STATE OF DELAWARE

THIS COPY IS FOR INFORMATION ONLY. YOU MUST REQUEST THE PROPOSAL FROM THE DEPARTMENT IN ORDER TO SUBMIT A BID.

DEPARTMENT OF TRANSPORTATION

BID PROPOSAL

for

CONTRACT DOT1228-TRAFFIC_MAINT

FEDERAL AID PROJECT NO. - Various

EMERGENCY HIGHWAY ITS

AND TRAFFIC MAINTENANCE

STATEWIDE

ADVERTISEMENT DATE: January 14, 2013

Completion Date 365 Calendar Days

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

Bids will be received in the Bidder's Room, Transportation Administration Center, 800 Bay Road, Dover, Delaware until 2:00 P.M. local time FEBRUARY 12, 2013

Contract No.DOT1228-TRAFFIC_MAINT

Federal Aid Project No. - Various

EMERGENCY HIGHWAY ITS AND TRAFFIC MAINTENANCE
STATEWIDE

LOCATION

These improvements are located STATEWIDE.

DESCRIPTION

The improvements consist of furnishing all materials for EMERGENCY HIGHWAY ITS AND TRAFFIC MAINTENANCE, STATEWIDE, 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 365 Calendar Days .

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This project incorporates a newer version of the electronic bidding system, Expedite 5.9a.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.

BIDDERS MUST REQUEST A CD OF THE OFFICIAL PLANS AND SPECIFICATIONS FROM THE DEPARTMENT IN ORDER TO SUBMIT A BID.

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.

4. Please note the Special Provision titled **Changes to Project Documents During Advertisement**. The Department is using an alternative method of providing bid documents for this contract.

5. Please note the page titled **Supplemental Specifications that Only Apply to DOT1228.** The Department is applying a specific requirement for this contract.

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.

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."

CONFLICT WITH FEDERAL STATUTES OR REGULATIONS:

Delaware Code, Title 29, Chapter 69, Section 6904, Paragraph (a)

> "If any provision of this subchapter conflicts or is inconsistent with any statute, rule or regulation of the federal government applicable to a project or activity, the cost of which is to be paid or reimbursed in whole or in part by the federal government, and due to such conflict or inconsistency the availability of federal funds may be jeopardized, such provision shall not apply to such project or activity..."

For all contracts which are identified as Federal-aid projects by having a Federal-aid number inserted in the appropriate space on the cover sheet of the proposal, if there is a conflict between the above Section 6962 and Federal law the requirements of the above Section 6962 shall not apply.

FEDERAL LABOR AND EMPLOYMENT REQUIREMENTS

Federal Regulation 23 CFR § 635.117(b) Labor and employment, states:

"No procedures or requirement shall be imposed by any State which will operate to discriminate against the employment of labor from any other State, possession or territory of the United States, in the construction of a Federal-aid project."

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:

I. The contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex or natural 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.

ii. 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.

TO REPORT BID RIGGING ACTIVITIES:

CALL 1-800-424-9071

The U. S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m. eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

CONVICT PRODUCED MATERIALS:

(a) Materials produced after July 1, 1991, by convict labor may only be incorporated in a Federal-aid highway construction project if such materials have been:

(1) Produced by convicts who are on parole, supervised release, or probation from a prison or
(2) Produced in a qualified prison facility and the cumulative annual production amount of such materials for use in Federal-aid highway construction does not exceed the amount of such materials produced in such facility for use in Federal-aid highway construction during the 12-month period ending July 1, 1987.

(b) Qualified prison facility means any prison facility in which convicts, during the 12-month period ending July 1, 1987, produced materials for use in Federal-aid highway construction projects.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

Goals for Minority Participation In Each Trade	Goals for Female Participation In Each Trade
12.3% (New Castle County) 14.5% (Kent & Sussex Counties)	6.9% (Entire State)

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is NEW CASTLE County.

REV. 11-3-80

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

d. "Minority" includes:

i. Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

ii. Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

iii. Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

iv. American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Program Office or from the Federal procurement contracting offices. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the

Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of

construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontractors from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participating, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply,

however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is under utilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Order of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

* * * * *

TRAINING SPECIAL PROVISIONS

This Training Special Provision supersedes subparagraph 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities", (Attachment 1), and is in implementation of 23 U.S.C. 140(a).

As part of the contractor's equal employment opportunity affirmative action program, training shall be

provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved. The number of trainees to be trained under the special provision will be __0__. In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year apprenticeship or training.

The number of trainees shall be distributed among the work classification on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Department of Highways and Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Department of Highways and Transportation and the Federal Highway Administration. The Department of Highways and Transportation and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work the classification covered by the program. It is the intention of these provisions that the training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is

provided and approved by the division office. Some off-site training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the engineer, reimbursement will be made for training persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other sources does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for off-site training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training; provides the instruction of the trainee; or pays the trainee's wages during the off-site training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainees as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program. It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid a least 60 percent of the appropriate minimum journeymen's rate specified in the contract for the first half of the of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees is an approved existing program are enrolled as trainees on this project. In fact case, the appropriate rates approved by the Department of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provisions.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training.

The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily completed.

The contractor will provided for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

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INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT & TRANSPORTATION EQUITY ACT

Recipients of Federal-aid highway funds authorized under Titles I (other than Part B) and V of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), or Titles I, III, and V of the Transportation Equity Act for the 21st Century (TEA-21) are required to comply with the regulations of 49 Code of Federal Regulations (CFR) Part 26 - Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs.

* * * * *

DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM SPECIFICATION

The U.S. Department of Transportation (DOT) requires that the Delaware Department of Transportation continue the established Disadvantaged Business Enterprise (DBE) Program for participation in U.S. DOT programs and that the program follow the final rules as stated in 49 CFR Part 26 and the Department's approved DBE Program plan.

The following definitions apply to this subpart:

Disadvantaged Business Enterprise or DBE means a for-profit small business concern (1) that is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and, (2) whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

DOT-assisted contract means any contract between a recipient and a contractor (at any tier) funded in whole or in part with DOT financial assistance, including letters of credit or loan guarantees, except a contract solely for the purchase of land.

Good Faith Efforts means efforts to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

Joint Venture means an association of a DBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which the parties combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

Race-conscious measure or program is one that is focused specifically on assisting only DBEs, including women-owned DBEs.

Race-neutral measure or program is one that is, or can be, used to assist all small businesses. For the purposes of this part, race-neutral includes gender neutrality.

Small Business concern means, with respect to firms seeking to participate as DBEs in DOT-assisted contracts, a small business concern as defined pursuant to section 3 of the Small Business Act and Small Business Administration regulations implementing it (13 CFR part 121) that also does not exceed the cap on average annual gross receipts specified in 49 CFR §26.65(b).

Socially and economically disadvantaged individuals means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is - (1) any individual who a recipient finds to be a socially and economically disadvantaged individual on a case-by-case basis; (2) any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:

(i) Black Americans which includes persons having origins in any of the Black racial groups of Africa;

(ii) Hispanic Americans which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;

(iii) Native Americans which includes persons who are American Indians, Eskimos, Aluets, or

Native Hawaiians;

(iv) Asian-Pacific Americans which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kirbati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;

(v) Subcontinent Asian Americans which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;

(vi) Women;

(vii) Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

DelDOT will establish specific goals for each particular DOT-assisted project which will be expressed as a percentage of the total dollar amount of contract bid.

The specific contract goals for this contract are:

Disadvantaged Business Enterprise 0 % Percent

DelDOT continues to reserve the right to approve DBE subcontractors and all substitutions of DBE subcontractors prior to award and during the time of the contract.

Bidders are required to submit with their bids the completed DBE Program Assurance portion of the Certification document which will state the bidders intent of meeting the goals established for this contract; or in the instance where a contractor cannot meet the assigned DBE Goals for this contract, he/she shall at the time of bid submit documentation required to verify that he/she has made a Good Faith Effort to meet the DBE Goals. Guidance for submitting a Good Faith Effort is identified in the next section and in the DBE Program Plan. Further, the apparent low bidder must submit to DelDOT within ten (10) calendar days after the bid opening, executed originals of each and every DBE subcontract to satisfy contract goals consistent with the DBE Program Assurance submitted as part of the bid package.

No contract work shall be performed by a DBE subcontractor until the executed DBE subcontract is approved in writing by DelDOT and the Department has issued the required Notice to Proceed. Any DBE subcontract relating to work to be performed pursuant to this contract, which is submitted to DelDOT for approval, must contain all DBE subcontractor information, the requirements contained in this contract, and must be fully executed by the contractor and DBE subcontractor.

Each contract between the prime contractor and each DBE subcontractor shall at the minimum include the following:

1. All pertinent provisions and requirements of the prime contract.
2. Description of the work to be performed by the DBE subcontractor.
3. The dollar value of each item of work to be completed by the DBE subcontractor and the bid price of each item of work to be completed by the DBE subcontractor.

* * * * *

CRITICAL DBE REQUIREMENTS

A bid may be held to be non-responsive and not considered if the required DBE information is not provided. In addition, the bidder may lose its bidding capability on Department projects and such other

sanctions as the Department may impose. It is critical that the bidder understands:

1. In the event that the bidder cannot meet the DBE goal as set forth in this specification, he/she shall at the time of bid submit to the Department that percentage of the DBE Goal that will be met, if any, on the written and notarized assurance made a part of this contract. The contractor shall also at the time of bid submit all documentation that the contractor wishes to have the Department consider in determining that the contractor made a Good Faith Effort to meet contract DBE Goals. The Department will not accept Good Faith Effort documentation other than on the scheduled date and time of the bid opening. However, the Department may ask for clarification of information submitted should the need arise.

2. A bid which does not contain either a completely executed DBE Program Assurance and/or Good Faith Effort documentation, where appropriate, shall be declared non-responsive and shall not be considered by the Department.

3. Failure of the apparent low bidder to present originals of all DBE subcontracts to substantiate the volume of work to be performed by DBE's as indicated in the bid within ten (10) calendar days after the bid opening shall create a rebuttable presumption that the bid is not responsive.

4. Bidders are advised that failure to meet DBE Goals during the term of the contract may subject them to Department sanctions as identified in the DBE Program Plan.

5. In the execution of this contract, the successful bidder agrees to comply with the following contract clauses:

Prompt Payment: The prime contractor/consultant receiving payments shall, within 30 days of receipt of any payment, file a statement with the Department on a form to be determined by the Department that all subcontractors furnishing labor or material have been paid the full sum due them at the stage of the contract, except any funds withheld under the terms of the contract as required by Chapter 8, Title 17 of the Delaware Code, annotated and as amended. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of DelDOT. This clause applies to both DBE and non-DBE subcontractors.

Retainage: The prime contractor agrees to return retainage to each subcontractor within 15 calendar days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of DelDOT. This clause covers both DBE and non-DBE subcontractors. As guidance, once a subcontractor has satisfactorily completed the physical work, and has given to the prime contractor a certified statement that all laborers, lower tier contractors, and materialmen who have furnished labor and materials to the subcontractor have been paid all monies due them, the prime contractor shall return retainage to the subcontractor within 15 calendar days.

7. In the execution of this contract, the successful bidder agrees to comply with the following contract assurance and will include this same language in each subcontractor contract:

"The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such remedy as the recipient deems appropriate." 49 CFR Section 26.13

8. In addition to this specification, bidders must comply with all provisions of the rules and

regulations adopted by the U.S. Department of Transportation for DBE participation in U.S. DOT and DelDOT Programs (49 CFR Part 26) and the Delaware Department of Transportation Disadvantaged Business Enterprise Program Plan; each of which is hereby incorporated and made part of this specification. Bidders are also reminded that they must be responsible and responsive bidders in all other aspects aside from the DBE Program in order to be awarded the contract.

* * * * *

GUIDANCE FOR GOOD FAITH EFFORT

When the DBE Goals established for a contract by DelDOT are not met, the contractor shall demonstrate good faith efforts to meet the DBE contract goals. The contractor shall demonstrate that the efforts made were those that a contractor actively and aggressively seeking to meet the goals established by DelDOT would make, given all relevant circumstances. Evidence of this good faith effort will be submitted with the bid at the time of the bid opening.

The contractor is expected to demonstrate good faith efforts by actively and aggressively seeking out DBE participation in the project to the maximum extent, given all relevant circumstances. Following are the kinds of efforts that may be taken but are not deemed to be exclusive or exhaustive and DelDOT will consider other factors and types of efforts that may be relevant:

1. Efforts made to select portions of the work proposed to be performed by DBEs in order to increase the likelihood of achieving the stated goal. Selection of portions of work are required to at least equal the goal for DBE utilization specified in this contract.

2. Written notification at least ten (10) calendar days prior to the opening of a bid soliciting DBE interest in participating in the contract as a subcontractor or supplier and for specific items of work.

3. Efforts made to obtain and negotiate with DBE firms for specific items of work:
   a. Description of the means by which firms were solicited (i.e. by telephone, e-mail, written notice, advertisement).
   b. The names, addresses, telephone numbers of DBE's contacted, the dates of initial contact; and whether initial solicitations of interest were followed-up by contacting the DBEs to determine with certainty whether the DBEs were interested.
   c. A description of the information provided to DBE firms regarding the plans, specifications and estimated quantities for portions of the work to be performed.
   d. A statement of why additional agreements with DBE's were not reached in order to meet the projected goal.
   e. Listing of each DBE contacted but not contracted and the reasons for not entering a contract.

4. Efforts made to assist DBEs that need assistance in obtaining bonding, insurance, or lines of credit required by the contractor.

5. Reasons why certified DBEs are not available or not interested.

6. Efforts to effectively use the services of available disadvantaged community organizations; disadvantaged contractor's groups; local, state and federal DBE assistance offices; and other organizations that provide assistance in recruitment and placement of DBEs.

The following are examples of actions that may not be used as justification by the contractor for failure to meet DBE contract goals:

1. Failure to contract with a DBE solely because the DBE was unable to provide performance and/or payment bonds.
2. Rejection of a DBE bid or quotation based on price alone.
3. Rejection of a DBE because of its union or non-union status.
4. Failure to contract with a DBE because the contractor normally would perform all or most of the work in the contract.

Administrative reconsideration:

Within five (5) days of being informed by DelDOT that it is not responsive because it has not documented sufficient good faith efforts, a bidder may request administrative reconsideration. Bidder should make this request in writing to the following reconsideration official: Director of Administration, DelDOT, P. O. Box 778, Dover, Delaware 19903. The reconsideration official will not have played any role in the original determination that the bidder did not document sufficient good faith efforts.

As part of this reconsideration, the bidder will have the opportunity to provide written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so. The bidder will have the opportunity to meet in person with the reconsideration official, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. The final decision made by the reconsideration official will be communicated to the bidder in writing. The result of the reconsideration process is not administratively appealable to the U.S. Department of Transportation.

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FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS

(Exclusive of Appalachian Contracts)

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under

any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform

to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: 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, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special

provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data

should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on

the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR

5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a “Statement of Compliance,” signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall

permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for

termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty

hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of

compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

> 18 U.S.C. 1020 reads as follows:
>
> "Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or
>
> Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or
>
> Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;
>
> Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.

2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and

Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended,

debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative

agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

* * * * *

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 of 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 fourth 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.

REQUIREMENT BY DEPARTMENT OF LABOR FOR SWORN PAYROLL INFORMATION

Title 29 Del.C. §6960 stipulates;

(b) Every contract based upon these specifications shall contain a stipulation 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. The specifications shall further stipulate 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.

(c) Every contract based upon these specifications shall contain a stipulation that sworn payroll information, as required by the Department of Labor, be furnished weekly. The Department of Labor shall keep and maintain the sworn payroll information for a period of 6 months from the last day of the work week covered by the payroll.

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."

PREVAILING WAGE REQUIREMENTS

It is DelDOT's understanding that the Davis-Bacon Act is not a preemptive statute in the broad sense, and does not preempt or displace State of Delaware prevailing wage requirements.

When a contract for a project contains both Federal Davis-Bacon and State of Delaware prevailing wage standards because of concurrent Federal and State coverage, the employer's minimum wage obligations are determined by whichever standards are higher.

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

DEC 10 '12 AM11:17

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	22.45	22.15

CERTIFIED: 12/7/12

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: DOT1228.01 Emergency Highway ITS and Traffic Maintenance, Multiple Counties

General Decision Number: DE20120013

State: DELAWARE

Construction Type: HIGHWAY

COUNTY: New Castle County in Delaware

HIGHWAY CONSTRUCTION PROJECTS: (excluding tunnels, building structures in rest area projects and railroad construction; bascule, suspension and spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Modification Number	Publication Date
0	01/04/2013

SUDE2010-001 03/15/2012

	Rates	Fringes
Bricklayer	45.63	
Carpenter	49.06	
Cement Mason/Concrete Finisher	30.40	
ELECTRICIAN		
Electrician	59.10	
Line Worker	22.50	
Ironworker	42.20	
Laborer	30.23	
Millwright	16.11	
Operator: Piledriver	59.23	
Painter	56.07	
Power Equipment Operation	41.41	
Sheet Metal Worker	22.75	
Truck Driver	32.17	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for the classification. Example: PLUM0198-005 07/01/2011. The first four letters, PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above

example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rate.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicated the State of Louisiana; 2004 is the year of the survey: and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Way Determination on the date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

0000/9999: weighted union wage rates will be published annually each January.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

GENERAL DECISION: DE130011 01/04/2013 DE11

Superseded General Decision Number: DE20120014

State: DELAWARE

Construction Type: HIGHWAY

COUNTY: Kent County in Delaware

Modification Number	Publication Date
0	01/04/2012

SUDE2010-002 03/15/2012

	Rates	Fringes
Bricklayer	45.63	
Carpenter	49.06	
Cement Mason/Concrete Finisher	26.13	
ELECTRICIAN		
Electrician	59.10	
Line Worker	54.05	
Ironworker	22.98	
Laborer	26.66	
Millwright	15.63	
Operator: Piledriver	23.75	
Painter	56.07	
Power Equipment Operator	27.54	
Sheet Metal Worker	20.31	
Truck Driver	22.45	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited typs(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical or der of "identifiers" that indicate whether the particular rate is union or non -union

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for the classification. Example: PLUM0198-005 07/01/2011. The first four letters, PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage

determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rate.

0000/9999: weighted union wage rates will be published annually each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicated the State of Louisiana; 2004 is the year of the survey: and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Way Determination on the date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

FEDERAL DAVIS-BACON WAGE RATES 01/04/2013 DE12

Superseded General Decision Number: DE20120015

STATE: Delaware

Construction Type: Highway

COUNTY: Sussex County in Delaware

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels; building structures in rest area projects, and railroad construction; bascule, suspension and spandrel arch bridges; bridges designed for commercial navigation; bridges involving marine construction; other major bridges).

Modification Number	Publication Date
0	01/04/2013

SUDE2010-003 03/15/2011

	Rates	Fringes
Bricklayer	14.51	
Carpenter	39.22	
Cement Mason/Concrete Finisher	23.29	
ELECTRICIAN		
Electrician	59.10	
Line Worker	21.25	
Ironworker	25.35	
Laborer	29.03	
Millwright	13.49	
Operator: Piledriver	26.95	
Painter	56.07	
Power Equipment Operator	26.43	
Sheet Metal Worker	18.40	
Truck Driver	22.15	

WELDERS: Receive rate prescribed for craft performing operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is union or non-union.

Union Identifiers

An identifier enclosed in dotted lines beginning with characters other than "SU" denotes that the union classification and rate have found to be prevailing for the classification. Example: PLUM0198-005 07/01/2011. The first four letters, PLUM, indicate the international union and the four-digit number, 0198, that follows indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2011, following these characters is the effective date of the most current negotiated rate/collective bargaining agreement which would be July 1, 2011 in the above example.

Union prevailing wage rates will be updated to reflect any changes in the collective bargaining agreements governing the rate.

0000/9999: weighted union wage rates will be published annually each January.

Non-Union Identifiers

Classifications listed under an "SU" identifier were derived from survey data by computing average rates and are not union rates; however, the data used in computing these rates may include both union and non-union data. Example: SULA2004-007 5/13/2010. SU indicates the rates are not union rates, LA indicated the State of Louisiana; 2004 is the year of the survey: and 007 is an internal number used in producing the wage determination. A 1993 or later date, 5/13/2010, indicates the classifications and rates under that identifier were issued as a General Way Determination on the date.

Survey wage rates will remain in effect and will not change until a new survey is conducted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

APPLICABILITY OF DAVIS-BACON LABOR STANDARD PROVISIONS TO FLAGGERS

The U.S. Department of Labor has established that the duties of flaggers working on contracts covered by the Davis-Bacon Act, are manual and physical in nature. Accordingly, all employees performing the work of flaggers on Davis-Bacon covered contracts shall be entitled to receive applicable prevailing wage rates.

* * * * *

ALL AGENCY MEMORANDUM NO. 130
U.S. DEPARTMENT OF LABOR
EMPLOYMENT STANDARDS ADMINISTRATION
WAGE AND HOUR DIVISION
WASHINGTON, DC 20210

GUIDELINES

HIGHWAY CONSTRUCTION

Highway projects include the construction, alteration, or repair of roads, streets, highways, runways, taxiways, alleys, trails, paths, parking areas, and other similar projects not incidental to building or heavy construction.

EXAMPLES: Alleys, Base Courses, Bituminous treatments, Bridle Paths, Concrete pavement, Curbs, Excavation and embankment (for road construction), Fencing (highway), Grade crossing elimination (overpasses and underpasses), Guard rails on highway, Highway signs, Highway bridges (overpasses, underpasses, grade separation), Medians, Parking lots, Parkways, Resurfacing streets and highways, Roadbeds, Roadways, Runways, Shoulders, Stabilizing courses, Storm sewers incidental to road construction, Street paving, Surface courses, Taxiways, and Trails.

ANY QUESTIONS REGARDING THE APPLICATION OF THE GUIDELINES ABOVE TO A PARTICULAR PROJECT OR ANY DISPUTES REGARDING THE APPLICATION OF THE WAGE SCHEDULES ARE TO BE REFERRED TO THE WAGE AND HOUR DIVISION, U.S. DEPARTMENT OF LABOR FOR RESOLUTION, AND THE INSTRUCTIONS OF THE WAGE AND HOUR DIVISION ARE TO BE OBSERVED IN ALL INSTANCES.

* ALL AGENCY MEMORANDUM NO. 130
U.S. DEPARTMENT OF LABOR
EMPLOYMENT STANDARDS ADMINISTRATION
WAGE AND HOUR DIVISION
WASHINGTON, DC 20210

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.

Supplemental Specifications that Only Apply to DOT1228

SECTION 743

Modifications to Section 743

Delete Section 743.13 B and replace it as follows:

B. Basis of Payment for Maintenance of Traffic Items:

1. For this contract, no separate Lump Sum bid Item 743000 is included for the work referenced in this section (Section B).

2. Compensation for all maintenance of traffic activities accepted by the Engineer, including submission of temporary traffic control plans, submitting certifications, traffic cones, correction of edge drop-offs, and for all labor, equipment, tools and incidentals is to be included in the Unit Prices bid for the various individual Maintenance of Traffic Items.

    a. The cost to move temporary traffic control devices in accordance with the temporary traffic control plan or as necessary to address safety issues is also to be included in the Unit Prices bid for the various individual Maintenance of Traffic Items.

SPECIAL PROVISIONS

CHANGES TO PROJECT DOCUMENTS DURING ADVERTISEMENT

1. PRINTED PLANS AND SPECIFICATIONS NOT AVAILABLE FROM DELDOT.

The Department is not providing printed plans or specifications for this project. Bidders must contact the Department in order to receive a CD that contains all bid documents. Bidders are able to use the CD to print the plans and specifications, or have them printed from the Website. While the plans and specifications are available on-line at DelDOT's Website, the Website bid documents are not authorized for submitting bids, and the Website documents are marked as such. To receive required bid Documents on a CD, contact:

Contract Administration
Delaware Department of Transportation
P.O. Box 778, Dover, DE 19903
e-mail: dot-ask@state.de.us
Phone: (302) 760-2030
FAX: (302) 739-2254

The Department is providing a printed set of plans and specifications available for viewing in the Bidder's Room, Transportation Administration Center, 800 Bay Road, Dover, Delaware, Monday through Friday excluding holidays from 8:00A.M. through 4:15 P.M..

2. QUESTIONS AND ANSWERS

All questions pertaining to this project are to be submitted to the following e-mail address:

dot-ask@state.de.us

Questions and Answers will be dated and posted periodically on Delaware's Bid Solicitation Directory Website located at: http://www.bids.delaware.gov/

The final Questions and Answers will be posted no later than the end of the day, two working days prior to the bid date.

All Questions and Answers posted by the Department on the above Website are included by reference and become part of the contract documents. The awarded bidder will receive a hard copy of the final posted Questions and Answers.

Potential bidders that do not have access to the internet may contact Jim Hoagland, Contract Services Administrator, by telephone at (302) 760-2036 to make other arrangements.

NOTE: There is space provided on the CERTIFICATION page to insert the Posted Date of the final Questions and Answers. The Final Posted Date is the latest Posted Date of the Questions and Answers one day prior to Bid Date. This final Posted Date must be submitted on the Certification page.

3. ADDENDA

The Department is not providing printed Addendums, if issued, for this project. **All addendums will be posted on the Department's Website, and are included by reference and become part of the contract documents**. It is the responsibility of the bidder to check the Website as needed. If there are Addendums issued, the final Addendum will be posted no later than the end of the day, two working days prior to the bid date.

NOTE: There is space provided on the CERTIFICATION page to insert each issued Addendum and the date you acknowledge receipt of the addendum. Each Addendum number and date acknowledged must be submitted on the Certification page.

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 $550.00 per ton ($606.27 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.

744500 - CONDUIT JUNCTION WELL, TYPE 6, PRECAST POLYMER CONCRETE
744506 - CONDUIT JUNCTION WELL, TYPE 7, PRECAST POLYMER CONCRETE
744507 - CONDUIT JUNCTION WELL, TYPE 8, PRECAST POLYMER CONCRETE
744508 - CONDUIT JUNCTION WELL, TYPE 9, PRECAST POLYMER CONCRETE
744509 - CONDUIT JUNCTION WELL, TYPE 10, PRECAST POLYMER CONCRETE
744520 - CONDUIT JUNCTION WELL, TYPE 1, PRECAST CONCRETE
744523 - CONDUIT JUNCTION WELL, TYPE 4, PRECAST CONCRETE
744524 - CONDUIT JUNCTION WELL, TYPE 5, PRECAST CONCRETE
744530 - CONDUIT JUNCTION WELL, TYPE 11, PRECAST CONCRETE/POLYMER LID-FRAME
744531 - CONDUIT JUNCTION WELL, TYPE 14, PRECAST CONCRETE/POLYMER LID-FRAME
744532 - CONDUIT JUNCTION WELL, TYPE 15, PRECAST CONCRETE/POLYMER LID-FRAME

Description:

This work consists of supplying, constructing and installing conduit junction wells as shown on the applicable Plan Sheets or Standard Construction details

Materials:

Concrete shall conform to Section 812, Class B of the Standard Specifications.

Castings shall conform to Section 708.05 of the Standard Specifications.

Frames and lids shall be in accordance with Sections 708 and 744 of the Standard Specifications.

All required hardware and wire for Bonding and Grounding as shown on the Standard Construction or applicable Plan details.

Types 6, 7, 8 and 10 are precast polymer concrete stackable boxes with no base.

Precast polymer concrete is reinforced by heavy-weave fiberglass with a compressive strength of 9,000-15,000 psi, impact energy of 30-72 ft. lbs. and a tensile strength of 800-1,100 psi. Precast polymer concrete should be tested according to the requirements of ASTM Method D-543, Section 7, Procedure 1 for chemical resistance.

All precast polymer concrete covers shall be the heavy-duty type with a design load of 15,000 lbs. over a 10" square. The coefficient of friction should be greater than 0.5. The precast polymer concrete cover logo shall bear the inscription "DelDOT" (Types 6, 8, and 10) or "DelDOT TRAFFIC FIBER OPTICS" (Type 7).

Types 11, 14, and 15 are precast polymer frame and lids installed on a precast concrete base. Precast polymer concrete frame and lids shall be the heavy-duty nonconductive type with a design load of 15,000 lbs. over a 10" square. The coefficient of friction should be greater than 0.5. The precast polymer concrete lid logo shall bear the inscription "DelDOT ELECTRIC"(Types 11, 14, and 15)

Construction Methods:

The conduit junction well shall conform to the dimensions shown on the Standard Construction or applicable Plan Details, or on the manufacturer's specifications and shall be built so as to ensure that the cast iron frame and lid or polymer concrete box and cover are set level with the surrounding surface when constructed within pavement, sidewalks, pedestrian curb ramps, etc., and set above grade and graded to drain away from the junction well when constructed in unpaved areas. More than one conduit may extend into the well and shall conform to the dimensions shown on the applicable plan sheets or Standard Construction Details. A stone base shall be built for all types of junction wells. Grounding and bonding of the units shall be performed as shown on the plans or Standard Construction details.

Method of Measurement:

The quantity of junction wells shall be the actual number of conduit junction wells by type, that are supplied, constructed, complete in place, and accepted, including cast iron frames and lids with grounding lugs, precast polymer concrete frame and covers, or precast polymer concrete covers, stone base, bonding, grounding, and splicing if required. Frames and lids or precast polymer concrete covers must be installed prior to acceptance of this item.

Payment for all conduits extending into the junction well shall be included in the items for conduit installation.

The length of ALL conduits within a junction well shall conform to the Standard Construction or applicable Plan Details or as directed by Engineer. Payment for cutting existing conduit as directed by Engineer, where a junction well is replaced with a larger type of junction well is included in the bid price. The removal and replacement of cables within the conduits to be shortened shall be handled under other items of this contract.

Basis of Payment:

Payment for conduit junction wells as measured above shall be made at the Contract unit price per each junction well of the type indicated, completely installed and constructed, including excavation, backfilling, and stone base. Price and payment will constitute full compensation for all labor, equipment, tools, and incidentals required to complete the work.

2/29/12

744533 - FURNISH & INSTALL FRAME AND LID FOR JUNCTION WELL, TYPE 1
744534 - FURNISH & INSTALL FRAME AND LID FOR JUNCTION WELL, TYPE 4
744535 - FURNISH & INSTALL FRAME AND LID FOR JUNCTION WELL, TYPE 5
744536 - FURNISH & INSTALL PRECAST POLYMER COVER FOR JUNCTION WELL, TYPE 6
744537 - FURNISH & INSTALL PRECAST POLYMER COVER FOR JUNCTION WELL, TYPE 7
744538 - FURNISH & INSTALL PRECAST POLYMER COVER FOR JUNCTION WELL, TYPE 8
744539 - FURNISH & INSTALL PRECAST POLYMER COVER FOR JUNCTION WELL, TYPE 9
744540 - FURNISH & INSTALL PRECAST POLYMER COVER FOR JUNCTION WELL, TYPE 10
744541 - FURNISH & INSTALL FRAME AND LID FOR JUNCTION WELL, TYPE 11
744542 - FURNISH & INSTALL FRAME AND LID FOR JUNCTION WELL, TYPE 14
744543 - FURNISH & INSTALL FRAME AND LID FOR JUNCTION WELL, TYPE 15

Description:

This work consists of furnishing and installing cast iron frames and lids or precast polymer concrete covers for existing junction wells only. The item shall not be used when furnishing new junction wells as the frames and lids are included in the price for the new units. The frames and lids are as shown on the Standard Construction or applicable Plan Details. The work includes furnishing and installing all required materials and hardware to properly ground the unit, including wire and splicing if required and as shown on the Standard Construction or applicable Plan Details.

Materials:

Castings for frames, lids, and ½" dia. x 1 ¼" grounding lugs shall conform to Section 708.05 of the Standard Specifications and Standard Construction Details or applicable Plan Details.

Precast polymer concrete covers shall be reinforced by heavy-weave fiberglass. All precast polymer concrete covers shall be the heavy-duty type with a design load of 15,000 lbs. over a 10" square and a coefficient of friction greater than 0.5. The precast polymer concrete cover logo shall bear the inscription "DelDOT Traffic" for Types 6, 8, and 10 and "DelDOT Traffic Fiber Optics" for Type 7. The precast polymer concrete cover Type 11, 14, and 15 logo shall bear the inscription "DelDOT ELECTRIC".

Material for Grounding, bonding, and all related hardware and wire (including splicing if required) shall be as shown on the Standard Construction or applicable Plan Details.

Method of Measurement:

The quantity of spare frames and lids or precast polymer concrete covers shall be the actual number of frames and lids or precast polymer concrete covers by type furnished, installed, bonded, grounded and accepted.

Basis of Payment:

The item shall be paid for at the Contract unit price per each. Price and payment will constitute full compensation for all labor, equipment, tools, and incidentals required to complete the work.

2/29/12

744544 – ADJUST OR REPAIR EXISTING CONDUIT JUNCTION WELL

Description:

This work consists of adjusting or repairing existing conduit junction wells, including furnishing all materials, in accordance with this specification, notes and details on the applicable Plans, the Standard Construction Details, and as directed by the Engineer. If Bonding and Grounding of the unit is required, that work will be paid for under "Bonding and Grounding Existing Junction Well".

Materials:

Portland cement concrete shall conform to the requirements of Section 812, Class B.
Mortar shall conform to the requirements of Section 611.
Brick shall conform to the requirements of Section 611.
Concrete block shall conform to the requirements of Section 819.

Construction Methods:

Repair of conduit junction wells includes repairing/patching the masonry walls and resetting existing frames and lids or precast polymer concrete covers.

Adjusting involves raising the elevation of the frame and lid to match the grade of the surrounding area.

Method of Measurement:

The quantity of conduit junction wells adjusted or repaired will be measured as the actual number of conduit junction wells adjusted or repaired and accepted. If a new frame and lid or precast polymer concrete cover is needed, it will be supplied under a separate item.

Basis of Payment:

The quantity of conduit junction wells will be paid for at the Contract unit price per each junction well. Price and payment will constitute full compensation for excavating, backfilling, compacting and disposing of excess materials, for furnishing and placing all materials and for all labor equipment, tools and incidentals required to complete the work.

2/29/12

744545 - BONDING & GROUNDING EXISTING JUNCTION WELL

Description:

This item consists of furnishing and installing hardware and wire to Bond and Ground existing junction wells as shown on the Plans, Standard Details, or as directed by the Engineer in the field. The item will not be used when providing a new Junction Well as these costs are incidental to the new installation.

Materials:

A braided bonding strap shall be furnished. The bonding strap shall be 2 feet long so that the junction well cover can be removed and placed beside the well during maintenance operations.

A No. 6 AWG (minimum size) stranded copper wire shall be provided for bonding purposes.

All hardware, including bushings and fasteners, shall be provided by the Contractor. Bolts, nuts, and washers shall be stainless steel.

Any materials deemed unsatisfactory by the Engineer, shall be replaced by the Contractor.

All electrical materials shall conform to the requirements of the National Electrical Code (NEC) of the national Fire Protection Association, and shall conform to all local and special laws and/or ordinances governing such installations. Where these requirements do not govern, and where not otherwise specified, electrical materials shall conform to the Standardization Rules of the Institute of Electrical and Electronic Engineers.

Construction Methods:

Holes shall be drilled in the junction well cover and in the junction well frame. The braided bonding strap shall be attached to both the cover and frame using ½" dia. x 1 ¼" stainless steel bolt with stainless split lock washer and bolts to ensure proper bonding.

The junction well frame shall be bonded to the existing ground wire in the junction well using compression connector (example: C-Tap).

Measurement and Payment:

Measurement will be made on a per each basis for existing junction wells properly grounded and bonded. Price and payment includes furnishing and installing all materials shown on the applicable detail sheets including splicing if necessary.

2/29/12

745601 – FURNISH & INSTALL UP TO 3" FLEXIBLE METALLIC-LIQUIDTIGHT CONDUIT
745602 - FURNISH & INSTALL UP TO 4" SCHEDULE 80 HDPE CONDUIT (BORE)
745603 - FURNISH & INSTALL UP TO 4" SCHEDULE 80 PVC CONDUIT (OPEN CUT)
745604 - FURNISH & INSTALL UP TO 4" SCHEDULE 80 PVC CONDUIT (TRENCH)
745605 - FURNISH & INSTALL UP TO 4" SCHEDULE 80 PVC CONDUIT (ON STRUCTURE)
745606 - FURNISH & INSTALL UP TO 4" GALVANIZED STEEL CONDUIT (TRENCH)
745607 - FURNISH & INSTALL UP TO 4" GALVANIZED STEEL CONDUIT (BORE)
745608 - FURNISH & INSTALL UP TO 4" GALVANIZED STEEL CONDUIT (OPEN CUT)
745609 - FURNISH & INSTALL UP TO 4" GALVANIZED STEEL CONDUIT (ON STRUCTURE)
745610 - FURNISH & INSTALL UP TO 4" NONMETALLIC POLE RISER SHIELD

Description:

Furnish and install HDPE, PVC, or Galvanized steel conduits of any size less than or equal to 4 inches in diameter (3 inches or less for Flexible Metallic Liquidtight Conduit) as described below.

Materials:

All conduits shall be UL listed.

HDPE Conduit - 4" or less diameter, high density polyethylene (HDPE) schedule 80, smooth wall conduit with permanently pre-lubricated lining, meeting ASTM D2447, ASTM D3035 and NEMA TC7 specifications.

PVC Conduit - 4" or less diameter, schedule 80 rigid polyvinyl chloride (PVC) conduit, meeting Commercial Standard CS-272-65 (PVC), ASTM D-1785 and U.C. Standard 651 specifications.

Galvanized Steel Conduit - 4" or less diameter, rigid galvanized steel conduit meeting National Electric Code 2002, Article 344.

Nonmetallic Pole Riser Shield – 4" diameter or less nonmetallic pole riser shield with belled ends meeting NEMA TC-19 specifications.

Flexible Metallic-Liquidtight Conduit – meets National Electric Code 2002, Article 350

Weatherhead for galvanized or PVC conduit – material shall match the adjoining conduit

Insulated grounding bushing with knockouts - meet or exceed UL 514 B

Condulets for conduit sizes - material shall match the adjoining conduit

Anchors - A 307, Galvanized per A 153

One hole conduit hangers - Steel City Series 6H or 6H-B, CADDY CD3B Rigid Conduit Hanger, or approved equal

End caps - material shall match the adjoining conduit

LONG sweep sections for conduit sizes - material shall match the adjoining conduit, and shall be manufactured 90 degree sweeping bends.

Construction Methods:

General Installation Requirements - The Department has the right to reject any installation method proposed for a given work site. PVC shall not be installed under existing pavement unless it is on a continuous roll or with the Engineer's written approval.

Conduit installed underground shall be installed in a straight line between terminal points. In straight

runs, junction well spacing shall be no more than 600 feet for fiber optic conduit or no more than 300 feet for copper in conduit, or as directed by the Engineer. If bends are required during installation, they must be manufactured sweeping bends. The Engineer will be consulted before any bends are installed to ensure that the proper arc is provided.
Conduit shall have a minimum cover as measured from the finished grade of 24 inches and a maximum cover of 48 inches.

The opening shall be filled half way with the cover material, and tamped down firmly before filling in the remainder of the opening. Additional lifts shall be used as required to install the metallic warning tape at the specified depth. All cover material shall be free of rocks, debris, vegetation or other deleterious material that may damage the conduit. An underground utility warning tape shall be installed as specified in this section and the remainder of the fill shall be added, tamping down the top layer.

Conduit not terminated to a base or in a junction well shall be terminated 2 feet beyond the edge of the pavement unless otherwise directed by the Engineer, and properly capped. Tape is NOT an approved method. Conduit shall not extend more than 3 inches inside a junction well. See Standard Construction Details or applicable Plan Details for typical methods of termination.
All underground conduits shall be marked in the ground with a metallic warning tape. The marking tape shall be buried directly above the conduit run that it identifies, at a depth of approximately 12 inches below final grade. The tape identifying ALL conduits shall be at least 6 inches wide, and have a minimum thickness of 3 mils and 500 percent elongation.

The color of the metallic warning tape identifying fiber optic cable should be bright orange (preferably AULCC orange), and shall read "WARNING - OPTICAL CABLE" or other wording approved by the Engineer that conveys the same message. The color of the tape identifying all other cables shall be bright red, and shall read "WARNING —BURIED ELECTRIC BELOW" or other wording approved by the Engineer that conveys the same message.

Using conduit tools, rigid metallic conduit shall be cut, reamed, and threaded. The thread length shall be as necessary to ensure that the sections of conduits when screwed into a coupling and tightened correctly will butt together and the joint will be watertight. A three-piece threaded union, as approved by the Engineer, shall be used to join two threaded lengths of conduit in the case where a standard coupling will not work. A threaded union shall not be used in a conduit run that is to be driven. At no time is a threadless coupling or a split-bolt coupling to be used for direct buried conduit.

All lengths of HDPE conduit shall be connected with irreversible fusion couplings. Mechanical and removable couplings will not be accepted.

All lengths of PVC conduit shall be connected by one conduit end fitting inside the flared end of the other conduit section. If this is not possible, then a coupling may be used. Regardless of how connection is made, all joints shall be sealed with the appropriate epoxy to ensure that the two conduit pieces bond to one another to form a solid waterproof link. Using conduit tools, the conduit shall be cut and prepared. If approved by the Engineer, a coupler module may be used where conduit segments do not align properly to allow the flared end of one conduit segment to mate with the normal end of the other segment.

Sealed end caps (with knockouts if empty) shall be placed on the ends of all conduits, after compressed air has been used to clear all foreign matter.

If not already pre-installed by the manufacturer, a polyester or polypropylene pulling rope or tape (fish wire) with a minimum rated strength of 1250 pounds shall be installed in each conduit for future use. In instances where the Contractor installs the cable, the fish wire may be eliminated.

All PVC and HDPE conduits shall have a continuous metallic trace wire installed for the entire length of the conduit run for all fiber installations.

<u>Installation Of Conduit Under Existing Pavement, Directional Bore</u> -

Directional bore shall be used for installation of conduits under existing pavement with a conduit diameter not less than 1-1/2". The size of a bore shall not exceed the outside diameter of the conduit by more than 1 inch. If it does, cement grout shall be pumped into the void. **Only HDPE and/or Galvanized Steel conduit may be installed by Directional Bore methods.**

Installation Of Conduit Under Existing Pavement, Open Cut -

Installation by sawcutting the full pavement depth and removing the existing pavement with an excavator or by hand methods, shall be used only for conduits not less than 1-1/2" diameter. The Engineer must first approve all open cutting of roadways. The width and length of open cut and patch restoration materials shall be as shown on the plan details. The Contractor shall be responsible for the removal of all cut pavement and surplus excavation, and for the replacement and correction of any damaged pavement outside the sawcut limits after the conduit(s) are installed. Asphalt pavement, concrete, base course, sawcutting, and/or borrow from an outside source as required to restore the roadway will be paid for separately under their respective bid items.

Installation Of Conduit Under Existing Pavement, Unpaved Trench -

Trenching or other approved method shall be used for installation of conduit in unpaved trench or under new pavement. Backfill in conduit trenches shall be compacted thoroughly as it is being placed. At the discretion of the Engineer, sod, that must be removed for the placement of conduit, shall be removed either by the use of an approved sod cutter and then replaced, or 6 inches of topsoil shall be placed and the surface seeded in accordance with Section 734001 - Seeding. In areas where new pavement is to be placed or in areas where total reconstruction is taking place, sodding or seeding may not be required by the Engineer. Sodding and/or topsoil from an outside source if required will be paid for separately under their respective bid items. Seeding is considered incidental to the conduit item.

Installation Of Conduit On Structure -

Conduit installed on structure shall consist of drilling anchors into concrete, brick, stone, steel or wood and mounting the conduit with the proper clamps or hangers. The conduit shall be attached to the structure by use of one-hole conduit hangers and approved anchors not more than 36 inches apart. Any 90-degree turns in the conduit run shall be accomplished by placing the proper size and type manufactured sweeping bends for the application needed.

Installation of Nonmetallic Riser Shield or Flexible Metallic Liquidtight Conduit -

Riser Shield and/or Flexible Metallic Liquidtight Conduit installed on wood poles, metal poles, structures, and/or mast arms shall be installed in a straight line. The conduit, when attached to poles, shall be attached with 2-hole straps spaced not more than 36 inches apart with the top-most strap being 12 inches from the weatherhead and the lower-most being 12 inches from the condulet. A weatherhead matching the diameter of the conduit shall be installed on the upper end of the conduit. A condulet of the same size as the conduit being installed, but not smaller than 2 inches shall be placed 48 inches above finished grade. Install two, 2-hole straps of the proper size, evenly spaced below the condulet. Nonmetallic pole risers (U-guard) shall be installed on poles to allow interduct to be connected directly to messenger cable. The underground conduit shall be as close to the base of the pole as possible. If the nonmetallic pole riser or metallic liquidtight conduit is not the same size as the conduit, an adapter shall be used at no additional cost to the Department. The nonmetallic pole riser or metallic liquidtight conduit shall be attached to the pole with 1/4" x 1-1/2" galvanized lag bolts with washers. Lag bolts will be used every 36 inches on BOTH sides of the nonmetallic pole riser or liquidtight conduit, and in the top most and bottom most set of slots. Flexible metallic liquidtight conduit shown on the plans to be installed on mast arms or on metal structure shall also include stainless steel banding placed at a maximum of 5 feet intervals.

Method of Measurement:

The quantity of conduit or riser shield installed as specified, shall be measured as the number of linear feet of each conduit or riser shield installed as specified, complete in place, and accepted.

The length of each conduit installed under existing pavement by a directional bore or by open cutting the pavement shall be measured along the path of the bore or open cut, from the point that cannot be trenched to the point that trenching can resume.
The length of any conduit that is reduced or divided (with a junction well or conduit body) shall be measured as part of the larger conduit.

Basis of Payment:

The quantity of conduit or riser shield will be paid for at the Contract unit price per linear foot. Price and payment shall include full compensation for furnishing all conduit and/or riser shield materials, equipment, labor, and incidentals necessary to complete the item.

For conduit installed by Directional Bore, the linear foot payment also includes excavation and backfilling for Bore Equipment, placing the conduit, caps if required, and all other requirements and incidentals listed in the body of this specification.

For conduit installed by Open Cutting existing pavement, the linear foot payment also includes excavating, backfilling, placing the conduit, disposal of excess materials, and all other requirements and incidentals listed in the body of this specification.

For conduit installed in an Unpaved Trench, the linear foot payment also includes excavating, removal of sod if required, backfilling, placing the conduit, disposal of excess materials, replacing excavated on-site sod if required, seeding if required, and all other requirements and incidentals listed in the body of this specification. Sod and/or topsoil furnished from an outside source, will be paid for separately.

For conduit installed on a structure, the linear foot payment also includes furnishing and installing anchors and hangers, removal of excess materials, and all other requirements and incidentals listed in the body of this specification.

For riser shield or flexible metallic conduit installed on poles, mast arms, or structures the linear foot payment also includes furnishing and installing straps, weatherhead, condulet, lag bolts and washers, any other required mounting hardware, and all other requirements and incidentals listed in the body of this specification.

2/29/12

746501 – FURNISH & INSTALL DOWN GUY AND ANCHOR

Description:

This work consists of furnishing and installing a down guy or a sidewalk guy between an anchor and a pole. The installation of a down guy or a sidewalk guy shall include a strain insulator and guy protector. The location of the anchor shall be in accordance with the appropriate cable installation practices.

Materials:

Stranded guy wire shall be Galvanized Steel, Extra High Strength Grade, 7 wires, 7/16" in diameter and have a minimum strength of 20,800 pounds.

Screw Anchors with Forged-Eye Anchor Rods: Nominal rating of 8,000 pounds in average soil, diameter 8", pitch of 2", rod diameter 1", length of rod 5-1/2".

Guy Clamps: Suitable for 7/16" stranded guy wire, 6 inches long with three 5/8" galvanized nuts and bolts.

Guy Attachments.

Galvanized Machine Bolt: Rod diameter of 5/8" minimum, length to suit the pole it is to be used on.

Full Round and Half Round Guy Wire Protector: 7 feet in length, yellow plastic material.

Flat washer 3" x 3" x 1/4" with an 11/16" hole for 5/8" bolt or flat washer 3" x 3" x 1/4" with a 13/16" hole for 3/4" bolt, as appropriate.

Sidewalk guy fittings.

Pipe for sidewalk guys.

3 feet of #6 solid copper wire.

2 parallel groove connectors {Blackburn #K2 - jumper clamp} or equal.

#4 plated split bolt connector {Blackburn #4HPS}

Strain Insulator, minimum rated strength of 20,000 pounds.

Construction Methods:

The installation of the anchor will consist of driving the anchor into firm and undisturbed ground to a point whereby no more than 6 inches of the rod including the eye is exposed above ground level.

The down guy or sidewalk guy wire shall be attached to the anchor end of the pole at the appropriate location on the pole to provide guying for the cable installed for DelDOT's use. The guy shall be installed according to all applicable electrical and safety codes.

The strain insulator shall be installed based on field conditions and as designated by the Engineer. The strain insulator shall be not less than 8 feet above the ground if the guy is broken below the insulator.

A guy wire protector will be installed with the bottom at ground level and properly anchored to the guy wire.

Method of Measurement:

The quantity of anchors and down guys or sidewalk guys will be measured as the number of anchors and down guys or sidewalk guys furnished and installed as specified, complete in place, and accepted.

The bonding of the guys shall be incidental to this item.

Basis of Payment:

The quantity of anchors and down guys or sidewalk guys will be paid for at the Contract unit price for each installation. Price and payment shall include full compensation for all materials listed above, labor, tools, equipment, and incidentals necessary to complete the item.

3/1/12

746504 - FURNISH & INSTALL SPAN WIRES, 7/16”
746506 - FURNISH & INSTALL SPAN WIRES, 1/4”

Description:

This work consists of furnishing and attaching a new span wire, with two strain insulators, at the proper roadway clearance between two poles (wood or metal).

Materials:

Unless otherwise specified, all hardware shall meet ASTM 153, Class C requirements

Span wire, 7/16" - Galvanized Steel Extra High-Strength Grade meeting ASTM A-475 and shall have a minimum of 7 wires, 7/16" in diameter and a minimum strength of 20,800 pounds.

Span Wire, ¼” - Galvanized Steel meeting ASTM A-475 requirements, and shall have a minimum of 7 wires, ¼” in diameter and a minimum strength of 6,650 pounds.

Two service sleeves - to anchor the loose ends of the span wire

Two strain insulators - minimum rated strength of 20,000 pounds

Four galvanized guy clamps - six 6 inches in length, each complete with three 5/8" galvanized bolts and nuts, meeting ASTM 153 Class C, and suitable for use on 7/16" to 1/2" span wire

Tensioning device - minimum capacity of 6,000 pounds pull

Additional materials for wood pole installation:

Four strain plates
16 galvanized screws, 1/4" x 2-1/2"
Four guy hooks
Four 5/8" x 4" lag screws

Additional hardware may be required for span-to-span attachments, such as “H” span and “Suspended Box” span installations.

Construction Methods:

The tension of the installed span wire and the attachment height will be specified by the Engineer. Tension shall be applied to the span wire using a tensioning device with a minimum capacity of 6,000 pounds pull.

No preparation is required for attaching a span wire between metal poles.

The wood poles shall be prepared as follows:

1. Install two strain plates on each pole, one on the front and one on the backrear, each secured with four ea. 1/4" x 2-1/2" galvanized screws.

2. On each pole, two guy hooks shall be installed, one on each side of the pole, using 5/8" x 4" lag screws.

The span wire shall be installed according to all applicable electrical and safety codes. The strain insulators shall be installed based on field conditions and as designated by the Engineer. Each span shall contain two strain insulators unless otherwise directed by the Engineer. The strain insulator shall be not less than 8 feet above the ground if the span wire is broken below the insulator.

The span wire shall be attached to the poles and strain insulators in the following manner:

1. Starting at the pole nearest the strain insulator, the span wire shall be wrapped one and one half times around the pole with the end of the span wire extending back parallel with the span. The span wire shall not be allowed to cross over or overlap itself on the pole.

2. Two galvanized guy clamps shall be placed on the span wire end-to-end so that the guy clamp nearest the pole is 2.5 feet from the pole. The other guy clamp shall have a 1" separation from the guy clamp nearest the pole.

3. The loose end of the span wire shall extend at least 3 feet from the last clamp and shall be properly secured to the span wire with a service sleeve.

4. A strain insulator shall be placed by doubling back the span wire through the appropriate hole in the insulator. The doubled back span wire shall be attached to the other span wire using two galvanized guy clamps placed end-to-end at a distance of 1 foot from the strain insulator. The loose end of the span wire shall extend at least 3 feet from the end of the last clamp and shall be properly secured to the span wire with a service sleeve.

5. A span wire shall be attached to the other side of the strain insulator in the same manner as in Step 4 above.

6. The span wire shall be wrapped around the far pole thereby completing the span. The span wire shall be tensioned in an appropriate manner to achieve the tension as specified by the Engineer. The tensioning device shall be used on the end of the span farthest from the strain insulator. The wire shall be wrapped and clamped in the same manner as described above in steps 1 and 2. The loose end shall extend at least 3 feet from the last clamp and shall be secured with a service sleeve.

Measurement and Payment:

The quantity of 7/16” or ¼” span wire cable installed between poles shall be measured per linear foot from center of pole or structure to center of pole or structure (wood or metal), set at the proper tension and height, installed, complete in place, and accepted.

No separate payment shall be made for wood pole preparation.

No separate payment shall be made for labor and materials necessary to attach span wire between poles for “H”, “Suspended Box” or other types of span installations.

No separate measurement or payment shall be made for span wire wrapped around the pole or structure. This work and material shall be incidental to the item.

Price and payment will constitute full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the work.

3/1/12

746507 – INSTALLATION OF STEEL POLE (LESS THAN 40')
746528 - INSTALLATION OF STEEL POLE (EQUAL TO OR GREATER THAN 40')
746697 - INSTALLATION OF WOOD POLE
746815 - INSTALLATION OF LUMINAIRE
746831 - INSTALLATION OF PEDESTAL POLE
746928 – INSTALLATION OF STEEL MAST ARM POLE WITH SINGLE OR TWIN MAST ARM UP TO 70'
746942 - INSTALLATION OF LIGHTING POLE WITH ARM AND LUMINAIRE

Description:

This work consists of installing the specified type of pole on an existing pole base (or ground mounted for wood pole) in accordance with the locations, notes, and details on the Plans and as directed by the Engineer.

Materials:

Unless specified otherwise, the steel mast arm(s), steel pole, pedestal pole, wood pole, lighting pole, luminaire, and all necessary hardware shall be furnished by the Department. These materials can be obtained from the Department's Dover Sign Shop. The Contractor shall inform the Department two working days prior to picking up the pole, and other related hardware. Where pole installation is part of the work of relocating an existing pole on a project, the pole and related hardware shall be that which is removed from the existing pole site.

Construction Methods:

General -

Prior to erecting a pole, the Contractor shall be sure that there is a sufficient length of anchor bolt to permit the anchor bolt to extend at least flush with the top of the top nut when that nut is tightened in place. If this condition does not exist, the Contractor shall not erect the pole and shall notify and await instructions from the Engineer.

Connection of the mast arm(s) or other required assembly shall be performed by the Contractor according to his selected installation methods.

The Contractor shall make special note of any aerial utilities within the area and coordinate his work accordingly.

All conduit caps or knockouts are to be removed from the conduit, which extends from the pole base and grounding insulated bushings installed. A #6 Copper ground wire shall be installed between the ¾" ground rod clamp and the grounding insulated bushings, and to the lug or stud in the metal pole or pedestal. On the multi-section steel camera poles, the #6 copper ground wire shall continue up to the top of the upper section of the pole from the grounding insulated bushing to a bonding lug attached to the camera mounting bolts. At no time shall the #6 wire be installed between the leveling nut and the pole.

Steel Mast Arm Pole or Steel Pole –

The steel pole shall be erected by a suitable hoisting device as approved by the Engineer. The Contractor shall insure that the hoisting device is rated for the weight and reach necessary. The Contractor shall use the equipment to raise the pole into position, place the pole on the anchor bolts, and shall hold the pole in place until the nuts have been installed and tightened on the anchor bolts in accordance with the applicable Plan sheets or Standard Construction Details.

On all steel pole installations a proper nut as shown on the plan details shall be used under the base of the pole and a proper nut shall be used above the base of the pole. Once the pole is set, the anchor bolt nuts shall be adjusted and tightened to properly position the pole as indicated on the applicable Plan sheets or Standard Construction Details. Once the pole is set in place, properly canted, and the nuts tightened, and the ground wire connected, the area between the base of the pole and the top of the foundation shall be formed

and grouted as indicated on the applicable Plan sheets or Standard Construction Details. The anchor bolt covers and hand hole cover shall be placed on the pole after the pole has been erected in place.

Pedestal Pole -

The pedestal pole shall be erected by hand. Once the pedestal is set in place, properly plumbed, the nuts tightened, and the ground wire connected, the contractor shall place the hand hole cover on the pedestal.

Wood Pole –

This work consists of installing wood poles with a butt plate and #6 bare copper ground wire from the butt plate to the top of the pole. A ground rod may be used in place of the butt plate. The pole shall be located as shown on the Plans and as directed by the Engineer.

The pole shall be erected in a hole at least 6 feet deep or the height of the pole divided by 6, whichever is larger. The hole shall be dug in such a manner as to preclude over-sizing the diameter.

Sufficient earth shall be placed in the hole to fill it completely and provide a ridge around the hole after it has been properly filled. During refill, the earth shall be placed in layers not to exceed one foot and shall be well tamped with a power tamper.

The pole shall be set vertically in all directions, unless otherwise specified.

Copper coated fasteners shall be placed not more than 3 feet apart on the ground wire.

The ground rod, if utilized, shall be driven vertically into the ground, shall extend 4 inches above ground level and shall be fastened to ground wire with ground clamp. Ground rods shall be a minimum of 10 feet in length. Butt plates and/or ground rods will be incidental to this bid item. The Ground Wire will be paid for under its respective item.

Lighting Pole with Arm and Luminaire –

This work consists of installing lighting poles, arms and luminaires on an existing base.

Electrical connection of the luminaire is also included. To make the connection, the Contractor shall furnish the following materials:

- Connector kits shall be of waterproof, molded synthetic rubber suitable for burial in the ground or exposure to sunlight. The cable connection shall be compression type, applied by means of a compression tool. Connectors shall be 600-volt, fabricated from high strength copper alloy, quick disconnect, in-line connectors, fused for ungrounded conductor and non-fused for neutral at each pole.
- #8 AWG wire
- Split bolt connectors
- Electrical tape

These materials, other than the #8 wire, are to be included in the price bid for this item. The wire will be paid under its respective item. The unit shall be attached to the existing service cable and tested. On wood poles, if the service cable is not available, a 5 foot tail shall be left at the pole end of the mast arm. On metal poles, the electrical connections and grounding of pole will be made in the base. If the service cable is not available, a 5 foot tail shall be left in the pole base.

Installation of the pole and arm shall be as specified under **Steel Mast Arm Pole** above.

Installation of Luminaire –

This item includes picking up the luminaire unit at the DelDOT sign shop, transporting it to the specified location and installing it on an existing pole to provide a fully functioning overhead light. The materials for connecting the luminaire (as listed above under "**Lighting Pole with Arm and Luminaire")** are also to be furnished as part of this item. These materials, other than the #8 wire, are to be included in the price bid for this item. The wire will be paid under its respective item. The unit shall be attached to the existing service

cable and tested. On wood poles, if the service cable is not available, a 5 foot tail shall be left at the pole end of the mast arm. On metal poles, the electrical connections and grounding of pole will be made in the base. If the service cable is not available, a 5 foot tail shall be left in the pole base.

Method of Measurement:

The quantity of poles will be measured on a per each basis as the number of poles installed as specified, complete and accepted under the applicable bid item listed above.
"Installation of Luminaire" will also be paid on a per each basis if the unit is being installed as a replacement or on a previously installed existing pole.

Basis of Payment:

General - Price and payment per each pole type shall include full compensation for picking up the materials at the DelDOT Sign Shop, transporting and setting the poles, and for all labor, tools, equipment, and incidentals necessary to complete the item.

Steel Mast Arm Pole or Steel Pole – In addition to the general statement, note that #6 Ground Wire will be paid for separately under its respective item. Any required fasteners for the ground are considered incidental to the Steel Pole being installed.

Pedestal Pole – As noted in general above

Wood Pole – In addition to the general statement, payment includes excavating the hole, furnishing and installing the butt plate or ground rod, and furnishing and installing fasteners for the ground wire.

Lighting Pole with Arm and Luminaire – In addition to the general statement, payment includes furnishing the listed materials, connecting, and testing the luminaire to result in a fully functioning light pole assembly. #8 wire will be paid for separately under its respective item.

Installation of Luminaire – This item includes picking up a luminaire, furnishing the listed materials, transporting, installing, and testing each luminaire. The item will be used for payment only when the luminaire is being installed as a replacement and/or on a previously installed pole. Luminaires installed as part of an entire light pole assembly are included for payment under the item titled "**Lighting Pole with Arm and Luminaire" (Item 746942).**

10/25/12

746590 - FURNISH & INSTALL GROUND ROD

Description:

This item consists of furnishing and installing ground rods at locations shown on the plans or as directed by the Engineer. The item will be used only when an individual ground rod is to be replaced or added as a singular item. Costs for Ground Rods installed as part of other items (Pole Bases, Junction Wells, Metered Service Pedestals, etc.) will not be paid separately, but will be included in those respective pay items.

Material:

Each Ground Rod shall be copper clad, approved by the Underwriter's Laboratory and be supplied with approved clamps for connecting the grounding conductor to the rod. The Ground Rod shall be ¾" Diameter and shall have a minimum length of 10', unless detailed otherwise in the contract documents.

Construction Methods:

When installing the Ground Rod, a length of at least 8 feet shall be embedded into undisturbed soil. Measure the ground resistance of each rod before connecting the rod to the grounding conductor. If the measured resistance exceeds 25 ohms, exothermically weld a 10 ft. extension to the top of the first rod and drive to its full depth. Measure the earth resistance again. If it still exceeds 25 ohms, contact the engineer for instruction.

Where rock is encountered and an acceptable earth ground cannot be accomplished by driving as described above, the Engineer may direct the use of a grounding grid. Direct buried rods are exothermically welded end to end to bond lighting standards and structures in continuous series to some point where an acceptable ground can be obtained.

Maintain continuity of the equipment grounding system throughout the project.
Connection to equipment grounding systems shall be made with suitable lugs at all grounding bushings specified, and at the ground lugs in lighting or traffic signal structure access holes or in a breakaway base. Make connections to ground rods as specified in the contract documents. Connections to neutral grounding systems shall be made with grounding lugs.

Measurement and Payment:

Ground Rods will be paid on a per each 10 ft. length. Price and payment includes furnishing, installing, labor, grounding lugs, welding, excavation, backfill, and connecting the ground rod as shown on the plans, standard details, or as directed by the Engineer.

2/29/12

746703 - FURNISH & INSTALL DEAD END MESSENGER WIRE ATTACHMENT

Description:

This work consists of supplying and installing a messenger wire attachment at the end pole along a pole line.

Materials:

All messenger wire accessories shall be new and free of defects.
Tensioning device, with a minimum capacity of 6,000 pounds pull

On a Wood Pole -

Galvanized eyebolt with a rod diameter of 3/4" and a length to suit the use intended with two galvanized nuts.

Two ea. 3" x 3" x 1/4" galvanized washers with 13/16" hole

Service wedge clamp

On a Metal Pole -

Two galvanized guy clamps 6 inches long with three 5/8" galvanized nuts and bolts

A Service Sleeve to anchor the loose end of the messenger wire.

Construction Methods:

The tension of the messenger wire shall be specified by the Engineer.

On a Wood pole -

A proper size hole shall be drilled through the pole at the height specified by the Engineer.

An eyebolt of appropriate length shall be passed through the washer, through the pole, and through the back washer. If the Engineer determines a down guy assembly is required, a guy attachment shall be installed on the back of the pole in lieu of the back washer. The nut on the eyebolt assembly shall be tightened enough to compress the down guy attachment. The second nut shall be installed to act as a lock nut.

The service wedge clamp and the messenger wire shall be assembled to the eyebolt.

On a Metal Pole -

The messenger wire shall be wrapped one and one half times around the pole with the end of the messenger wire extending back parallel with the messenger wire run. The messenger wire shall not be allowed to cross over or overlap itself on the pole.

Two galvanized guy clamps shall be placed on the messenger wire end to end so that the one nearest the pole is 30 inches from the pole and are 1 inch apart.

The loose end of the messenger wire shall extend at least 3 feet from the last clamp and shall be properly secured with a service sleeve.

Measurement and Payment:

The quantity of messenger wire attachments will be measured per each as the number of attachments of messenger wire made to a pole, in place and accepted. The down guy assembly including the guy attachment, if required, shall be paid separately under other items of this Contract.

Price and payment shall constitute full compensation for supplying the messenger wire attachment hardware, attaching the messenger wire to the wood pole, labor, tools, equipment, and incidentals required to complete the job.

3/1/12

746704 - ADJUSTMENT OF SPAN OR MESSENGER WIRE

Description:

This work consists of adjusting existing span or messenger wire between existing poles. This could include tightening, raising and tightening, loosening, or other and shall be done only as directed by the Engineer. This does not include new installations under construction.

Materials:

Tensioning device, with a minimum capacity of 6,000 pounds pull.

Construction Methods:

Loosen existing span or messenger wire:

Attach a tensioning device between the pole and span or messenger wire beyond the strain insulator. Loosen or remove the two 3-bolt guy clamps. Adjust the span bonding jumper as required.

Tighten or raise and tighten existing span or messenger wire:

To tighten the span or messenger wire, attach another tensioning device between the loose end of the span or messenger wire and tighten. When the desired tension is reached, re-tighten the 3-bolt guy clamps and remove tensioning devices. Adjust the span bonding jumper as required. Adjustment may need to be made on both ends of one span to tighten or raise and tighten the span or messenger wire at the direction of the Engineer and will be paid as one (1) "Adjustment of Span or Messenger Wire."

Measurement and Payment:

The quantity of wires adjusted will be paid per each number of span or messenger wires adjusted, complete and accepted. No payment shall be made for removal or installation of tape on span to clear a path for tensioning devices. No payment shall be made for tightening span or messenger wires on new installations made by the Contractor. Price and payment shall constitute full compensation for raising, raising and tightening, or loosening the span or messenger wire including labor, tools, equipment, and incidentals necessary to complete the work.

10/25/12

746706 – TRANSFER OF EXISTING SPAN OR MESSENGER ATTACHMENT

Description:

This work consists of the transfer of an existing messenger wire and attached cable(s) from one pole to another.

Materials:

Tensioning device, with a minimum capacity of 6,000 pounds pull.

Construction Methods:

The cable shall be supported in a manner so as not to cause any damage. The new pole shall be drilled at the location pre-determined by the Engineer, the cable and attachment moved to the new pole and installed using the same hardware from the original pole. If additional hardware is required to attach to the new pole, it shall be supplied as part of this work at no additional cost. Reattach the messenger bonding jumper to the new pole ground wire. See applicable plan sheets or Standard Construction details.

Method of Measurement:

The quantity of messenger attachment transfers will be measured as the number of messenger wire attachments transferred, complete and accepted.

Basis of Payment:

The quantity of messenger relocations will be paid for at the Contract unit price per each. Price and payment will constitute full compensation for all labor, equipment, tools, and incidentals required to complete the work.

2/29/12

746763 – REALIGN OR SLIDE EXISTING SIGNAL HEAD

Description:

This work consists of realigning or sliding an existing traffic signal head on an existing span wire or mast arm.

Construction Methods:

For span wire:

To slide the head, loosen all saddle bolts and slide to a specified location on the span wire. Re-tighten all bolts. To realign signal head, loosen the two set screws on the top side of the head and the large nut inside the door of the top section. Re-tighten nut and set screws after realignment is complete.

For mast arm:

Realign: Loosen hardware per manufacturer's instructions, realign head, and re-tighten.

Slide: Loosen the mounting band brackets and adjust per manufacturer's instructions.
Slide into new position and re-tighten.

Method of Measurement:

The quantity of traffic signal heads will be measured as the number of heads that are realigned or slid, in accordance with these specifications, complete, and accepted.

Basis of Payment:

The quantity of traffic signal heads realigned or slid will be paid for at the Contract unit price for each. Price and payment will constitute full compensation for all labor, equipment, tools, and incidentals required to complete the work.

3/1/12

746775 – FURNISH & INSTALL OPTICOM EMERGENCY PREEMPTION DETECTOR

Description:

This work consists of furnishing, assembling, wiring and installing an Opticom emergency preemption detector on mast arm or span wire. The placing of the detector cable is not included in the item.

Materials:

Detector Cable shall be supplied and installed by the Contractor as a separate item.

Supply an Opticom emergency preemption detector, Model 721 and associated hardware.

The Contractor will also supply:

- Teflon tape
- 3/4" wide vinyl plastic tape in the following colors: violet, red, green, yellow, and blue. Tape shall be waterproof and shall be 3M Company, Inc. (Cat. No. 33); Plymouth Rubber (Cat. No. 3117); Permacel (Cat. No. P29), or an approved equal.

Construction Methods:

The assembly of mounting hardware will be as shown on the Plans or Standard Details and as instructed by the Engineer. Teflon tape must be used on the mounting hardware. A 1/8" diameter weep hole must be drilled on the bottom of the detector. Install the emergency preemption detector as required. Attach the four-conductor detector cable to the four terminal screws within the emergency preemption detector unit according to manufacture specifications.

The connecting of the emergency preemption detector to the detector cable shall be considered an incidental.

The detector cable "home run" shall be identified within the control cabinet by a violet band PLUS a band of a different color, to denote the direction of the detector.

RED - North Bound eye
GREEN - East Bound eye
YELLOW - South Bound eye
BLUE – West Bound eye

Opticom emergency preemption detectors that are removed shall be returned to the Department at the Dover Sign Shop.

Method of Measurement:

The quantity of emergency preemption detector installations will be measured as the number of emergency preemption detectors furnished, assembled, and installed on span wire or traffic signal mast arm, complete in place, and accepted.

Basis of Payment:

The quantity of emergency preemption detector installations will be paid for at the Contract unit price per each including removal and delivery to DelDOT of any existing units being replaced. Price and payment shall include full compensation for the furnished Detector, installation materials, labor, tools, equipment, and incidentals necessary to complete the item.

746832- FURNISH & INSTALL WEATHERHEAD, UP TO 3", ON STEEL POLE

Description:

This work consists of the supply and installation of a weatherhead on a steel pole of the size indicated on the plans. Also included is the additional hardware associated with the installation of the weatherhead. This item will be used only to replace or specifically install an individual weatherhead. It will not be used if the weatherhead is being installed as part of an overall conduit system on a pole.

Materials:

All materials furnished and installed under this specification shall be new, galvanized hardware appropriate to the size of weatherhead, and approved by the Engineer. The Materials shall meet UL 514B and UL6 to include:

- Weatherhead
- Close Nipple
- Lock Nut
- Conduit Bushing

Construction Methods:

The weatherhead shall be located in a hole that is drilled six inches from the top of the steel pole on the side parallel with the span cable or as designated by the Engineer. The hole for the nipple shall be snug. The hole shall be made by a hole saw; no other means of making the hole is acceptable.

The weatherhead will be installed on a close nipple. A lock nut shall be placed on the nipple and the assembly is then placed through a hole in the steel pole. After the weatherhead assembly is in place, a bushing is seated firmly on the end of the nipple inside the steel pole. The weatherhead is now positioned correctly and the lock nut is tightened against the outside of the steel pole holding the complete assembly in place.

Method of Measurement:

The quantity of weatherheads will be measured as the number of weatherheads supplied and installed in accordance with these specifications, complete, in place, tested, and accepted.

Basis of Payment:

The quantity of weatherheads will be paid for at the Contract unit price per each weatherhead of the size indicated, up to but not exceeding, 3 inches in diameter. Price and payment shall constitute full compensation for furnishing and installing the weatherheads, including hardware, labor, tools, equipment, and all other incidentals necessary to complete the item.

2/29/12

746843 - POLE BASE, TYPE 1
746844 - POLE BASE, TYPE 2
746845 - POLE BASE, TYPE 2A
746846 - POLE BASE, TYPE 2B
746847 - POLE BASE, TYPE 3
746848 - POLE BASE, TYPE 3A
746849 - POLE BASE, TYPE 3B
746850 - POLE BASE, TYPE 4
746851 - POLE BASE, TYPE 5
746852 - POLE BASE, TYPE 6

Description:

This work consists of constructing and furnishing round or square pole bases Types 1, 2, 2A, 2B, 3, 3A, 3B, 4, 5, and 6 for poles in accordance with the Standard Construction Details and at locations as directed by the Engineer.

Materials:

The concrete for pole bases shall conform to Section 812, Class B.

Bar reinforcement shall meet the requirements of Section 603 Grade 60.

Ground rods shall be copper clad, approved by the Underwriter's Laboratory and be supplied with approved clamps for connecting the grounding conductor to the rod.

Conduit for sweeps shall meet the requirements for galvanized rigid steel conduit in Section 745.

Anchor bolts will be supplied by the same entity that supplies the poles. This is the case for all poles base types, with the exception of Type 4. For Type 4, drop-ins are used for breakaway and the Contractor will supply the anchor bolts for Type 4. The anchor bolts and nuts for Types 5 and 6 shall not be hot-dipped galvanized and these anchor bolts and nuts shall meet the requirements of AASHTO M 314. Anchor bolts shall have a minimum yield strength of 55,000 psi (380,000 kPa).

Construction Methods:

The bases shall conform to the dimensions as indicated on the Standard Construction Details. A ground rod shall be installed as shown. A minimum of 8 feet (2.5 m) of the ground rod must be driven into undisturbed soil.

If a utility or a right-of-way conflict is found when a Type 2 or Type 3 base is specified in the Plans, an alternate base of equivalent strength may be used as directed by the Engineer. A Type 2 base has two equivalents, namely Types 2A and 2B. A Type 3 base has two equivalents, namely Types 3A and 3B.

Though the contract calls for the use of a round pole base, the Contractor may use a square base at its discretion.

The end of the conduit sweeps in the ground shall be extended outside the concrete and any forms or sheeting by 12 inches (300 mm) and capped or connected to the existing conduit. If the conduit is to be capped underground for future use, it must be sealed with a galvanized threaded conduit plug. Tape is NOT an approved conduit plug. The location of the conduits shall be marked on the base with arrows drawn in the wet concrete within 6 inches (150 mm) of the outer edge.

Excavation for the pole bases may not exceed the dimension of the foundation by more than 12 inches (300 mm) in any one direction. If a form is used in the excavation more than 18 inches (450 mm) below the ground surface, it is necessary that the area between the form and excavation be filled with Borrow Type C and tamped on all sides in continuous, horizontal layers not to exceed 68 inches (200150 mm) in depth, loose measurement.

Where a pole base is to be placed in existing concrete pavement such as a sidewalk, the concrete shall be saw cut in a square pattern or removed to the nearest joint. In other pavement material, a round hole may be cut using an appropriate tool. Any damage to the existing pavement shall be repaired at the Contractor's expense and shall meet the approval of the Engineer. Any removal or replacement of any type of pavement under this item shall be an incidental cost to this item.

The bases shall be edged and have a broom finish.

Where water or highly unstable material is encountered during the excavation for the pole base, pole base sheeting may be required and the following steps shall apply:

1. The condition exists in the upper half of the excavation. Stop all work until the Bridge Design Section reviews the condition.

2. The condition exists below the upper half of the excavation:
   a. For a proposed Type 4 Base, increase the depth to 4 feet (1.2 m).
   b. For a proposed Type 5 Base, substitute a Type 1 Base.
   c. For a proposed Type 1, 2, or 3 Pole Base, substitute a Type 3A Pole Base for all but a Type 3B Pole Base. The depth of the base shall be as determined in (e) below, or 9 feet (2.7 m), whichever is greater.
   d. For a proposed Type 6 Pole Base, substitute a Type 2 Pole base and increase the depth in accordance with (e) below.
   e. Determine the depth of the base, which would be in the unsatisfactory area. Multiply that depth by 0.7 and add the result to the original required depth of the base to obtain the final depth of the base. The reinforcing bars shall be extended using the required pattern to match the final depth in accordance with the requirements of Section 603.07 of the Standard Specifications.

Method of Measurement:

The quantity of pole bases will be measured as the actual number of bases constructed, complete in place and accepted. Concrete, excavation and backfilling around the base, ground rods, and the two conduit sweeps in the base are included in this item.

Furnishing Borrow Type C backfill material will be measured and paid for separately by the cubic yard (cubic meter).

Payment for any additional sweeps shall be paid for separately under the appropriate conduit items. The Contractor's use of square base rather than a specified round base shall not result in any additional cost to the Department.

Basis of Payment:

Borrow Type C will be paid for under Section 210. No payment for Borrow Type C backfill material placed outside of the vertical plans located 18" (450 mm) outside of the neat line perimeter of the vertical face of the pole base foundation.

Any increase in the vertical dimension required herein shall be paid for separately under Item 746614, Pole Base Extension; another item of this contract.

The quantity of pole bases will be paid for at the Contract unit price for each pole base type. If an alternate pole base type is selected by the Engineer, payment will be the Contract unit price for the alternate selected. Price and payment will constitute full compensation for furnishing and placing all materials including concrete, ground rods, and a minimum of two conduit sweeps extending into the base; for excavating, backfilling and compacting around the base; for repairs to damaged existing pavement; for removal or replacement of pavement; and for all labor, equipment, tools, and incidentals required to complete the work.

3/1/12

746892 - FURNISH & INSTALL SIGNAL HEAD BACKPLATE
746929 - FURNISH & INSTALL 8" LED SIGNAL HEAD SECTION, RIGID MOUNT
746930 - FURNISH & INSTALL 8" LED SIGNAL HEAD SECTION, SPAN MOUNT
746931 - FURNISH & INSTALL 8" LED TRAFFIC SIGNAL HEAD INDICATION MODULE
746932 - FURNISH & INSTALL 12" LED SIGNAL HEAD SECTION, RIGID MOUNT
746933 - FURNISH & INSTALL 12" LED SIGNAL HEAD SECTION, SPAN MOUNT
746934 - FURNISH & INSTALL 12" LED TRAFFIC SIGNAL HEAD INDICATION MODULE

Description:

Items 746929, 746930, 746932, and 746933 include furnishing LED units and housings, mounting them with all associated hardware in the configuration shown on the signal plans, and installing them as a rigid or span mounted unit on steel or wood poles.

Items 746931, 746934, & 746892 include furnishing individual LED modules or backplates, and installing them as separate components on an existing signal installation.

Materials:

LED Modules:

General - All materials and workmanship shall conform to the standards of the American Society for Testing Materials (ASTM) and the standards of the American National Standards Institute (ANSI), where applicable.

All LED modules for vehicle traffic signal heads shall conform to the current Institute of Transportation Engineers (ITE) and Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) requirements.

All electrical equipment shall conform to the standards of the National Electrical Manufacturer's Association (NEMA), the Underwriters Laboratories, Inc. (UL), Institute of Electrical and Electronic Engineers, Inc. (IEEE), and the Electronic Industries Association (EIA), wherever applicable.

This specification refers to criteria described in "ENERGY STAR Program Requirements for Traffic Signals." ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy.

For those items not specifically defined herein, good practice as shown in previous articles supplied by the contractor, and/or as used by the industry in general, shall apply.
A representative of the Department will be available to discuss good practice and "state of the art". The bidder is notified that neither claims for additional costs nor extensions of delivery times will be honored on the basis of good practice and/or "state of the art" problems.

The bidder must show by field review, if necessary, and by the various documents that are required as part of the bid that the materials proposed will perform as required.

REFERENCED DOCUMENTS:
This specification refers to definitions and practices described in the following ITE documents:

- "Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement" (dated June 27, 2005), referred to in this document as "VTCSH-LED."
- "Vehicle Traffic Control Signal Heads - Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement" (dated April 3, 2006), referred to in this document as "VTCSH-ARROW."
- "Equipment and Material Standards of the Institute of Transportation Engineers (dated April, 1985), referred to in this document as "VTCSH."
- The Circular LED Modules shall be one of six types:
  1. 8" Red Circular LED Module
  2. 8" Yellow Circular LED Module
  3. 8" Green Circular LED Module
  4. 12" Red Circular LED Module

5. 12” Yellow Circular LED Module
6. 12” Green Circular LED Module

- The Arrow LED Modules shall be one of three types:
  1. 12” Red Arrow LED Module
  2. 12” Yellow Arrow LED Module
  3. 12” Green Arrow LED Module

The following are the detail specifications for Circular and Arrow LED Modules. All specifications must be met even if a particular location may not require all of the specified elements.

Physical and Mechanical Requirements - The module shall fit into a traffic signal housing built to ITE VTCSH standards without modification to the housing. When replacing an incandescent reflector assembly the module shall utilize the same mounting hardware used to secure the assembly to the traffic signal section. “Screw-in” type modules shall not be used in the vehicle traffic signal heads. Installation of the module into signal housing shall not require the use of special tools.

The module shall be a self-contained device, not requiring on-site assembly for installation into an existing traffic signal housing. The module shall be a sealed unit with two (2) conductors for connecting to power, a printed circuit board, power supply, lens and one-piece gasket, and shall be weatherproof after installation and connection. The power supply shall be integral to the module.

The module shall be an expanded or extended viewing angle product. The expanded or extended viewing angle module is required due to the multitude of span wire installations in the State of Delaware.

Modules shall not be restricted to any specific LED technology.

Environmental Requirements - The module lens shall be capable of withstanding ultraviolet exposure for minimum period of 60 months without exhibiting significant evidence of deterioration.

Optics Requirements - The bidder shall submit the Maintained Minimum Intensity tables for the expanded or extended view modules with the bid proposal. The format of the intensity tables submitted shall show, at the minimum, points corresponding to the intensity tables provided in VTSCH-LED and VTSCH-ARROW.

The arrow indication for arrow modules shall conform to VTCSH, Section 9.01. The LEDs shall be spread evenly across the illuminated portion of the arrow area. The arrow indication shall be solid, not an outline. The arrow indication shall have a three line/row horizontal bar.

Lens Requirements - The module lens shall have a smooth outer surface to reduce the collection of debris and facilitate cleaning; and made of ultraviolet stabilized polycarbonate or polymeric material. The lens shall be abrasion resistant.

The module lens may be tinted or covered by transparent film or materials with similar color and transmissive characteristics.

The lens may be a replaceable part, without the need to replace the complete module. The overall appearance of the lens shall mimic that of one used with incandescent lamps.
Lenses that depict a “honeycomb” effect of the display are unacceptable.

Electrical Requirements - The module shall connect directly to existing electrical wiring system. The nominal operating voltage shall be 120 ± 3 VAC RMS. The module shall operate from a 60 hertz ± 3 hertz AC line power over a voltage range from 80 VAC RMS to 135 VAC RMS. The module circuitry shall prevent flicker of the LED output at frequencies less than 100 hertz over the operating voltage range. Fluctuations in line voltage over the operating voltage range shall not affect luminous intensity by more than ± 10 percent. There shall be no visible illumination from the module when the applied voltage is less than 35 VAC RMS.

Modules shall meet the maximum and nominal wattage requirements of “ENERGY STAR Program Requirements for Traffic Signals,” current edition.

All wiring and terminal blocks shall meet the requirements of VTCSH, Section 13.02. Two (2) secured, color coded, 600 volt, jacketed wires, a minimum of 18 AWG and at least 39” (1000 mm) in length,

conforming to the NFPA 70, National Electrical Code, and rated for service at 221° F (105° C), shall be provided.

The individual LEDs shall be wired such that a catastrophic failure of one LED will result in the loss of not more than 5 percent of the module total light output. The outage of a single LED shall not cause the outage of additional LEDs.

Modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).

LED signal heads shall be operationally compatible with NEMA traffic controller assemblies meeting the standards set forth in publication number TS-2-2003 traffic controller assemblies. The LED modules shall be operationally compatible with NEMA TS-1 and TS-2 conflict monitoring parameters.

The control circuitry shall prevent the current flow through the LEDs in the off state to avoid any false indication as may be perceived by the human eye during daylight and evening hours.

The LED signals shall be fully capable of operation in the flashing mode.

The dimming feature shall not be required.

Module Identification - The module shall be permanently marked on the backside with the manufacturer's name, trademark, date code, operating characteristics, part/model number and serial number. The operating characteristics identified shall include the nominal operating voltage and stabilized power consumption, in watts and volt-amperes.

The module and removable lens shall have a prominent and permanent vertical indexing indicator, i.e., UP arrow, or the word "UP" or "TOP", for correct indexing and orientation in the signal housing.

The module conforming to all non-optional requirements of VTCSH-LED or VTCSH-ARROW shall have a label certifying its complete compliance with the ITE standard. The label shall be affixed to the back of the module.

The Department reserves the right to scan, record, or otherwise obtain the manufacturer's serial number(s) and /or barcodes for all LED Vehicular Signal and Pedestrian Signal Head Display Modules prior to installation. This task will be completed by the Department, or a designated representative, at the time of signal head installation.

Quality Assurance - Modules shall be manufactured in accordance with a qualified ISO 9001:2000 vendor quality assurance program.

In addition to tests specified in the ITE LED Quality Assurance Program each module supplied under this contract shall be tested for minimum maintained luminous intensity for expended or extended viewing angle products. Failure of each supplied module to meet requirements of all these tests shall cause the modules to be rejected.

Certification of Compliance - The manufacturer shall provide upon request a Certificate of Compliance certifying that the modules comply with the requirements of these specifications. The certificate shall also include a copy of all applicable test reports that the modules underwent.
The manufacturer shall provide a list of module serial numbers with each shipment and shall provide this information upon receipt of shipment by DelDOT's Signal Construction Section , 14 Sign Shop Road, Dover, DE 19901.

Warranty - The contractor shall extend any policy guarantee usually offered to purchasers on article(s) and/or service(s) against defective material and workmanship. The contractor shall replace free of charge any part or component that fails in any manner by reason of defective material, design, or workmanship within a period of five (5) years from the date of payment for the article(s). The warranty shall be renewed for each part or component for another five (5) years from the date of replacement of the article(s). The entire Module shall be considered failed if it exhibits light output degradation 1) greater than 50% of its initial intensity or 2) falling below the minimum intensity level as outlined in this specification.

A certificate of warranty from the manufacturer shall be supplied with the bid documents.

Manuals - A complete set of documentation shall be supplied. It shall include parts lists, operation details, maintenance schedules, and other information needed to install and operate the article(s).

Backplates: Backplates shall be flat, dull black (color number 595B-37038) Powder Coated Aluminum, 0.05" minimum thickness and shall be securely mounted on the signal housing. Self-tapping screws used to mount backplates to traffic signal faces shall be stainless steel. The backplates shall extend beyond the side by 8" for an 8" housing and 5" for a 12" housing. Signal head backplates shall be manufactured for use with standard signal head assemblies, and shall be compatible with the signal heads being backplated.

Signal Head Housings: The adjustable traffic signal heads shall be supplied under this contract in yellow (color number 595B-13538) with a black face conforming to color number 595B-17038.

Signal head housing shall be die cast of corrosion resistant aluminum alloy per MIL-1.15153A, A1.1, and ASTM Specification B-85-57T, Alloy 12A with full 12 percent Silicon.
All interior and exterior surfaces of the housing, housing door, and visor shall be cleaned and then treated with a chromate aluminum oxide coating process per MIL-C-5541. The finish coat shall be oven bake enamel and shall comply with TT-E-4898B or it shall be an epoxy powder coating at least 2.0 mils thick which shall conform to ASTMB-117 after 500 hours of salt spray test and have 50 percent gloss retention after 1000 hours of weathermeter test.

All straight pins, wing nuts, washers and bolts shall be 18-8 type 304 stainless steel.

Each 8" signal section housing shall be designed to accommodate 8" nominal dimension incandescent reflector assemblies or LED modules. Each 12" signal section housing shall be designed to accommodate 12" nominal dimension incandescent reflector assemblies or LED modules. The housing of each signal section shall be a one-piece corrosion resistant aluminum alloy die-casting with front, side, top and bottom integrally cast. All parts shall be clean, smooth and free from flaws, cracking, blowholes, or other imperfections. The housing shall be of substantial thickness and shall be ribbed so as to produce the strongest possible assembly consistent with light weight. Internal bosses shall be provided inside the housing for the mounting of terminal strip facilities.

The top and bottom of the housing shall have an opening to accommodate standard 1-1/2" nominal diameter pipe. The top and bottom opening of the housing shall have a Shurlock boss integrally cast into the housing.

The housing shall contain hinges and locking devices for the door. The hinges may be lugs cast onto the side of the housing or they may be inside the housing.

The housing door of each section shall be a one-piece, corrosion resistant, aluminum alloy die-casting, in black (color number 595-17038). Two (2) hinge lugs shall be cast on one side of the door, and two latch points shall be cast on the other side. The door shall be attached to the housing by means of two (2) straight pins. Two (2) eye bolts and wing nuts on one side of the door shall allow the door to open and close without the use of any tools. A gasket groove on the inside of the door shall accommodate a weatherproof and mildew-proof resilient gasket which, when the door is closed, seals against a raised bead on the housing, making a positive seal. The outer face of the door shall have four (4) holes equally spaced about the circumference of the lens opening, with four (4) screws to accommodate a signal head visor. The door shall have at least two (2) index points to enable positive orientation of the lens.

Visors: Visors as shown on the plans may be any of three types; Full Circle, Tunnel, or Cap. The visor shall be a minimum of 7" in length for nominal 8" sections and 9-1/2" in length for nominal 12" sections, with a downward tilt of 3-1/2 degrees. All visors shall be formed of corrosion-resistant aluminum alloy sheet not less than 0.05" in thickness. Visors shall have twist-on attaching slots so that they can be removed by simply loosening, not removing the mounting screws and rotating the visor.

Visors shall be supplied under this contract in black, both inside and outside, meeting flat black color number 595B-37038.

Banding Hardware: BAND-IT 3/4", 0.030 thickness, stainless steel banding material and 3/4" stainless steel buckles. All materials as shown on the applicable detail sheets for signal head mounting.

Construction Methods:

Furnish & Install 8" or 12" LED Signal Head Section, Rigid Mount: These items include furnishing, assembling, installing, wiring, electrically connecting, and rigid mounting of LED signal heads, housings, and visors in the configurations shown on the plans and details resulting in a fully functioning signal assembly. Each single and/or double section, and the middle section of a of a three section signal head assembly shall have a minimum of a six section, twelve position terminal block capable of accepting three number 14 AWG spade terminal ends. Signal Heads will generally be mounted on steel poles, but may be mounted on wood poles for temporary signal installations. Details for various mounting types including top, side, and rigid are included in the plans. All such mounts are considered as "Rigid Mounts" for payment purposes. Backplates, if required, will be paid for separately under that pay item. Cable (to be paid separately under its respective item) shall be placed down the pole and into the cabinet base. The type and size of the cable shall be as directed by the Engineer. The cable shall be run without splice from inside the signal head to the base of the pole where 5 feet shall be provided for connection.

Furnish & Install 8" or 12" LED Signal Head Section, Span Mount: These items include furnishing, assembling, installing, wiring, electrically connecting, and span mounting of LED signal heads, housings, and visors in the configurations shown on the plans and details resulting in a fully functioning signal assembly. Each single and/or double section, and the middle section of a of a three section signal head assembly shall have a minimum of a six section, twelve position terminal block capable of accepting three number 14 AWG spade terminal ends. Backplates, if required, will be paid for separately under that pay item. Cable (to be paid separately under its respective item) shall be placed along the span, down the pole and connected in the base. The type and size of the cable shall be as directed by the Engineer. The cable shall be run without splice from inside the pedestrian signal head to the base of the pole where 5 feet shall be provided for connection.

Furnish & Install 8" or 12" LED Traffic Signal Head Indication Module: These items are used to furnish new, remove, and replace existing LED modules in existing signal heads. Wiring and electrical connection to make the Pedestrian Signal fully functional is also included. Disposal of the old modules is to be included. The new replacement modules must be compatible with the existing housing of the module being replaced.

Furnish & Install Signal Head Backplate: This item includes furnishing and installing backplates in locations identified on the plans or as directed in the field. The backplates shall be fabricated as shown on the applicable detail sheet to match the required signal configuration.

Measurement and Payment:

Furnish & Install 8" LED Signal Head Section, Rigid Mount:
Furnish & Install 12" LED Signal Head Section, Rigid Mount:

Measured per each LED signal head section unit furnished and installed as described under Construction methods above, shown on the plans, and/or as directed by the Engineer. The assembly, housing, wiring, electrical connection, visors, rigid mounting and all related hardware to provide a fully functioning signal are included in the payment per each. For example, a one-way 3 section assembly would constitute 3 ea pay units. A two-way 4 section assembly would constitute 8 ea units of pay. Similar logic would apply to all other signal head configurations.

Furnish & Install 8" LED Signal Head Section, Span Mount:
Furnish & Install 12" LED Signal Head Section, Span Mount:

Measured per each LED unit furnished and installed as described under Construction methods above, shown on the plans, and/or as directed by the Engineer. The assembly, housing, wiring, electrical connection, visors, span mounting and all related hardware to provide a fully functioning signal are included in the payment per each. For example, a one-way 3 section assembly would constitute 3 ea pay units. A two-way 4 section assembly would constitute 8 ea units of pay. Similar logic would apply to all other signal head configurations.

Furnish & Install 8" LED Traffic Signal Head Indication Module:
Furnish & Install 12" LED Traffic Signal Head Indication Module:

Measured per each LED Module furnished and installed including any required hardware, electrical

connections, and wiring. Removal and disposal of the modules being replaced are also included in the payment per each LED module.

Furnish & Install Signal Head Backplate:

Measured per each backplate furnished and installed including any required mounting hardware. Only one unit of payment will be made for each installed backplate, regardless of the signal head configuration.

10/9/12

746906 - FURNISH & INSTALL 4-CONDUCTOR #18 AWG SHIELDED OPTICOM CABLE
746907 - FURNISH & INSTALL 1-CONDUCTOR #2 AWG STRANDED COPPER
746908 - FURNISH & INSTALL 1-CONDUCTOR #4 AWG STRANDED COPPER
746909 - FURNISH & INSTALL 1-CONDUCTOR #6 AWG STRANDED COPPER
746910 - FURNISH & INSTALL 1-CONDUCTOR #8 AWG STRANDED COPPER
746911 - FURNISH & INSTALL 1-CONDUCTOR #10 AWG STRANDED COPPER
746912 - FURNISH & INSTALL 1-CONDUCTOR #14 AWG STRANDED COPPER
746913 - FURNISH & INSTALL 2-CONDUCTOR #14 AWG ALUMINUM SHIELDED COPPER
746914 - FURNISH & INSTALL #6 BARE STRANDED COPPER GROUND
746915 - FURNISH & INSTALL #8/2 WIRE UF W/GROUND
746916 - FURNISH & INSTALL #8/3 WIRE UF W/GROUND
746918 - FURNISH & INSTALL #2/0 AWG STRANDED COPPER
746919 - FURNISH & INSTALL #4/0 AWG STRANDED COPPER
746920 - FURNISH & INSTALL 14/4 TRAFFIC CONTROL CABLE
746921 - FURNISH & INSTALL 14/9 TRAFFIC CONTROL CABLE
746922 - FURNISH & INSTALL 14/16 TRAFFIC CONTROL CABLE

Description:

The pay items listed above include furnishing, installing, and splicing if approved, the various types and sizes of cable in conduit, or overhead and lashed to a span wire. All conduit installation will be paid for under their respective items.

Materials:

Cable - All electrical cables shall be manufactured in conformance with the National Electrical Code, 600-Volt, UL approved.

1. Stranded or solid, single conductor copper cables shall be XLP Insulated; USE or RHW rated

2. Type UF cable shall include ground and the number and size of conductors as shown on the plans. Use cable conforming to ANSI/UL 493.

3. 14/4, 14/9, 14/16 AWG Solid copper conductor Traffic Signal cable shall conform to IMSA Specification Number 19-1. Provide wire size and number of conductors as shown on the plans or as directed by the Engineer. Additional material requirements for Traffic Signal Cables are as follow:
   a. If requested, the Contractor shall provide independent test results to verify specification compliance. Costs of testing are incidental to the Cable item being supplied.
   b. All cables shall be supplied on reels with each reel containing one continuous length of cable.
   c. Color code to be used as established by IMSA Specifications. In addition to IMSA, DelDOT requires that individual tracers contrast with the base color to allow easy identification between each base color and the same base color plus tracer.
      To test for sufficient color contrast, remove the sheath for a length of 6 inches. All filler material and tapes shall be removed for the same length. All conductors of the same base color will be placed side by side and all other conductors will be hidden. The conductors will be held against a white or ivory surface and viewed from a distance of 6 feet. The base color, tracer, and tracer color must be identified within a period of three seconds after being placed in position. The same test for contrast will also be made for base colors. If either the base color or tracer color test fails, the material will be rejected.
   d. The tracer line width shall not exceed 3/20 inch when measured perpendicular to the edge of the line. Also, the total width of tracer lines on a conductor may not be equal to or greater than one-half the total circumference of the conductor.

4. Aluminum Shielded Cable shall be shielded two conductor controlled capacitance cable enclosed in an aluminized polyester shield within a polyethylene jacket, rated to 600 volts. The two conductors are AWG # 14 stranded copper. Cable shall meet IMSA 50-2. Referred to as "Home-run Cable".

5. Opticom Cable – must meet the manufacturer's recommended specifications

Splicing Materials –

1. Insulating (rubber) tape shall be of the self-bonding type and shall be 3M Company, Inc. (Cat. No. 130C, 2228); Plymouth Rubber (Cat. No. 2212); Permacel (Cat. No. 253, P280), or an approved equal.

2. Jacket (plastic) Tape shall be of the waterproof type and shall be 3M Company, Inc. (Cat. No. 33); Plymouth Rubber (Cat. No. 3117); Permacel (Cat. No. P29), or an approved equal.

3. For overhead traffic control cable splices:
   Wire Nuts – Ideal 74B or 76B, 3M Highland H-33, or approved equal

Cable Installation

Installation in Conduit:

This work consists of installing various types, sizes, and number of communications or electrical cable(s) in existing conduits, which may or may not contain an existing communications or electrical cable(s) or wire(s). Conduits may be located underground, within mast arms, on wood poles, or on metal poles.

The number of cables to be pulled through each conduit will be as shown on the plans or as directed by the Engineer.

Construction Methods:

All cable must be transported by and unreeled from a cable trailer(s). The laying of reels on the ground and subsequent removal of wire or cable from this position is prohibited. Avoid damaging cable insulation when removing cable from drums or reels, or during installation of the cable.

Hand pulling methods are required for conduit sizes of 1-1/2" or less and are **preferred** for all other sizes. Dynamometer is recommended for use when pulling other than by hand.

Prior to installation, **written approval by the Engineer is required** for the use of any power-assisted methods of pulling communications or electrical cable(s) or wire(s) into conduit. A short piece of material that will part if the strain exceeds the amount specified below shall be used between the pulling grip and the pulling medium, unless industry standards require less:

150 lbs. for all pulls up through 12 pair communications cable; and
300 lbs. for all larger cables

Any and all cable(s) pulled into any conduit without the use of an acceptable pulling grip, Kellems or equal, and without the use of a strain release element or by using methods which may have or did result in pulling forces in excess of strain release material, or using methods which may have or did result in pulling forces in excess of those set forth herein or prescribed by industry standards are **unacceptable.**

Any and all unacceptable cable(s) shall be removed and replaced with new cable(s) using correct methods at no cost to the Department.

The installation of cable(s) in existing conduits shall be accomplished by pulling the cable(s) through the conduits. If required, pulling lubricant of the type recommended by the cable manufacturer will be used. The cable(s) shall be prepared for pulling by reeling them from their respective reels as they enter the conduit or by taking sufficient length from the reel(s) to comprise the set to be pulled. Care shall be taken to avoid damaging insulation and to eliminate any twists or kinks and to marry the cables in a straight lay. Care shall also be taken to prevent entry of moisture into the cable at all times during installation. Cable ends will be sealed using rubber tape and painted with a sealing type of waterproof compound until final splices are made.

The cable(s) shall be hand fed into the conduit. When, in the opinion of the Engineer, additional radius is required to prevent damage to the cable(s) a sleeve shall be used. There shall be no additional payment made for sleeves or their use.

Underground cable runs shall be started at one terminal point and shall be continuous without splices to the final terminal point except for "Home Run Cable" to "Loop Detector Wire". Opticom cable shall not be spliced in any application.

Additional cable(s) shall be left and arranged in a neat and orderly manner as noted:

1. When pulled through junction wells, 6 feet of copper cable, supported on cable rack assemblies
2. At the control box and other splice locations, 6 feet of cable, neatly arranged and laced with cable ties

When cable already exists in a conduit, the Contractor shall ensure that the placement of a fish does not damage or entangle the existing wire or cable(s). The lead end of a fish shall contain a blunt terminal. Bending and/or taping the end of the fish shall not be satisfactory nor shall any termination which contains rough edges or any sort of hook that might engage an existing wire or cable when the fish is extracted.

Where two or more wires occupy the same conduit, they shall be drawn in together and kept parallel to each other by means of a pulling head. Phase legs shall be arranged circumferentially and in sequence around the neutral wires.

All conduit ends shall be duct sealed after cable installations.

Installation on Span Wire Overhead:

This work consists of installing electrical cable on an existing span wire.

Construction Methods:

All electrical cable must be transported by and unreeled from a cable trailer(s). The laying of reels on the ground and subsequent removal of wire or cable from this position is prohibited. Avoid damaging cable insulation when removing cable from drums or reels, or during installation of the cable.

The electrical cable will not be spliced at the top of the pole but will continue on to be taped onto the span wire. The electrical cable shall be oriented so water will not run along its length and run into the steel pole. The electrical cable shall be installed on the underside of the span wire with no crossover or wraps around the span wire. The electrical cable shall be pulled tight without any kinks and the jacket (plastic) tape wrapped tight around the span wire and electrical cable at least six wraps every twelve to fourteen inches.

At each signal head location, there will be a loop of signal cable 36 inches long.

Splicing:

Traffic Control Cable and Single Conductor Stranded Wire :

General – Traffic signal cable splicing shall only be made above ground in pole hand-holes, transformer bases or on span wire at the signal head. Underground traffic control cable splices (except between loop detector wire and "home-run" cable) or splices in between conduit runs are prohibited. After cables have been installed and pending permanent splicing, the end of each section of cable in the control box and at all splice locations shall be carefully sealed, using rubber tape, and painted with a sealing type of waterproof compound. The circuit number of all cables and wires shall be identified by color coded tape attached to each of the cables and wires in the control box and at all splice locations. The color coded tape shall be secured to the cable or wire with nylon cable ties. Any splices found to be faulty within 90 days of installation shall be remade at the Contractor's expense. Insulation from each conductor to be spliced shall be removed to expose ½ inch of copper. Use of any tool or method which might nick the conductor is prohibited. Each conductor not being spliced shall be inspected and trimmed so that the conductor does not extend beyond the insulation. After each conductor to be spliced is connected, all conductors both used and not used shall be returned to their original configuration before the insulation was removed and then sealed as specified.

Individual cables shall not extend beyond the splice of the last signal head for each signal phase.

Shielded Opticom cable shall not be spliced.

Shielded Aluminum Cable ("Home-Run cable") may be spliced only with the loop detector wire in a junction well. No splicing of the "home-run cable" outside of this junction well is permitted.

Overhead - Conductors to be electrically connected shall be placed side by side with the exposed copper aligned. The copper shall then be twisted clockwise with pliers until a good mechanical connection shall be effected. A proper size wire nut shall be installed and hand tightened. If necessary to cover all the copper, minor trimming may be done. The copper splice shall be 5/16 inch long when trimmed. Care shall be taken to ensure that no insulation is caught up in the copper area of the splice. It is essential that the splice be kept dry. Therefore, care must be taken during taping and by placement of the completed splice to prevent water from entering the splice between or around the cables.

1. **Termination of cable (Butt Splice) -** The sheath of each cable shall be removed as necessary. When all conductors to be joined have been completed, the splice shall be prepared for taping. The cables shall be placed in a butt position and all wires and wire nuts shall be positioned to ensure that no shorts exist and that the splice area is reduced to as small a diameter as possible. Taping shall begin with rubber tape two inches over the intact sheath. Taping shall proceed toward the other cable overlapping half of the tape width until a point two inches on the other cable sheath has been reached. Taping shall then be repeated in the other direction starting one tape width wider than the previous wrap. Where necessary to cover all areas of the splice, overlapping shall be increased. Every area of the splice shall have rubber tape at least four layers (two fully overlapped passes) deep. The rubber tape shall be covered with plastic tape applied in the same fashion.

2. **Taps or Tee Splices -** The sheath of the through cable shall be removed for a distance of 8 inches centered on the point of splice. The sheath of the branch cable(s) shall be removed for a distance of 4 inches. The through cable conductors which are to be joined to the conductors of the branch cable(s) are to be separated out from the others and cut. No other conductors shall be cut for any purpose. Depending upon the need, the branch cable(s) may be placed beside one of the through cables and the splicing proceed or the through cable may be doubled back so that the parts of the through cable and the branch cable(s) are placed side by side. When all conductors to be joined have been completed, the splice shall be prepared for taping. The cables shall be placed in approximately their final position and an inspection for shorts shall be made. After all wire nuts and wires are properly positioned, taping shall begin on the through cable 2 inches from the end for the sheath. It shall proceed with 1/2 inch width overlap across the splice area and onto the other through sheath for a distance of 2 inches. The taping shall start at the end point and return back across the splice to the branch cable(s). It shall proceed along the branch cable(s) and onto the sheath for a distance of one inch. A return along the branch back to the main cable shall be made and the remaining part of the splice shall be taped continuing as before. Every area of the splice shall have rubber tape at least four layers (two fully overlapped passes) deep. The cables shall be placed in their final position and taped with two fully overlapped passes of plastic tape. Plastic tape need not cover the interior areas covered by the rubber tape. The splice shall be placed so that the branch cable(s) enters the splice from below to prevent water from flowing along the branch cable(s) into the splice area.

3. **Termination End of Cable –** Dead ended cables shall have 3" of sheath removed. Each individual cable shall be rubber taped then bundled and re-taped with vinyl tape and coated with waterproofing compound.

Method of Measurement:

The quantity of cable will be measured as the actual number of linear feet of cable furnished and pulled through conduits (underground, in mast arms, or on poles) or installed on a span wire in accordance with these specifications, complete in place, and accepted.

All required cable slack left at termination points or in junction wells shall be measured as part of this item.

Basis of Payment:

The quantity of cable furnished and pulled through all conduit (underground, in mast arms, or on poles) or furnished and installed on a span wire will be paid for at the Contract unit price per linear foot of the applicable pay item. Splice installations and all costs related to the splice shall be incidental to the linear foot payment of the cable being spliced. Price and payment will constitute full compensation for all labor, equipment, tools, materials, material testing, splicing, taping, and incidentals required to complete the work as specified above.

5/7/12

746923 – FURNISH & INSTALL A 1" FLEXIBLE NON-METALLIC LIQUIDTIGHT CONDUIT DETECTOR SLEEVE WITH LOOP WIRE
746924 – FURNISH & INSTALL LOOP WIRE 1-CONDUCTOR #14 AWG ENCASED IN ¼" FLEXIBLE TUBING IN A LOOP SAWCUT

Description:

Sawcut and seal existing pavement, furnish and install loop detector wire, aluminum shielded "home-run" cable, and 1" Flexible Non-Metallic Liquidtight Detector sleeve as shown on the plans.

Materials:

1. **1" liquidtight flexible non-metallic conduit -** meets National Electric Code 2002, Article 350.

2. **1-conductor #14 AWG Cable in ¼" Flexible Tubing -** shall consist of cable preinstalled in a polyethylene (PE) plastic duct meeting IMSA 51-5. Cable shall be rated for 600 volts. The cable shall have a temperature tolerance range of at least - 65 to + 176 degrees Fahrenheit. The conductor is AWG #14 stranded copper. Outside diameter of the cable is 0.25 inches. Referred to as "loop wire"

3. **2-conductor #14 AWG Aluminum Shielded Cable –** see specifications for furnish and install cable. Referred to as "home-run cable".

4. **Flexible embedding sealer** - a cold poured, resilient type epoxy joint sealer, Bondo P 606 or Duracote D115 for concrete or asphalt pavement or E Poxy Industry 36 1 for concrete or E Poxy Industry11 1 for asphalt pavement, or approved equal. A sealer accelerant or retarder may be added per the manufacturers specifications.

5. **Backer Rod -** 5/8" closed cell foam

6. **Tape –** Vinyl electrical tape shall have a PVC base with rubber based pressure sensitive adhesive. The tape shall be a minimum 7 mils thick and be UL listed and marked per UL Standard 510 as flame retardant and cold resistant. It shall be compatible with synthetic cable insulations, jackets and splicing compounds and rated for wire and cable splices up to 600-volts.

7. For splices in Junction Well (see plan detail):

   a. Dual Wall Heat Shrink Tubing – Heat-shrink tubing shall be medium or heavy wall thickness, irradiated polyolefin tubing containing an adhesive mastic inner wall. Minimum wall thickness prior to contraction shall be 40 mils. When heated, the inner wall shall melt and fill all crevices and interstices of the object being covered while the outer wall shrinks to form a waterproof insulation. Each end of the heat-shrink tube or the open end of the end cap of heat-shrink tubing shall, after contraction, overlap the conductor insulation at least one and one-half inches. Heat-shrink tubing shall conform to the requirements in UL Standard 468D and ANSI C119.1, for extruded insulated tubing at 600 V.

   b. Soldering iron with Rosin Core solder

   c. Splicing Kit- In-line barrel type design, resin encapsulating compound kit with UL486 rating. Suitable for use in wet or direct buried locations. Resin encapsulating compounds shall be acceptable for use at 16 degrees C.

Construction Methods:

Loop Wire Installation:

The pavement saw cut shall be 5/8” wide and up to 4½” deep. It shall be “wet-cut” in the directions and sizes specified on the Plans, Standard Details or as directed by the Engineer. Contractor shall remove sharp edges in the saw cut and round the corners.

The saw cut shall be blown out with compressed air to remove all dust, water and particles of loose material prior to sealing.

The loop detector wire will then be installed using blunt tools so as to prevent damage to the polyethylene outer cover. One end of a loop detector wire shall be tagged to indicate start ("S"). A 5/8" backer rod will be placed into the bottom of the saw cut as needed to secure the wiring within the saw cut. All loop detector wires shall be laid in saw cuts in a clockwise rotation beginning with "S". The Engineer may require a High Voltage Ground Test with a 500 VDC megger after the loop detector installation is complete and prior to sealing saw cuts. If the resistance to ground is less than 100 megohms, this work will be rejected.

A sealer and sealer accelerant or retarder (if necessary) shall be applied in accordance with the manufacturer's directions and protected from traffic until it has set. A minimum of 1 inch of sealer shall be installed on top of the loop detector wire and finished flush with the pavement. Drilled holes in the pavement shall also be sealed.

Two loop detector wires shall be installed in a saw cut from the loop to the edge of the road. These two wires shall then extend from the end of the saw cut to a junction well (see Plan Details). Wires shall be parallel, twisted a minimum of 5 wraps per foot, and taped every 12" to 18" from the end of the saw cut to a junction well up to the splice. A 1” Liquidtight conduit shall be installed between the end of the saw cut and junction well as directed by the Engineer. The loop detector wire shall be installed in the conduit.

The loop detector wire shall be continuous and without splices from the junction well, through the saw cuts and conduit.

Home-run Wire Installation - refer to furnish and install cable specifications and conduit installation specifications. Refer to plans for details.

Splicing – splices between the loop detector wire and home-run cable shall be done in accordance with the plan details.

Conductors to be soldered shall be placed side by side with the exposed copper aligned. The copper shall then be twisted clockwise with pliers until a good mechanical connection is affected. The splice shall be coated with flux, heated with a soldering iron, and rosin core soldered in a manner that minimizes insulation damage. After each soldered connection is completed, it shall be properly insulated with heat shrink tubing.

After the electrical and mechanical connection is completed and before the splicing kit is applied, a test shall be made by the Contractor to ensure that all circuits are complete. An approved splice kit shall be installed as per manufacturer's instructions. A continuity test will be performed at the cabinet by the Department technician after the splicing kit is applied. The Department will be notified of the test results. If the continuity test fails the Contractor shall remake the splice and/or loop at his own expense.

If a splice is found to be faulty within 90 calendar days of installation, it shall be the Contractor's responsibility to remake the splice at his own expense.

Method of Measurement:

The quantity of loop detector wire to be measured under this item shall be the number of linear feet of sawcut in which loop detector wire is installed, sealed, tested, and accepted.
Sealer, sealer accelerant or retarder shall be incidental to this item.

1” flexible non-metallic liquidtight conduit shall be installed as shown on the plans or as directed in the field by the Engineer. Payment will be made for the actual number of linear feet installed. Loop detector wire inside the flexible conduit is considered incidental to the cost of the conduit.

Conduit and associated home-run cable between the junction well and cabinet will be measured and paid for under their respective items, separate from this specification.

Splicing of the loop detector wire to a home-run cable in a junction well shall be incidental to the cost of the loop wire.

Basis of Payment:

The quantity of loop detector wire supplied and installed will be paid for at the Contract unit price per linear foot, determined by measuring the footage of sawcut described above. Price and payment shall constitute full compensation for "wet"-sawcutting, furnishing and placing all materials including loop detector wire, backer rod, sealer, and for all labor, equipment, tools, splicing in the junction well, and incidentals necessary to complete this item.

The price bid per linear foot of 1" Flexible Non-Metallic Conduit Detector Sleeve with Loop Wire shall include furnishing and installing the Flexible Non-Metallic Conduit, drilling required for installation, concrete and pavement patching, sealing the conduit ends, internal bushings shown on the plans, and all incidentals necessary to complete the item.

2/29/12

746925 – FURNISH & INSTALL EMBEDDED METERED SERVICE PEDESTAL (100 AMP)

Description:

Electrical service equipment consists of the equipment necessary to connect a utility company service to a traffic signal controller cabinet, lighting control cabinet, traffic monitoring station cabinet, or other traffic control device cabinet. Provide electrical service equipment at the phasing and amperage specified in the Contract Documents. This work includes coordinating the connection with the local utility company.

Materials:

Embedded Metered Service Pedestal:

Install a galvanized steel post including a 100 amp double pole main circuit breaker for service disconnect, branch circuit breakers, integral meter socket with bypass lever and 20 Amp GFCI duplex receptacle. The post shall be designed for embedment into the soil at least 18 in. and have a stabilizer shoe. Pour a concrete collar around the post as shown in the Contract Documents. The post and meter socket shall meet NEMA 3R. Provide the means to padlock the post closed and to install a utility company seal on the meter. Provide branch circuit breakers as specified. Embedded metered service pedestals shall be UL listed Suitable for Service Equipment, and be acceptable to the local utility companies for use as a service connection.

Circuit Breakers:

Molded case type having a minimum rating of 10,000 amp interrupting capacity (AIC) and be quick make, quick break, thermal magnetic, trip indicating, and have common trip on all multiple breakers with internal tie mechanism. They shall have the current and voltage ratings and number of poles as specified, and be treated to resist fungus and be ambiently compensated for the enclosure and proximity to adjacent breakers. All circuit breakers shall be the plug in type.

Construction Methods:

Utility Connection - Before any control equipment or material is ordered, arrange a meeting with the utility company representatives, Signal Construction Inspection representatives and the Engineer to establish a schedule for utility connections. Do not disconnect, de-energize, reconnect, tamper with, or otherwise handle any of the utility company's facilities. Make the utility service connection to the point of service supplied by the utility company. Make the necessary arrangements with the utility companies to ensure having needed utilities available at the time of turn on. Delays due to utility energization, connection, or disconnection will not be a basis for time extension. Report any difficulties in securing utility company services to the Engineer as soon as possible.

Installation - Embedded Metered Service Pedestal shall be installed per the standard construction or applicable plan details.

Measurement and Payment:

Embedded Metered Service Pedestal will be measured and paid for at the Contract unit price per each. The payment will be full compensation for all enclosures, panel boards, ground rods, circuit breakers, internal wiring, wiring devices, concrete collar, meter sockets, meter, shunts, cover plates, wiring, and for all material, labor, equipment, tools, and incidentals necessary to complete the work.
Underground conduit will be measured and paid for separately under the applicable conduit item(s).

Service lateral cable will be measured and paid for separately under the applicable cable item(s).

Utility connection coordination with the utility company will not be measured, but the cost will be incidental to other pertinent items.

Utility company energizing, connection, and disconnection costs will be the responsibility of the Department.

2/29/12

746926 – FURNISH & INSTALL ELECTRICAL UTILITY SERVICE EQUIPMENT 120/240

Description:

Electrical service equipment consists of the equipment necessary to connect a utility company service to a traffic control device cabinet, lighting control cabinet, traffic monitoring station cabinet, or other traffic control device cabinet. Provide electrical service equipment at the phasing and amperage specified in the Contract Documents. This work includes coordinating the connection with the local utility company.

Materials:

Meter Sockets:

Provide either ringed or ringless type meter sockets as required by the utility company. If a meter is not required, provide a ringless socket with suitable shunts and a metallic cover plate. Provide stainless steel hardware for attaching the meter socket to a cabinet, wood post, or other structure.

Disconnect Switches:

Disconnect switches shall be NEMA standard KS 1-1990. The disconnect switch enclosure shall be Type 4 stainless steel, with external operating handle, enclosure cover interlock, and external switch mechanism handle with provisions for securing in both the ON and OFF positions by padlock. The switch mechanism shall be of heavy duty design with quick make, quick break type operations and visible blades.

The disconnect switch shall be fusible with integral fuse puller. Single phase disconnect switches shall have 2 poles with solid neutral and shall be rated at 240 Volts. Three phase disconnect switches shall have 3 poles with solid neutral and shall be rated at 600 Volts. The design of the neutral bar may be factory or field installable.

Construction Methods:

Utility Connection - Before any control equipment or material is ordered, arrange a meeting with the utility company representatives, Signal Construction Inspection representatives and the Engineer to establish a schedule for utility connections. Do not disconnect, de-energize, reconnect, tamper with, or otherwise handle any of the utility company's facilities. Make the utility service connection to the point of service supplied by the utility company. Make the necessary arrangements with the utility companies to ensure having needed utilities available at the time of turn on. Delays due to utility energization, connection, or disconnection will not be a basis for time extension. Report any difficulties in securing utility company services to the Engineer as soon as possible.

General Installation - Electrical Utility Service Equipment shall be installed per the standard construction or applicable plan details.

Measurement and Payment:

Electrical Utility Service Equipment will be measured and paid for at the Contract unit price per each at the phasing and amperage specified. The payment will be full compensation for the disconnect switch, meter socket, meter, shunts, cover plate, ground rods, wiring, conduit risers, elbows, conduit nipples and adapters, and for all material, labor, equipment, tools, and incidentals necessary to complete the work.

Underground conduit will be measured and paid for separately under the applicable conduit item(s).

Service lateral cable will be measured and paid for separately under the applicable cable item(s).

Utility connection coordination with the utility company will not be measured, but the cost will be incidental to other pertinent items.

Utility company energizing, connection, and disconnection costs will be the responsibility of the Department.

2/29/12

746935 – FURNISH & INSTALL 16" LED COUNTDOWN PEDESTRIAN SIGNAL
746936 – FURNISH & INSTALL 16" LED PEDESTRIAN SIGNAL HEAD INDICATION MODULE
746937 - FURNISH & INSTALL PEDESTRIAN PUSHBUTTON WITH SIGN

Description:

Item 746935 includes furnishing LED units and housings, mounting them with all associated hardware in the configuration shown on the plans, and installing them as a side or top mounted unit on a Pedestal or Pole.

Item 746936 includes furnishing individual LED modules and installing them as separate components on an existing Pedestrian Signal installation.

Item 746937 includes furnishing Pedestrian Pushbutton assemblies and installing them as shown on the applicable detail plans.

Materials:

16" Pedestrian Head LED Modules:

General - All materials and workmanship shall conform to the standards of the American Society for Testing Materials (ASTM), latest edition, and the standards of the American National Standards Institute (ANSI) latest edition.

All electrical equipment shall conform to the standards of the National Electrical Manufacturer's Association (NEMA), the Underwriters Laboratories, Inc. (UL), Institute of Electrical and Electronic Engineers, Inc. (IEEE), and the Electronic Industries Association (EIA), wherever applicable (latest edition).

The LED module shall conform to the Institute of Transportation Engineers (ITE). Pedestrian Traffic Control Signal Indicators: Light Emitting Diode (LED) Signal Modules, Draft Version of 2009.

Size, Design, and Illumination of Pedestrian Signal Display Indications shall conform to the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), latest edition and the Standard Highway Signs and Markings, latest edition.

For those items not specifically defined herein, good practice as shown in previous articles supplied by the contractor, and/or as used by the industry in general, shall apply.

A representative of the Department will be available to discuss good practice and "state of the art". The bidder is notified that neither claims for additional costs nor extensions of delivery times will be honored on the basis of good practice and/or "state of the art" problems.

The bidder must show by field review, if necessary, and by the various documents that are required as part of the bid that the materials proposed will perform as required.

Each module shall consist of a fully encapsulated assembly that utilizes LEDs as the light source and a message lens. The individual LED shall be wired such that a failure of one or more LEDs will result in the loss of light from that LED only and the loss of not more than one (1) percent of the module light output. The LEDs shall be the ultra bright type rated for 100,000 hours of continuous operation.

Configuration - Messages shall be displayed in the Portland Orange "Upraised Hand" ("Hand"), the White "Walking Person" ("Person"), and the Portland Orange "Numeric Countdown" ("Countdown") icons illuminated by multiple configuration LEDs.

The "Hand" and the "Person" icons shall be each a minimum of 11" in height and 7" in width. The "Countdown" icon shall consist of two 7-segment digits forming the time display. The height of the "Countdown" icon digits shall be 9" and the overall width of the digit display (both digits side-by-side) shall be 7". Each individual 7-segment digit shall be 3.25" wide, with 0.5" of space between the two digits.

The “Hand” and the “Person” icons shall be included on all modules. If the “Countdown” icon is used in conjunction with the “Hand” and the “Person” icons, the “Hand” and the “Person” icons shall be overlaid upon each other and located to the left of the “Countdown” icon. If the “Countdown” icon is not used, the “Hand” and the “Person” icons shall be arranged side-by-side with the “Hand” icon to the left of the “Person” icon.

Electrical Requirements - Power consumption shall not exceed 15 watts for the “Hand” icon, 10 watts for the “Person” icon, and 10 watts for the “Countdown” icon at a temperature of 77º F. Individual LED driving current shall be less than 10 milliamps for each icon at a temperature of 77º F.

The module shall operate from a 60 hertz ± 3 hertz AC line over a voltage ranging from 80 volts to 135 volts. Nominal operating voltage shall be 120 ± 3 volts. Fluctuations in line voltage within the range of 80 volts to 135 volts shall not affect luminous intensity by more than ±10 percent. When input voltage is less than 35 volts the module shall turn off automatically. Each icon of the module shall reach 90 percent of their full illumination (turn-on) within 75 milliseconds of the application of the nominal operating voltage. The module shall not be illuminated (turn-off) after 75 milliseconds of the removal of the nominal operating voltage. The module shall include voltage surge protection to withstand high-repetition noise transients and low-repetition high-energy transients as stated in Section 2.1.8 of NEMA Standard TS-2, latest edition.

At a temperature of 77º F (25º C), the power factor (PF) shall be greater than 0.9, and the total harmonic distortion (THD) shall be less than 20 percent.

Electromagnetic Interference (EMI) shall meet Class A emission limits referred to in Federal Communications Commission (FCC) Title 47, Subpart B, Section 15 regulation.

The signal must have 1 individual set of wires for electrical connections. Each set must be made of three secured, color coded (blue, red, white), 36 inches long, 600V, 16 AWG jacketed wires, rated for service at +105ºC.

Module Identification – The module shall be permanently marked on the backside with the manufacturer’s name, trademark, date code, operating characteristics, part/model number, and serial number. The operating characteristics identified shall include the nominal operating voltage and stabilized power consumption, in watts and volt-amperes. The Department reserves the right to scan, record, or otherwise obtain the manufacturer’s serial number(s) and/or barcodes for all LED Vehicular Signal and Pedestrian Signal Head Display Modules prior to installation. This task will be completed by the Department, or a designated representative, at the time of signal head installation.

Quality Assurance – Modules shall be manufactured in accordance with a qualified ISO 9001:2000 vendor quality assurance program.

In addition to tests specified in the ITE LED Quality Assurance Program, each module supplied under this contract shall be tested for minimum maintained luminous intensity for expected or extended viewing angle products. Failure of each supplied module to meet the requirements of all these tests shall cause the modules to be rejected.

Certification of Compliance – The manufacture shall provide upon request a Certification of Compliance certifying that the modules comply with the requirements of these specifications. The certificate shall also include a copy of all applicable test reports that the modules underwent.

The manufacturer shall provide a list of module serial numbers with each shipment. The Contractor shall provide this information upon receipt of shipment by the Signal Construction Section at 14 Sign Shop Road, Dover, DE 19901.

Warranty - The contractor shall extend any policy guarantee usually offered to purchases on article(s) and/or service(s) against defective material and workmanship. The contractor shall replace free of charge any part of component that fails in any manner by reason of defective material, design, or workmanship within a period of five (5) years from the date of payment for the article(s). The warranty shall be renewed for each part or component for another five (5) years from the date of replacement of the article (s). The entire module shall be considered failed if it exhibits light output degradation (1) greater thatn 50% of its initial intensity or (2) falling below the minimum intensity level as outlined in this specification.

A certificate of warranty from the manufacturer shall be supplied with the bid documents.

Photometric Requirements - The minimum luminous intensity for a minimum period of 60 months shall be 409 footlamberts for the "Hand" icon, 642 footlamberts for the "Person" icon, and 409 footlamberts for the "Countdown" icon.

The uniformity of the "Hand", "Person", and "Countdown" luminance shall meet a ratio of not more than one (1) to five (5) between the minimum and maximum luminance values, as measured in 1/2" diameter spots.

Chromaticity -

(a) The measured chromaticity coordinates for the white walking Person and the Portland Orange Hand and Digits must conform to the chromaticity requirements of section 4.2 and Figure 5 of the ITE Pedestrian Traffic Control Signal Indicators: Light Emitting Diode (LED) Signal Modules, Draft Version of 2009.

(b) The chromaticity measurements must remain unchanged over the input line voltage range of 80 VAC to 135 VAC.

Flashing Requirements - The light source of a flashing "Hand" signal indication shall be capable of flashing continuously at a rate of not less than 50 or more than 60 times per minute. The displayed period of each flash shall be a minimum of 1/2 and a maximum of 2/3 of the total flash cycle.

Environmental Requirements - The module shall be protected against dust and moisture intrusion per the requirements of MIL-STD-810F Procedure I, Rain and Blowing Rain. The module shall have an Ingress Protection (IP) rating of at least 54. The module shall meet all specifications in the operating temperature range of -40º F to +165º F.

Message Lens - The message lens shall be made of plastic and have a smooth outer surface. The lens shall be ultraviolet-stabilized and shall be capable of withstanding ultraviolet (direct sunlight) exposure for a minimum of 60 months. The inside of the message lens shall be painted in black in all areas except where the desired icons are formed to form a contrasting background when viewed from the outside.

Installation Requirements - A module shall be capable of replacing the existing optical components or signal module in a signal housing, or shall provide a complete replacement of the signal head. Installation of a module into existing housing shall not require the use of special tools. The module shall connect directly to existing electrical wiring system.

Marking Tag – A tag shall be securely installed on each LED Module indicating the Prime Contractor, Module Supplier, Date of Purchase, and Date of Installation

Signal Housing: Each pedestrian signal display housing shall consist of a yellow case housing, complete with a black housing door, field terminal assembly and visor. The maximum overall dimensions of the housing shall not exceed 18.5" wide x 18.7" high x 9.1" deep including visor.

Housing - The housing shall be a one-piece corrosion resistant aluminum alloy die-casting free of defects such as cracks and burrs. The color shall be Yellow, 595B-13538. The housing shall have top and bottom openings to accommodate standard 1-1/2" pipe brackets. The opening shall have a Shurlock boss integrally cast into the housing. The radial angular grooves of the Shurlock boss, when used with Shurlock fittings, shall provide positive five (5) degree increment positioning of the entire signal display to eliminate rotation or misalignment of the signal display. Two (2) integrally cast hinge lugs and screw slots shall be on each side of the housing. The housing shall be capable of providing a swing down housing door.

Housing Door - The housing door shall be a one-piece corrosion resistant aluminum alloy die-casting. The color shall be Black, 595B-17038. Two (2) hinge lugs shall be cast on top of the door, and two (2) latch points shall be cast on the bottom. The door shall be attached to the housing by two (2) hinge pins. Two (2) eye bolts and wing nuts shall be provided for opening and closing the door without the use of special tools. A gasket groove on the inside of the door shall accommodate a weatherproof and mildew proof resilient gasket which, when the door is closed, will seal against a raised bead of the housing, making a positive seal.

Field Terminal Assembly - The field terminal assembly shall include a three (3) terminal pair (6 screw) type terminal block for termination of the three (3) field # 14 AWG spaded terminal wires for AC (+) for the "Hand" and "Person" icon, and AC (-). The side of the terminal shall be equipped with a male quick disconnect blade that mates with the insulated female quick disconnect lug supplied on the LED Module. The field terminal assembly shall include an aluminum base plate that shall be bolted to the signal display housing.

Visor - The visor shall be designed to eliminate sun phantom and minimize damage to the LED Module. The Visor color shall be Flat Black, 595B-37038. The visor shall be installed parallel to the face of the signal display. The visor shall be held in place by stainless steel screws. The visor assembly shall consist of a minimum of 20 straight horizontal louvers and 21 zigzag pattern horizontal louvers.

Material Treatment - Prior to assembling, all aluminum elements shall be thoroughly cleaned and a chromate conversion coating shall be applied inside and out as per Military Specification MIL-DTL-5541F. Synthetic enamel conforming to Military Specification TT-E-529 shall be electro-statically applied. The finish shall be oven cured for at least 20 minutes at a temperature of 350º F. The signal display housing shall be supplied in yellow with a black door. When an installation is completed, the signal display shall be dustproof, weatherproof, and corrosion resistant.

Mounting (One or Two Way) Assemblies: Provide all materials required to mount the LED Countdown Signal Assemblies in accordance with the plan details.

LED Pedestrian Pushbutton Assembly: The pedestrian pushbutton assembly shall conform to all minimum size requirements set forth by the Americans with Disabilities Act (ADA). The pushbutton assembly shall be designed to prevent electrical shock under any weather conditions and shall have provisions for grounding in accordance with the National Electrical Code (NEC). Each pedestrian push button assembly shall include the pushbutton housing complete with front cover and a push button switch. The LED pushbutton assemblies shall also include LED/audible indicator. Any control equipment necessary for the pushbutton assemblies to operate as specified herein shall be supplied as necessary at no additional charge. The bidder shall assume an average of six (6) pushbutton assemblies per intersection for the purposes of distributing control equipment costs. Any control equipment shall fit into a standard traffic signal control cabinet.

Pushbutton Housing - The pushbutton housing shall be yellow (color number 595B-13538) cast aluminum. The rear of the housing shall be curved and designed to accommodate pole diameters from 3" to 14". There shall be a 1/2" diameter access hole for wiring at the rear of the housing. The access hole shall be capped with a plastic plug. The housing shall be tapped at the front to allow for mounting of the front cover.

Front Cover - The front cover shall also be yellow (color number 595B-13538) cast aluminum. A neoprene gasket shall provide a weather-tight seal between the housing and the cover. The cover shall be secured with stainless steel, vandal-resistant screws. The screws shall also secure the pushbutton switch to the housing.

Pushbutton Switch - The pushbutton switch shall be actuated by a 2" diameter mushroom plunger. A spring installed between the plunger and the switch shall not provide an operating force of more than 5 pounds. There shall be a moisture barrier between the plunger and the switch and a two (2) position terminal block for termination of the #14 AWG pushbutton wire. The pushbutton switch shall be capable of operating in a temperature range of -30º F to +165º F and shall be rated for up to 10,000,000 actuations. The pushbutton switch shall be electrically rated to carry 25 amps at 125 volts AC, 250 volts maximum. When an installation is completed, the pedestrian pushbutton shall be weatherproof and tamperproof.

Sign – Furnished to the Contractor by DelDOT for installation only as shown on the plan details.

Mounting Hardware – All materials shown on the applicable mounting detail sheets

Construction Methods:

Furnish & Install 16" LED Countdown Pedestrian Signal: This item includes furnishing, assembling, installing, wiring, electrically connecting, and mounting of LED countdown pedestrian signal heads, visors and housings, in the configurations shown on the plans and details resulting in a fully functioning pedestrian signal assembly. All components and hardware listed in the "Materials" section of this specification under "LED Modules" and on the mounting details shown in the plans or as directed are also to be furnished, installed, and included in this bid item. Cable (to be paid separately under its respective item) shall be placed

down the pedestal or pole and connected in the base. The type and size of the cable shall be as directed by the Engineer. The cable shall be run without splice from inside the pedestrian signal head to the base of the pole where 5 feet shall be provided for connection.

Furnish & Install LED Pedestrian Signal Head Indication 16" Module: This item is to be utilized to furnish new, remove, and replace existing LED Pedestrian Signal Head modules in existing Pedestrian signal heads. Wiring and electrical connection to make the Pedestrian Signal fully functional is also included. Disposal of the old modules is to be included. The new replacement modules must be compatible with the housing of the module being replaced.

Furnish & Install Pedestrian Pushbutton on Steel Pole With Sign:

On Steel Pole - Drill a 1/2" hole in the steel pole at the height and location shown on the plan details or as directed by the Engineer. Drill and tap the steel pole for the two mounting bolts, using the pushbutton housing as a template, with the cable entrance hole aligned with the 1/2" hole in the pole. Install pushbutton housing using 1/4" x 1" bolts. Wire the pedestrian pushbutton and install on to the pushbutton housing. The type and size of the cable shall be as directed by the Engineer. The cable shall be run without splice from inside the pedestrian pushbutton to the base of the pole where 5 feet shall be provided for connection. Install the sign (supplied by DelDOT) as per the plan detail.

Measurement and Payment:

Furnish & Install 16" LED Countdown Pedestrian Signal: Measured per each 16" Pedestrian LED unit furnished and installed as described under Construction methods above, shown on the plans, and/or as directed by the Engineer. The assembly, housing, wiring, electrical connection, mounting and all related hardware to provide a fully functioning Pedestrian signal are included in the payment per each, unless otherwise noted.

Furnish & Install LED Pedestrian Signal Head Indication 16" Module: Measured per each LED Pedestrian Signal Head Module furnished and installed including any required hardware, electrical connections, and wiring. Removal and disposal of the modules being replaced are also included in the payment per each LED module.

Furnish & Install Pedestrian Pushbutton With Sign: Measured per each Pushbutton Assembly furnished and installed as described under Construction methods above, shown on the plans, and/or as directed by the Engineer. The assembly, wiring, electrical connection, sign installation, mounting and all related hardware to provide a fully functioning Pedestrian Pushbutton are included in the payment per each, unless otherwise noted. Any control equipment necessary for the pushbutton assemblies to operate as specified herein shall be supplied as necessary at no additional charge. Cost for such control equipment shall be incorporated into the push button assembly unit price.

10/9/12

746938 – INSTALL OVERHEAD SIGN

Description:

This work consists of installing a sign on an over-highway structure, span wire, mast arm, wood or metal pole, pedestal pole, or ground mounted HIB (Hazard Identification Beacon). The sign may be mounted to an existing structure or one installed under this contract.

Note that the sign included with a newly installed "LED Pedestrian Pushbutton Assembly" is included under that pay item and will not be paid separately. If a sign is added to an existing "LED Pedestrian Pushbutton Assembly", it would then be paid for under this item.

The largest sign panel or single sign to be installed on over-highway structures will be 96 square feet to be raised to a height not to exceed 35 feet measured from ground to top of sign.

Materials:

The Department will supply the signs to be installed. The signs may be supplied with pre-drilled holes for use in mounting the sign.

The Contractor will supply

- Stainless Steel 3/8" bolts
- Stainless Steel washers
- Nylon washers
- Stainless steel nuts
- Stainless steel straps (for sign fix)

Construction Methods:

Sign installation shall be performed as directed by the Engineer or shown on the plans. Care shall be taken to prevent any damage to the sign panel, span wire, mast arm, over-highway structure, wood or metal pole, pedestal pole, ground mounted HIB, any electrical cable attached to the span wire, or any lights attached to the sign panel.

Nylon washers shall be placed next to the sign face followed by a galvanized washer and the bolt head. Sign installation on over-highway structure may require the sign to be assembled in panels. The sign may be made from several panels to make one complete sign. Signs on structures shall be installed at a minimum height of 7 feet from the bottom of the sign to the near edge of pavement or sidewalk.

Measurement and Payment:

The quantity of overhead signs will be measured on a per each basis for signs installed as described in these specifications, complete, in place and accepted. Price and payment will constitute full compensation for all labor, materials, mounting hardware, equipment, tools, and incidentals required to complete the work.

10/9/2012

746939 - TRAFFIC CONTROL DEVICE EQUIPMENT TURN ON, PICK UP, REMOVAL AND MAINTENANCE, TYPE I
746940 - TRAFFIC CONTROL DEVICE EQUIPMENT TURN ON, PICK UP, REMOVAL AND MAINTENANCE, TYPE II
746941 - TRAFFIC CONTROL DEVICE EQUIPMENT TURN ON, PICK UP, REMOVAL AND MAINTENANCE, TYPE III

Description:

This work shall consist of pickup of DelDOT furnished materials, removal and/or returning of existing equipment, and maintenance of existing equipment as specified in the Contract Documents or as directed by the Engineer.

Materials:

Not applicable

Construction Methods:

Equipment Turn On - Notify the Engineer and Signal Construction Inspection representative at least 10 working days before completion of the project to allow DelDOT to install any additional traffic control device(s).

Notify the Engineer and Signal Construction Inspection representative five working days prior to the completion of the project to schedule a final inspection and turn-on.

Stakeout, with the Engineer and Signal Construction Inspection representative present, the proposed construction as indicated on the plan(s).

Pick-Up of Administration Furnished Materials - Notify the Signal Construction warehouse representative a minimum of 72 hours in advance of the anticipated pick up or delivery of materials. The Signal warehouse is located at:

14 Sign Shop Road
Dover, Delaware 19901
Signal Warehouse: Phone 302-760-2565

The Contractor shall be responsible for the transportation, labor, equipment, tools and incidentals necessary to obtain and load any DelDOT furnished materials.

Materials not furnished by DelDOT shall be furnished by the Contractor.

Removal and Disposal of Existing Material and Equipment - Removal of all structures as specified. Remove concrete foundations as specified. All holes caused by this removal shall be backfilled, compacted and restored to surrounding conditions.

Remove all existing abandoned junction wells or manholes shown on the plans, the holes shall be backfilled, compacted and restored to surrounding conditions. Cap and abandon conduit(s). The sidewalk where junction wells are removed shall be reconstructed to the nearest tooled joint or expansion joint.

Existing inductive loop detectors and magnetic detectors not shown on the plans shall be disconnected and or removed, all cables shall be removed form all conduit raceways, span wires, signal structures, junction wells and cabinets.

Remove any existing signalization cables within the intersections that have been disconnected or are unused. This includes removal from all conduit raceways, span wires, signal structures, junction wells and cabinets.

Dispose of all material not salvaged or returned. Non-galvanized green painted structures may contain

lead and the contractor will be responsible for proper disposal of such material.

Storage of Materials - Materials shall be bundled, stored, and protected in conformance with the manufacturer's recommendations or as approved by the Engineer.

Return of Material to DelDOT – After their removal in the field, the following materials shall be returned to the DelDOT sign shop:

Traffic Signal Poles and Pedestrian Signal Poles, Pedestal Poles, Lighting Poles, Salvaged Cable, Controllers and Cabinet enclosures, Junction Well Frames and Lids, Signal Heads, Pedestrian Signal Heads, Opticom Detector Units, and Signs that were mounted on mast arms, poles, or structures.

Maintenance of Materials and Equipment - The maintaining agency will continue maintenance of any existing signals until the Contractor places new equipment into operation.

When the work requires adjustments to the traffic control devices to maintain the minimum DelDOT standards, the adjustments to the traffic control devices shall be made within 4 hours of verbal notification by the Engineer.

Existing signals shall remain in their original condition until the new signals have been completed, satisfactorily tested and its operation accepted by the Engineer.

Maintain all vehicular and pedestrian detectors in continuous operation. If any detector is damaged by the Contractor, it shall be replaced within 72 hours after notification by the Engineer.

All traffic signals and existing interconnect cable shall remain operational and actuated as specified in the Contract Documents.

Plan the work to minimize interference with any existing traffic control device.

Measurement and Payment:

The Per Each payment will be full compensation for all material, labor, equipment, tools, and incidentals necessary to complete the work for a “Type I”, “Type II”, or “Type III” location as specified in the Contract Documents and defined below.

Equipment Turn On - Equipment Turn On will not be measured but the cost will be incidental to other pertinent items specified in the Contract Documents.

Pick-Up of Administration Furnished Materials - Pick-up of Administration furnished materials will not be measured but the cost will be incidental to other pertinent items specified in the Contract Documents.

Removal and Disposal of Existing Material and Equipment - Removal and disposal of concrete foundations, junction wells, structures, and all other specified equipment will be measured and paid for at the Contract Bid Item price for Remove and Dispose of Existing Materials Type I, II or III as follows:

Remove, and Dispose Type I -

Removal, return to DelDOT, and disposal of existing TCD material for minor signal modification, cables, junction wells, signal heads, signs and all other specified equipment. No concrete foundation removal is anticipated.

Remove and Dispose Type II -

Removal, return to DelDOT, and disposal of existing TCD material for signal modification, cables, junction wells, concrete foundations, structures, signal heads, signs and all other specified equipment. 2 to 4 concrete foundations and structures and/or cabinet removals are anticipated.

Remove and Dispose Type III -

Removal, return to DelDOT, and disposal of existing TCD material for full signal reconstruction, cables, junction wells, concrete foundations, structures, cabinets, signal heads, signs and all other specified equipment.

Maintenance of Existing Signal Equipment - Materials storage, cable sealing and handling, adjustments to maintain minimum DelDOT standards on existing signals made necessary by new signal or geometric modifications and Contractor repair of any damaged detector caused as a result of Contractor's error will not be measured but the cost will be incidental to other pertinent items specified in the Contract Documents.

3/1/12

746943 - FURNISH 8" LED SIGNAL HEAD SECTION
746944 - FURNISH 8" LED TRAFFIC SIGNAL HEAD INDICATION MODULE
746945 - FURNISH 12" LED SIGNAL HEAD SECTION
746946 - FURNISH 12" LED TRAFFIC SIGNAL HEAD INDICATION MODULE

Description:

This work includes furnishing and delivering the specified items to either the DelDOT Signal Maintenance facility located at 14 Sign Shop Road, Dover, Delaware 19901 or the Signal Maintenance facility located at 250 Bear-Christiana Road, Bear, DE 19701. Each signal head section shall include the LED module, signal head housing, and related hardware.

Materials:

LED Modules:

General - All materials and workmanship shall conform to the standards of the American Society for Testing Materials (ASTM) and the standards of the American National Standards Institute (ANSI), where applicable.

All LED modules for vehicle traffic signal heads shall conform to the current Institute of Transportation Engineers (ITE) and Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) requirements.

All electrical equipment shall conform to the standards of the National Electrical Manufacturer's Association (NEMA), the Underwriters Laboratories, Inc. (UL), Institute of Electrical and Electronic Engineers, Inc. (IEEE), and the Electronic Industries Association (EIA), wherever applicable.

This specification refers to criteria described in "ENERGY STAR Program Requirements for Traffic Signals." ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy.

For those items not specifically defined herein, good practice as shown in previous articles supplied by the contractor, and/or as used by the industry in general, shall apply.
A representative of the Department will be available to discuss good practice and "state of the art". The bidder is notified that neither claims for additional costs nor extensions of delivery times will be honored on the basis of good practice and/or "state of the art" problems.
The bidder must show by field review, if necessary, and by the various documents that are required as part of the bid that the materials proposed will perform as required.

REFERENCED DOCUMENTS:

This specification refers to definitions and practices described in the following ITE documents:

- "Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement" (dated June 27, 2005), referred to in this document as "VTCSH-LED."
- "Vehicle Traffic Control Signal Heads - Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement" (dated April 3, 2006), referred to in this document as "VTCSH-ARROW."
- "Equipment and Material Standards of the Institute of Transportation Engineers (dated April, 1985), referred to in this document as "VTCSH."

The Circular LED Modules shall be one of six types:

1. 8" Red Circular LED Module
2. 8" Yellow Circular LED Module
3. 8" Green Circular LED Module
4. 12" Red Circular LED Module
5. 12" Yellow Circular LED Module
6. 12" Green Circular LED Module

The Arrow LED Modules shall be one of three types:

1. 12” Red Arrow LED Module
2. 12” Yellow Arrow LED Module
3. 12” Green Arrow LED Module

The following are the detail specifications for Circular and Arrow LED Modules. All specifications must be met even if a particular location may not require all of the specified elements.

Physical and Mechanical Requirements - The module shall fit into a traffic signal housing built to ITE VTCSH standards without modification to the housing. When replacing an incandescent reflector assembly the module shall utilize the same mounting hardware used to secure the assembly to the traffic signal section. “Screw-in” type modules shall not be used in the vehicle traffic signal heads. Installation of the module into signal housing shall not require the use of special tools.

The module shall be a self-contained device, not requiring on-site assembly for installation into an existing traffic signal housing. The module shall be a sealed unit with two (2) conductors for connecting to power, a printed circuit board, power supply, lens and one-piece gasket, and shall be weatherproof after installation and connection. The power supply shall be integral to the module.

The module shall be an expanded or extended viewing angle product. The expanded or extended viewing angle module is required due to the multitude of span wire installations in the State of Delaware.

Modules shall not be restricted to any specific LED technology.

Environmental Requirements - The module lens shall be capable of withstanding ultraviolet exposure for minimum period of 60 months without exhibiting significant evidence of deterioration.

Optics Requirements - The bidder shall submit the Maintained Minimum Intensity tables for the expanded or extended view modules with the bid proposal. The format of the intensity tables submitted shall show, at the minimum, points corresponding to the intensity tables provided in VTSCH-LED and VTSCH-ARROW.

The arrow indication for arrow modules shall conform to VTCSH, Section 9.01. The LEDs shall be spread evenly across the illuminated portion of the arrow area. The arrow indication shall be solid, not an outline. The arrow indication shall have a three line/row horizontal bar.

Lens Requirements - The module lens shall have a smooth outer surface to reduce the collection of debris and facilitate cleaning; and made of ultraviolet stabilized polycarbonate or polymeric material. The lens shall be abrasion resistant.

The module lens may be tinted or covered by transparent film or materials with similar color and transmissive characteristics.

The lens may be a replaceable part, without the need to replace the complete module. The overall appearance of the lens shall mimic that of one used with incandescent lamps.
Lenses that depict a “honeycomb” effect of the display are unacceptable.

Electrical Requirements - The module shall connect directly to existing electrical wiring system. The nominal operating voltage shall be 120 ± 3 VAC RMS. The module shall operate from a 60 hertz ± 3 hertz AC line power over a voltage range from 80 VAC RMS to 135 VAC RMS. The module circuitry shall prevent flicker of the LED output at frequencies less than 100 hertz over the operating voltage range. Fluctuations in line voltage over the operating voltage range shall not affect luminous intensity by more than ± 10 percent. There shall be no visible illumination from the module when the applied voltage is less than 35 VAC RMS.

Modules shall meet the maximum and nominal wattage requirements of “ENERGY STAR Program Requirements for Traffic Signals,” current edition.

All wiring and terminal blocks shall meet the requirements of VTCSH, Section 13.02. Two (2) secured, color coded, 600 volt, jacketed wires, a minimum of 18 AWG and at least 39” (1000 mm) in length, conforming to the NFPA 70, National Electrical Code, and rated for service at 221° F (105° C), shall be provided.

The individual LEDs shall be wired such that a catastrophic failure of one LED will result in the loss of not more than 5 percent of the module total light output. The outage of a single LED shall not cause the outage of additional LEDs.

Modules shall be operationally compatible with currently used controller assemblies (solid state load switches, flashers, and conflict monitors).

LED signal heads shall be operationally compatible with NEMA traffic controller assemblies meeting the standards set forth in publication number TS-2-2003 traffic controller assemblies. The LED modules shall be operationally compatible with NEMA TS-1 and TS-2 conflict monitoring parameters.

The control circuitry shall prevent the current flow through the LEDs in the off state to avoid any false indication as may be perceived by the human eye during daylight and evening hours.

The LED signals shall be fully capable of operation in the flashing mode.

The dimming feature shall not be required.

Module Identification - The module shall be permanently marked on the backside with the manufacturer's name, trademark, date code, operating characteristics, part/model number and serial number. The operating characteristics identified shall include the nominal operating voltage and stabilized power consumption, in watts and volt-amperes.

The module and removable lens shall have a prominent and permanent vertical indexing indicator, i.e., UP arrow, or the word "UP" or "TOP", for correct indexing and orientation in the signal housing.

The module conforming to all non-optional requirements of VTCSH-LED or VTCSH-ARROW shall have a label certifying its complete compliance with the ITE standard. The label shall be affixed to the back of the module.

Quality Assurance - Modules shall be manufactured in accordance with a qualified ISO 9001:2000 vendor quality assurance program.

In addition to tests specified in the ITE LED Quality Assurance Program each module supplied under this contract shall be tested for minimum maintained luminous intensity for expended or extended viewing angle products. Failure of each supplied module to meet requirements of all these tests shall cause the modules to be rejected.

Certification of Compliance - The manufacturer shall provide upon request a Certificate of Compliance certifying that the modules comply with the requirements of these specifications. The certificate shall also include a copy of all applicable test reports that the modules underwent.

The manufacturer shall provide a list of module serial numbers with each shipment and shall provide this information upon receipt of shipment by DelDOT's Signal Construction Section , 14 Sign Shop Road, Dover, DE 19901.

The Department reserves the right to scan, record, or otherwise obtain the manufacturer's serial number(s) and/or barcodes for all LED Vehicular Signal and Pedestrian Signal Head Display Modules prior to installation. This task will be completed by the Department, or a designated representative, at the time of signal head installation.

Warranty - The contractor shall extend any policy guarantee usually offered to purchasers on article(s) and/or service(s) against defective material and workmanship. The contractor shall replace free of charge any part or component that fails in any manner by reason of defective material, design, or workmanship within a period of five (5) years from the date of payment for the article(s). The warranty shall be renewed for each part or component for another five (5) years from the date of replacement of the article(s). The entire Module shall be considered failed if it exhibits light output degradation 1) greater than 50% of its initial intensity or 2) falling below the minimum intensity level as outlined in this specification.

A certificate of warranty from the manufacturer shall be supplied with the bid documents.

Manuals - A complete set of documentation shall be supplied. It shall include parts lists, operation details, maintenance schedules, and other information needed to install and operate the article(s).

Signal Head Housings:

The adjustable traffic signal heads shall be supplied under this contract in yellow (color number 595B-13538) with a black face conforming to color number 595B-17038.

Signal head housing shall be die cast of corrosion resistant aluminum alloy per MIL-1.15153A, A1.1, and ASTM Specification B-85-57T, Alloy 12A with full 12 percent Silicon.

All interior and exterior surfaces of the housing, housing door, and visor shall be cleaned and then treated with a chromate aluminum oxide coating process per MIL-C-5541. The finish coat shall be oven bake enamel and shall comply with TT-E-4898B or it shall be an epoxy powder coating at least 2.0 mils thick which shall conform to ASTMB-117 after 500 hours of salt spray test and have 50 percent gloss retention after 1000 hours of weathermeter test.

All straight pins, wing nuts, washers and bolts shall be 18-8 type 304 stainless steel.

Each 8” signal section housing shall be designed to accommodate 8” nominal dimension incandescent reflector assemblies or LED modules. Each 12” signal section housing shall be designed to accommodate 12” nominal dimension incandescent reflector assemblies or LED modules. The housing of each signal section shall be a one-piece corrosion resistant aluminum alloy die-casting with front, side, top and bottom integrally cast. All parts shall be clean, smooth and free from flaws, cracking, blowholes, or other imperfections. The housing shall be of substantial thickness and shall be ribbed so as to produce the strongest possible assembly consistent with light weight. Internal bosses shall be provided inside the housing for the mounting of terminal strip facilities.

The top and bottom of the housing shall have an opening to accommodate standard 1-1/2” nominal diameter pipe. The top and bottom opening of the housing shall have a Shurlock boss integrally cast into the housing.

The housing shall contain hinges and locking devices for the door. The hinges may be lugs cast onto the side of the housing or they may be inside the housing.

The housing door of each section shall be a one-piece, corrosion resistant, aluminum alloy die-casting, in black (color number 595-17038). Two (2) hinge lugs shall be cast on one side of the door, and two latch points shall be cast on the other side. The door shall be attached to the housing by means of two (2) straight pins. Two (2) eye bolts and wing nuts on one side of the door shall allow the door to open and close without the use of any tools. A gasket groove on the inside of the door shall accommodate a weatherproof and mildew-proof resilient gasket which, when the door is closed, seals against a raised bead on the housing, making a positive seal. The outer face of the door shall have four (4) holes equally spaced about the circumference of the lens opening, with four (4) screws to accommodate a signal head visor. The door shall have at least two (2) index points to enable positive orientation of the lens.

Visors:

Visors as shown on the plans may be any of three types; Full Circle, Tunnel, or Cap. The visor shall be a minimum of 7” in length for nominal 8” sections and 9-1/2” in length for nominal 12” sections, with a downward tilt of 3-1/2 degrees. All visors shall be formed of corrosion-resistant aluminum alloy sheet not less than 0.05” in thickness. Visors shall have twist-on attaching slots so that they can be removed by simply loosening, not removing the mounting screws and rotating the visor.

Visors shall be supplied under this contract in black, both inside and outside, meeting flat black color number 595B-37038.

Measurement and Payment:

Furnish 8” LED Signal Head Section
Furnish 12” LED Signal Head Section

Measured per each LED signal head section unit furnished, delivered and acceptably unloaded at the applicable DelDOT Signal Maintenance Shop as directed by the Engineer. The housing, LED module and visor are included in the payment per each.

Furnish 8" LED Traffic Signal Head Indication Module:
Furnish 12" LED Traffic Signal Head Indication Module:

Measured per each LED Module furnished, delivered and acceptably unloaded at the applicable DelDOT Signal Maintenance Shop as directed by the Engineer including any required hardware.

11/26/12

746947 – FURNISH 16" LED COUNTDOWN PEDESTRIAN SIGNAL
746948 – FURNISH 16" LED PEDESTRIAN SIGNAL HEAD INDICATION MODULE
746949 – FURNISH PEDESTRIAN PUSHBUTTON ASSEMBLY

Description:

The above listed items include furnishing the specified materials, delivering them to the DelDOT Signal Maintenance facility located at 14 Sign Shop Road, Dover, DE 19901 and/or the Signal Maintenance facility located at 250 Bear-Christiana Road, Bear, DE 19701, and acceptably offloading them as directed by the Engineer.

Materials:

16" Pedestrian Head LED Modules:

General - All materials and workmanship shall conform to the standards of the American Society for Testing Materials (ASTM), latest edition, and the standards of the American National Standards Institute (ANSI) latest edition.

All electrical equipment shall conform to the standards of the National Electrical Manufacturer's Association (NEMA), the Underwriters Laboratories, Inc. (UL), Institute of Electrical and Electronic Engineers, Inc. (IEEE), and the Electronic Industries Association (EIA), wherever applicable (latest edition).

The LED module shall conform to the Institute of Transportation Engineers (ITE). Pedestrian Traffic Control Signal Indicators: Light Emitting Diode (LED) Signal Modules, Draft Version of 2009.

Size, Design, and Illumination of Pedestrian Signal Display Indications shall conform to the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), latest edition and the Standard Highway Signs and Markings, latest edition.

For those items not specifically defined herein, good practice as shown in previous articles supplied by the contractor, and/or as used by the industry in general, shall apply.

A representative of the Department will be available to discuss good practice and "state of the art". The bidder is notified that neither claims for additional costs nor extensions of delivery times will be honored on the basis of good practice and/or "state of the art" problems.

The bidder must show by field review, if necessary, and by the various documents that are required as part of the bid that the materials proposed will perform as required.

Each module shall consist of a fully encapsulated assembly that utilizes LEDs as the light source and a message lens. The individual LED shall be wired such that a failure of one or more LEDs will result in the loss of light from that LED only and the loss of not more than one (1) percent of the module light output. The LEDs shall be the ultra bright type rated for 100,000 hours of continuous operation.

Configuration - Messages shall be displayed in the Portland Orange "Upraised Hand" ("Hand"), the White "Walking Person" ("Person"), and the Portland Orange "Numeric Countdown" ("Countdown") icons illuminated by multiple configuration LEDs.

The “Hand” and the “Person” icons shall be each a minimum of 11” in height and 7” in width. The “Countdown” icon shall consist of two 7-segment digits forming the time display. The height of the “Countdown” icon digits shall be 9” and the overall width of the digit display (both digits side-by-side) shall be 7”. Each individual 7-segment digit shall be 3.25” wide, with 0.5” of space between the two digits.

The “Hand” and the “Person” icons shall be included on all modules. If the “Countdown” icon is used in conjunction with the “Hand” and the “Person” icons, the “Hand” and the “Person” icons shall be overlaid upon each other and located to the left of the “Countdown” icon. If the “Countdown” icon is not used, the “Hand” and the “Person” icons shall be arranged side-by-side with the “Hand” icon to the left of the “Person” icon.

Electrical Requirements - Power consumption shall not exceed 15 watts for the “Hand” icon, 10 watts for the “Person” icon, and 10 watts for the “Countdown” icon at a temperature of 77º F. Individual LED driving current shall be less than 10 milliamps for each icon at a temperature of 77º F.

The module shall operate from a 60 hertz ± 3 hertz AC line over a voltage ranging from 80 volts to 135 volts. Nominal operating voltage shall be 120 ± 3 volts. Fluctuations in line voltage within the range of 80 volts to 135 volts shall not affect luminous intensity by more than ±10 percent. When input voltage is less than 35 volts the module shall turn off automatically. Each icon of the module shall reach 90 percent of their full illumination (turn-on) within 75 milliseconds of the application of the nominal operating voltage. The module shall not be illuminated (turn-off) after 75 milliseconds of the removal of the nominal operating voltage. The module shall include voltage surge protection to withstand high-repetition noise transients and low-repetition high-energy transients as stated in Section 2.1.8 of NEMA Standard TS-2, latest edition.

At a temperature of 77º F (25º C), the power factor (PF) shall be greater than 0.9, and the total harmonic distortion (THD) shall be less than 20 percent.

Electromagnetic Interference (EMI) shall meet Class A emission limits referred to in Federal Communications Commission (FCC) Title 47, Subpart B, Section 15 regulation.

The signal must have 1 individual set of wires for electrical connections. Each set must be made of three secured, color coded (blue, red, white), 36 inches long, 600V, 16 AWG jacketed wires, rated for service at +105ºC.

Module Identification – The module shall be permanently marked on the backside with the manufacturer’s name, trademark, date code, operating characteristics, part/model number, and serial number. The operating characteristics identified shall include the nominal operating voltage and stabilized power consumption, in watts and volt-amperes. The Department reserves the right to scan, record, or otherwise obtain the manufacturer’s serial number(s) and/or barcodes for all LED Vehicular Signal and Pedestrian Signal Head Display Modules prior to installation. This task will be completed by the Department, or a designated representative, at the time of signal head installation.

Quality Assurance – Modules shall be manufactured in accordance with a qualified ISO 9001:2000 vendor quality assurance program.

In addition to tests specified in the ITE LED Quality Assurance Program, each module supplied under this contract shall be tested for minimum maintained luminous intensity for expected or extended viewing angle products. Failure of each supplied module to meet the requirements of all these tests shall cause the modules to be rejected.

Certification of Compliance – The manufacture shall provide upon request a Certification of Compliance certifying that the modules comply with the requirements of these specifications. The certificate shall also include a copy of all applicable test reports that the modules underwent.

The manufacturer shall provide a list of module serial numbers with each shipment. The Contractor shall provide this information upon receipt of shipment by the Signal Construction Section at 14 Sign Shop Road, Dover, DE 19901.

Warranty - The contractor shall extend any policy guarantee usually offered to purchasers on article(s) and/or service(s) against defective material and workmanship. The contractor shall replace free of charge any

part or component that fails in any manner by reason of defective material, design, or workmanship within a period of five (5) years from the date of payment for the article(s). The warranty shall be renewed for each part or component for another five (5) years from the date of replacement of the article(s). The entire Module shall be considered failed if it exhibits light output degradation 1) greater than 50% of its initial intensity or 2) falling below the minimum intensity level as outlined in this specification.

A certificate of warranty from the manufacturer shall be supplied with the bid documents.

Photometric Requirements - The minimum luminous intensity for a minimum period of 60 months shall be 409 footlamberts for the "Hand" icon, 642 footlamberts for the "Person" icon, and 409 footlamberts for the "Countdown" icon.

The uniformity of the "Hand", "Person", and "Countdown" luminance shall meet a ratio of not more than one (1) to five (5) between the minimum and maximum luminance values, as measured in 1/2" diameter spots.

Chromaticity -

(a) The measured chromaticity coordinates for the white walking Person and the Portland Orange Hand and Digits must conform to the chromaticity requirements of section 4.2 and Figure 5 of the ITE Pedestrian Traffic Control Signal Indicators: Light Emitting Diode (LED) Signal Modules, Draft Version of 2009.

(b) The chromaticity measurements must remain unchanged over the input line voltage range of 80 VAC to 135 VAC.

Flashing Requirements - The light source of a flashing "Hand" signal indication shall be capable of flashing continuously at a rate of not less than 50 or more than 60 times per minute. The displayed period of each flash shall be a minimum of 1/2 and a maximum of 2/3 of the total flash cycle.

Environmental Requirements - The module shall be protected against dust and moisture intrusion per the requirements of MIL-STD-810F Procedure I, Rain and Blowing Rain. The module shall have an Ingress Protection (IP) rating of at least 54. The module shall meet all specifications in the operating temperature range of -40º F to +165º F.

Message Lens - The message lens shall be made of plastic and have a smooth outer surface. The lens shall be ultraviolet-stabilized and shall be capable of withstanding ultraviolet (direct sunlight) exposure for a minimum of 60 months. The inside of the message lens shall be painted in black in all areas except where the desired icons are formed to form a contrasting background when viewed from the outside.

Installation Requirements - A module shall be capable of replacing the existing optical components or signal module in a signal housing, or shall provide a complete replacement of the signal head. Installation of a module into existing housing shall not require the use of special tools. The module shall connect directly to existing electrical wiring system.

Marking Tag – A tag shall be securely installed on each LED Module indicating the Prime Contractor, Module Supplier, Date of Purchase, and Date of Installation

Signal Housing: Each pedestrian signal display housing shall consist of a yellow case housing, complete with a black housing door, field terminal assembly and visor. The maximum overall dimensions of the housing shall not exceed 18.5" wide x 18.7" high x 9.1" deep including visor.

Housing - The housing shall be a one-piece corrosion resistant aluminum alloy die-casting free of defects such as cracks and burrs. The color shall be Yellow, 595B-13538. The housing shall have top and bottom openings to accommodate standard 1-1/2" pipe brackets. The opening shall have a Shurlock boss integrally cast into the housing. The radial angular grooves of the Shurlock boss, when used with Shurlock fittings, shall provide positive five (5) degree increment positioning of the entire signal display to eliminate rotation or misalignment of the signal display. Two (2) integrally cast hinge lugs and screw slots shall be on each side of the housing. The housing shall be capable of providing a swing down housing door.

Housing Door - The housing door shall be a one-piece corrosion resistant aluminum alloy die-casting. The

color shall be Black, 595B-17038. Two (2) hinge lugs shall be cast on top of the door, and two (2) latch points shall be cast on the bottom. The door shall be attached to the housing by two (2) hinge pins. Two (2) eye bolts and wing nuts shall be provided for opening and closing the door without the use of special tools. A gasket groove on the inside of the door shall accommodate a weatherproof and mildew proof resilient gasket which, when the door is closed, will seal against a raised bead of the housing, making a positive seal.

Field Terminal Assembly - The field terminal assembly shall include a three (3) terminal pair (6 screw) type terminal block for termination of the three (3) field # 14 AWG spaded terminal wires for AC (+) for the "Hand" and "Person" icon, and AC (-). The side of the terminal shall be equipped with a male quick disconnect blade that mates with the insulated female quick disconnect lug supplied on the LED Module. The field terminal assembly shall include an aluminum base plate that shall be bolted to the signal display housing.

Visor - The visor shall be designed to eliminate sun phantom and minimize damage to the LED Module. The Visor color shall be Flat Black, 595B-37038. The visor shall be installed parallel to the face of the signal display. The visor shall be held in place by stainless steel screws. The visor assembly shall consist of a minimum of 20 straight horizontal louvers and 21 zigzag pattern horizontal louvers.

Material Treatment - Prior to assembling, all aluminum elements shall be thoroughly cleaned and a chromate conversion coating shall be applied inside and out as per Military Specification MIL-DTL-5541F. Synthetic enamel conforming to Military Specification TT-E-529 shall be electro-statically applied. The finish shall be oven cured for at least 20 minutes at a temperature of 350º F. The signal housing shall be dustproof, weatherproof, and corrosion resistant.

LED Pedestrian Pushbutton Assembly:

The pedestrian pushbutton assembly shall conform to all minimum size requirements set forth by the Americans with Disabilities Act (ADA). The pushbutton assembly shall be designed to prevent electrical shock under any weather conditions and shall have provisions for grounding in accordance with the National Electrical Code (NEC). Each pedestrian push button assembly shall include the pushbutton housing complete with front cover and a push button switch. The LED pushbutton assemblies shall also include LED/audible indicator. Any control equipment necessary for the pushbutton assemblies to operate as specified herein shall be supplied as necessary at no additional charge. Any control equipment shall fit into a standard traffic signal control cabinet.

Pushbutton Housing - The pushbutton housing shall be yellow (color number 595B-13538) cast aluminum. The rear of the housing shall be curved and designed to accommodate pole diameters from 3" to 14". There shall be a 1/2" diameter access hole for wiring at the rear of the housing. The access hole shall be capped with a plastic plug. The housing shall be tapped at the front to allow for mounting of the front cover.

Front Cover - The front cover shall also be yellow (color number 595B-13538) cast aluminum. A neoprene gasket shall provide a weather-tight seal between the housing and the cover. The cover shall be secured with stainless steel, vandal-resistant screws. The screws shall also secure the pushbutton switch to the housing.

Pushbutton Switch - The pushbutton switch shall be actuated by a 2" diameter mushroom plunger. A spring installed between the plunger and the switch shall not provide an operating force of more than 5 pounds. There shall be a moisture barrier between the plunger and the switch and a two (2) position terminal block for termination of the #14 AWG pushbutton wire. The pushbutton switch shall be capable of operating in a temperature range of -30º F to +165º F and shall be rated for up to 10,000,000 actuations. The pushbutton switch shall be electrically rated to carry 25 amps at 125 volts AC, 250 volts maximum. The pedestrian pushbutton shall be weatherproof and tamperproof.

Measurement and Payment:

Furnish 16" LED Countdown Pedestrian Signal: Measured per each 16" Pedestrian LED Signal unit furnished as described above. Included in the payment per each is the furnishing of the housing, wiring, electrical connection and countdown module materials that, when installed by others, will result in a fully functioning Pedestrian Signal. Also included in the payment per each is the delivery of all materials to the applicable DelDOT Signal Maintenance Shop, and acceptable unloading as directed by the Engineer.

Furnish 16" LED Pedestrian Signal Head Indication Module: Measured per each LED Pedestrian Signal

Head Module furnished, delivered to the applicable DelDOT Signal Maintenance Shop, and acceptably unloaded as directed by the Engineer.

Furnish Pedestrian Pushbutton Assembly: Measured per each Pushbutton Assembly furnished, delivered to the applicable DelDOT Signal Maintenance Shop, and acceptably unloaded as directed by the Engineer

11/26/12

746950 – FURNISH SOLAR-POWERED RADAR SPEED SIGN

Description:

This work consists of furnishing all materials and computer software for a solar-powered radar speed sign and delivering the unit to DelDOT's Sign Shop.

Materials:

Solar power: Dual 12-volt, 18 amp/hour AGM batteries with solar panel

Static roadway sign: Delaware MUTCD-compliant 24" W x 21" H "YOUR SPEED" faceplate with 3" Highway Gothic lettering

Communication: Wireless communication system for transmitting data remotely to a nearby laptop

Housing: NEMA 4R-compliant housing measuring 22.2" W x 15.8" H x 5.25" D with white powder coat finish and minimum 0.375" thickness internal aluminum shield to protect electrical components from vandalism

Display: 2-digit, Delaware MUTCD Compliant, 12" H L.E.D. display with directional beam technology capable of automatic intensity adjustment for ambient lighting conditions

Display cover: Minimum 0.25" thickness abrasion, graffiti, UV, and shatter resistant L.E.D. display cover

Radar: FCC Part 15-compliant K-band, single direction Doppler radar with a sensor range up to 1,000', nominal beam width of 12 degrees, and speed detection range of 5 to 127 MPH

Method of Measurement:

The quantity of radar speed signs will be measured as the actual number of radar speed signs furnished and accepted.

Basis of Payment:

The quantity of radar speed signs will be paid for at the Contract unit price per each radar speed sign. Price and payment will constitute full compensation for furnishing each radar speed sign and delivering all materials to DelDOT's Sign Shop.

11/26/12

747514 - CABINET BASE TYPE F
747515 - CABINET BASE TYPE M
747516 - CABINET BASE TYPE P
747517 - CABINET BASE TYPE R

Description:

This work consists of constructing cabinet base Type F, M, P and R in accordance with the Standard Construction Details or applicable Plan Details and at locations as directed by plans or the Engineer.

Materials:

Class B Concrete
3/4” x 10’ sectional copperclad steel ground rods
5/8" Zinc plated or Stainless Steel Drop-in Anchors manufactured by Hilti Systems, Concrete Fastening Systems, or approved equal
5/8" x 1-1/2" galvanized hex bolts
3/4” acorn type ground clamps
PVC conduit sweeps

Construction Methods:

The base shall conform to the dimensions as indicated in the cabinet base detail on the Standard Construction Details or applicable Plan Sheets. A concrete collar is only required when installed in earth areas or as directed by the engineer. Conduits entering the base must enter only in the designated area. A minimum distance of 1 inch shall be maintained between conduits and a minimum distance of 2 inches between conduits and the ground rods.

A minimum of 8 foot of the ground rods must be driven into undisturbed soil through the 2 inch PVC sleeve. The PVC sleeve shall be driven into the ground so that the top of the sleeve will be flush with the concrete when the base is poured.

Method of Measurement:

The quantity of cabinet bases will be measured as the number of bases constructed in accordance with these specifications, complete in place, and accepted.

All conduit sweeps extending into the cabinet base as shown on the Plans or Standard Details as applicable shall be included in the price for each cabinet base..

Basis of Payment:

The quantity of cabinet bases will be paid for at the Contract unit price per each. Price and payment will constitute full compensation for all concrete, ground rods, labor, equipment, tools, conduit sweeps, and incidentals required to complete the work as shown on the standard details or applicable plan sheets.

10/9/2012

763684 - PERFORMANCE AND PAYMENT BOND, OPEN-END SIGNAL CONTRACT

Description:

For this contract the delete the first sentence of Standard Specification Section 103.05 and replace with the following:

"Simultaneous with the execution of the Contract, the successful bidder shall furnish a surety bond or bonds in a sum equal to Five Hundred Thousand Dollars ($500,000.00)." All other portions of Standard Specification 103.05 remain in effect.

Measurement and Payment:

For bidding purposes, the unit price is fixed at $10,000.00. Actual payment is based on the submitted invoice from the contractor's bonding agent.

12/5/12

BID PROPOSAL FORMS

CONTRACT DOT1228-TRAFFIC_MAINT

FEDERAL AID PROJECT No. - Various

CANNOT BE USED FOR BIDDING

CONTRACT ID: DOT1228-TRAFFIC_MAINT PROJECT(S): DOT1228

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 TRAFFMAINT					
0010	732004 TOPSOIL (TON)	50.000 TON				
0020	736001 SODDING	200.000 SY				
0030	743003 ARROWPANELS, TYPE C	100.000 EADY				
0040	743004 FURNISH AND MAINTAIN PORTABLE CHANGEABLE MESSAGE SIGN	140.000 EADY				
0050	743005 FURNISH AND MAINTAIN PORTABLE LIGHT ASSEMBLY	50.000 EADY				
0060	743006 PLASTIC DRUMS	3000.000 EADY				
0070	743007 TRAFFIC OFFICERS	400.000 HOUR	75.00000		30000.00	
0080	743009 FURNISH AND MAINTAIN TRUCK MOUNTED ATTENUATOR, TYPE I	10.000 EADY				
0090	743010 FURNISH AND MAINTAIN TRUCK MOUNTED ATTENUATOR, TYPE II	100.000 EADY				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0100	743024 TEMPORARY WARNING SIGNS AND PLAQUES	800.000 EADY				
0110	743050 FLAGGER, NEW CASTLE COUNTY, STATE	250.000 HOUR	52.90000		13225.00	
0120	743051 FLAGGER, KENT COUNTY, STATE	85.000 HOUR	46.66000		3966.10	
0130	743052 FLAGGER, SUSSEX COUNTY, STATE	170.000 HOUR	50.80000		8636.00	
0140	743062 FLAGGER, NEW CASTLE COUNTY, STATE, OVERTIME	25.000 HOUR	76.71000		1917.75	
0150	743063 FLAGGER, KENT COUNTY, STATE, OVERTIME	10.000 HOUR	67.66000		676.60	
0160	743064 FLAGGER, SUSSEX COUNTY, STATE, OVERTIME	20.000 HOUR	73.66000		1473.20	
0170	744500 CONDUIT JUNCTION WELL, TYPE 6, PRECAST POLYMER CONCRETE	1.000 EACH				
0180	744506 CONDUIT JUNCTION WELL, TYPE 7, PRECAST POLYMER CONCRETE	2.000 EACH				
0190	744507 CONDUIT JUNCTION WELL, TYPE 8, PRECAST POLYMER CONCRETE	1.000 EACH				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0200	744508 CONDUIT JUNCTION WELL, TYPE 9, PRECAST POLYMER CONCRETE	1.000 EACH				
0210	744509 CONDUIT JUNCTION WELL, TYPE 10, PRECAST POLYMER CONCRETE	1.000 EACH				
0220	744520 CONDUIT JUNCTION WELL, TYPE 1, PRECAST CONCRETE	5.000 EACH				
0230	744523 CONDUIT JUNCTION WELL, TYPE 4, PRECAST CONCRETE	2.000 EACH				
0240	744524 CONDUIT JUNCTION WELL, TYPE 5, PRECAST CONCRETE	2.000 EACH				
0250	744530 CONCUIT JUNCTION WELL, TYPE 11, PRECAST CONCRETE/ POLYMER LID-FRAME	50.000 EACH				
0260	744531 CONDUIT JUNCTION WELL, TYPE 14, PRECAST CONCRETE/ POLYMER LID-FRAME	10.000 EACH				
0270	744532 CONDUIT JUNCTION WELL, TYPE 15, PRECAST CONCRETE/ POLYMET LID-FRAME	5.000 EACH				
0280	744533 FURNISH & INSTALL FRAME AND LID FOR JUNCTION WELL, TYPE 1	3.000 EACH				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0290	744534 FURNISH & INSTALL FRAME AND LID FOR JUNCTION WELL, TYPE 4	3.000 EACH				
0300	744535 FURNISH & INSTALL FRAME AND LID FOR JUNCTION WELL, TYPE 5	3.000 EACH				
0310	744536 FURNISH & INSTALL PRECAST POLYMER COVER FOR JUNCTION WELL, TYPE 6	1.000 EACH				
0320	744537 FURNISH & INSTALL PRECAST POLYMER COVER FOR JUNCTION WELL, TYPE 7	2.000 EACH				
0330	744538 FURNISH & INSTALL PRECAST POLYMER COVER FOR JUNCTION WELL, TYPE 8	1.000 EACH				
0340	744539 FURNISH & INSTALL PRECAST POLYMER COVER FOR JUNTION WELL, TYPE 9	1.000 EACH				
0350	744540 FURNISH & INSTALL PRECAST POLYMER COVER FOR JUNCTION WELL, TYPE 10	1.000 EACH				
0360	744541 FURNISH & INSTALL FRAME AND LID FOR JUNCTION WELL, TYPE 11	3.000 EACH				
0370	744542 FURNISH & INSTALL FRAME AND LID FOR JUNCTION WELL, TYPE 14	3.000 EACH				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0380	744543 FURNISH & INSTALL FRAME AND LID FOR JUNCTION WELL, TYPE 15	3.000 EACH				
0390	744544 ADJUST OR REPAIR EXISTING CONDUIT JUNCTION WELL	20.000 EACH				
0400	744545 BONDING & GROUNDING EXISTING JUNCTION WELL	10.000 EACH				
0410	745601 FURNISH & INSTALL UP TO 3" FLEXIBLE METALLIC-LIQUIDTIGHT CONDUIT	50.000 LF				
0420	745602 FURNISH & INSTALL UP TO 4" SCHEDULE 80 HDPE CONDUIT (BORE)	1000.000 LF				
0430	745603 FURNISH & INSTALL UP TO 4" SCHEDULE 80 PVC CONDUIT (OPEN CUT)	100.000 LF				
0440	745604 FURNISH & INSTALL UP TO 4" SCHEDULE 80 PVC CONDUIT (TRENCH)	2000.000 LF				
0450	745605 FURNISH & INSTALL UP TO 4" SCHEDULE 80 PVC CONDUIT (ON STRUCTURE)	100.000 LF				
0460	745606 FURNISH & INSTALL UP TO 4" GALVANIZED STEEL CONDUIT (TRENCH)	100.000 LF				
0470	745607 FURNISH & INSTALL UP TO 4" GALVANIZED STEEL CONDUIT (BORE)	100.000 LF				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0480	745608 FURNISH & INSTALL UP TO 4" GALVANIZED STEEL CONDUIT (OPEN CUT)	100.000 LF				
0490	745609 FURNISH & INSTALL UP TO 4" GALVANIZED STEEL CONDUIT (ON STRUCTURE)	100.000 LF				
0500	745610 FURNISH & INSTALL UP TO 4" NONMETALLIC POLE RISER SHIELD	100.000 LF				
0510	746501 FURNISH & INSTALL DOWN GUY AND ANCHOR	20.000 EACH				
0520	746504 FURNISH & INSTALL SPAN WIRES, 7/16"	1000.000 LF				
0530	746506 FURNISH & INSTALL SPAN WIRE, 1/4"	250.000 LF				
0540	746590 FURNISH & INSTALL GROUND ROD	2.000 EACH				
0550	746697 INSTALLATION OF WOOD POLE	2.000 EACH				
0560	746703 FURNISH & INSTALL DEAD END MESSENGER WIRE ATTACHMENT	2.000 EACH				
0570	746704 ADJUSTMENT OF SPAN OR MESSENGER WIRE	10.000 EACH				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0580	746706 TRANSFER OF EXISTING SPAN OR MESSENGER ATTACHMENT	5.000 EACH				
0590	746763 REALIGN OR SLIDE EXISTING SIGNAL HEAD	50.000 EACH				
0600	746775 FURNISH & INSTALL OPTICOM EMERGENCY PREEMPTION DETECTOR	20.000 EACH				
0610	746831 INSTALLATION OF PEDESTAL POLE	80.000 EACH				
0620	746832 SUPPLY AND INSTALLATION OF WEATHERHEAD, 3", ON STEEL POLE	4.000 EACH				
0630	746850 POLE BASE, TYPE 4	40.000 EACH				
0640	746892 FURNISH & INSTALL SIGNAL HEAD BACKPLATE	5.000 EACH				
0650	746906 FURNISH & INSTALL 4-CONDUCTOR #18 AWG SHIELDED OPTICOM CABLE	1000.000 LF				
0660	746907 FURNISH & INSTALL 1-CONDUCTOR #2 AWG STRANDED COPPER	100.000 LF				
0670	746908 FURNISH & INSTALL 1-CONDUCTOR #4 AWG STRANDED COPPER	100.000 LF				

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0680	746909 FURNISH & INSTALL 1-CONDUCTOR #6 AWG STRANDED COPPER	100.000 LF				
0690	746910 FURNISH & INSTALL 1-CONDUCTOR #8 AWG STRANDED COPPER	100.000 LF				
0700	746911 FURNISH & INSTALL 1-CONDUCTOR #10 AWG STRANDED COPPER	100.000 LF				
0710	746912 FURNISH & INSTALL 1-CONDUCTOR #14 AWG STRANDED COPPER	100.000 LF				
0720	746913 FURNISH & INSTALL 2-CONDUCTOR #14 AWG ALUMINUM SHIELDED CABLE	5000.000 LF				
0730	746914 FURNISH & INSTALL #6 BARE STRANDED COPPER GROUND	500.000 LF				
0740	746915 FURNISH & INSTALL #8/2 WIRE UF W/GROUND	250.000 LF				
0750	746916 FURNISH & INSTALL #8/3 WIRE UF W/GROUND	50.000 LF				
0760	746918 FURNISH & INSTALL #2/0 AWG STRANDED COPPER	500.000 LF				
0770	746919 FURNISH & INSTALL #4/0 AWG STRANDED COPPER	200.000 LF				

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0780	746920 FURNISH & INSTALL 14/4 TRAFFIC CONTROL CABLE	250.000 LF				
0790	746921 FURNISH & INSTALL 14/9 TRAFFIC CONTROL CABLE	2500.000 LF				
0800	746922 FURNSIH & INSTALL 14/16 TRAFFIC CONTROL CABLE	2500.000 LF				
0810	746923 FURNISH & INSTALL 1" FLEXIBLE NON-METALLIC LIQUIDTIGHT CONDUIT DETECTOR SLEEVE WITH LOOP WIRE	800.000 LF				
0820	746924 FURNISH & INSTALL LOOP WIRE 1-CONDUCTOR #14 AWG ENCASED IN 1/4" FLEXIBLE TUBING IN A LOOP SAWCUT	8000.000 LF				
0830	746925 FURNISH & INSTALL EMBEDDED METERED SERVICE PEDESTAL (100 AMP)	5.000 EACH				
0840	746926 FURNISH & INSTALL ELECTRICAL UTILITY SERVICE EQUIPMENT 120/240	1.000 EACH				
0850	746929 FURNISH & INSTALL 8" LED SIGNAL HEAD SECTION, RIGID MOUNT	4.000 EACH				
0860	746930 FURNISH & INSTALL 8" LED SIGNAL HEAD SECTION, SPAN MOUNT	6.000 EACH				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0870	746931 FURNISH & INSTALL 8" LED TRAFFIC SIGNAL HEAD INDICATION MODULE	20.000 EACH				
0880	746932 FURNISH & INSTALL 12" LED SIGNAL HEAD SECTION, RIGID MOUNT	60.000 EACH				
0890	746933 FURNISH & INSTALL 12" LED SIGNAL HEAD SECTION, SPAN MOUNT	120.000 EACH				
0900	746934 FURNISH & INSTALL 12" LED TRAFFIC SIGNAL HEAD INDICATION MODULE	200.000 EACH				
0910	746935 FURNISH & INSTALL 16" LED COUNTDOWN PEDESTRIAN SIGNAL	80.000 EACH				
0920	746936 FURNISH & INSTALL 16" LED PEDESTRIAN SIGNAL HEAD INDICATION MODULE	20.000 EACH				
0930	746937 FURNISH & INSTALL PEDESTRIAN PUSHBUTTON WITH SIGN	120.000 EACH				
0940	746938 INSTALL OVERHEAD SIGN	10.000 EACH				
0950	746939 TRAFFIC CONTROL DEVICE EQUIPMENT TURN ON, PICK UP, REMOVAL & MAINTENANCE, TYPE I	5.000 EACH				

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0960	746940 TRAFFIC CONTROL DEVICE EQUIPMENT TURN ON, PICK UP, REMOVAL & MAINTENANCE, TYPE II	3.000 EACH				
0970	746941 TRAFFIC CONTROL DEVICE EQUIPMENT TURN ON, PICK UP, REMOVAL & MAINTENANCE, TYPE III	2.000 EACH				
0980	746943 FURNISH 8" LED SIGNAL HEAD SECTION	15.000 EACH				
0990	746944 FURNISH 8" LED TRAFFIC SIGNAL HEAD INDICATION MODULE	45.000 EACH				
1000	746945 FURNISH 12" LED SIGNAL HEAD SECTION	90.000 EACH				
1010	746946 FURNISH 12" LED TRAFFIC SIGNAL HEAD INDICATION MODULE	120.000 EACH				
1020	746947 FURNISH 16" LED COUNTDOWN PEDESTRIAN SIGNAL	40.000 EACH				
1030	746948 FURNISH 16" LED PEDESTRIAN SIGNAL HEAD INDICATION MODULE	20.000 EACH				
1040	746949 FURNISH PEDESTRIAN PUSHBUTTON ASSEMBLY	60.000 EACH				
1050	746950 FURNISH SOLAR POWERED RADAR SPEED TRAP	15.000 EACH				

CANNOT BE USED FOR BIDDING

CONTRACT ID: DOT1228-TRAFFIC_MAINT PROJECT(S): DOT1228

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1060	747515 CABINET BASE, TYPE M	4.000 EACH				
1070	747516 CABINET BASE, TYPE P	10.000 EACH				
1080	763684 PERFORMANCE AND PAYMENT BOND, OPEN END SIGNAL CONTRACT	LUMP	LUMP		10000.00	
	SECTION 0001 TOTAL					
	TOTAL BID					

CANNOT BE USED FOR BIDDING

CERTIFICATION

Contract No. DOT1228-TRAFFIC_MAINT
Federal Aid Project No. VARIOUS

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.

Bidder's Certification Statement [US DOT Suspension and Debarment Regulation (49 CFR 29)]:

NOTICE: All contractors who hold prime contracts (Federal Aid) with DelDOT are advised that the prime contractor and subcontractors are required to submit to DelDOT a signed and notary attested copy of the Bidder Certification Statement for each and every subcontract that will be utilized by the prime contractor. This Certification **must** be filed with DelDOT prior to written approval being granted for each and every subcontractor. Copies of the Certification Form are available from the appropriate District Construction Office.

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Under penalty of perjury under the laws of the United States, that I/We, or any person associated therewith in the capacity of (owner, partner, director, officer, principal, investigator, project director, manager, auditor, or any position involving the administration federal funds):

a. am/are not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;
b. have not been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past 3 years;
c. do not have a proposed debarment pending; and,
d. have not been indicted, convicted, or had a civil judgement rendered against (it) by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted, indicate below to whom it applies, initiating agency, and dates of action. Providing false information may result in criminal prosection or administrative sanctions.

_____

_____

_____
(Insert Exceptions)

DBE Program Assurance:

NOTICE: In accordance with 49 CFR Part 26 the undersigned, a legally authorized representative of the bidder listed below, must complete this assurance.

By its signature affixed hereto, assures the Department that it will attain DBE participation as indicated:

Disadvantaged Business Enterprise _____ percent (blank to be filled in by bidder)

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 person signing on behalf of the 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	No.	Date	No.	Date	No.	Date	No.	Date

FAILTURE TO ACKNOWLEDGE RECEIPT OF ALL ADDENDA AND FINAL QUESTIONS AND ANSWERS WILL RESULT IN THE BID BEING DECLARED NON-RESPONSIVE.

MUST INSERT DATE OF FINAL QUESTIONS AND ANSWERS ON WEBSITE: _____

==========

Sealed and dated this _____ day of _____ in the year of our Lord two thousand _____ (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

DOT1228-TRAFFIC_MAINT

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._DOT1228-TRAFFIC_MAINT____, 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

CANNOT BE USED FOR BIDDING