

STATE OF DELAWARE

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THE PROPOSAL IN ORDER TO
SUBMIT A BID.



DEPARTMENT OF TRANSPORTATION

BID PROPOSAL

for

CONTRACT DOT1208-PAVEMARK_SHRTLN

STATEWIDE SHORT LINE PAVEMENT MARKINGS

STATEWIDE

ADVERTISEMENT DATE: May 8, 2012

Completion Date 1,095 Calendar Days

SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
DELAWARE DEPARTMENT OF TRANSPORTATION
AUGUST 2001

Bids will be received in the Bidder's Room (B1.11.01), Transportation Administration Center, 800 Bay Road,
Dover, Delaware until 2:00 P.M. local time May 31, 2012.

STATEWIDE SHORT LINE PAVEMENT MARKINGS
STATEWIDE COUNTY

LOCATION

These improvements are located in STATEWIDE more specifically shown on the Location Map(s) of the enclosed Plans.

DESCRIPTION

The improvements consist of furnishing all materials for THIS CONTRACT PROVIDES FOR THE FURNISHING AND INSTALLATION OF PAVEMENT MARKING MATERIALS AT VARIOUS LOCATIONS IN THE STATE. THE PAVEMENT MARKING MATERIALS TO BE USED ARE PAINT WITH SURFACE APPLIED GLASS SPHERES, THERMOPLASTIC WITH SURFACE APPLIED GLASS SPHERES, PREFORMED THERMOPLASTIC AND PERMANENT PAVEMENT MARKING TAPE. , and other incidental construction in accordance with the location, notes and details shown on the plans and as directed by the Engineer.

COMPLETION DATE

All work on this contract must be complete within 1,095 Calendar Days .

It is the Department's intent to issue a Notice to Proceed such that work starts on or about July 1, 2012

ELECTRONIC BIDDING

This project incorporates a newer version of the electronic bidding system, Expedite 5.9a. Bidders wishing to use the electronic bidding option will find the installation file on the plan holders bid file disk. The installation file and instructions are also available at: http://www.deldot.gov/information/business/bids/const_proj_bid_info.shtml.



PROSPECTIVE BIDDERS NOTE:

1. No retainage will be withheld on this contract.
2. The Department has adopted an External Complaint Procedure. The procedure can be viewed on our website at; <http://www.deldot.gov/information/business/>, or you may request a copy by calling (302) 760-2555.
3. Make note of the new version of Electronic Bidding software as noted above.

**STATE OF DELAWARE
CONSTRUCTION ITEMS UNITS OF MEASURE**

English Code	English Description	Multiply By	Metric Code	Metric Description	Suggested CEC Metric Code
ACRE	Acre	0.4047	ha	Hectare	HECTARE
BAG	Bag	N/A	Bag	Bag	BAG
C.F.	Cubic Foot	0.02832	m ³	Cubic Meter	M3
C.Y.	Cubic Yard	0.7646	m ³	Cubic Meter	M3
EA-DY	Each Day	N/A	EA-DY	Each Day	EA-DY
EA-MO	Each Month	N/A	EA-MO	Each Month	EA-MO
EA/NT	Each Night	N/A	EA-NT	Each Night	EA/NT
EACH	Each	N/A	EA	Each	EACH
GAL	Gallon	3.785	L	Liter	L
HOUR	Hour	N/A	h	Hour	HOUR
INCH	Inch	25.4	mm	Millimeter	MM
L.F.	Linear Foot	0.3048	m	Linear Meter	L.M.
L.S.	Lump Sum	N/A	L.S.	Lump Sum	L.S.
LA-MI	Lane Mile	1.609	LA-km	Lane-Kilometer	LA-KM
LB	Pound	0.4536	kg	Kilogram	KG
MFBM	Thousand Feet of Board Measure	2.3597	m ³	Cubic Meter	M3
MGAL	Thousand Gallons	3.785	kL	Kiloliter	KL
MILE	Mile	1.609	km	Kilometer	KM
S.F.	Square Foot	0.0929	m ²	Square Meter	M2
S.Y.	Square Yard	0.8361	m ²	Square Meter	M2
SY-IN	Square Yard-Inch	0.8495	m ² -25 mm	Square Meter-25 Millimeter	M2-25 MM
TON	Ton	.9072	t	Metric Ton (1000kg)	TON
N.A.*	Kip	4.448	kN	Kilonewton	N.A.*
N.A.*	Thousand Pounds per Square Inch	6.895	MPa	Megapascal	N.A.*

*Not used for units of measurement for payment.

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GENERAL NOTICES

SPECIFICATIONS:

The specifications entitled "Delaware Standard Specifications, for Road and Bridge Construction, August, 2001", hereinafter referred to as the Standard Specifications, Supplemental Specifications, the Special Provisions, notes on the Plans, this Bid Proposal, and any addenda thereto shall govern the work to be performed under this contract.

CLARIFICATIONS:

Under any Section or Item included in the Contract, the Contractor shall be aware that when requirements, responsibilities, and furnishing of materials are outlined in the details and notes on the Plans and in the paragraphs preceding the "Basis of Payment" paragraph in the Standard Specifications or Special Provisions, no interpretation shall be made that such stipulations are excluded because reiteration is not made in the "Basis of Payment" paragraph.

ATTESTING TO NON-COLLUSION:

The Department requires as a condition precedent to acceptance of bids a sworn statement executed by, or on behalf of, the person, firm, association, or corporation to whom such contract is to be awarded, certifying that such person, firm, association, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract. The form for this sworn statement is included in the proposal and must be properly executed in order to have the bid considered.

QUANTITIES:

The quantities shown are for comparison of bids only. The Department may increase or decrease any quantity or quantities without penalty or change in the bid price.

REQUIREMENT BY DEPARTMENT OF LABOR FOR SWORN PAYROLL INFORMATION

Delaware Code, Title 29, Chapter 69, Section 6960, Paragraph (c)

"(c) Every contract based upon these specifications shall contain a stipulation that certified sworn payroll reports be maintained by every contractor and subcontractor performing work upon the site of construction. The contractor and subcontractor shall keep and maintain the sworn payroll information for a period of two (2) years from the last day of the work week covered by the payroll. A certified copy of these payroll reports shall be made available:

1. For inspection or furnished upon request to a representative of the Department of Labor;
2. Upon request by the public or for copies thereof. However, a request by the public must be made through the Department of Labor. The requesting party shall, prior to being provided the records, reimburse the costs of preparation by the Department of Labor in accordance with the Department's copying fee policy. The public shall not be given access to the records at the principal office of the contractor or subcontractor; and
3. The certified payroll records shall be on a form provided by the Department of Labor or shall contain the same information as the form provided by the Department and shall be provided within ten (10) days from receipt of notice requesting the records from the Department of Labor."

Contractor may contact:

Department of Labor
Division of Industrial Affairs
4425 No. Market Street
Wilmington, DE 19802

Telephone (302) 761-8200

PREFERENCE FOR DELAWARE LABOR:

Delaware Code, Title 29, Chapter 69, Section 6962, Paragraph (d), Subsection (4)b

"In the construction of all public works for the State or any political subdivision thereof, or by firms contracting with the State or any political subdivision thereof, preference in employment of laborers, workmen or mechanics shall be given to bona fide legal citizens of the State who have established citizenship by residence of at least 90 days in the State. Each public works contract for the construction of public works for the State or any political subdivision thereof shall contain a stipulation that any person, company or corporation who violates this section shall pay a penalty to the Secretary of Finance equal to the amount of compensation paid to any person in violation of this section."

EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS:

Delaware Code, Title 29, Chapter 69, Section 6962, Paragraph (d), Subsection (7)

"a. As a condition of the awarding of any contract for public works financed in whole or in part by State appropriation, such contracts shall include the following provisions:

During the performance of this contract, the contractor agrees as follows:

1. The contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex or national origin. The contractor will take positive steps to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.
2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex or national origin.'

TAX CLEARANCE:

As payments to each vendor or contractor aggregate \$2,000, the Division of Accounting will report such vendor or contractor to the Division of Revenue, who will then check the vendor or contractor's compliance with tax requirements and take such further action as may be necessary to insure compliance.

LICENSE:

A person desiring to engage in business in this State as a contractor shall obtain a license upon making application to the Division of Revenue. Proof of said license compliance to be made prior to, or in conjunction with, the execution of a contract to which he has been named.

DIFFERING SITE CONDITIONS,

SUSPENSIONS OF WORK and SIGNIFICANT CHANGES IN THE CHARACTER OF WORK:

Differing site conditions: During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before they are disturbed and before the affected work is performed.

Upon written notification, the engineer will investigate the conditions, and if he/she determines that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding loss of anticipated profits, will be made and the contract modified in writing accordingly. The engineer will notify the contractor of his/her determination whether or not an adjustment of the contract is warranted.

No contract adjustment which results in a benefit to the contractor will be allowed unless the contractor has provided the required written notice.

No contract adjustment will be allowed under their clause for any effects caused on unchanged work.

Suspensions of work ordered by the engineer: If the performance of all or any portion of the work is suspended or delayed by the engineer in writing for an unreasonable period of time (not originally anticipated, customary or inherent to the construction industry) and the contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the contractor shall submit to the engineer in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.

Upon receipt, the engineer will evaluate the contractor's request. If the engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The engineer will notify the contractor of his/her determination whether or not an adjustment of the contract is warranted.

No contract adjustment will be allowed unless the contractor has submitted the request for adjustment within the time prescribed.

No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any other term or condition of this contract.

Significant changes in the character of work: The engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the contractor agrees to perform the work as altered.

If the alterations or changes in quantities significantly change the character of the work under the contract, whether or not changed by any such different quantities or alterations, an adjustment, excluding loss of anticipated profits, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the contractor in such amount as the engineer may determine to be fair and equitable.

The term "significant change" shall be construed to apply only to the following circumstances:

- (A) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction or
- (B) When a major item of work, as defined elsewhere in the contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.

PREVAILING WAGES

Included in this proposal are the minimum wages to be paid various classes of laborers and mechanics as determined by the Department of Labor of the State of Delaware in accordance with Title 29 Del.C. §6960, relating to wages and the regulations implementing that Section.

Title 29 Del.C. §6960 relating to wages further stipulates "that the employer shall pay all mechanics and laborers employed directly upon the site of the work, unconditionally and not less often than once a week and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the specifications, regardless of any contractual relationship which may be alleged to exist between the employer and such laborers and mechanics", and ... "that the scale of wages to be paid shall be posted by the employer in a prominent and easily accessible place at the site of the work, and that there may be withheld from the employer so much of accrued payments as may be considered necessary by the Department of Labor to pay to laborers and mechanics employed by the employer the difference between the rates of wages required by the contract to be paid laborers and mechanics on the work and rates of wages received by such laborers and mechanics to be remitted to the Department of Labor for distribution upon resolution of any claims."

Bidders are specifically directed to note the Department of Labor's regulations implementing §6960 relating to the effective date of the wage rates, at Part VI., Section C., which in relevant part states:

"Public agencies (covered by the provisions of 29 Del.C. §6960) are required to use the rates which are in effect on the date of the publication of specifications for a given project. In the event that a contract is not executed within one hundred twenty (120) days from the date the specifications were published, the rates in effect at the time of the execution of the contract shall be the applicable rates for the project."

STATE OF DELAWARE
DEPARTMENT OF LABOR
DIVISION OF INDUSTRIAL AFFAIRS
OFFICE OF LABOR LAW ENFORCEMENT
PHONE: (302) 451-3423

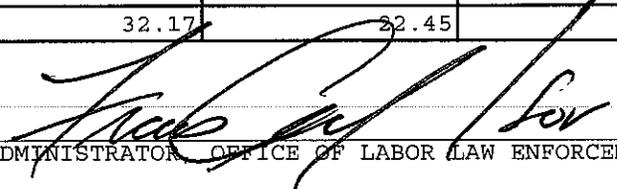
Mailing Address:
225 CORPORATE BOULEVARD
SUITE 104
NEWARK, DE 19702

Located at:
225 CORPORATE BOULEVARD
SUITE 104
NEWARK, DE 19702

PREVAILING WAGES FOR HIGHWAY CONSTRUCTION EFFECTIVE MARCH 15, 2012

CLASSIFICATION	NEW CASTLE	KENT	SUSSEX
BRICKLAYERS	45.63	45.63	14.51
CARPENTERS	49.06	49.06	39.22
CEMENT FINISHERS	30.40	26.13	23.29
ELECTRICAL LINE WORKERS	22.50	54.05	21.25
ELECTRICIANS	59.10	59.10	59.10
IRON WORKERS	42.20	22.98	25.35
LABORERS	30.23	26.66	29.03
MILLWRIGHTS	16.11	15.63	13.49
PAINTERS	56.07	56.07	56.07
PILEDRIVERS	59.23	23.75	26.95
POWER EQUIPMENT OPERATORS	41.41	27.54	26.43
SHEET METAL WORKERS	22.75	20.31	18.40
TRUCK DRIVERS	32.17	32.45	22.15

CERTIFIED: 3/21/12

BY: 

ADMINISTRATOR, OFFICE OF LABOR LAW ENFORCEMENT

NOTE: THESE RATES ARE PROMULGATED AND ENFORCED PURSUANT TO THE PREVAILING WAGE REGULATIONS ADOPTED BY THE DEPARTMENT OF LABOR ON APRIL 3, 1992.

CLASSIFICATIONS OF WORKERS ARE DETERMINED BY THE DEPARTMENT OF LABOR. FOR ASSISTANCE IN CLASSIFYING WORKERS, OR FOR A COPY OF THE REGULATIONS OR CLASSIFICATIONS, PHONE (302) 451-3423.

NON-REGISTERED APPRENTICES MUST BE PAID THE MECHANIC'S RATE.

PROJECT: DOT1208-PAVEMRK_SHRT Pavement Marking Program, Short Line, Statewide, Multiple Counties

SUPPLEMENTAL SPECIFICATIONS TO THE AUGUST 2001 STANDARD SPECIFICATIONS

**EFFECTIVE AS OF THE ADVERTISEMENT
DATE OF THIS PROPOSAL
AND INCLUDED BY REFERENCE**

**The Supplemental Specifications can be viewed and printed from
the Department's Website.**

To access the Website;

- in your internet browser, enter; <http://www.deldot.gov>
- on the left side of the page under 'INFORMATION', Click; 'Publications'
- scroll down under 'MANUALS' and Click; "Standard Specifications 2001"

The full Website Link is;

http://www.deldot.gov/information/pubs_forms/manuals/standard_specifications/index.shtml

Printed copies of the Supplemental Specifications are available upon request. A printed copy of the above referenced Supplemental Specifications will be included in the final contract documents upon award.

The Contractor shall make himself aware of these revisions and corrections (Supplemental Specifications), and apply them to the applicable item(s) of this contract.

SPECIAL PROVISIONS

CONSTRUCTION ITEM NUMBERS

All construction pay items are assigned a six (6) digit number, shown as Item Number on the Plans and/or in the Special Provisions, and shall be interpreted in accordance with the following:

Standard Item Number:

The first three digits of the construction item numbers indicates the Section number as described in the Standard Specifications, and all applicable requirements of the Section shall remain effective unless otherwise modified by the Special Provisions. The last three digits of the construction item identifies the item by sequential number under that Section. Sequential numbers for all items covered under Standard Specifications range from 000 to 499. A comprehensive list of construction item numbers begins on page 421 of the Standard Specifications. Additions to this list will be made as required.

Special Provisions Item Number:

The first three digits of the construction items, covered under Special Provisions, indicates the applicable Section number of the Standard Specifications, and shall be governed fully by the requirements of the Special Provisions. The last three digit of the items covered under Special Provisions identifies the item by sequential number. Sequential numbers for Special Provision items, range from 500 to 999.

Examples

Standard Item Number - 202000 Excavation and Embankment

202 Indicates Section Number

000 Indicates Sequential Number

Special Provision Item Number - 202500 Grading and Reshaping Roadway

202 Indicates Section Number

500 Indicates Sequential Number

401502 - ASPHALT CEMENT COST ADJUSTMENT

For Sections 304, 401, 402, 403, 404, and 405, payments to the Contractor shall be adjusted to reflect increases or decreases in the Delaware Posted Asphalt Cement Price when compared to the Project Asphalt Cement Base Price, as defined in these Special Provisions.

The Delaware Posted Asphalt Cement Price will be issued monthly by the Department and will be the industry posted price for Asphalt Cement, F.O.B. Philadelphia, Pennsylvania.

The Project Asphalt Cement Base Price will be the anticipated Delaware Posted Asphalt Cement Price expected to be in effect at the time of receipt of bids.

All deviations of the Delaware Posted Asphalt Cement Price from the Project Asphalt Cement Base Price are eligible for cost adjustment. No minimum increases or decreases or corresponding percentages are required to qualify for cost adjustment.

Actual quantity of asphalt cement qualifying for any Asphalt Cement Cost Adjustment will be computed on the basis of weight tickets and asphalt percentage from the approved job mix formula.

For Recycled Hot-Mix the asphalt percentage eligible for cost adjustment shall be only the new asphalt cement added to the mix.

There shall be no separate payment per ton (metric ton) cost of asphalt cement. That cost shall be included in the various unit prices bid per ton (metric ton) for those bid items that contain asphalt cement (mentioned above).

The Asphalt cement cost adjustment will be calculated on grade PG 64-22 asphalt regardless of the actual grade of asphalt used. The Project Asphalt Cement Base Price for the project will be \$641.67 per ton (\$707.32 per metric ton).

If the Contractor exceeds the authorized allotted completion time, the price of asphalt cement on the last authorized allotted work day, shall be the prices used for cost adjustment during the time liquidated damages are assessed. However, if the industry posted price for asphalt cement goes down, the asphalt-cement cost shall be adjusted downward accordingly.

NOTE

Application of Asphalt Cement Cost Adjustment requirements as indicated above shall apply only to those contracts involving items related to bituminous base and pavements, and with bitumen, having a total of 1,000 tons (1,000 metric tons) or more of hot-mix bid quantity in case of Sections 401, 402 and 403; and 15,000 gallons (60 000 liters) or more in case of Sections 304, 404 and 405.

- 748660 - WHITE PAINT LINE, 4"
- 748661 - WHITE PAINT LINE, 6"
- 748662 - WHITE PAINT LINE - LONG, 4"
- 748663 - WHITE PAINT LINE - LONG, 6"
- 748664 - WHITE PAINT LINE - TRANSVERSE, 8"
- 748665 - WHITE PAINT LINE - TRANSVERSE, 12"
- 748666 - WHITE PAINT LINE - TRANSVERSE, 16"
- 748667 - STRAIGHT ARROW - PAINT
- 748668 - RIGHT OR LEFT ARROW - PAINT
- 748669 - COMBINATION ARROW - PAINT
- 748670 - SYMBOL - PAINT
- 748671 - YELLOW PAINT LINE, 4"
- 748672 - YELLOW PAINT LINE, 6"
- 748673 - YELLOW PAINT LINE - LONG, 4"
- 748674 - YELLOW PAINT LINE - LONG, 6"
- 748675 - YELLOW PAINT LINE TRANSVERSE, 8"
- 748676 - YELLOW PAINT TRANSVERSE, 12"
- 748677 - CURB PAINT
- 748740 - WHITE PAINT LINE, 5"
- 748741 - WHITE PAINT LINE, LONG LINE, 5"
- 748742 - YELLOW PAINT LINE, 5"
- 748743 - YELLOW PAINT LINE, LONG LINE, 5"
- 748755 - WHITE PAINT LINE, 10"
- 748756 - YELLOW PAINT LINE, 10"

Description:

This work consists of repainting of existing reflective pavement markings or painting where the line has not previously existed. The Contractor shall furnish the fast dry paint; the glass spheres; maintenance of traffic; and all labor, equipment and incidentals necessary to apply pavement markings in a safe and efficient manner.

Application:

General Requirements

These specifications cover the application of a heated pigmented binder (white and yellow) and optical glass spheres system to highway surfaces with specialized application equipment.

The reflective surface shall be obtained by applying optical glass spheres in a specified ratio onto and into the pigmented binder after the binder application in one operation by specialized equipment hereafter described in these specifications.

During and after material application, both daylight and nighttime inspections of the markings will be made by an authorized representative of the Division of Highway Operations, and if found to be defective or if they fail in any way to meet the specifications in this proposal, such markings will be rejected and must be replaced at no cost to the Department within the time limit specified.

The contractor shall assume all costs arising from the use of patented materials, equipment, devices, and processes used on or incorporated in the work.

Equipment Required

The successful bidder must use on this contract equipment meeting the following minimum requirements:

The equipment used to apply pavement markings shall meet the following requirements:

- A. PAINT EQUIPMENT

1. Be able to apply double centerlines simultaneously (except temporary markings may be applied separately).
2. Capability to apply paint and glass beads to pavement at same time, leaving no more than 2" (50 mm) of painted line without glass beads at the beginning or end of a line.
3. Capability of hand gun operation for applying special markings. (This may be a separate piece of equipment).

B. Truck Mounted Paint Equipment

1. Must apply double centerlines simultaneously.
2. Shall be capable of pneumatically applying glass beads 1" (25 mm behind the spray pattern of the paint gun.
3. Shall have automatic electrically controlled skipline mechanism capable of retracing the existing approximate 10 ft (3 m) stripe and 30 ft (9 m) skip or applying a new 10 ft (3 m) stripe and 30 ft (9 m) skip.

The application speed of the paint machine shall not be greater than 10 mph (17 km/h) unless approved by the Project Coordinator.

The wet film thickness shall be (15 Mils), (+/- 1 Mil). A deduction will be made from the monies due the contractor for improper film thickness according to the following table:

<u>Thickness in (Mils)</u> <u>From To Less Than</u>	<u>Deduction for a 5" line</u>
(12)	Reapply
(12) To (13)	Deduct .015
(13) To (14)	Deduct .002

* Proportional rates apply to wider lines.

When the contractor is required to repaint a line, no payment will be made for the repainting.

The reflective surface shall be obtained by applying glass spheres at an average rate of 7 lbs. per gallon of pigmented binder onto and into the pigmented binder. The glass spheres shall be dispensed by a pneumatic system that results in the spheres being retained on the surface and embedded within the binder.

The rate of beads and paint application shall be determined at the end of the workday. The number of gallons of paint used and the number of pounds of glass spheres used shall be determined. The number of gallons of paint shall be divided into the number of pounds of glass spheres and result shall be 7 lbs. per gallon or greater.

A deduction will be made from monies due the contractor for improper bead application according to the following table:

<u>Glass Beads (lbs/gallons)</u> <u>From To Less Than</u>	<u>Deduction (5")</u>
(6.5)	Reapply
(6.5) to (6.7)	.015
(6.7) To (6.9)	.002

* Proportional rates apply to wider lines.

APPROVED MATERIALS:

GLASS BEADS

1. Scope

- 1.1 This specification covers glass beads to be sprayed upon pavement marking paint so as to produce a reflective pavement marking.
2. General Requirements
 - 2.1 The beads shall be transparent, clean, colorless glass, smooth and spherically shaped, free from milkiness, pits, or excessive air bubbles and conform to all of the requirements of AASHTO M-247-81 (1996) with the addition of the requirements as noted below.
3. Specific Properties
 - 3.1 Gradation. The beads shall meet the gradation requirements for Type 1 as given in Table I of AASHTO M-247-81 (1996).
 - 3.2 Roundness. The glass beads shall have a minimum of 80 percent true spheres.
 - *3.3 Moisture Resistant. A moisture resistant coating shall be applied to prevent absorption of moisture. The beads shall remain free of clusters and lumps; and flow freely from dispensing equipment.
- * When Latex Traffic Paint is used the glass beads shall be Moisture Resistant.
4. Submission of Samples
 - 4.1 A 50 lb. unopened bag of glass beads shall be submitted to the Bureau of Materials and Research for each lot or batch for testing 30 days prior to use.
 - 4.2 A copy of the Manufacturer's certified analysis of each lot or batch and Material Safety Data Sheet shall also accompany the samples.
 - 4.3 All samples shall be identified with the contract number(s) for which the glass beads will be used.
5. Packaging and Marking
 - 5.1 Glass beads shall be furnished in 50 lb. moisture proof bags. Containers are to be guaranteed to furnish dry and undamaged beads.
 - 5.2 Each package shall contain the following information:
 - 5.2.1 Name and address of manufacturer
 - 5.2.2 Shipping point
 - 5.2.3 Trademark or name
 - 5.2.4 The working "glass beads"
 - 5.2.5 Specification number
 - 5.2.6 Net weight in kilograms or lbs.
 - 5.2.7 Lot or batch number
 - 5.2.8 Month and year of manufacture
6. Retroreflectivity Readings

All Paint lines are required to meet a minimum reflectivity. The minimum reflectivity reading that will be accepted is 150 Millicandelas for white and 125 Millicandelas for yellow. These readings will be taken with a Delta LTL-X Retrometer with 30-meter geometry. If the Reflectivity fails to meet the minimum requirements the contractor will be required to re-paint the lines at their expense.

The following list contains all alkyd paints (pigmented binder) currently approved for use to perform the work:

1.

Manufacturer	Manufacturer's Code
Aexcel Corporation	72W-A042
Ennis Paint Inc.	WX08W001
Ennis Paint Inc.	DEW-21-M-1
Sherwin Williams	BP17949
- 2.

Manufacturer
Aexcel Corporation
Ennis Paint Inc.
Ennis Paint Inc.
Sherwin Williams

Manufacturer's Code
72Y-A080
WX08L001
DEY-21-M-1
BP17952

LATEX TRAFFIC PAINT

Latex Traffic Paint for traffic stripes or traffic markings shall be a white or a yellow ready-mixed pigmented binder which is emulsified in water and capable of anchoring reflective glass beads which are separately applied. In addition, the paint shall not contain any of the materials listed in the Environmental Protection Agency Code of Regulations (CFR) 40, section 261.24, table 1.

Manufacturers of Latex Paint shall have produced, to the satisfaction of the Department's Materials and Research Section, a Fast-Drying Traffic Paint, which meets the physical and composition requirements of this specification.

COMPOSITION: The exact composition of the Latex Paint shall be left the discretion of the manufacturer as stipulated hereinafter.

Pigment: The Pigment portion shall be a combination of prime and extender pigments as required to produce either a white or yellow Traffic Paint meeting the color and other requirements of the finished product for white or yellow, as specified elsewhere in this specification.

The prime pigment for white paint shall be Titanium Dioxide conforming to ASTM D 476, Type IV, with a minimum Titanium Dioxide content of 94 percent and shall be used at a minimum rate of 1 pd per gallon (.12 Kg/Liter).

The prime pigment for yellow paint shall be a non-toxic organic pigment yellow, No. 75 or equal pre-approved by the Department, with excellent exterior and color permanence. The prime pigment shall also contain a minimum 0.2 pounds per gallon (.02 kg/liter) of Titanium Dioxide conforming to ASTM D 476, Type IV, 94 percent purity.

The percent pigment by weight of the finished product shall not be less than 60 nor more than 62 percent.

Vehicle: The Non-Volatile vehicle shall not be less than 42 percent by weight, and shall be pre-approved by the Department's Materials and Research section and meet the Dry Through (Early Washout) Requirements specified hereinafter.

Physical Properties:

- Color: The color shall match Federal Test Standard No. 595A, Latest Edition, No. 33538 for Yellow and No. 37886 for White.
- Organic Volatiles: The Volatile Organic Content (VOC) of the finished paint shall contain less than 2.1 pounds per gallon (0.25 Kg/Liter) of Volatile Organic Matter of total Non-Volatile paint material.
- Volume of Solids: The finished paint shall not be less than 61 percent solids by volume.
- Total Solids: The finished paint shall not be less than 77.5 percent total Non-Volatiles by weight, when tested in accordance with ASTM D 2369.
- Liter Weight: The weight of the finished paint shall be 14 pounds per gallon (1.7 Kg/Liter) plus or minus 0.2 pounds per gallon (0.02 Kg/Liter) for each color.
- Grind: The grind shall not be less than 2 Hegman when tested in accordance with Federal Test Standard No. 141B, method 4411.

- Field No-Tracking Time: The paint shall dry to a no-track condition under traffic in no more than 75 seconds. The no tracking condition shall be determined by actual application on the pavement at a wet film thickness of .38 mm (15 mils) with white or yellow paint covered with glass beads at a rate of 7 pounds per gallon (.84 kg/liter). The paint lines for this test shall be applied with the striping equipment operated so as to have the paint at temperatures up to 140 degrees F (60 degrees C) at the spray orifice. This maximum tracking time shall not be exceeded when the pavement temperature varies from 50 to 120 degrees F (10 to 50 degrees C) and under humidity conditions of 80% or less providing that the pavement is dry.
- Viscosity: The consistency of the paint shall be not less than 70 nor more than 95 KREB units at 77 degrees F (25 degrees C), when tested in accordance with ASTM D 562.
- Flexibility: The paint shall show no cracking or flaking when tested in accordance with Federal Specification TT-P-1952B, section 4.3.7.
- Dry Opacity: The minimum contrast ratio shall be 0.95 when tested in accordance with Federal Test Standard No. 141B, Method 4121, Procedure B, using an 0.005 Bird Applicator.
- Daylight Reflectance: The Daylight Directional Reflectance shall not be less than 85 percent for the white paint and not less than 54 percent for the yellow (Relative to Magnesium Oxide), when tested in accordance with Federal Test Standard No. 141B, Method 6121.

Abrasion Resistance: The Abrasion Resistance shall be such that no less than 210 liters of sand shall be required for removal of the paint film when tested in accordance with this Federal Specification TT-P-1952B, Section 4.3.8.

- Water Resistance: The paint shall conform to Federal Specification TT-P-1952B, section 4.5.6. There shall be no blistering or appreciable loss of adhesion, softening, or other deterioration after examination.
- Freeze-Thaw Stability: The paint shall show no coagulation or change in consistency greater than 5 KREB units, when tested in accordance with Federal Specification TT-P-1952B, Section 4.5.7.
- Heat Stability: The paint shall show no coagulation, discoloration, or changes in consistency greater than plus or minus 5 KREB units when tested in accordance with Federal Specification TT-P-1952B, section 4.5.8.
- Dilution Test: The paint shall be capable of dilution with water at all levels without curdling or precipitation such that the wet paint can be readily cleaned up with only water.
- Dry Through (Early Washout): The Dry Through time of a (15 mil) wet film placed immediately in a Humidity Chamber, maintained at 72.5 plus or minus 2.5 degrees F (22.5 degrees C plus or minus 1.4 degrees C) and 90 plus or minus 5 percent relative humidity shall be less than or equal to the Department Laboratory reference film when tested in accordance with ASTM D 1640, except that the pressure exerted the minimum needed to maintain contact with the thumb and film.
- Color Appearance After Aging: The white paint shall show no more than slight discoloration and the yellow paint shall be within the limits of the Color Tolerance Chart for Standard Highway Yellow, after accelerated weathering in accordance with Federal Specification TT-P-115D, Section 3.5.9.1.
- Shelf Life: All paint furnished shall have a minimum shelf life of 9 months at temperatures above 35 degrees F (2 degrees C). When tested, the paint shall conform to the physical requirements specified herein. In addition, the paint shall show no skinning, gelling or hardening on the surface, nor hard settling upon storage in the sealed containers, that will affect the performance of the product.

Inspection and Testing:

More detailed information concerning these materials is available by contacting the Department's Materials and Research Section, (302) 760-2400.

Upon notification of award, it shall be the responsibility of the vendor to contact the Department's Materials and Research Section to arrange for sampling and testing of approved materials.

All samples required by the Department's Materials and Research Section shall be supplied by the vendor 30 days prior to use in amounts and sizes indicated, at no cost to the Department.

Method of Measurement:

The quantity of pavement striping will be measured by the number of linear feet of pavement striping line placed on the pavement and accepted. The Contractor shall have on his equipment a suitable measuring device capable of determining the total number of "Linear Feet" of materials actually applied within a tolerance of $\pm 2\%$. This device shall be calibrated, at least, twice weekly during marking operations.

Basis of Payment:

The quantity of pavement striping payment will be paid for at the Contract unit price per linear foot. Price and payment shall include constitute full compensation for supplying and applying the marking material and for all labor, test, protection, equipment, tools, manipulation, supplying maintenance of traffic, and incidentals necessary to complete the item of work to the satisfaction of the Department. All Arrows shall be paid for as Each. All symbols shall be paid for per Square Foot.

2/13/12

748678 - TYPE "A" LINE, 4"
748679 - TYPE "A" LINE - LONG, 4"
748680 - TYPE "A" LINE, 6"
748681 - TYPE "A" LINE - LONG, 6"
748682 - TYPE "A" LINE, 8"
748683 - TYPE "A" LINE, 12"
748684 - TYPE "A" LINE, 16"
748685 - STRAIGHT ARROW TYPE "A"
748686 - RIGHT OR LEFT ARROW TYPE "A"
748687 - COMBINATION ARROW TYPE "A"
748688 - SCHOOL LEGEND TYPE "A"
748689 - R x R LEGEND TYPE "A"
748690 - SYMBOL TYPE "A"
748735 - TYPE "A" LINE, 5"
748736 - TYPE "A" LINE - LONG, 5"
748737 - TYPE "A" LINE, 10"
748738 - TYPE "A" LINE, CONTRAST, 8"
748739 - TYPE "A" LINE, CONTRAST, 13"

Description:

This work shall consist of furnishing and installing retroreflective preformed patterned pavement marking in accordance with this provision and in conformance to the existing pavement markings or as established by the Engineer. The Contractor is required to have all subcontractors involved in the placement of these markings attend the pre-placement meeting along with the tape manufacturer representative and Department representatives to coordinate this operation. The subcontractor for pavement markings shall be approved by the Department prior to the preconstruction meeting.

Materials:

General: The preformed patterned markings shall consist of white or yellow films with clear microcrystalline ceramic beads incorporated to provide immediate and continuing retroreflection. The markings shall be suitable for application on new or existing P.C. Concrete or bituminous pavements with a pre-coated pressure sensitive adhesive

The preformed marking material must be used prior to one year from date of manufacture. When not placed by inlaid method a surface preparation adhesive shall be used. The markings shall be capable of providing retroreflection during both wet and dry conditions.

The markings shall be highly durable retroreflective pliant polymer materials designed for longitudinal and word/symbol markings subjected to high traffic volumes and severe wear conditions such as shear action from crossover or encroachment on typical longitudinal configurations such as edge lines and lane lines. This film shall be manufactured without the use of lead chromate pigments or other similar, lead-containing chemicals.

Composition: The pavement marking shall consist of a mixture of high quality polymeric materials and pigments with glass beads distributed throughout the base cross-sectional area, with a reflective layer of microcrystalline ceramic beads bonded to a durable polyurethane topcoat surface. The patterned surface shall have approximately 50% plus or minus 15% of the surface area raised and presenting a near vertical face, angled from 0 degrees to 60 degrees, to traffic from any direction. The channels between the raised areas shall be substantially free of exposed beads or particles. The marking shall have a precoated pressure sensitive adhesive. The edges of the markings shall be clean cut and true.

Retroreflectance: The white and yellow markings shall have the initial expected retroreflectance values as shown in Table 1 under dry, wet, and rainy conditions. The photometric quantity to be measured shall be coefficient of retroreflected luminance (R_L) and shall be expressed as millicandelas per square foot per foot-candle [(mcd C ft⁻²) C fc⁻¹]. The metric equivalent shall be expressed as millicandelas per square meter per lux [(mcd C m⁻²) C lx⁻¹].

Retroreflectance values shall be measured under dry conditions in accordance with the testing procedures of ASTM D4061. Retroreflectance values shall be measured under wet conditions in accordance with ASTM E2176 or ASTM E2177. Wet retroreflectance values measured under a ‘condition of continuous wetting’ (simulated rain) shall be in accordance with ASTM E2176. Wet retroreflectance values measured under a ‘condition of wetness’ shall be in accordance with ASTM E2177.

Table 1		
Expected Initial R_L under dry, wet, and rainy conditions		
<u>White</u>	<u>Dry</u>	<u>Wet & Rainy</u>
Entrance Angle	88.76°	88.76°
Observation Angle	1.05°	1.05°
Retroreflected Luminance	500	250
$R_L [(mcd C m^{-2}) C lx^{-1}]$		
<u>Yellow</u>	<u>Dry</u>	<u>Wet & Rainy</u>
Entrance Angle	88.76°	88.76°
Observation Angle	1.05°	1.05°
Retroreflected Luminance	300	250
$R_L [(mcd C m^{-2}) C lx^{-1}]$		

Beads, Index of Refraction: All Adry-performing@ microcrystalline ceramic beads bonded to the polyurethane-coated, patterned surface of the material shall have a minimum index of refraction of 1.70 when tested using the liquid oil immersion method. All ‘wet-performing’ microcrystalline ceramic beads bonded to the polyurethane-coated, patterned surface of the material shall have a minimum index of refraction of 2.30 when tested using the liquid oil immersion method. The glass beads mixed into the pliant polymer shall have a minimum index of refraction of 1.5 when tested by the liquid oil immersion method.

Beads, Acid Resistance: The beads shall show resistance to corrosion of their surface after exposure to a 1% solution (by weight) of sulfuric acid. The 1% acid solution shall be made by adding 5.7 cc of concentrated acid into 1000 cc of distilled water.

Color: The markings shall consist of white and/or yellow films with pigments selected and blended to conform to standard highway colors.

Skid Resistance: The patterned surface of the markings shall provide an initial average skid resistance value of 45 BPN when tested according to ASTM E 303.

Patchability: The pavement marking material shall be capable of use for patching worn areas of the same type in accordance with manufacturer’s instructions.

Thickness: The patterned material without adhesive shall have a minimum caliper of 0.065 inches (1.651mm) at the thickest portion of the patterned cross section and a minimum caliper of 0.020 inches (.508mm) at the thinnest portion of the cross section.

Tolerance: The Contractor will be responsible for applying these markings in a straight manner not exceeding ½” (12 mm) per 40’ (12 m). Any markings exceeding the ½” (12 mm) tolerance will require the Contractor to make corrective action approved by the Engineer and the tape manufacturer representative at no extra cost to the Department.

Construction Methods:

The Contractor shall be certified, by the manufacturer, in the installation of the pavement marking material prior to the start of the markings. The Contractor shall install the pavement marking material in accordance with the manufacturer's published recommendations.

The manufacturer shall provide technical assistance as required to ensure successful installation of the markings. This shall include a representative on site for the start of the markings, training, product information, problem solving, etc.

Installation of the pavement markings shall be performed in a neat and workmanlike manner. The Contractor shall premark the pavement to ensure correct location of markings and such layout work shall be incidental to the price bid for the pavement marking items. The method for premarking should be as recommended by the manufacturer. A thin layer of paint as a premarking is not recommended. Particular care shall be taken to ensure that the leading edges of the markings are secured to the pavement.

General application rules:

- The Air and surface temperature shall be a minimum of 40°F.
- The pavement must be clean and dry. 24 hours of dry weather where no rain is expected.
- When not placed by inlaid method a surface preparation adhesive shall be used.
- Do not overlap tape - use butt splice.
- Do not apply tape on longitudinal seams or joints or cracks.
- Do not apply tape on deteriorating pavement surfaces.
- Existing markings must be 80% removed.

After application, the markings shall be immediately ready for use by traffic.

Inlay into Fresh Bituminous Concrete:

When markings are specified in the contract for newly paved asphalt concrete surfaces, they shall be applied before public traffic is allowed on the freshly paved surface - the pavement markings shall be inlaid in the fresh surface during final rolling of the mat, in accordance with the manufacturer's recommendations unless otherwise directed by Engineer.

The Contractor shall show how the pavement mats will be placed to avoid applying the tape on longitudinal seams or joints or cracks and maintain correct marking location.

The Contractor shall employ a sufficient number of workers to premark the pavement and install the markings such that all markings are inlaid into the hot pavement prior to the finish rolling. No paving shall be permitted unless the striping crew and materials are on the project site.

- * General procedure for inlay application on fresh asphalt surfaces:
- * Tape is applied after the compaction roller and before the finish roller using minimum water, slow speed and no vibration.
- * Tape shall be applied using equipment recommended by manufacturer
- * Tamping shall be done by the finish roller and in the same direction the tape was applied. A separate roller of a size approved by the tape manufacturer may be required to meet the manufacturer's requirements.
- * Roller shall use minimum speed to prevent wrinkling the tape.
- * Asphalt temperatures shall be between 180°F (66°C) and 120°F (49°C) when tape is applied.

NOTE: Even though the tape will stand these high temperatures the contractor is to use caution to assure the asphalt is firm enough to walk on above 140°F (60°C).

Placement on new P.C. Concrete Pavement:

When markings are specified in the contract for new P.C. concrete pavement surfaces they shall be applied after the concrete has adequately cured as determined by the Engineer and prior to opening to traffic.

1. When a membrane curing compound has been applied to the concrete surface, it shall be removed by sandblasting prior to applying the markings. Cost for such sandblasting shall be incidental to the price bid for the pavement marking item. The road shall be cleaned by sweeping and with high pressure air.
2. The manufacturer shall specify a primer/solvent for the pavement surface.
3. The tape shall be applied with an approved applicator.
4. The tape shall be tamped with a roller tamper cart with a minimum 200 lb (90 kg) load or by slowly (2-3 mph [3-5 km/hr]) driving over the tape with a vehicle tire. Do not twist or turn on the tape. A minimum of three passes back and forth over the tape will be required. All edges of the tape shall be thoroughly tamped.

Placement on Existing Pavement:

When markings are specified in the contract for existing pavement, the pavement surface shall be free of any existing markings.

1. The road shall be cleaned by sweeping and with high pressure air.

Steps 2 through 4 are the same as for new P.C. C. pavement.

Method of Measurement:

This work shall be measured for payment by the number of linear feet of line or square foot of symbol/legend of Retroreflective Preformed Patterned Markings installed on the pavement and accepted in accordance with the plans. All Arrows, School Legends, R X R Legends shall be paid for as Each.

Basis of Payment:

This work shall be paid for at the contract unit price bid per linear foot of line or square foot of symbol/legend as measured for item "Retroreflective Preformed Patterned Markings" of the type specified. All Arrows, School Legends, R X R Legends shall be paid for as Each. This price shall include cleaning and preparing the pavement surface, furnishing and placing all materials, supplying maintenance of traffic, for all labor, tools, equipment and incidentals necessary to complete the work.

1/5/12

- 748691 – THERMOPLASTIC LINE, 4"
- 748692 - THERMOPLASTIC LINE - LONG, 4"
- 748693 - THERMOPLASTIC LINE, 6"
- 748694 - THERMOPLASTIC LINE - LONG, 6"
- 748695 - THERMOPLASTIC TRANSVERSE LINE, 8"
- 748696 - THERMOPLASTIC TRANSVERSE LINE, 12"
- 748697 - THERMOPLASTIC TRANSVERSE LINE, 16"
- 748698 - STRAIGHT ARROW THERMOPLASTIC
- 748699 - LEFT OR RIGHT THERMOPLASTIC ARROW
- 748700 - COMBINATION ARROW THERMOPLASTIC
- 748701 -YELLOW THERMOPLASTIC ON SPEED HUMPS, 4"
- 748702 - SYMBOL - THERMOPLASTIC
- 748732 - THERMOPLASTIC LINE, 5"
- 748733 - THERMOPLASTIC LINE - LONG, 5"
- 748734 - THERMOPLASTIC LINE, 10"

Section 748 shall apply except as modified below.

Subsection 748.09 Application.

Add the following at the end of this subsection:

- (d) Reflectivity for Alkyd Type Thermoplastic Material.

After satisfactory completion of all striping work and written notification from the Contractor, the Department test the striping to ensure it has the minimum reflectivity. The testing will be completed within 30 calendar days from notification. The Contractor shall accept lower average readings derived from late testing due to the Contractor's failure to notify the Engineer. The Contractor may request that tests be conducted on completed phases or portions of the work. Approval of such a request will be at the discretion of the Engineer. Testing will be done using a Delta LTL-X Retrometer (30 meter geometry). Five readings will be taken per line per mile (1.6 kilometer). Projects less than 1 mile (1.6 kilometer) in length will have a minimum of five readings per line.

The required minimum initial reflectivity reading in millicandellas shall be:

White 300
Yellow 200

For striping below these minimums and above 125 millicandellas payment will be reduced as described under Basis of Payment.

Striping with an average reflectivity below 125 millicandellas shall be removed and replaced at the sole expense of the Contractor.

- (e) Guarantee for Alkyd Type Thermoplastic Material.

Acceptance of this project will be contingent upon successful completion of a 180 day observation period under traffic beginning upon the satisfactory completion of all striping work required by the Contract.

During the 180 day observation period the thermoplastic Pavement Marking Material furnished and installed under this Contract shall be warranted against failure due to blistering, excessive cracking, bleeding, staining, discoloration, oil content of the pavement materials, smearing and spreading under heat, deterioration due to contact with grease deposits, oil, diesel fuel, or gasoline drippings, chipping, spalling, poor adhesion to the pavement materials, vehicular damage, and wear. Any markings that have not performed satisfactorily during the 180 day observation shall be replaced by the Contractor at no expense to the Department.

Marking replacement shall be performed in accordance with the requirements specified herein for the initial application, including but not limited to possible surface cleaning, pavement marking removal, seasonal and weather limitations, etc.

The Contractor shall replace or renew, entirely at his/her expense, the amount of pavement markings deemed by the Engineer to have failed to perform useful service during the period noted above. The replacement material installed under this guarantee shall be the same as the original material.

Subsection 748.11 Basis of Payment.

Delete the first paragraph and insert the following:

The quantity of permanent pavement marking (alkyd thermoplastic) 4", 5", 6", 8", 10", 12" or 16" line will be paid for at the Contract unit price per linear foot of line and the Contract unit price per square foot of symbol. All arrows shall be paid for as each unless payment is reduced due to below minimum reflectivity as described below:

For pavement markings with reflectivity readings of 125 millicandellas or above but below 300 millicandellas for white or 200 millicandellas for yellow payment will be pro-rated based on the following formula:

$$\frac{A \times B}{C}$$

A = Average measured reflectivity readings*

B = Contract bid price for striping **

C = Required minimum initial reading

* = Must be greater than or equal to 125 millicandellas

** = Item bid price; not material cost

2/13/12

748703 – SYMBOL - PREFORMED THERMOPLASTIC MARKINGS

Description:

This work consists of furnishing and installing preformed retroreflective thermoplastic pavement marking with a preapplied Federal Specification Type IV glass bead coating at the locations and in accordance with the patterns on the Plans, or as directed by the Engineer.

The preformed retroreflective marking material shall consist of a resilient polymer thermoplastic with uniformly distributed glass beads throughout its entire cross section. Preformed retroreflective markings shall be available conforming to the current edition of the Manual on Uniform Traffic Control Devices for Streets and Highways as issued by the U.S. Department of Transportation Federal Highway Administration.

Materials:

General: The preformed retroreflective markings shall be fusible to asphalt and Portland Cement Concrete pavements by means of the normal heat of a propane type of torch. Adhesives, primers or sealers are not necessary prior to the preformed retroreflective markings application on asphalt and Portland Cement Concrete pavements.

The preformed retroreflective markings shall conform to pavement contours, breaks and faults through the action of traffic at normal pavement temperatures. The markings shall have resealing characteristics and be capable of fusing to itself and previously applied worn hydrocarbon and/or alkyl thermoplastic pavement markings.

The preformed retroreflective markings shall be capable of application on new, dense and open graded asphalt concrete wearing courses during the paving operation in accordance with the manufacturer's instructions. After application the markings shall be immediately ready for traffic. The preformed retroreflective markings shall be suitable for use for one year after the date of receipt when stored in accordance with the manufacturer's recommendations.

The preformed retroreflective thermoplastic markings shall not be brittle and must be sufficiently cohesive and flexible at temperatures exceeding 50°F (10°C) for one person to carry without the danger of fracturing the material prior to application.

Composition: The retroreflective pliant rosin ester thermoplastic pavement markings shall consist of a homogeneous mixture of high quality polymeric thermoplastic binders, pigments, fillers and glass beads. The thermoplastic material must conform to AASHTO M249-79(86) with the exception of the relevant differences due to the material being preformed, and identified herein.

Intermix Glass Beads: The preformed retroreflective material shall contain a minimum of 30% glass spheres which shall conform to AASHTO M247-81 Type 1. Glass spheres shall have a minimum of 80% true spheres overall.

Top Beads: To provide the required retroreflectivity, the preapplied factory top coating of glass beads shall be a combination of both Federal Spec. Type IV and AASHTO M247-81 Type I beads. Federal Spec. Type IV beads shall be evenly disbursed across the entire surface of the product at a minimum rate of 4 lb. (1.8 kg) per 100 ft² (9.3 m²) and the AASHTO at 3 lb.(1.4 kg) per 100 ft² (9.3 m²). In combination, the total glass bead coverage shall be 7-8 lb. (3.2-3.6 kg) per 100 ft² (9.3 m²). The AASHTO M247-81 Type I beads shall have a minimum of 80% true spheres overall and the Federal Spec. Type IV beads shall be 80% true spheres on the 12 and 14 sieves and shall be no less than 75% true spheres on the remaining sieves.

Retroreflectivity: After satisfactory completion of all striping work and written notification from the contractor, the Department shall test the striping to ensure it has the minimum reflectivity. The testing

will be completed within 30 calendar days from notification. Testing will be done using a Delta LTL-X Retrometer (30 meter geometry). The required minimum initial reflectivity reading in millicandellas shall be:

White 300

Yellow 200

Skid Resistance: The surface of the preformed retroreflective thermoplastic markings shall provide a pre-applied minimum skid resistance value of 45-51 BPN and a post-applied minimum skid resistance value of 45-55 BPN when tested according to ASTM E303-74.

Thickness: The thickness of the supplied material shall have a minimum average thickness of .090" (90 mils) for all Longitudinal lines and a thickness of .125" (125 mils) for all transverse lines and symbols/legends.

Tensile Strength and Elongation: The preformed retroreflective thermoplastic material shall have a minimum tensile strength of 150 lb. per square inch (1054 kg per square mm) of cross section, at .002" (2.28 mil) thickness, when tested according to ASTM D638-76 except that a sample 6" by 1" (150 mm by 25 mm) shall be tested at a temperature between 70°F and 80°F (21°C and 27°C) using a jaw speed of 10" to 12" (250 mm to 300 mm) per minute. The sample shall have a maximum elongation of 20% at break when tested by this method.

Flexibility: The preformed retroreflective thermoplastic marking material shall have flexibility at 50° such that when a 1" by 6" (25 mm by 150 mm) sample is bent through an arc of 90° at a uniform rate in 10 seconds (9° per second) over a 1" (25 mm) mandrel, no cracking occurs in the test sample. The sample must be conditioned prior to testing at 50°F±2° (10°C) for a minimum of four hours. At least two specimens tested must meet the flexibility requirements at 50°F (10°C) for a passing result.

Environmental Resistance: The applied markings shall be resistance to deterioration due to exposure to sunlight, water, oil, diesel fuels, gasoline, pavement oil content, salt and adverse weather conditions.

Effective Performance Life: When properly applied, in accordance with manufacturer's instructions, the preformed retroreflective pavement markings shall be neat and durable. The markings shall remain skid resistant and show no lifting, shrinkage, tearing, roll back or other signs of poor adhesion.

Oil/grease Resistant Test: The preformed retroreflective thermoplastic material shall not dissolve or smear after rubbing a small amount of motor oil on a small piece of the thermoplastic material for two minutes.

Bond Strength: The material shall exhibit a bond strength to Portland Cement Concrete (PCC) equal or exceed 180 psi when tested at room temperature (73.4±3°F) (23°C) in accordance to ASTM Standard Test Method for Bond Strength of thermoplastic marking Material D4796-88. Place a coarse brick in a 400°F (204°C) oven for 5 minutes. Prepare a 4 square inch test specimen. Place the test specimen on the brick and further heat in the 400°F (204°C) oven for 15 minutes. The test specimen is then allowed to cool to room temperature and prepared for testing.

Low Temperature Cracking (Stress) Resistance for Extended Period: The material shall be tested according to AASHTO T250 Section 7 with Section 7.2.3 modified for and extended cold temperature 15°±3°F (-9.4°±2°C) exposure period 72 hours. Any cracking shall constitute failure of the material for PCC road surfaces.

Impact Resistance (Gardner Falling Weight): A 2" by 7.5" (50 by 190 mm) specimen shall be applied on a course concrete brick. Using a Gardner Impact Tester, a 2 lb (.91 kg) weight is dropped from a height of 80" (2032 mm). The specimen when tested at room temperature 73.4±3°F (23°C) should show no sign of cracking. (Test procedure is in accordance with ASTM D5420-93).

Packaging: The flexible preformed retroreflective thermoplastic marking materials, for use as transverse or longitudinal markings as well as legends, arrows and symbols shall be available in flat form material or in rolls. Flat material shall be supplied in maximum of 4' (1.2 m) lengths up to 2' (.6 m) in width. The material shall be packed in suitable cartons clearly labeled for ease of identifying the contents.

Construction Methods:

The markings shall be applied in accordance with the manufacturer's recommendations on clean and dry surfaces. New Portland concrete cement surfaces must be sandblasted to entirely remove curing compound. Marking configuration shall be in accordance with the "Manual on Uniform Traffic Control Devices," where applicable.

The preformed retroreflective thermoplastic material shall be fusible to the pavement by means of a propane torch recommended by the manufacturer.

The supplier shall provide technical services as may be required.

Method of Measurement:

The quantity of pavement symbols shall be measured by the number of square feet of symbol/legend installed on the pavement and accepted in accordance with the Plans.

Basis of Payment:

The quantity of payment symbol shall be paid for at the contract unit price per square foot of symbol/legend. Price and payment shall include cleaning and preparing the pavement surface, placing all materials and supplying maintenance of traffic, for all labor, tools, equipment and incidentals necessary to complete the work.

2/13/2012

748704 – REMOVAL OF EXISTING PAVEMENT MARKINGS

Description:

This work consists of removing pavement markings of all kinds including paint, tape, etc., in accordance with this special provision, notes on Plans and/or as directed by the Engineer. The Contractor shall coordinate with the Engineer for maintaining traffic during the operation, prior to starting the work.

Materials and Construction Methods:

Paint and Epoxy Resins:

Shot/abrasive grit blasting or water blasting equipment shall be used for removal of markings from pavement surfaces. Grinding may be allowed at the discretion of the engineer.

Alkyd Thermoplastic:

In addition to the removal techniques discussed for paint and epoxy, burning or grinding (erasing machines) equipment may also be used for removal of markings from pavement surfaces.

The removal operation shall be performed in a manner that will not damage the pavement surface.

The Contractor shall collect and dispose of all shot/abrasive grit and pavement marking materials removed from the pavement surface. Washing or sweeping such material to the roadside will not be permitted.

Method of Measurement:

The quantity of pavement striping removal will be measured as the number of square feet of pavement striping removed and accepted. The area of lines will be calculated by multiplying the nominal width of line times the length and the area of symbols will be as specified in Subsection 748.10 of the Standard Specifications.

Basis of Payment:

The quantity of pavement striping removal will be paid for at the Contract unit price per square foot for "Removal of Pavement Striping". Price and payment shall be full compensation for furnishing all materials, removing the pavement markings, disposing of the removed marking material, supplying maintenance of traffic, and for all labor, equipment, tools and incidentals necessary to complete the work.

Note:

There will be no measurement and payment for removal of pavement markings placed incorrectly by the Contractor.

03/06/09

763563 - PERFORMANCE AND PAYMENT BOND

Description:

Performance and Payment Bond shall be paid to compensate the cost of bonding the Contract in accordance with Subsection 103.05 of the Standard Specification.

Method of Measurement:

The Contractor shall be paid the total cost of bond necessary for the contract once the Contract is executed.

Basis of Payment:

The payment for the item shall be made for at the Contract unit price per Lump Sum bid for "Performance and Payment Bond", which price and payment shall be full compensation. The payment for the Performance and Payment Bond will be included on the first estimate following the Contractor's submission of acceptable verification of actual cost.

6/12/98

PROJECT NOTES

CONTRACT DOT1208-PAVEMARK_SHRTLN

PROJECT NOTES
PAVEMENT MARKING PROGRAM
SHORT LINE
Contract NO. DOT1208-PAVEMRK_SHRTLN

GENERAL DESCRIPTION:

This contract provides for the furnishing and installation of pavement marking materials at various locations in the State. The pavement marking materials to be used are paint with surface applied glass spheres, thermoplastic with surface applied glass spheres, preformed thermoplastic and permanent pavement marking tape.

LENGTH OF CONTRACT:

The period of this contract is from the July 1, 2012 for three (3) calendar years. The Department also reserves the right, if deemed necessary, to a one-time increase in funding 50% above the awarded amount.

CONTRACT EXTENSION:

The successful bidder may extend the contract price to any other State or local agency during the contract period if it is agreeable with all parties.

PRICE ADJUSTMENT:

Extension to future years is dependent on legislative appropriations for these Fiscal Years and agreement on succeeding year's pricing as described herein. The bid prices in the contract must be guaranteed for the first year of the contract. In future year contract extensions, the vendor may request an increase in unit prices. The vendor will be required to request any price increases prior to the extension of the contract. The bid prices in the contract extension shall be guaranteed for the period of the contract extension. If the difference requested exceeds the change in the Nationwide All Urban Consumer Price Index (CPI-U), U.S. city average for the same period, approval of any price adjustment offered the vendor above the CPI-U will be at the discretion of the Director, Maintenance and Operations. The Department retains the right to cancel the future year extension if any acceptable agreement cannot be reached with the vendor on the price adjustment. This contract may be extended for such period, quantities and time as is mutually agreeable between both parties

STANDARD SPECIFICATIONS:

The specifications entitled "State of Delaware, Division of Highways, Standard Specifications, Aug 2001" and a subsequent addenda thereto, hereinafter referred to as the Standard Specifications, and the Special Provisions contained herein, shall govern the work to be performed under this contract.

The Special Provisions represent modifications and revisions to the Standard Specifications and whenever the Special Provisions differ from the Standard Specifications, these Special Provisions shall govern.

LOCATION OF WORK SITES:

- District I lies north of the Delaware Canal.
- District II lies south of the Delaware Canal.

The work sites assigned under this contract will be in both Districts. The actual sites will be determined throughout the duration of the contract and will be given out in lots of \$500.00 or greater, except for the emergency work.

A FULL MARKINGS TEAM IS REQUIRED IN EACH DISTRICT FROM THE FIRST DAY OF WORK IN EACH DISTRICT UNTIL ALL WORK HAS BEEN COMPLETED IN THAT DISTRICT.

The contractor may not consolidate both crews in one District or change work crews between or within Districts without written permission. Upon written application by the contractor, the Project Control Officer will consider the release of one markings team after both Districts have been 85% completed.

ALTERATION OF PLANS OR CHARACTER OF WORK:

The quantities shown in the proposal are approximate only and will be the basis for the comparing bids.

The Department reserves the right to increase or decrease any or all of the approximate quantities as shown in the bid schedule.

Any increase or decrease in the quantities and/or any additions or omissions of work sites on this contract shall not be cause for any increase or decrease of contract unit prices bid. Subsections 109.05 and 109.06 of the Standard Specifications do not apply.

EXEMPT FROM TAXES:

Articles covered by the proposal are exempt from all Federal and State Taxes, if any are applicable, and such taxes shall not be included in the prices quoted. The successful bidder will be required to furnish necessary or applicable tax exemption forms with his invoices.

SUBLETTING OR ASSIGNMENT OF CONTRACT:

The vendor shall give his personal attention to the faithful prosecution of the work; shall keep the same under his personal control and shall not assign by power of attorney or otherwise sublet the work or any part thereof without the previous written consent of the Director of Transportation Solutions. The vendor shall not either legally or equitably assign any of the monies payable under this agreement or his claim thereto unless by and with the written consent of said Director of Maintenance and Operation.

PRODUCTS BY NAME:

The products to be used on this contract which are specified by name and type based upon an area wide testing program shall be the specified products only. Substitutions for those products are not permitted.

Substitution of products for those named, which are not specified based upon an area wide testing program, may be considered, provided the substitute offered is in the opinion of the Department, equal or superior in quality, workmanship, finish, function and approximate characteristics to that specified in the Department's specifications.

AWARD OF CONTRACT:

Award of contract will be made to the lowest bidder, which includes furnishing and applying all necessary materials required to complete the work as outlined elsewhere in these specifications.

RIGHT TO TERMINATE THE CONTRACT:

The Delaware State Department of Transportation reserves the right to terminate the contract for failure to meet the provisions of the contract.

WARRANTY:

The successful bidder shall be required to extend any policy guarantee usually offered to the general public on article(s) and/or service(s) against defective material and workmanship.

CONSTRUCTION SAFETY AND HEALTH STANDARDS:

It is a condition of this contract, and shall be made a condition of each subcontract entered into pursuant to the contract, that the contractor and any other subcontractor shall not require any laborer or mechanic employed in performance of the contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health or safety, as determined under construction safety and health standards (Title 29, Code of Federal Regulations, Part 1926 published in the Federal Register on December 16, 1972), as amended from time to time.

INSURANCE AND RESPONSIBILITY FOR INJURY OR DAMAGE CLAIMS:

Work shall not commence under this contract until full evidence of insurance is provided in the form of a certificate or certificates, against all liabilities, damages, and accidents as more fully set forth herein.

Satisfactory evidence of all insurance coverage, including special endorsements and bonds when required, shall be forwarded to the Division of Transportation Solutions for review when submitting the executed contract. Certified copies of any policies may be required at any time in addition to the certificate(s) furnished.

All certificates of insurance shall contain a provision whereby the Division, or their nominee, will receive ten (10) days' prior written notice of any material change in or cancellation of coverage.

All insurance policies required shall be maintained in full force until all work under this contract is completed, as evidenced by the formal acceptance thereof, in writing, by the Division.

The insurance companies indicated in the certificates shall be authorized to do business in the State of Delaware and shall be acceptable to the Division of Transportation Solutions.

No separate payment will be made for furnishing the insurance specified herein. The costs of such coverage shall be included in the prices bid for the various items scheduled in the Proposal.

Neither approval by the Division, nor a failure to disapprove insurance certificates furnished by the contractor shall release the contractor from full responsibility for all liability as set forth in the indemnification clauses stated herein below.

The minimum requirements of insurance to be carried by the contractor shall be as follows:

A. **WORKMAN'S COMPENSATION INSURANCE**

Statutory as required by the Workmen's Compensation Laws of the State of Delaware.

B. **CONTRACTOR'S COMPREHENSIVE GENERAL LIABILITY INSURANCE**

Bodily Injury Liability with a limit of Two Hundred Fifty Thousand Dollars (\$250,000) liability for all damages arising out of personal injuries to or death of one person and, subject to that limit for each person, a total (or aggregate) limit of Five Hundred Thousand Dollars (\$500,000) liability for all damages arising out of personal injury to or death of two or more persons in any one occurrence; and Property Damage Liability with a limit of Two Hundred Fifty Thousand Dollars (\$250,000) liability for all damages of property in any one accident and subject to that limit per accident, a total (or aggregate) limit of Five Hundred Thousand Dollars (\$500,000) liability for all damages arising out of injury to, destruction of, or loss of use of property during the policy period.

If any part of the work under this contract is to be performed by a subcontractor, the prime contractor shall carry on his own behalf Contractor's Protective Liability Insurance for both Bodily Injury and Property Damage Liability for the same limits as specified above.

Complete Operations coverage shall be indicated on the certificate for the same limits as above for both Bodily Injury and Property Damage Liability.

The certificates shall further indicate the acceptance by the insurance carrier of the indemnification clauses set forth herein below.

C. COMPREHENSIVE AUTOMOBILE LIABILITY INSURANCE

To provide coverage for all owned, non owned and leased vehicles. Limits of liability to be Two Hundred Fifty Thousand Dollars (\$250,000) for each person and Five Hundred Thousand (\$500,000) for each occurrence for Bodily Injury Liability, and Two Hundred Fifty Thousand Dollars (\$250,000) for each accident for Property Damage Liability.

MAINTENANCE OF TRAFFIC:

No separate payments will be made for maintenance of traffic cost. For the purpose of this contract, these are considered incidental to the bid work orders.

Traffic shall be maintained at all times in accordance with Subsections 109.09, 107.07, and 104.02 of the Standard Specifications.

All work shall be performed in a manner that will reasonably provide the least practicable obstruction to all road users, including vehicular, pedestrian, and bicycle traffic, and shall conform to the requirements of the Delaware Manual on Uniform Traffic Control Devices, Part 6, including all revisions up to the date of advertisement for bids.

All crewmembers shall wear, at all times, a Class Two safety vest that meets the ANSI 107 - 2004 standard requirements.

The Division of Transportation Solutions District Safety Officer or an authorized representative of the Department, prior to the start of work must approve all vehicles, equipment, and traffic control devices used on this contract.

The contractor shall be responsible for furnishing, placing and relocating portable signs and devices to safely protect workers, equipment and fresh (wet) markings from traffic. The contractor will be held fully liable for paint getting on vehicles when the line has not been protected correctly.

For the purposes of this contract, "dry" is defined as no tracking of a painted line when an automobile crosses the line.

Three working days will be allowed for equipment approval after which time Liquidated Damages for Failure to Pursue the Work will be assessed. (See Liquidated Damages.)

The required signs and warning devices for this contract shall be on the site prior to the beginning of the work.

All traffic control devices will remain the property of the contractor.

Flaggers shall be governed by and familiar with the Delaware Manual on Uniform Traffic Control Devices (MUTCD) Part 6, latest edition and updates in effect at the time of advertisement for bids. Flaggers shall have completed flagger training and testing within the last three (3) years as offered by American Traffic Safety Services Association (ATSSA). The contractor shall provide appropriate documents showing the flagger certification status throughout the duration of the contract.

Flaggers shall be completely covered (clothed) from neck to feet. The minimum clothing requirements for flagger shall be long pants and a standard T-shirt with sleeves along with appropriate footwear (no open-toe shoes). The Flagger shall wear a Class Three safety vest that meets the ANSI 107 - 2004 standard requirements.

The contractor must plan the work so that no lanes of traffic are closed or seriously hindered from Friday noon to Monday noon, or from noon on the last working day before a holiday until noon of the first working day after a holiday, unless previously approved by the Project Coordinator.

Some signs and devices may be carried on mobile equipment.

One-way traffic will be permitted for limited distances only at the discretion of the Engineer.

All vehicles shall display flashing or rotating yellow lights, which are visible in all directions. All arrow boards must have controls so that the arrow may be switched without stopping the vehicle.

Normal rush hour traffic conditions prohibit the placement of traffic markings from 6:00 to 9:00 AM and 3:00 to 7:00 PM on certain high volume roads. Work performed during these times will be restricted to those roads not subject to great rush hour peaks as determined by the Project Coordinator.

Night work is defined as any roadwork occurring between one half (.5) hour after sunset and one half (.5) hour before sunrise.

For night work:

Additional traffic control devices are required.

A minimum of six 3000-watt lights shall be used to illuminate the work area. These lights shall be positioned so they do not interfere with the traveling public. 1,000 watt Halogen or Quartz lights may be used in place of the 3,000 watt bulbs at the Project Coordinator's discretion.

The Department, at its discretion, may require night work on some major high volume roadways. The Department will consider night work on other roadways at its discretion.

AUTHORIZATION OF WORK:

All work assigned under this contract shall be authorized only by written notice. Any work not authorized by written notice shall not be performed. Written notice shall be available only after the equipment, materials, and traffic control devices have been inspected and approved.

CONTROL AND INSPECTION:

The Departments Pavement Marking Section will assign areas of work and the order in which the work must be undertaken.

Upon receipt of the "award letter" the contractor must submit a list of required materials that he/she needs to order prior to the receipt of a Purchase Order, such as tape and thermoplastic, to insure that the application of pavement markings begin on the scheduled date. The Department will send written confirmation of those items that the contractor is authorized to purchase.

The contractor will be reimbursed for the approved materials that have been purchased, up to 20% of the total bid price of the contract, with the approval of the Engineer in charge should the contract be terminated by the State of Delaware.

An authorized representative of the Department shall be assigned as Project Coordinator and shall be present during each application of the material. Payment will not be made for any work done when said coordinator is not present.

The provisions of Failure to Pursue the Work shall apply when the contractor does not perform the work in the order required by the Department.

The contractor shall begin work on the assigned units of work on or before the fifth (5th) working day (weather permitting) after notification to begin work, subject to the limitations set forth herein. Failure to begin work with the specified time shall be regarded as Failure to Pursue the Work. (See Liquidated Damages).

The contractor may work in no more than one (1) area in each District at any one time.

The contractor shall pursue the work within each District at a rate of at least \$10,000 per month during any period when work is assigned. After \$10,000 of work is completed in a District in any month and assigned work remains to be completed, work must continue at a rate of, at least, \$500 per day. Failure to comply with this paragraph is a Failure to Pursue the Work. (See Liquidated Damages).

Work completed in excess of \$10,000 is not cumulative and may not be carried over to the next month.

Should it be necessary to halt the work because of incorrect or unsatisfactorily applied pavement marking under the terms of this contract, Failure to Pursue the Work shall have been deemed to have occurred. (See Liquidated Damages.)

Should the contractor fail to provide adequate protection to the surroundings of the work site or should the operations be carried out in such a way as to allow or cause damage to any roadway, street, sidewalk, the property of any utility or other private or public property, the Liquidated Damages for Failing to Protect the Work Site may be assessed from the time the contractor is notified of the condition until he completes the repair. (See Liquidated Damages).

Should the repairs not be undertaken or should it be necessary for the Department to protect the area and/or make the repairs, the costs shall be deducted from the monies due the contractor.

Rejected pavement markings must be removed the same day that notification of rejection is given. Any rejections must be noted in the Project Coordinator's Diary. If the Project Coordinator deems that same day removal is not critical, he/she may wave this requirement. Material must still be removed, however, not on the same day that notification is given. Any rejected material must be noted in the Project Coordinator's Diary and signed by the contractor's on sight representative. Any wavers must also be so noted and signed. Failure to remove rejected markings as specified will be considered Failure to Pursue the Work.

The standard workday is 7 1/2 hours 8:00 AM to 4:00 PM, 1/2 hour lunch.

The standard workday when night work is authorized and scheduled is 9:00 P.M. to 5:00 A.M. Sunday night/Monday morning through Thursday night/Friday morning.

If the contractor wishes to work a longer day, the rate of work will be increased by \$200 for each hour or fraction thereof that the Projector Coordinator is at a work site.

Unless prior arrangements in writing or documented in Project Coordinator's Diary have been made between the contractor and the Project Coordinator, the Department's representative will not wait past one (1) hour from the start of the standard work day or the agreed upon time. Should the situation arise where the contractor is not available for work within that one hour the Projector Coordinator may be given a different assignment for that day and in such event no work under this contract shall be pursued for that day. For every such occurrence provisions for Failure to Pursue the Work shall apply. (See Liquidated Damages).

Authorization for longer workdays and work on non working days shall be at the discretion of the Project Coordinator.

WORKMANSHIP:

The contractor is required to perform the work called for in this contract to a high standard of workmanship.

The contractor shall be responsible for the complete preparation of the roadway surface as necessary for the product to be applied, including the removal of dust, dirt, and other foreign matter immediately prior to the installation of the pavement marking material.

When removal of existing markings is required the designated markings must be completely (100%) removed, or to the satisfaction of the project coordinator.

When doing any type of removal the contractor shall be fully and wholly responsible for the clean up and disposal of any and all waste or residue generated from this operation to the satisfaction of the project coordinator.

Professional demeanor is required at all times. Actions toward Inspection staff or motorists including, but not limited to, intimidating or threatening gestures or words or unseemly language will be cause for requiring the permanent removal of the offending employees from this project.

Any application of marking materials which is defective or which is incorrectly located by the contractor shall be replaced at the sole expense of the contractor.

The contractor at no expense to the Department shall remove any materials spilled on the pavement.

The contractor shall carry a waste container so that any spilled paint or other material can be held for disposal.

OUT OF SEQUENCE WORK:

From time to time during normal working hours the contractor may be required to provide a work force at a particular work site on less than three (3) days notice or while working on a unit of work at a different work site. Compensation will not be increased for that out of sequence work unless it constitutes more than 5% of the total work assigned in any given month.

The contractor must pursue out of sequence work within one (1) working day of its being assigned or the provisions of Failure to Pursue the Work shall apply. (See Liquidated Damages).

The Department will advise the contractor of the order in which the work must be undertaken. The Department may revise the order up to two working days prior to the start of the work without penalty.

LIQUIDATED DAMAGES:

The available work must be completed and billed to the Department by the contractor at the minimum rate of \$10,000 per calendar month. In any month when the contractor fails to have completed work at the required rate, Liquidated Damages in the amount of \$500.00 per workday may be assessed until the required amount of work is completed and billed.

If workdays are lost due to weather or legal holidays, the required average rate of work per month will be reduced by \$500.00 per workday lost.

Failure to Pursue the Work or Failure to Protect the Work Site shall cause Liquidated Damages in the amount of \$1000.00 per workday to be assessed.

BASIS OF OPERATIONS:

The contractor must provide his own base of operations; he cannot store any equipment, materials, or supplies necessary for this contract on State property. Any work on any equipment or any transfer of materials among vehicles shall not take place in any highway yard. The Department will bear no responsibility for the safety of the equipment and/or supplies. The contractor is responsible for handling of all materials and shall do so in a safe and legal manner.

SUBMISSION OF INVOICE:

An invoice for each work site shall be submitted to the State of Delaware, Department of Transportation, Division of Transportation Solutions, Signs/Markings section, 14 Sign Shop Road, Dover, Delaware 19901.

Each of the areas listed under "Placement Sites" will be considered as a unit of work. Payment will be on a monthly basis for each separate unit of work complete in place and accepted.

MATERIALS:

The contractor shall supply all materials. The acceptable materials to be supplied under this contract are listed on the "Approved Material List."

Materials to be used shall be approved by the Project Coordinator as being those as listed on the Approved Materials List located elsewhere in these specifications. Proper labels and paperwork will be required as proof before any work is done, further testing may be required, and will be done by the Department's Materials and Research Section.

EQUIPMENT:

The equipment used to apply pavement markings shall meet the following requirements:

A. PAINT EQUIPMENT

1. Be able to apply double centerlines simultaneously (except temporary markings may be applied separately).
2. Capability to apply paint and glass beads to pavement at same time, leaving no more than 50 mm (2 ") of painted line without glass beads at the beginning or end of a line.
3. Capability of hand gun operation for applying special markings. (This may be a separate piece of equipment).

B. Truck Mounted Paint Equipment

1. Must apply double centerlines simultaneously.
2. Shall be capable of pneumatically applying glass beads 25 mm (1") behind the spray pattern of the paint gun.
3. Shall have automatic electrically controlled skipline mechanism capable of retracing the existing approximate 3 m (10 ft.) stripe and 9 m (30 ft.) skip or applying a new 3 m (10 ft.) stripe and 9 m (30 ft.) skip.

PERMANENT TAPE EQUIPMENT:

Shall be specifically designed for the application of pressure sensitive adhesive coat film.

THERMOPLASTIC EQUIPMENT:

A special kettle shall be provided for melting and heating the thermoplastic material. The kettle shall be equipped with an automatic thermostatic control device and heated by controlled heat transfer liquid rather than direct flame.

Upon heating to application temperature, the material shall not exude fumes, which are toxic or injurious to persons or property. The pigment, beads and filler shall be well dispersed in the resin. The materials shall be free from all skins, dirt and foreign objects and shall be certified by the manufacturer as conforming to the requirements herein.

The equipment shall be so arranged so as to permit preheating of the pavement immediately prior to application of the thermoplastic material if the thermoplastic material manufacturer recommends preheating. The applicator shall be mobile and maneuverable to the extent that straight lines can be followed and normal curves can be made in a true arc.

The applicator shall be capable of containing a minimum of 55 kg (125 lbs.) of molten material. The use of a drag box is prohibited.

1. Extruded Applications

The equipment shall be constructed to provide continuous mixing and agitation of the material. Conveying parts of the equipment between the main material reservoir and the shaping die shall be so constructed so as to prevent accumulation and clogging. All parts of the equipment, which come in contact with the material, shall be so constructed so as to be easily accessible and exposable for cleaning and maintenance. The equipment shall be constructed so that all mixing and conveying parts up to and including the shaping dies, will maintain the material at the optimum plastic temperature.

The equipment shall be so constructed as to insure continuous uniformity in the dimensions of the stripe. The thickness of the material on the pavement shall be 2.28 mm (90 mils) + .13 mm (5 mils) for (longitudinal lines) lane lines, centerlines and edge lines; and shall be 3.18 mm (125 mils) + .13 mm (5 mils) for (transverse lines) crosswalks, stop bars, and all symbols.

The applicator shall provide a means for cleanly cutting off square the stripe ends. The equipment shall be so constructed so as to provide for varying die widths and to produce varying widths of traffic marking.

APPLICATION OF MATERIALS:

A. PAINT MARKINGS

1. For machine applied glass spheres, the reflective surface shall be obtained by applying glass spheres at an average rate of .84kg/ liter (7 lbs. per gallon) of paint onto and into the pigmented binder in one operation as specified under the section on equipment.

Hand applied glass spheres must be applied at a rate no less than .48 kilograms per square meter (10 pounds per 100 sq. feet).

The rate of beads and paint application shall be determined at the end of the work day. The number of liters of paint used and the number of kilograms of beads used shall be determined. The number of liters of paint shall be divided into the number of kilograms of beads and result shall be .84 kg/ liter (7 pounds per gallon) or greater.

A deduction will be made from monies due the contractor for improper bead application according to the following table:

GlassBeadskg/liter (lbs./gallon) Deduction/Meter100 mm (4") line
 From Less Than
 .78(6.5)

Reapply
 .78(6.5) to .80(6.7) Deduct .015
 .80(6.7) to .83(6.9) Deduct .002

* Proportional rates apply to wider lines.

For hand applied glass spheres, the square meters of markings shall be determined, along with the number of kilograms of beads used. The number of square meters of paint shall be divided into the number of kilograms of beads and the result shall be .48 kg. Per square meter or greater.

Glass Beads kg/square meters
 (lbs./100 square feet)
 Deduction/Meter (Sq. FT.)

From Less Than
 .46(9.5)
 .46(9.5)to .47(9.7)
 .47(9.7)to .48(9.9)

Reapply
 Deduct .015
 Deduct .002

2. The contractor according to the paint manufacturer's recommendations shall apply pigmented binder (paint) white or yellow. The paint shall only be applied when ambient air temperature is 4 degrees C (40 degrees F or higher). The set film thickness shall be .38 mm (15 Mils) + .03 mm (1 Mil).

3. For lines over 750 m (2500 feet) in length, a truck-mounted machine shall be used.

4. For all lines over 150mm (6") in width, multiple passes of the paint machine or a stencil shall be used.

5. Minimum Reflectivity Requirements

The Minimum Reflectivity required for Thermoplastic Markings are, White Thermoplastic 300 Millicandelas, Yellow Thermoplastic 200 Millicandelas.

The minimum reflectivity required for paint lines are 150 Millicandelas for white and 125 millicandelas for yellow.

If the markings due not meet the minimum reflectivity readings the contractor will be required to re-stripe the lines at their expense. All reflectivity readings will be taken with a LTL-X Reflectometer with 30-meter geometry.

B. PERMANENT TAPE

1. The surface must be clean and dry. Installation shall follow the type manufacturer's application methods. (Copy to be furnished to Projector Coordinator.)

2. On concrete the contractor shall follow the manufacturer's suggested installation procedures for preparing the surface, including the application of all necessary primers as indicated by the manufacture. Costs to provide said primer materials shall be at the sole expense of the contractor.

3. Apply markings into pavement surface roller tamper cart or by use of a roller having a weight of 110 kg (250 pounds) and not more than 3650 kg (4 tons). The tamper cart shall be used with a minimum load of 90 kg (200 pounds).

4. Tamping shall begin immediately after each application. Care shall be taken to insure that all edges are firmly adhered. The tamping device shall not be twisted or turned while on the marking material. The roller tamper cart shall pass over the applied material with six forward passes and five backward passes.

C. THERMOPLASTIC

1. Application of Primer Sealer: The primer sealer shall be applied to all portland cement concrete pavement surfaces and to bituminous surfaces when recommended by the material's manufacturer, prior to the application of the marking. The rate of application shall be sufficient to cover the surface on which the marking is to be laid.

2. Application of Marking Material: Application equipment shall be so constructed so as to assure uniformity in the thickness of the marking without overspray.

Thermoplastic pavement markings shall be applied only on clean, dry pavement and at road surface temperatures above 10 C (50 F). The contractor shall remove all dirt, debris, loose particles and heavy oil residues from the road surface application areas immediately prior to the installation of pavement markings.

The contractor shall protect the markings until track free by placing guarding or warning devices as necessary. In the event any vehicle should cross the molten marking, such marking shall be reapplied and the contractor shall remove any markings made by the moving vehicle.

The marking material shall be applied at a temperature that will provide best adhesion to the pavement and shall be between 204 C-246 C (400 F-475 F) throughout and shall have uniform dispersions of binder, pigment and glass beads when applied to the surface of the pavement.

3. Rate of Application:

a. Marking Material:

Marking material shall be applied at the specified dimensions and at a rate to result in a marking thickness of 2.28 mm (90 mils), .13 mm (+5 mils) for longitudinal lines and 3.18 mm (125 mils), .13 mm (+5 mils) for transverse lines and symbols (not including glass bead top dressing).

Except as otherwise specified, pavement line markings shall be 127 mm (5 inches) wide and broken line segments shall be 3 m (10 feet) in length with 9 m (30 foot) gaps. If the application rate of the thermoplastic is greater than required, there shall be no cost adjustment.

If the application rate is less than required, the Department shall withhold 25% of the monies due the contractor for the cost of the work for each .13 mm (5 mils) or any part thereof, by which the material is too thin.

b. Glass Beads:

Glass beads applied to the surface of the complete markings shall be applied by an automatic bead dispenser attached to the applicator in such a manner that the beads are dispensed instantaneously onto the molten marking. The bead dispenser shall be equipped with a cut off control synchronized with the cut off of the thermoplastic material.

The rate of bead application shall be determined for each work site. The number of square meters of material applied and the number of kilograms of beads used shall be determined. The number of square meters shall be divided into the number of kilograms of beads and the result shall be .48 or greater kg/square meter (10 or greater pounds per 100 square feet).

If the application rate is less than required, the Department shall withhold 25% of the monies due the contractor for the cost of the work.

During and after material application, both daylight and nighttime inspections of the markings will be made by an authorized representative of the Division of Highway Operations, and if found to be defective or if they fail in any way to meet the specifications in this proposal, such markings will be rejected and must be replaced at no cost to the Department within the time limit specified.

D. PREFORMED THERMOPLASTIC

1. The markings shall be applied in accordance with the manufacturer's recommendations on clean and dry surfaces. New Portland concrete cement surfaces must be sandblasted to entirely remove curing compound. A copy of the manufacturer's recommendations shall be presented to the Project Coordinator.

REMOVAL OF EXISTING PAVEMENT MARKINGS:

This item consists of removing existing pavement markings in strict compliance with all applicable laws and rules. The contractor shall be fully and wholly responsible in ensuring that all environmental rules and regulations are fully complied with during this work. The means used may include sandblasting, burning, water blast and grinding, if and as may be, approved by State Environmental officials.

The contractor is required to provide all labor, materials, equipment and incidentals necessary to completely remove the designated existing words, symbols, longitudinal and transverse lines and to clean up all residue from this operation to the satisfaction of the Project Coordinator.

This work will be done in locations where markings are existing but must be altered or in locations previously marked where part of the marking is missing and the remaining portion cannot be remarked.

METHOD OF MEASUREMENT:

Longitudinal lines shall be measured in linear feet of applied line by width. Double lines shall be measured separately.

Transverse lines shall be measured in linear feet of applied line by width.

Standard width lines are (5"), (10"), (12"), and (16").

For Symbols:

1. Those separately priced are measured as each.
2. Others are priced on a square feet basis. The actual square feet of symbol applied shall be determined using a one (1) meter square grid.

Painted markings shall be referenced as "Paint".

Plastic tape markings shall be referenced as "Tape" or "Type A".

Markings of thermoplastic material shall be referenced as "Thermoplastic".

Lines over (2500 feet) in length shall be referenced as "Long".

BASIS OF PAYMENT:

The quantity of each item completed to the satisfaction of the Project Coordinator and measured as determined under the Method of Measurement section shall be paid for at the unit price shown on the bid sheet which price shall include all materials, labor, tools, templates, stencils, equipment, clean up, and incidentals necessary to complete the item.

Approved Pavement Marking Materials

The following list includes all pavement-marking materials currently approved:

PAINT	CODE	COLOR
ENNIS PAINT INC.	DEW-21-M-1	WHITE
ENNIS PAINT INC.	DEY-21-M-1	YELLOW
ENNIS PAINT INC.	WX08W001	WHITE
ENNIS PAINT INC.	WX08L001	YELLOW
AEXCEL CORPORATION	72W-A042	WHITE
AEXCEL CORPORATION	72Y-A080	YELLOW
SHERWIN WILLIAMS	TM2308	WHITE
SHERWIN WILLIAMS	TM2309	YELLOW

Type - Waterborne, All Paint is to be Lead - Free.

THERMOPLASTIC	CODE	COLOR
ENNIS PAINT INC.	884455 (W5E-5BX-DE)	WHITE
ENNIS PAINT INC.	884490 (W5E-5GX-DE)	WHITE
ENNIS PAINT INC.	ET4 - AK - SX - YNL - 1, LEAD FREE	YELLOW
CROWN TECHNOLOGY INC	WAX - BADA	WHITE
CROWN TECHNOLOGY INC-ECOTHERM	- 01 - YAX - AADA - LEAD FREE	YELLOW
SWARCO	2633 XWARX	WHITE
SWARCO	2663 XYARX	YELLOW
DOBCO (SMART MARK)	W1X1956	WHITE
DOBCO	Y1X1906	YELLOW

Type - ALKYD RESIN - ALL THERMOPLASTIC IS TO BE LEAD - FREE.

PERMANENT TAPE	CODE	COLOR
3M COMPANY	380	WHITE TYPE - A
3M COMPANY	381	YELLOW TYPE - A

*Type 380 and 381 is to be used for longitudinal lines only.

3M COMPANY	380 IES	WHITE TYPE - A
------------	---------	----------------

3M COMPANY

381 IES

YELLOW TYPE -A

* Type 380 IES and 381 IES are to be used for all transverse lines, mini skips, arrows and symbols.

Approved Pavement Marking Materials

PREFORMED THERMOPLASTIC	CODE	COLOR
FLINT TRADING INC.	PREMARK	WHITE
FLINT TRADING INC.	PREMARK	YELLOW

GLASS BEADS	CODE
POTTTERS INDUSTRIES INC.	AASHTO M-247 TYPE 1 80% ROUNDS
POTTTERS INDUSTRIES INC.	AASHTO M-247 TYPE 4 LARGE BEAD
SWARCO REFLEX	AASHTO M-247 TYPE 1 80% ROUNDS
SWARCO REFLEX	AASHTO M-247 TYPE 4 LARGE BEAD

All glass beads furnished under this contract shall be moisture proofed.

Note: The state of Delaware is a lead free state. All pavement markings used in Delaware shall be lead free.

CANNOT BE
BID PROPOSAL FORMS

USED FOR
CONTRACT DOT1208-
PAVEMARK SHRTLN

BIDDING

DELAWARE DEPARTMENT OF TRANSPORTATION
SCHEDULE OF ITEMS

PAGE: 1
DATE:

CONTRACT ID: DOT1208-PAVEMARK_SHRTLN PROJECT(S): ZDOT1208

All figures must be typewritten.

CONTRACTOR : _____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS

SECTION 0001 PAVEMENT MARKINGS

0010	748665 WHITE PAINT LINE - TRANSVERSE, 12"	LF 3000.000				
0020	748666 WHITE PAINT LINE - TRANSVERSE, 16"	LF 1000.000				
0030	748667 STRAIGHT ARROW - PAINT	EACH 15.000				
0040	748668 RIGHT OR LEFT ARROW - PAINT	EACH 20.000				
0050	748669 COMBINATION ARROW - PAINT	EACH 15.000				
0060	748670 SYMBOL - PAINT	SF 585.000				
0070	748676 YELLOW PAINT LINE TRANSVERSE, 12"	LF 1000.000				
0080	748677 CURB PAINT	LF 1000.000				
0090	748683 TYPE "A" LINE, 12"	LF 10500.000				

CANNOT BE USED FOR BIDDING

DELAWARE DEPARTMENT OF TRANSPORTATION
SCHEDULE OF ITEMS

PAGE: 2
DATE:

CONTRACT ID: DOT1208-PAVEMARK_SHRTLN PROJECT(S): ZDOT1208

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CONTRACTOR : _____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0100	748684 TYPE "A" LINE, 16"	2520.000 LF				
0110	748685 STRAIGHT ARROW TYPE "A"	15.000 EACH				
0120	748686 RIGHT OR LEFT ARROW TYPE "A"	90.000 EACH				
0130	748687 COMBINATION ARROW TYPE "A"	15.000 EACH				
0140	748688 SCHOOL LEGEND TYPE "A"	12.000 EACH				
0150	748689 R X R LEGEND TYPE "A"	15.000 EACH				
0160	748690 SYMBOL TYPE "A"	817.000 SF				
0170	748696 THERMOPLASTIC TRANSVERSE LINE, 12"	100328.000 LF				
0180	748697 THERMOPLASTIC TRANSVERSE LINE, 16"	37314.000 LF				
0190	748698 STRAIGHT ARROW THERMOPLASTIC	160.000 EACH				

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DELAWARE DEPARTMENT OF TRANSPORTATION
SCHEDULE OF ITEMS

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CONTRACT ID: DOT1208-PAVEMARK_SHRTLN PROJECT(S): ZDOT1208

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CONTRACTOR : _____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0200	748699 LEFT OR RIGHT THERMOPLASTIC ARROW	675.000 EACH				
0210	748700 COMBINATION ARROW THERMOPLASTIC	160.000 EACH				
0220	748702 SYMBOL - THERMOPLASTIC	8312.000 SF				
0230	748703 SYMBOL - PREFORMED THERMOPLASTIC MARKINGS	1800.000 SF				
0240	748704 REMOVAL OF EXISTING PAVEMENT MARKINGS	45905.000 SF				
0250	748732 THERMOPLASTIC LINE, 5"	102834.000 LF				
0260	748733 THERMOPLASTIC LINE - LONG, 5"	10000.000 LF				
0270	748734 THERMOPLASTIC LINE, 10"	10000.000 LF				
0280	748735 TYPE "A" LINE, 5"	1000.000 LF				
0290	748736 TYPE "A" LINE, LONG LINE, 5"	2600.000 LF				

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DELAWARE DEPARTMENT OF TRANSPORTATION
SCHEDULE OF ITEMS

PAGE: 4
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CONTRACT ID: DOT1208-PAVEMARK_SHRTLN PROJECT(S): ZDOT1208

All figures must be typewritten.

CONTRACTOR : _____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0300	748737 TYPE "A" LINE, 10"	3000.000 LF				
0310	748738 TYPE "A" LINE, CONTRAST, 8"	2580.000 LF				
0320	748739 TYPE "A" LINE, CONTRAST, 13"	2200.000 LF				
0330	748740 WHITE PAINT LINE, 5"	1000.000 LF				
0340	748741 WHITE PAINT LINE, LONG LINE, 5"	2600.000 LF				
0350	748742 YELLOW PAINT LINE, 5"	1000.000 LF				
0360	748743 YELLOW PAINT LINE, LONG LINE, 5"	2600.000 LF				
0370	748755 WHITE PAINT LINE, 10"	1000.000 LF				
0380	748756 YELLOW PAINT LINE, 10"	1000.000 LF				
0390	763563 PERFORMANCE AND PAYMENT BOND	LUMP	LUMP			
	SECTION 0001 TOTAL					
	TOTAL BID					

CANNOT BE USED FOR BIDDING

CERTIFICATION

Contract No. DOT1208-PAVEMARK_SHRTLN

The undersigned bidder, _____ whose address is _____
_____ and telephone number is _____
_____ hereby certifies the following:

I/We have carefully examined the location of the proposed work, the proposed plans and specifications, and will be bound, upon award of this contract by the Department of Transportation, to execute in accordance with such award, a contract with necessary surety bond, of which contract this proposal and said plans and specifications shall be a part, to provide all necessary machinery, tools, labor and other means of construction, and to do all the work and to furnish all the materials necessary to perform and complete the said contract within the time and as required in accordance with the requirements of the Department of Transportation, and at the unit prices for the various items as listed on the preceding pages.

The foregoing quantities are considered to be approximate only and are given as the basis for comparison of bids. The Department of Transportation may increase or decrease the amount of any item or portion of the work as may be deemed necessary or expedient. Any such increase or decrease in the quantity for any item will not be regarded as a sufficient ground for an increase or decrease in the unit prices, nor in the time allowed for the completion of the work, except as provided in the contract.

Accompanying this proposal is a surety bond or a security of the bidder assigned to the Department of Transportation, for at least ten (10) percentum of total amount of the proposal, which deposit is to be forfeited as liquidated damages in case this proposal is accepted, and the undersigned shall fail to execute a contract with necessary bond, when required, for the performance of said contract with the Department of Transportation, under the conditions of this proposal, within twenty (20) days after date of official notice of the award of the contract as provided in the requirement and specifications hereto attached; otherwise said deposit is to be returned to the undersigned.

I/We are licensed, or have initiated the license application as required by Section 2502, Chapter 25, Title 30, of the Delaware Code.

By submission of this proposal, each bidder and each person signing on behalf of any bidder, certifies as to its own organization, under penalty of perjury, that to the best of each signer's knowledge and belief:

1. The prices in this proposal have been arrived at independently without collusion, consultation, communication, or Agreement with any other bidder or with any competitor for the purpose of restricting competition.
2. Unless required by law, the prices which have been quoted in this proposal have not been knowingly disclosed and will not knowingly be disclosed by the bidder, directly or indirectly, to any other bidder or competitor prior to the opening of proposals.
3. No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a proposal for the purpose of restricting competition.

I/We acknowledge receipt and incorporation of addenda to this proposal as follows:

No.	Date								
-----	------	-----	------	-----	------	-----	------	-----	------

(FAILURE TO ACKNOWLEDGE RECEIPT OF ALL ADDENDA WILL RESULT IN THE BID BEING DECLARED NON-RESPONSIVE.)

Sealed and dated this _____ day of _____ in the year of our Lord two thousand and _____ (20__).

Name of Bidder (Organization)

Corporate
Seal

By:

Authorized Signature

Attest _____

Title

SWORN TO AND SUBSCRIBED BEFORE ME this ____ day of _____, 20__.

Notary
Seal

Notary

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That: _____
of _____ in the County of _____ and State of _____
as **Principal**, and _____ of _____ in the
County of _____ and State of _____ as **Surety**, legally authorized to do business in the State of
Delaware ("**State**"), are held and firmly unto the **State** in the sum of _____
Dollars (\$ _____), or _____ percent not to exceed _____
Dollars (\$ _____) of amount of bid on Contract
No. DOT1208-PAVEMARK_SHRTLN , to be paid to the **State** for the use and benefit of its Department
of Transportation ("**DelDOT**") for which payment well and truly to be made, we do bind ourselves, our and
each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly
by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden **Principal**
who has submitted to the **DelDOT** a certain proposal to enter into this contract for the furnishing of certain
materiel and/or services within the **State**, shall be awarded this Contract, and if said **Principal** shall well and
truly enter into and execute this Contract as may be required by the terms of this Contract and approved by
the **DelDOT**, this Contract to be entered into within twenty days after the date of official notice of the award
thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and
remain in full force and virtue.

Sealed with _____ seal and dated this _____ day of _____ in the year of our Lord two thousand and
_____ (20____).

SEALED, AND DELIVERED IN THE
presence of

Name of Bidder (Organization)

Corporate
Seal

By: _____

Authorized Signature

Attest _____

Title

Name of **Surety**

Witness: _____

By: _____

Title

