of the pavement markings.

Markings, which are improperly located, shall be corrected. Improperly located markings shall be removed at the contractor's expense, in a manner acceptable to the Engineer and reapplied in the correct locations at the contractor's expense.

Markings which are applied with material shortages exceeding six (6%) percent of the specified application rates shall be properly reapplied at the contractor's expense or be subject to acceptance with applied deduction as provided in Deduction of Material Deficiencies.

Weather and Seasonal Limitations

Markings in the Lower Peninsula shall be applied during the period of April 1 to November 15; and in the

Upper Peninsula, during the period of May 1 to November 1; unless otherwise approved in writing by the Engineer.

Paint shall be applied when the surface temperature of the pavement is 50 degrees Fahrenheit or higher and the pavement is dry. The Contractor shall be responsible for making the decision to apply paint on any specific day when there is a high probability of rain in the forecast. If applied lines are washed away because of rain the Contractor shall be responsible for re-applying the lines at no additional expense to the Monroe County Road Commission.

Placement and Protection of Pavement Markings

If markings are applied when the roadway is open to traffic, the following requirements shall apply:

Traffic shall be allowed to keep moving at all times and the striping equipment shall be operated in a manner that will not make it necessary for traffic to cross the uncured markings.

On two-lane, two-way roadways, the contractor will not be allowed to apply the centerline(s) and edge line in one (1) pass. The centerline(s) on two-lane, two-way roadways shall be applied with the paint machine and back-up vehicles straddling the center of the roadway. In all other cases, the paint machine shall occupy the travel lane adjacent the marking being applied.

The protection of the wet paint shall be the responsibility of the contractor. The contractor may furnish a pavement marking convoy consisting of a minimum of three (3) moving vehicles, spaced and equipped as indicated on the PAVEMENT MARKING CONVOY illustration sheets, in order to provide adequate traffic control and protection for the uncured markings. Markings obliterated by traffic shall be retraced at the contractor's expense.

Method of Measurement

The method of measuring quantities for payment shall be as follows:

Skip line will be measured by the number of linear feet provided. This measurement will include the line and the adjacent gap.

Solid lines will be measured by the number of linear feet provided. Where no passing zones overlap, each solid line will be measured separately.

The contractor shall cooperate with the Engineer in providing these measurements whenever requested. The marking application rate shall be determined by the Engineer. Any determination of pay deduction resulting from shortages in marking quantities shall be based on the measurements obtained by this method. The glass bead application rate will be determined by dividing the total pound's glass used by the total gallons of paint applied.

The quantity of pavement marking material and glass beads applied per unit of measurement will be computed by the Engineer at the end of each day's work.

Basis of Payment

These items will be paid for at the contract unit price for Waterborne Markings, legends, and symbols, of the color, width, and type specified.

Cleaning of the road surface shall be incidental to the project. Removal of existing thermoplastic and/or cold plastic material shall be considered incidental to the project.

Deduction for Material Deficiencies

A daily tolerance of six (6%) percent for material shortages shall be permissible without deductions. Any determination of pay deduction resulting from shortages in marking materials or glass beads shall be based on measurements obtained under Measurement and Payment.

If the six (6%) percent tolerance has been exceeded on material shortages, the markings shall be reapplied at the contractor's expense or the contract unit price will be reduced in direct proportion to the greatest

deficiency up to a maximum of fifteen (15%) percent. If the deficiency of any material is more than fifteen (15%) percent, the days work shall be considered unsatisfactory and shall be reapplied at full expense to the contractor, including all labor, equipment, and material requirements.

Any reapplied markings shall be applied at the minimum gallons per mile rate described in Construction Methods.

Payment for accepted quantities complete in place will be made at contract unit prices, or prices adjusted as described herein. Payment shall be full compensation for all materials, labor, incidentals, and equipment necessary for placement of the fast dry marking material.

Final Acceptance

Final acceptance of approved completed markings shall be ninety (90) days after completion of all original work.

Unacceptable markings shall be reapplied with markings conforming to these specifications and requirements to the extent determined by the Engineer, at the contractor's expense.

**SPECIAL PROVISION
FOR
MAINTAINING TRAFFIC**

General:

Traffic shall be maintained throughout the project in accordance with Sections 104.11 and Section 812 of the 2020 Standard Specifications for Construction. This includes any supplemental specifications and as herein specified.

The contractor shall coordinate this work with other contractors performing work within common or adjoining areas. The contractor shall avoid conflicts in maintaining traffic operations, signing, and orderly progress of other contract work.

Construction Influence Area (CIA)

The CIA shall include the right-of-way of all roads scheduled for application of pavement markings under the terms of this proposal.

Traffic Restrictions

Application of pavement markings may be allowed at night at the direction of the Engineer. The work shall be suspended during the time when traffic is being unduly hampered or delayed by the work in progress or as determined by the Engineer.

The contractor shall furnish and place all necessary warning and directional devices to maintain traffic. The contractor shall also provide protection to the uncured markings as may be needed until traffic can cross the uncured line without damage. Traffic shall be allowed to keep moving at all times and the striping equipment shall be operated in a manner that will not make it necessary to cross the uncured line.

Traffic Control Devices

All traffic control devices and their placement shall be in accordance with the requirements in the 2011 Michigan Manual of Uniform Traffic Control Devices (MMUTCD) and as specified in the plans and/or proposal.

The paint machine vehicle shall be equipped with a lighted arrow Type A or B. A trailing vehicle equipped with a lighted arrow Type A or B shall be used for coning and additional traffic control. Cones shall be placed at a maximum of fifty (50) foot intervals. Spacing shall have a minimum height of eighteen (18) inches and be of an approved type. A 6-foot x 3-foot sign with six-inch minimum legend "Pavement Marking Ahead" shall be mounted on the trailing vehicle. Refer to earlier section for the specifications for this sign. The cone pickup vehicle shall have a roof mounted lighted arrow board. The arrow board shall have a minimum twelve (12) lamp system and a minimum 5-foot x 2-foot size.

All traffic control items needed to maintain traffic during the painting operation shall be considered incidental to the items of pavement marking.

**SPECIAL PROVISION
FOR
GLASS BEADS FOR USE IN WATERBORNE PAVEMENT MARKING**

Description

These specifications cover glass beads for reflectorizing white and yellow paint markings on pavements by the drop-in methods on fresh paint stripes.

Detail Requirements

- a. General - The glass beads shall be of a transparent, lustrous, waterwhite glass composition designed to be highly resistant to traffic wear and to the effects of weathering. They shall be spherical in shape, and shall not include more than twenty-five (25%) percent, by count, of irregularly shaped particles. They shall be essentially free of dark particles and of particles showing milkiness, gas inclusions, pits and scratches.
- b. Gradation - The beads shall conform to the gradation requirements specified herein and will be tested in accordance with the Sieve Analysis of Glass Sphere, ASTM D 1214, using 50 to 100 gram samples obtained by means of a riffle sample splitter.

| <u>Sieve No.</u> | <u>Total Percent Passing</u> |
|------------------|------------------------------|
| 20 | 100 |
| 30 | 75-95 |
| 50 | 15-35 |
| 100 | 0-5 |

- c. Index of Refraction - The glass of which the beads are composed shall have an index of refraction of not less than 1.50 by the immersion method using tungsten light.
- d. Chemical Stability - After testing as described herein, the residual solution shall have an alkalinity number not greater than 2.0. The alkalinity number is defined as the number of ml of 0.1 N HCL required to reach the end point.

The test shall be conducted as follows:

Place 100 ml of distilled water in a 250 ml Erlenmeyer flask and bring to a boil.

Remove flask from heat source and introduce a ten (10) gram sample of glass beads.

Replace flask on heat source and boil gently for five minutes.

At the end of the five (5) minute boiling period, remove the beads from the water by filtering. Rinse the inside of the flask and beads with freshly distilled water and drain the washings into the original filtrate.

Stopper the flask containing the filtrate and allow to cool to room temperature and then titrate with 0.1 N HCL using phenolphthalein as the indicator.

Sampling and Testing

Requirements for testing are waived. The supplier shall submit a certification stating that the glass beads comply with the requirements of this specification. The right is reserved to sample and test as may be deemed necessary. Should the glass beads fail to comply with the specifications, the contractor shall be required to reapply with material meeting specifications at no cost to the county.