

# THE PORT AUTHORITY OF NY & NJ

**PROCUREMENT DEPARTMENT  
2 MONTGOMERY STREET, 3<sup>RD</sup> FL.  
JERSEY CITY, NJ 07302**

**INVITATION FOR BID/PUBLIC BID OPENING  
BID INFORMATION**

**ISSUED DATE: 11/26/14**

**TITLE: TRAFFIC SIGNAL MAINTENANCE, REPAIR, INSTALLATION AND  
LIMITED CONSTRUCTION AT NEWARK LIBERTY  
INTERNATIONAL AIRPORT**

**BID NO.: 40602**

**SUBMIT SEALED BIDS BEFORE THE DUE DATE AND TIME TO THE ABOVE ADDRESS  
WHERE THEY WILL BE PUBLICLY OPENED AND READ**

**FACILITY INSPECTION: DECEMBER 11, 2014 TIME: 10:00 AM**

**BID DUE DATE: DECEMBER 23, 2014 TIME: 11:00 AM**

**BUYER NAME: EMILY BAXTER PHONE NO.: (201) 395-3421  
EMAIL: ebaxter@panynj.gov**

**BIDDER INFORMATION  
(TO BE COMPLETED BY THE BIDDER)  
(PLEASE PRINT)**

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(NAME OF BIDDING ENTITY)

---

(ADDRESS)

---

(CITY, STATE AND ZIP CODE)

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(REPRESENTATIVE TO CONTACT-NAME & TITLE (TELEPHONE)

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(FEDERAL TAX I.D. NO.) (FAX NO.)

BUSINESS CORPORATION  PARTNERSHIP  INDIVIDUAL

OTHER (SPECIFY): \_\_\_\_\_

## **INVITATION FOR BID**

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## **PART I - STANDARD INFORMATION FOR BIDDERS**

### **1. General Information: The Port Authority of New York and New Jersey**

The Port Authority of New York and New Jersey (the “Port Authority” or the “Authority”) is an agency of the States of New York and New Jersey, created and existing by virtue of the Compact of April 30, 1921, made by and between the two States, and thereafter consented to by the Congress of the United States. It is charged with providing transportation, terminals and other facilities of trade and commerce within the Port District. The Port District comprises an area of about 1,500 square miles in both States, centering about New York Harbor. The Port District includes the Cities of New York and Yonkers in New York State, and the cities of Newark, Jersey City, Bayonne, Hoboken and Elizabeth in the State of New Jersey, and over 200 other municipalities, including all or part of seventeen counties, in the two States. The Port Authority manages and/or operates all of the region’s major commercial airports (Newark Liberty International, John F. Kennedy International, Teterboro, LaGuardia, Atlantic City International, and Stewart International Airports), marine terminals in both New Jersey and New York (Port Newark and Elizabeth, Howland Hook and Brooklyn Piers); and its interstate tunnels and bridges (the Lincoln and Holland Tunnels; the George Washington, Bayonne, and Goethals Bridges; and the Outerbridge Crossing), which are vital “Gateways to the Nation.”

In addition, the Port Authority operates the Port Authority Bus Terminal in Manhattan, the largest facility of its kind in the world, and the George Washington Bridge and Journal Square Transportation Center bus stations. A key link in interstate commuter travel, the Port Authority also operates the Port Authority Trans-Hudson Corporation (PATH), a rapid rail transit system linking Newark, and the Jersey City and Hoboken waterfronts, with midtown and downtown Manhattan. A number of other key properties are managed by the agency including but not limited to a large satellite communications facility (the Teleport) in Staten Island, and a resource recovery co-generation plant in Newark. Prior to September 11, 2001, the Port Authority’s headquarters were located in the World Trade Center, and that complex is still owned and being partially redeveloped by the Authority.

### **2. Form and Submission of Bid**

The Bidder shall review carefully every provision of this document, provide all the information required, and sign and return one entire copy to the Port Authority in accordance with the instructions on the Cover Sheet and Part II – Contract Specific Information for Bidders. The Bidder should retain one complete duplicate copy for its own use. The “Signature Sheet” contained herein must be completed and signed by the Bidder. The Pricing Sheet(s) contained herein must also be completed. The Bid shall be sealed in the enclosed self-addressed envelope conspicuously marked with the Bidder’s name, address, and Vendor Number, if available. In addition, the outside of the package must clearly state the Bid Title, the Bid Collective Number and the Bid Due Date. Failure to properly label submissions may cause a delay in identification, misdirection or disqualification of the submissions. In submitting this bid, the Bidder offers to assume the

obligations and liabilities imposed upon it herein and expressly makes the representations and warranties required in this document.

All Bids must be received by the bid custodian on or before the due date and time specified on the cover page, at which time they will be publicly opened and read. Bids are only accepted Monday through Friday, excluding Port Authority holidays, between the hours of 8:00 a.m. and 5:00 p.m., via (1) regular mail, (2) express delivery service (e.g. UPS), or (3) hand delivery. If your Bid is to be hand-delivered by messenger or you are planning to attend the formal bid opening, please note that only individuals with valid photo identification will be permitted access to the Port Authority's offices. Individuals without valid identification shall be turned away and their packages not accepted. Bids that are not received by the bid custodian by the scheduled bid opening date will be considered late.

### **3. Vendor Profile**

To ensure maximum opportunities, it is vitally important that Bidders keep their vendor profiles up to date with an appropriate e-mail address, as this will enable their firm to receive timely notice of advertisements, reminders, solicitations and addenda. Bidders may update their vendor profile or register as a Port Authority Vendor by accessing the online registration system at <https://panynjprocure.com/VenLogon.asp>.

### **4. Acknowledgment of Addenda**

If any Addenda are posted or sent as part of this Bid, the Bidder shall complete, sign and include with its Bid the addenda form(s). In the event any Bidder fails to conform to these instructions, its Bid will nevertheless be construed as though the Addenda had been acknowledged.

If the Bidder downloaded this solicitation document, it is the responsibility of the Bidder to periodically check the Port Authority website at <http://www.panynj.gov/business-opportunities/bid-proposal-advertisements.html> and download any addenda that might have been issued in connection with this solicitation.

### **5. Firm Offer**

The Bidder offers to provide the Port Authority of New York and New Jersey the services and to perform all Work in connection therewith required under this Contract, all as specified by the terms and conditions of the Contract, based on the Pricing Sheets provided herein.

**EXCEPTIONS TAKEN OR CONDITIONS IMPOSED BY A BIDDER TO ANY PORTION OF THE CONTRACT DOCUMENTS WILL RESULT IN REJECTION OF THE BID.**

### **6. Acceptance or Rejection of Bids**

The acceptance of a Bid will be by a written notice signed by an authorized representative on behalf of the Authority. No other act of the Port Authority, its Commissioners, officers, agents or employees shall constitute acceptance of a Bid. The

Port Authority reserves the unqualified right, in its sole and absolute discretion, to reject any or all Bids or to accept any Bid, which in its judgment will best serve the public interest and to waive defects in any Bid. No rights accrue to any Bidder unless and until its Bid is accepted.

## **7. Bidder's Questions**

Any questions by prospective Bidders concerning the Work to be performed or the terms and conditions of the Contract may be addressed to the Contracts Specialist listed on the Cover Sheet of this document. The Contracts Specialist is only authorized to direct the attention of prospective Bidders to the portions of the Contract. No employee of the Port Authority is authorized to interpret any portion of the Contract or to give information in addition to that contained in the Contract. When Contract interpretation or additional information as to the Contract requirements is deemed necessary by the Port Authority, it will be communicated to all Bidders by written addenda issued under the name of the Assistant Director, Commodities & Services Division, Procurement Department of the Port Authority and may be posted on the Port Authority website. Addenda shall be considered part of the Contract.

## **8. Additional Information To and From Bidders**

Should the Authority require additional information from the Bidder in connection with its bid, such information shall be submitted within the time frame specified by the Port Authority.

If the Bidder is a corporation, a statement of the names and residences of its officers should be submitted on the Name and Residence of Principals Sheet, directly following the Signature Sheet.

## **9. Union Jurisdiction**

All prospective Bidders are advised to ascertain whether any union now represented or not represented at the Facility will claim jurisdiction over any aspect of the operations to be performed hereunder and their attention is directed to the paragraph entitled "Harmony" in the Standard Contract Terms and Conditions.

## **10. Assessment of Bid Requirements**

The Bidder should carefully examine and study the entire contents of these bid documents and shall make its own determinations as to the services and materials to be supplied and all other things required to be done by the Contractor.

## **11. Bidder's Prerequisites**

Only Bids from Bidders that can satisfactorily demonstrate meeting the prerequisites specified within Part II hereof at the time of bid submission will be considered. By furnishing this document to the Bidder, the Port Authority has not made a determination that the Bidder has met the prerequisites or has otherwise been deemed qualified to perform the services. A determination that a Bidder has met the prerequisites is no assurance that it will be deemed qualified in connection with other bid requirements included herein.

## **12. Qualification Information**

The Port Authority may give oral or written notice to the Bidder to furnish the Port Authority with information and to meet with designated representatives of the Port Authority relating to the Bidder's qualifications and ability to fulfill the Contractor's obligations hereunder. The requested information shall be submitted no later than three (3) days after said notice unless otherwise indicated. Matters upon which the Port Authority may inquire may include, but may not be limited to, the following:

a. The Bidder may be required to demonstrate that it is financially capable of performing this Contract, and the determination of the Bidder's financial qualifications will be made by the Port Authority in its sole discretion. The Bidder shall submit such financial and other relevant information as may be required by the Port Authority from time to time including, but not limited to, the following:

1. (i) Certified financial statements, including applicable notes, reflecting the Bidder's assets, liabilities, net worth, revenues, expenses, profit or loss and cash flow for the most recent calendar year or the Bidder's most recent fiscal year.  
  
(ii) Where the certified financial statements set forth in (i) above are not available, then either reviewed or compiled statements from an independent accountant setting forth the aforementioned information shall be provided.  
  
(iii) Where neither certified financial statements nor financial statements from an independent accountant are available, as set forth in (i) and (ii) above, then financial statements containing such information prepared directly by the Bidder may be submitted; such financial statements, however, must be accompanied by a signed copy of the Bidder's most recent Federal income tax return and a statement in writing from the Bidder, signed by an executive officer or their authorized designee, that such statements accurately reflect the present financial condition of the Bidder.

Where the statements submitted pursuant to subparagraphs (i), (ii) or (iii) are dated prior to forty-five (45) days before the bid opening, then the Bidder shall submit a statement in writing, signed by an executive officer of the Bidder or their designee, that the present financial condition of the Bidder is at least as good as that shown on the statements submitted.

2. Bidder's statement of work on hand, including any work on which a bid has been submitted, and containing a description of the work, the annual dollar value, the location by city and state, the current percentage of completion, the expected date for completion, and the name of an individual most familiar with the Bidder's work on these jobs.

3. The name and address of the Bidder's banking institution, chief banking representative handling the Bidder's account, the Bidder's Federal Employer Identification Number (i.e., the number assigned to firms by the Federal Government for tax purposes), the Bidder's Dun and Bradstreet number, if any,

the name of any other credit service to which the Bidder has furnished information, and the number, if any, assigned by such service to the Bidder's account.

- b. Information relating to the Bidder's Prerequisites, if any, as set forth in this document.
- c. If the Bidder is a corporation: (1) a copy of its Certificate of Incorporation and, if applicable, all Amendments thereto with a written declaration signed by the Secretary of the Corporation with the corporate seal affixed thereto, stating that the copy furnished is a true copy of the Certificate of Incorporation and any such Amendments as of the date of the opening of the bid and (2) if the Bidder is not incorporated under the laws of the state in which the service is to be performed, a certificate from the Secretary of State of said state evidencing the Bidder's legal qualification to do business in that state.
- d. A statement setting forth the names of those personnel to be in overall charge of the service and those who would be exclusively assigned to supervise the service and their specific roles therein, setting forth as to each the number of years of experience and in which functions and capacities each would serve.
- e. Information to supplement any statement submitted in accordance with the Standard Contract Terms and Conditions entitled "Contractor's Integrity Provisions."
- f. In the event that the Bidder's performance on a current or past Port Authority or Port Authority Trans-Hudson Corporation (PATH) contract or contracts has been rated less than satisfactory, the Manager, Purchasing Services Division, may give oral or written notice to the Bidder to furnish information demonstrating to the satisfaction of such Manager that, notwithstanding such rating, such performance was in fact satisfactory or that the circumstances which gave rise to such unsatisfactory rating have changed or will not apply to performance of this Contract, and that such performance will be satisfactory.
- g. The Bidder recognizes that it may be required to demonstrate to the satisfaction of the Port Authority that it in fact can perform the services as called for in this Contract and that it may be required to substantiate the warranties and representations set forth herein and the statements and assurances it may be required to give.

Neither the giving of any of the aforesaid notices to a Bidder, the submission of materials by a Bidder, any meeting which the Bidder may have with the Port Authority, nor anything stated by the Port Authority in any such meeting shall be construed or alleged to be construed as an acceptance of said Bidder's Bid. Nothing stated in any such meeting shall be deemed to release any Bidder from its offer as contained in the bid documents.

### **13. Contractor's Integrity Provisions**

By submitting a Bid, Bidders shall be deemed to have made the certifications contained in the clauses entitled "Certification of No Investigation (criminal or civil anti-trust), Indictment, Conviction, Debarment, Suspension, Disqualification and Disclosure of Other Information," and "Non-Collusive Bidding, and Code of Ethics Certification, Certification of No Solicitation Based On Commission, Percentage, Brokerage, Contingent or Other Fees" contained within the Standard Terms and Conditions within these bid documents. If the Bidder is unable to make the certifications contained therein the Bidder shall submit a statement with its Bid explaining why any such certification(s)

cannot be made. Such a submission shall be submitted in a separate envelope along with your Bid, clearly marked "CERTIFICATION STATEMENT."

#### **14. Facility Inspection**

Details regarding the Facility inspection for all parties interested in submitting a bid are stipulated in Part II hereof. All Bidders must present company identification and photo identification for access to the Facility.

#### **15. Available Documents - General**

Certain documents, listed in Part II hereof, will be made available for reference and examination by Bidders either at the Facility Inspection, or during regular business hours. Arrangements to review these documents at a time other than the Facility Inspection may be made by contacting the person listed in Part II as the contact for the Facility Inspection.

These documents were not prepared for the purpose of providing information for Bidders upon this Contract but they were prepared for other purposes, such as for other contracts or for design purposes for this or other contracts, and they do not form a part of this Contract. The Port Authority makes no representation or guarantee as to, and shall not be responsible for, their accuracy, completeness or pertinence, and, in addition, shall not be responsible for the inferences or conclusions to be drawn there from.

#### **16. Pre-award Meeting**

The lowest qualified Bidder may be called for a pre-award meeting prior to award of the Contract.

#### **17. Price Preference**

A price preference may be available for Minority/Women Business Enterprises (M/WBEs) or Small Business Enterprises (SBEs) as set forth in the Standard Contract Terms and Conditions.

#### **18. M/WBE Subcontracting Provisions**

The Port Authority has a long-standing practice of making its business opportunities available to Minority Business Enterprises (MBEs) and Women-Owned Businesses (WBEs) and has taken affirmative steps to encourage such firms to seek business opportunities with the Port Authority. The successful Bidder will use good faith efforts to provide for meaningful participation by the Port Authority certified M/WBEs as defined in this document, in the purchasing and subcontracting opportunities associated with this contract, including purchase of equipment, supplies and labor services.

Minority Business Enterprise (MBE) - means a business entity which is at least fifty one percent (51%) owned and controlled by one or more members of one or more minority groups, or, in the case of a publicly held corporation, at least fifty one percent (51%) of the stock of which is owned by one or more minority groups, and whose management and daily business operations are controlled by one or more such individuals who are citizens or permanent resident aliens.

"Minority Group" means any of the following racial or ethnic groups:

- (a) Black persons having origins in any of the Black African racial groups not of Hispanic origin;
- (b) Hispanic persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American culture or origin, regardless of race;
- (c) Asian and Pacific Islander persons having origins in any of the original peoples of the Far East, Southeast Asia, The Indian Subcontinent, or the Pacific Islands;
- (d) Native American or Alaskan native persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification.

Women-Owned Business Enterprise (WBE) - means a business enterprise which is at least fifty one percent (51%) owned by one or more women, or, in the case of a publicly held corporation, at least fifty one percent (51%) of the stock of which is owned by one or more women and whose management and daily business operations are controlled by one or more women who are citizens or permanent or resident aliens.

Good faith efforts to include participation by M/WBEs shall include, but not be limited to the following:

- 1) Dividing the services and materials to be procured into small portions where feasible;
- 2) Giving reasonable advance notice of specific subcontracting and purchasing opportunities to such firms as may be appropriate;
- 3) Soliciting services and materials from M/WBEs, which are certified by the Port Authority;
- 4) Ensuring that provision is made for timely progress payments to the M/WBEs and;
- 5) Observance of reasonable commercial standards of fair dealing in the respective trade or business.

Bidders are directed to use form PA3749B as the recording mechanism for the M/WBE participation Plan, which may be downloaded at <http://www.panynj.gov/business-opportunities/become-vendor.html>

The M/WBE Plan submitted by the Contractor to the Port Authority shall contain, at a minimum, the following:

- Identification of M/WBE's: Provide the names and addresses of all M/WBEs included in the Plan. If none are identified, describe the process for selecting participant firms in order to achieve the good faith goals under this Contract.
- Level of Participation: Indicate the percentage of M/WBE participation expected to be achieved with the arrangement described in the Plan.
- Scope of Work: Describe the specific scope of work the M/WBE's will perform.

- Previous M/WBE Participation: Describe any previous or current M/WBE participation, which the Bidder has utilized in the performance of its contracts.

All M/WBE subcontractors listed on the M/WBE Participation Plan must be certified by the Port Authority in order for the Contractor to receive credit toward the M/WBE goals set forth in this Contract. Please go to [www.panynj.gov/supplierdiversity](http://www.panynj.gov/supplierdiversity) to search for M/WBEs by a particular commodity or service. The Port Authority makes no representation as to the financial responsibility of such firms or their ability to perform Work under this Contract.

Bidders shall include their M/WBE Participation Plan with their Bids, to be reviewed and approved by the Authority's Office of Business Diversity and Civil Rights (OBDCR).

If the Contractor wishes to subcontract a portion of the Work through a firm not listed in the Directory, but which the Contractor believes should be eligible because it is (1) an M/WBE, as defined above and (2) competent to perform portions of the Work, the Contractor shall submit an M/WBE Uniform Certification Application to the Port Authority of New York and New Jersey, Office of Business Diversity and Civil Rights (OBDCR), 233 Park Avenue South, 4th Floor, New York, NY 10003. The application is available online at [www.panynj.gov/supplierdiversity](http://www.panynj.gov/supplierdiversity). In addition, to update your certification file and to advise OBDCR of changes to any information, please email these changes to [certhelp@panynj.gov](mailto:certhelp@panynj.gov). Credit toward applicable goals will be granted only to Port Authority certified vendors. For more information about M/WBE Programs, call (212) 435-7888.

## **19. Certification of Recycled Materials**

Bidders are requested to submit, with their bid, a written certification entitled "Certified Environmentally Preferable Products / Practices" attached hereto as "Attachment I-A", attesting that the products or items offered by the Bidder contain the minimum percentage of post-consumer recovered material in accordance with the most recent guidelines issued by the United States Environmental Protection Agency (EPA), or, for commodities not so covered, the minimum percentage of post-consumer recovered materials established by other applicable regulatory agencies. The data submitted by the Bidder in Attachment I-A is being solicited for informational purposes only.

### **Recycling Definitions:**

For purposes of this numbered section, the following definitions shall apply:

- a. "Recovered Material" means any waste material or by-product that has been recovered or diverted from solid waste, excluding those materials and by-products generated from, and commonly reused within, an original manufacturing process.
- b. "Post-consumer Material" means any material or finished product that has served its intended use and has been discarded for disposal or recovery having completed its life as a consumer item. "Post-consumer material" is included in the broader category of "Recovered Material".
- c. "Pre-consumer Material" means any material or by-product generated after the manufacture of a product but before the product reaches the consumer,

such as damaged or obsolete products. Pre-consumer Material does not include mill and manufacturing trim, scrap, or broken material that is generated at a manufacturing site and commonly reused on-site in the same or another manufacturing process.

d. "Recycled Product" means a product that contains the highest amount of post-consumer material practicable, or when post-consumer material is impracticable for a specific type of product, contains substantial amounts of Pre-consumer Material.

e. "Recyclable Product" means the ability of a product and its packaging to be reused, reconditioned for use, or recycled through existing recycling collection programs.

f. "Waste Reducing Product" means any product that will result in less waste generated due to its use rather than another product designed to serve the same function with an greater waste generation rate. This shall include, but not be limited to, those products that can be reused, refilled or have a longer life expectancy and contain a lesser amount of toxic constituents.

## **20. City Payroll Tax**

Bidders should be aware of the payroll tax imposed by the:

- a. City of Newark, New Jersey for services performed in Newark, New Jersey;
- b. City of New York, New York for services performed in New York, New York; and
- c. City of Yonkers, New York for services performed in Yonkers, New York.

These taxes, if applicable, are the sole responsibility of the Contractor. Bidders should consult their tax advisors as to the effect, if any, of these taxes. The Port Authority provides this notice for informational purposes only and is not responsible for either the imposition or administration of such taxes. The Port Authority exemption set forth in the Paragraph headed "Sales or Compensating Use Taxes", in the Standard Contract Terms and Conditions included herein, does not apply to these taxes.

## **21. Additional Bidder Information**

Prospective Bidders are advised that additional vendor information, including but not limited to, forms, documents and other information, including protest procedures, may be found on the Port Authority website at: <http://www.panynj.gov/business-opportunities/become-vendor.html>



**PART II – CONTRACT SPECIFIC INFORMATION FOR BIDDERS,  
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## PART II - CONTRACT SPECIFIC INFORMATION FOR BIDDERS

The following information may be referred to in other parts hereof, or further detailed in other parts hereof, if applicable.

### 1. Service(s) Required

Traffic signal certification, repair and maintenance.

### 2. Location(s) Services Required

Newark Liberty International Airport, as more fully described in the definition of "Facility" in the Specifications, attached as Part V of this Contract.

### 3. Expected Date of Commencement of Contract

On or about February 1, 2015.

### 4. Contract Type

Lump Sum and Unit Price.

### 5. Duration of Contract

Four (4) years to expire on or about January 31, 2019.

### 6. Option Period(s)

There shall be up to one (1), one (1) year option period.

### 7. Price Adjustment during Option Period(s) (Index Based)

Price adjustment during the Option Period(s) shall be pursuant to the clause entitled "Price Adjustment" in Part III hereof.

### 8. Extension Period

Up to 120 days applicable.

### 9. Facility Inspection

**Date and Time:** December 11<sup>th</sup> 2014 at 10 AM

80 Brewster Rd, Newark Liberty International Airport (EWR), Newark, NJ 07114.  
Please contact Robert Grassi at rgrassi@panynj.gov to confirm attendance and/or receive travel directions.

### 10. Specific Bidder's Prerequisites

- a. The Bidder shall have had at least five (5) years of continuous experience immediately prior to the date of submission of its bid in the management and operation of an electrical contracting business specializing in traffic signal repair and maintenance. During that time the Bidder shall have actually engaged in providing said or such services to commercial or industrial accounts under contract. The Bidder may fulfill this prerequisite if the Bidder can demonstrate to the satisfaction of the Port Authority of New York and New Jersey (the "Port

Bidder have had a cumulative total of at least five (5) years of experience immediately prior to the date of the submission of its bid in the management and operation of a business actually engaged in providing these services to commercial or industrial accounts under contract during that time, or have owned and controlled other entities which have actually engaged in providing the above described services during that time period.

- b. During the time period stated in (a) above, the Bidder, or persons or entities owning and controlling the Bidder, shall have performed or be performing under at least two (2) contract(s) requiring similar services of similar scope to those required under this Contract.
- c. The Bidder shall have had in its last fiscal year, or the last complete calendar year immediately preceding the opening of its bid, a minimum of four hundred thousand dollars (\$400,000) annual gross income from the type of service(s) required under this Contract.
- d. In the event a bid is submitted by a joint venture the foregoing prerequisites will be considered with respect to such Bid as follows: The prerequisite in subparagraph (a) and (b) above, will be considered satisfied if the joint venture itself, or any of its participants individually, can meet the requirements. The prerequisite in subparagraph (c) above, will be considered satisfied if the gross income of the joint venture itself meets the prerequisite or the gross income of the participants in the joint venture cumulatively meets the prerequisite. If a joint venture which has not been established as a distinct legal entity submits a bid, it and all participants in the joint venture shall be bound jointly and severally and each such participant in the joint venture shall execute the bid and do each act and thing required by this Invitation for Bid. On the original bid and wherever else the Bidder's name would appear, the name of the joint venture Bidder should appear if the joint venture is a distinct legal entity. If the Bidder is a common law joint venture, the names of all participants should be listed followed by the words "acting jointly and severally". All joint venture Bidders must provide documentation of their legal status.
- e. The bidder shall be a licensed electrical contractor in the State of New Jersey and must be in the business of repair and maintenance of traffic signals. The Contractor must have a Certified Signal Technician Level II on staff.

**Proof that the above prerequisites are met should be submitted with the bid.**

## **11. Available Documents**

The following documents will be made available for reference and examination at the Facility Inspection:

Traffic Signal Maintenance, Repair, Installation and Limited Construction at Newark Liberty International Airport; Contract # 4600008498, Purchase Order 4500062192

## **12. Contractor Staff Background Screening**

The Contractor awarded this contract may be required to have its staff, and any subcontractor's staff working under this Contract, authorize the Authority or its designee to perform background checks. Such authorization shall be in a form acceptable to the Authority. The Contractor (and subcontractor) may also be required to use an organization designated by the Authority to perform the background checks. The cost for said background checks for staff that pass and are granted a credential shall be reimbursable to the Contractor (and its subcontractors) as an out-of-pocket expense. The cost of background checks for staff that are rejected for a credential for any reason are not reimbursable.

As of January 29, 2007, the Secure Worker Access Consortium (S.W.A.C.) is the only Port Authority approved provider to be used to conduct background screening, except as otherwise required by federal law and/or regulation. Information about S.W.A.C., instructions, corporate enrollment, online applications, and location of processing centers can be found at <http://www.secureworker.com>, or S.W.A.C. may be contacted directly at (877)522-7922.

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## PART III – CONTRACT SPECIFIC TERMS AND CONDITIONS

### 1. General Agreement

Subject to all of the terms and conditions of this Contract, the undersigned (hereinafter called the “Contractor”) hereby offers and agrees to provide all the necessary supervision, personnel, equipment, materials and all other things necessary to perform the Work required by this Contract as specified in Part II, and fully set forth in the Specifications, at the location(s) listed in Part II and fully set forth in the Specifications, and do all other things necessary or proper therefor or incidental thereto, all in strict accordance with the provisions of the Contract Documents and any future changes therein; and the Contractor further agrees to assume and perform all other duties and obligations imposed upon it by this Contract.

In addition, all things not expressly mentioned in the Specifications but involved in the carrying out of their intent and in the complete and proper execution of the matters referred to in and required by this Contract are required by the Specifications, and the Contractor shall perform the same as though they were specifically delineated, described and mentioned therein.

### 2. Duration

- a) The initial term of this Contract (hereinafter called the “Base Term”) shall commence on or about the date specified in Part II hereof, on the specific date set forth in the Port Authority’s written notice of bid acceptance (hereinafter called the “Commencement Date”), and unless otherwise terminated, revoked or extended in accordance with the provisions hereof, shall expire as specified in Part II hereof (hereinafter called the “Expiration Date”).
- b) If specified as applicable to this Contract and set forth in Part II hereof, the Port Authority shall have the right to extend this Contract for additional period(s) (hereinafter referred to as the “Option Period(s)”) following the Expiration Date, upon the same terms and conditions subject only to adjustments of charges, if applicable to this Contract, as may be hereinafter provided in the paragraph entitled “Price Adjustments”. If the Port Authority shall elect to exercise the Option(s) to extend this Contract, then, no later than thirty (30) days prior to the Expiration Date, the Port Authority shall send a notice that it is extending the Base Term of this Contract, and this Contract shall thereupon be extended for the applicable Option Period. If the Contract provides for more than one Option Period, the same procedure shall apply with regard to extending the term of this Contract for succeeding Option Periods.
- c) Unless specified as not applicable to this Contract in Part II hereof, the Port Authority shall have the absolute right to extend the Base Term for an additional period of up to one hundred and twenty (120) days subsequent to the Expiration Date of the Base Term, or the Expiration Date of the final exercised Option Period (hereinafter called the “Extension Period”), subject to the same terms and conditions as the previous contract period. The prices quoted by the Contractor

for the previous contract period shall remain in effect during this Extension Period without adjustment. If it so elects to extend this Contract, the Port Authority will advise the Contractor, in writing, that the term is so extended, and stipulate the length of the extended term, at least thirty (30) days prior to the expiration date of the previous contract period.

### **3. Payment**

Subject to the provisions of this Contract, the Port Authority agrees to pay to the Contractor and the Contractor agrees to accept from the Port Authority as full and complete consideration for the performance of all its obligations under this Contract and as sole compensation for the Work performed by the Contractor hereunder, a compensation calculated from the actual quantities of services performed and the respective prices inserted by the Contractor in the Pricing Sheet(s), forming a part of this Contract, exclusive of compensation under the clause hereof entitled "Extra Work". The manner of submission of all bills for payment to the Contractor by the Port Authority for Services rendered under this Contract shall be subject to the approval of the Manager in all respects, including, but not limited to, format, breakdown of items presented and verifying records. All computations made by the Contractor and all billing and billing procedures shall be done in conformance with the following procedures:

- a) Payment shall be made in accordance with the prices for the applicable service (during the applicable Contract year) as they appear on the Pricing Sheet(s), as the same may be adjusted from time to time as specified herein, minus any deductions for services not performed and/or any Liquidated Damages to which the invoice may be subject and/or any adjustments as may be required pursuant to increases and decreases in areas or frequencies, if applicable. All Work must be completed within the time frames specified or as designated by the Manager.
- b) The Contractor shall submit to the Manager by the fifth (5<sup>th</sup>) day of each month following the month that work was performed under this contract and on or by the fifth (5<sup>th</sup>) day of each month thereafter (including the month following the termination, revocation or expiration of this Contract) a complete and correct invoice for the Work performed during the preceding month accompanied by such information as may be required by the Manager for verification. The invoice must show the Contractor's Federal Tax Identification Number. Payment will be made within thirty (30) days of Port Authority verification of the invoice.
- c) No certificate, payment, acceptance of any Work or any other act or omission of any representative of the Port Authority shall operate to release the Contractor from any obligation under or upon this Contract, or to estop the Port Authority from showing at any time that such certificate, payment, acceptance, act or omission was incorrect or to preclude the Port Authority from recovering any monies paid in excess of those lawfully due and any damage sustained by the Port Authority.
- d) In the event an audit of received invoices should indicate that the correct sum due the Contractor for the relevant billing period is less than the amount actually paid by the Port Authority, the Contractor shall pay to the Port Authority the

difference promptly upon receipt of the Port Authority's statement thereof. The Port Authority may, however, in its discretion elect to deduct said sum or sums from any subsequent monthly payments payable to the Contractor hereunder.

"Final Payment", as the term is used throughout this Contract, shall mean the final payment made for services rendered in the last month of the Base Term or any extended term. However should this Contract be terminated for any reason prior to the last month of the Base Term or any extended term, then Final Payment shall be the payment made for services rendered in the month during which such termination becomes effective. The Contractor's acceptance of Final Payment shall act as a full and complete release to the Port Authority of all claims of and of all liability to the Contractor for all things done or furnished in connection with this Contract and for every act and neglect of the Port Authority and others relating to or arising out of this Contract, including claims arising out of breach of contract and claims based on claims of third persons. No payment, however, final or otherwise shall operate to release the Contractor from any obligations in connection with this Contract.

#### **4. Price Adjustment**

For the Option Period(s) that are applicable to this Contract and are exercised hereunder, (excluding the 120 day Extension Period as described in the paragraph entitled "Duration" in Part III, hereof) the Port Authority shall adjust the compensation due to the Contractor utilizing the Consumer Price Index for all Urban Consumers; Series Id: CUURA101SA0L2; Not Seasonally Adjusted; New York-Northern New Jersey-Long Island, NY-NJ\_CT-PA area; all items less shelter; 1982-1984=100, published by the Bureau of Labor Statistics of the United States Department of Labor (hereinafter called the "Price Index"). The Contractor's percentage markup/discount for Parts, Materials and Equipment shall not be subject to adjustment.

For the one (1) year Option Period of the Contract, the Price Index shall be determined for the months of August 2018 and August 2017. The amounts payable to the Contractor in the final year of the Base Term shall be multiplied by a fraction the numerator of which is the Price Index for August 2018 and the denominator of which is the Price Index for August 2017. The resulting product shall be the amounts payable to the Contractor in the Option Period.

In the event of a change in the basis for the computation of the said Index or the discontinuance of its publication, such other appropriate index shall be substituted as may be agreed upon by the Authority and the Contractor as properly reflecting changes in the value of the current United States money in a manner similar to that established in the said Price Index. In the event of the failure of the parties to so agree, the Port Authority may select and use such index, as it seems appropriate. Notwithstanding the provisions of this section, in no event shall any adjustment hereunder be greater than three percent (3%) per annum.

The amounts payable to the Contractor during the 120-day Extension Period shall not be subject to adjustment.

If, after an adjustment referred to in this Section, the Index used for computing such adjustment shall be changed or adjusted, then the amounts payable to the Contractor for that period shall be recomputed accordingly. If such recomputation results in a smaller increase in the amount payable to such period, then after notification of the change or adjustment, the recomputed amounts shall be in effect and upon demand by the Port Authority (or PATH), the Contractor shall refund to the Port Authority excess amounts theretofor paid by the Port Authority for such period.

## **5. Liquidated Damages**

- a) The Contractor's obligations for the performance and completion of the Work within the time or times provided for in this Contract are of the essence of this Contract. In the event that the Contractor fails to satisfactorily perform all or any part of the Work required hereunder in accordance with the requirements set forth in the Specifications (as the same may be modified in accordance with provisions set forth elsewhere herein) then, inasmuch as the damage and loss to the Port Authority for such failure to perform includes items of loss whose amount will be incapable or very difficult of accurate estimation, the damages for such failure to perform shall be liquidated as follows:
  - i. If the Contractor fails to perform any of the yearly traffic intersection certifications at the frequencies required in the Specifications, the compensation due the Contractor by the Port Authority shall be reduced by two thousand five hundred dollars (\$2,500) per intersection the Contractor fails to certify.
  - ii. If the Contractor fails to respond to service calls or knockdowns at the time frames required in the Specifications, the compensation due the Contractor by the Port Authority shall be reduced by two hundred fifty dollars (\$250) per hour for each hour or part of an hour the Contractor fails to respond.
  - iii. If the Contractor fails to provide the equipment (including vehicles, lift truck backup attenuator, arrow boards and signs) necessary to safely perform the task of repairing traffic signals and protecting workers and patrons, the compensation due the Contractor by the Port Authority shall be reduced by two hundred fifty dollars (\$250) per hour or part thereof that the equipment needed is not on site.
- b) The Manager shall determine whether the Contractor has performed in a satisfactory manner and their determination shall be final, binding and conclusive upon the Contractor.
- c) Failure of the Manager or the Port Authority to impose Liquidated Damages shall not be deemed Port Authority acceptance of unsatisfactory performance or a failure to perform on the part of the Contractor or a waiver of its remedies hereunder.

## 6. Insurance Procured by the Contractor

The Contractor shall take out, maintain, and pay the premiums on Commercial General Liability Insurance, including but not limited to premises-operations, products-completed operations, and independent contractors coverage, with contractual liability language covering the obligations assumed by the Contractor under this Contract and, if vehicles are to be used to carry out the performance of this Contract, then the Contractor shall also take out, maintain, and pay the premiums on Automobile Liability Insurance covering owned, non-owned, and hired autos in the following minimum limits:

**Commercial General Liability Insurance** - \$5 million combined single limit per occurrence for bodily injury and property damage liability.

**Automobile Liability Insurance** - \$2 million combined single limit per accident for bodily injury and property damage liability.

**In addition, the liability policy (ies) shall name The Port Authority of New York & New Jersey, its related entities, their commissioners, directors, officers, partners, employees and agents as additional insureds**, including but not limited to premises-operations, products-completed operations on the Commercial General Liability Policy. Moreover, the Commercial General Liability Policy shall not contain any provisions for exclusions from liability other than provisions for exclusion from liability forming part of the most up to date ISO form or its equivalent unendorsed Commercial General Liability Policy. The liability policy (ies) and certificate of insurance shall contain separation of insured conditions and severability of interests clauses for all policies. These insurance requirements shall be in effect for the duration of the contract to include any warrantee /guarantee period and any maintenance period. An act or omission of one of the insureds shall not reduce or void coverage to the other insureds. Furthermore, the Contractor's insurance shall be primary insurance as respects to the above additional insureds. Any insurance or self-insurance maintained by the above additional insureds shall not contribute to any loss or claim.

**The certificate of insurance and liability policy (ies) must contain the following endorsement for the above liability coverages:**

*“The insurer(s) shall not, without obtaining the express advance written permission from the General Counsel of the Port Authority, raise any defense involving in any way the jurisdiction of the Tribunal over the person of the Port Authority, the immunity of the Port Authority, its Commissioners, officers, agents or employees, the governmental nature of the Port Authority, or the provisions of any statutes respecting suits against the Port Authority.”*

The Contractor shall also take out, maintain, and pay premiums on **Workers' Compensation Insurance** in accordance with the requirements of law in the state(s)

where work will take place, and Employer's Liability Insurance with limits of not less than \$1 million each accident.

**Each policy above shall contain a provision that the policy may not be canceled, terminated, or modified without thirty (30) days' prior written notice to the Port Authority of NY and NJ, Att: Facility Contract Administrator, at the location where the work will take place and to the General Manager, Risk Financing.**

The Port Authority may at any time during the term of this agreement change or modify the limits and coverages of insurance. Should the modification or change results in an additional premium, The General Manager, Risk Financing for the Port Authority may consider such cost as an out-of-pocket expense.

Within five (5) days after the award of this agreement or contract and prior to the start of work, the Contractor must submit an original certificate of insurance, to the Port Authority of NY and NJ, Facility Contract Administrator, at the location where the work will take place. This certificate of insurance MUST show evidence of the above insurance policy (ies), stating the agreement/contract number prior to the start of work. The General Manager, Risk Financing must approve the certificate(s) of insurance before any work can begin. Upon request by the Port Authority, the Contractor shall furnish to the General Manager, Risk Financing, a certified copy of each policy, including the premiums.

If at any time the above liability insurance should be canceled, terminated, or modified so that the insurance is not in effect as above required, then, if the Manager shall so direct, the Contractor shall suspend performance of the contract at the premises. If the contract is so suspended, no extension of time shall be due on account thereof. If the contract is not suspended (whether or not because of omission of the Manager to order suspension), then the Authority may, at its option, obtain insurance affording coverage equal to the above required, the cost of such insurance to be payable by the Contractor to the Port Authority.

Renewal certificates of insurance or policies shall be delivered to the Facility Contractor Administrator, Port Authority at least fifteen (15) days prior to the expiration date of each expiring policy. The General Manager, Risk Financing must approve the renewal certificate(s) of insurance before work can resume on the facility. If at any time any of the certificates or policies shall become unsatisfactory to the Port Authority, the Contractor shall promptly obtain a new and satisfactory certificate and policy.

The requirements for insurance procured by the Contractor shall not in any way be construed as a limitation on the nature or extent of the contractual obligations assumed by the Contractor under this contract. The insurance requirements are not a representation by the Authority as to the adequacy of the insurance to protect the Contractor against the obligations imposed on them by law or by this or any other Contract. **[CITS#4601N]**

## **7. Increase and Decrease in Areas or Frequencies**

The Manager shall have the right, at any time and from time to time in their sole discretion, to increase or decrease the frequencies of all or any part of the services required hereunder and/or to add areas not described herein in the Specifications or remove areas or parts of areas which are hereunder so described. In the event the Manager decides to change any frequencies or areas such change shall be by written notice not less than ten (10) days prior to such change taking effect, said changes to be effective upon the date specified in said notice.

In the event of an increase or decrease in areas or frequencies, the Contractor's compensation will be adjusted to reflect such change in areas or frequencies utilizing the applicable Unit Price for such services (for the applicable Contract year) as set forth on the Pricing Sheet(s).

Where no specific Unit Price has been quoted for the type of services to be increased or decreased, the Manager shall have the right to negotiate the compensation to reflect such change, whether an increase or decrease in areas or frequencies, which, in the opinion of the Manager, are necessary to complete the work, by multiplying the increased or decreased amount by the negotiated rate.

In the event of a decrease, the Contractor shall not be entitled to compensation for Work not performed.

No such change in areas or frequencies will be implemented which results in a total increase or decrease in compensation that is greater than 50% of the Total Estimated Contract Price for the Base Term or, if changes are to be implemented during an Option Period, 50% for that Option Period.

Any increases in frequencies or areas shall not constitute Extra Work and, as such, shall not be limited by the Extra Work provisions of this Contract.

## **8. Extra Work**

The Contractor is required to provide separate materials, supplies, equipment and personnel for Extra Work when such is deemed necessary by the Manager. "Extra Work" as used herein shall be defined as work which differs from that expressly or impliedly required by the Specifications in their present form. Total Extra Work performed by the Contractor shall not exceed six percent (6%) of the Total Estimated Contract Price of this Contract for the entire Term of this Contract including extensions thereof, or six percent (6%) of the Total Estimated Contract Price of each Section if this Contract is awarded by separate Sections.

An increase in area or frequency does not constitute Extra Work, but shall be compensable based on the prices in the Pricing Sheet(s) and the paragraph herein titled "Increase or Decrease in Areas or Frequencies".

The Contractor is required to perform Extra Work pursuant to a written order of the Manager expressly recognizing such work as Extra Work. If Lump Sum or Unit Price compensation cannot be agreed upon by the parties in writing prior to the start of Work, the Contractor shall perform such Extra Work and the Contractor's

compensation shall be increased by the sum of the following amounts and such amounts only: (1) the actual net cost, in money, of the labor, and material, required for such Extra Work; (2) ten percent (10%) of the amount under (1) above; (3) such rental as the Manager deems reasonable for plant and equipment (other than small tools) required for such Extra Work; (4) if the Extra Work is performed by a subcontractor, an additional five percent (5%) of the sum of the amounts under (1) through (3) above.

As used in this numbered clause (and in this clause only):

“Labor” means laborers, mechanics, and other employees below the rank of supervisor, directly employed at the Site of the Work subject to the Manager or their designee’s authority to determine what employees of any category are “required for Extra Work” and as to the portion of their time allotted to Extra Work; and “cost of labor” means the wages actually paid to and received by such employees plus a proper proportion of (a) vacation allowances and union dues and assessments which the employer actually pays pursuant to contractual obligation upon the basis of such wages, and (b) taxes actually paid by the employer pursuant to law upon the basis of such wages and workers’ compensation premiums paid pursuant to law. “Employees” as used above means only the employees of one employer.

“Net Cost” shall be the Contractor’s actual cost after deducting all permitted cash and trade discounts, rebates, allowances, credits, sales taxes, commissions, and refunds (whether or not any or all of the same shall have been taken by the Contractor) of all parts and materials purchased by the Contractor solely for the use in performing its obligation hereunder provided, where such purchase has received the prior written approval of the Manager as required herein. The Contractor shall promptly furnish to the Manager such bills of sale and other instruments as the Manger may require, executed, acknowledged and delivered, assuring to the Manager title to such materials, supplies, equipment, parts, and tools free of encumbrances.

“Materials” means temporary and consumable materials as well as permanent materials; and “cost of materials” means the price (including taxes actually paid by the Contractor pursuant to law upon the basis of such materials) for which such materials are sold for cash by the manufacturers or producers thereof, or by regular dealers therein, whether or not such materials are purchased directly from the manufacturer, producer or dealer (or if the Contractor is the manufacturer or producer thereof, the reasonable cost to the Contractor of the manufacture and production), plus the reasonable cost of delivering such materials to the Site of the Work in the event that the price paid to the manufacturer, producer or dealer does not include delivery and in case of temporary materials, less their salvage value, if any.

The Manager shall have the authority to decide all questions in connection with the Extra Work. The exercise by the Manager of the powers and authorities vested in him/her by this section shall be binding and final upon the Port Authority and the Contractor.

The Contractor shall submit all reports, records and receipts as are requested by the Manager so as to enable him/her to ascertain the time expended in the performance of

the Extra Work, the quantity of labor and materials used therein and the cost of said labor and materials to the Contractor.

The provisions of this Contract relating generally to Work and its performance shall apply without exception to any Extra Work required and to the performance thereof. Moreover, the provisions of the Specifications relating generally to the Work and its performance shall also apply to any Extra Work required and to the performance thereof, except to the extent that a written order in connection with any particular item of Extra Work may expressly provide otherwise.

If the Contractor deems work to be Extra Work, the Contractor shall give written notice to the Manager within twenty-four (24) hours of performing the work that it so considers as Extra Work, and failure of the Contractor to provide said notice shall be a waiver of any claim to an increase in compensation for such work and a conclusive and binding determination that it is not Extra Work.

The Contractor shall supply the amount of materials, supplies, equipment and personnel required by the Manager within eight (8) hours following the receipt of written or verbal notice from the Manager, or in the case of an emergency as determined by the Manager, within six (6) hours following the receipt by the Contractor of the Manager's written or oral notification. Where oral notification is provided hereunder, the Manager shall thereafter confirm the same in writing.

All Extra Work shall be billed to the Port Authority on a separate invoice on a monthly basis.

**PART IV – SIGNATURE SHEET, NAME AND RESIDENCE OF PRINCIPALS SHEET AND PRICING SHEET(S), TABLE OF CONTENTS**

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**PART IV – SIGNATURE SHEET, NAME AND RESIDENCE OF PRINCIPALS SHEET AND PRICING SHEET(S)**

**1. SIGNATURE SHEET**

OFFER: The undersigned offers and agrees to furnish to the Port Authority of New York and New Jersey the services and/or materials in compliance with all terms, conditions, specifications and addenda of the Contract. Signature also certifies understanding and compliance with the certification requirements of the standard terms and conditions as contained in the Standard Contract Terms and Conditions. This offer shall be irrevocable for 120 days after the date on which the Port Authority opens this bid.

**ONLY THE COMPANY NAMED AS THE BIDDING ENTITY BELOW WILL RECEIVE PAYMENT. THIS MUST BE THE SAME NAMED COMPANY AS INDICATED ON THE COVER SHEET**

**Bidding Entity** \_\_\_\_\_

Bidder's Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Telephone No. \_\_\_\_\_ FAX \_\_\_\_\_

Email \_\_\_\_\_ EIN# \_\_\_\_\_

SIGNATURE \_\_\_\_\_ Date \_\_\_\_\_

Print Name and Title \_\_\_\_\_

**ACKNOWLEDGEMENT:**

**STATE OF:** \_\_\_\_\_

**COUNTY OF:** \_\_\_\_\_

On this \_\_\_ day of \_\_\_\_\_, 20\_\_\_, personally came before me, \_\_\_\_\_, who duly sworn by me, did depose that (s)he has knowledge of the matters herein stated and they are in all respects true and that (s)he has been authorized to execute the foregoing offer and statement of irrevocability on behalf of said corporation, partnership or firm.

\_\_\_\_\_  
Notary Public

NOTE: If a joint venture is bidding, duplicate this Signature Sheet and have each party to the joint venture sign separately and affix to the back of this Signature Sheet.

Bidder attention is called to the certification requirements contained in the Standard Contract Terms and Conditions, Part III. Indicate below if a signed, explanatory statement in connection with this section is attached hereto.

If certified by the Port Authority as an SBE or MWBE: \_\_\_\_\_ (indicate which one and date).

**2. NAME AND RESIDENCE OF PRINCIPALS SHEET**

Names and Residence of Principals of Bidder. If general or limited partner, or individual, so indicate.

NAME	TITLE	ADDRESS OF RESIDENCE (Do not give business address)
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### **3. PRICING SHEET(S)**

#### **Entry of Prices**

- a. The prices quoted shall be written in figures, in ink, preferably in black ink where required in the spaces provided on the Pricing Sheet(s) attached hereto and made a part hereof.
- b. All Bidders are asked to ensure that all charges quoted for similar operations in the Contract are consistent.
- c. Prices must be submitted for each Item required on the Pricing Sheet(s). Bidders are advised that the Items on the Pricing Sheet(s) correspond to the required services set forth in the Specifications hereunder.
- d. Bidders must insert all figures as required and verify all computations for accuracy. The Port Authority in its sole judgment reserves the right to: (1) reject Bids without checking them for mathematical errors or omissions, (2) reject Bids that contain or appear to contain errors or omissions, and (3) supply corrections to Bids that contain or appear to contain mathematical errors and omissions, and in this case the Port Authority reserves the right to recompute the Estimated Contract Price based upon the Unit Prices inserted by the Bidder, which amount shall govern in all cases.
- e. In the event that a Bidder quotes an amount in the Estimated column but omits to quote a Unit Price for that amount in the space provided, the Port Authority reserves the right to compute and insert the appropriate Unit Price.
- f. The Estimated Contract Price is solely for the purpose of facilitating the comparisons of Bids. Compensation shall be in accordance with the section of this Contract entitled "Payment".
- g. The Estimated Contract Price shall be obtained by adding the Estimated Annual Contract Price for the first year of the Contract, to the Estimated Annual Contract Price for each subsequent year.

**Contractor's Pricing Sheets**

**Exhibit A – Labor\***

\*Labor rates are all-inclusive rates which shall include, but are not limited to, the Contractor's overhead, profit, travel time and cost for vehicle use including tolls.

**YEAR ONE**

<b>Item of Work</b>	<b>Est. Annual Quantity Hours</b>		<b>Unit Price</b>		<b>Estimated Annual Total</b>
ISMA Certified Signal Technician Level II, Monday through Friday, 8 am to 4 pm	40	x	\$	=	\$
ISMA Certified Signal Technician Level II All other hours	40	x	\$	=	\$
Traffic Signal Electrician, Monday through Friday, 8 am to 4 pm	40	x	\$	=	\$
Traffic Signal Electrician, All other hours	40	x	\$	=	\$
<b>ESTIMATED YEAR ONE LABOR PRICE (SUM OF ABOVE)</b>				=	\$

**YEAR TWO**

<b>Item of Work</b>	<b>Est. Annual Quantity Hours</b>		<b>Unit Price</b>		<b>Estimated Annual Total</b>
ISMA Certified Signal Technician Level II, Monday through Friday, 8 am to 4 pm	40	x	\$	=	\$
ISMA Certified Signal Technician Level II All other hours	40	x	\$	=	\$
Traffic Signal Electrician, Monday through Friday, 8 am to 4 pm	40	x	\$	=	\$
Traffic Signal Electrician, All other hours	40	x	\$	=	\$
<b>ESTIMATED YEAR TWO LABOR PRICE (SUM OF ABOVE)</b>				=	\$

**Contractor's Pricing Sheets**

**Exhibit A – Labor\***

**YEAR THREE**

<b>Item of Work</b>	<b>Est. Annual Quantity Hours</b>		<b>Unit Price</b>		<b>Estimated Annual Total</b>
ISMA Certified Signal Technician Level II, Monday through Friday, 8 am to 4 pm	40	x	\$	=	\$
ISMA Certified Signal Technician Level II All other hours	40	x	\$	=	\$
Traffic Signal Electrician, Monday through Friday, 8 am to 4 pm	40	x	\$	=	\$
Traffic Signal Electrician, All other hours	40	x	\$	=	\$
<b>ESTIMATED YEAR THREE LABOR PRICE (SUM OF ABOVE)</b>				=	\$

**YEAR FOUR**

<b>Item of Work</b>	<b>Est. Annual Quantity Hours</b>		<b>Unit Price</b>		<b>Estimated Annual Total</b>
ISMA Certified Signal Technician Level II, Monday through Friday, 8 am to 4 pm	40	x	\$	=	\$
ISMA Certified Signal Technician Level II All other hours	40	x	\$	=	\$
Traffic Signal Electrician, Monday through Friday, 8 am to 4 pm	40	x	\$	=	\$
Traffic Signal Electrician, All other hours	40	x	\$	=	\$
<b>ESTIMATED YEAR FOUR LABOR PRICE (SUM OF ABOVE)</b>				=	\$

**A. ESTIMATED FOUR YEAR CONTRACT PRICE FOR LABOR: \$ \_\_\_\_\_**

**Contractor's Pricing Sheets**  
**Exhibit B – Parts, Material and Equipment**

The percentage markup/discount or 0 inserted by the Contractor shall not be subject to adjustment and shall remain firm for the duration of the Contract, including any options or extensions, if exercised.

“Net Cost” shall be the Contractor’s actual cost after deducting all permitted cash and trade discounts, rebates, allowances, credits, sales taxes, commissions and refunds (whether or not any or all of the same shall have been taken by the Contractor) of all parts, materials or equipment purchased or leased by the Contractor solely for the use in performing his obligation hereunder provided such purchase or lease has received the prior written approval of the Manager. The documentation that the Contractor receives from its supplier that accompanies the material shall substantiate these charges.

Estimated Four Year Net Cost of Parts, Material and Equipment		Contractor's Percentage Markup+/ Discount-/ or 0		Estimated Contractor's Percentage Price		Estimated Four Year Net Cost of Parts, Material and Equipment		Estimated Four Year Contract Price for Parts, Materials and Equipment
\$75,000	X	_____ %	=	\$ _____	+	\$75,000	=	\$ _____

**B. ESTIMATED FOUR YEAR CONTRACT PRICE FOR PARTS, MATERIALS AND EQUIPMENT: \$ \_\_\_\_\_**

**Contractor's Pricing Sheets  
Exhibit C- Project Work**

<b>Intersection Number</b>	<b>Signal Replacement Intersection Name</b>	<b>Top of Pole Mounted Aluminum (3 Section)</b>	<b>Number of Vehicular Signal Head (3 Sections)</b>	<b>Number of Vehicular Signal Head (4 Sections)</b>	<b>Number of Vehicular Signal Head (5 Sections)</b>	<b>Price to replace signal fixtures and all associated hardware for complete installation</b>
EWR-TB-310	Terminal B HOV Roadway Pedestrian Crossing 1	2	3	-	-	\$
EWR-TB-311	Terminal B HOV Roadway Pedestrian Crossing 2	2	3	-	-	\$
EWR-TB-314	Term. B HOV Fron. Rd. and CTA/Parking Rd Ped. Xwalk #1		5	-	-	\$
EWR-TB-315	Term. B HOV Fron. Rd. and CTA/Parking Rd Ped. Xwalk #2		5	-	-	\$
EWR-CA-328	Lindbergh Road and Earhart Drive		9	-	-	\$
EWR-CA-329	Lindbergh Road and Hertz Driveway		10	2	-	\$
EWR-CA-335	Pitcairn Road and Martin Road		11	-	-	\$
EWR-SA-354	Earhart Drive and Wiley Post Road		14	-	2	\$
	<b>Complete Installation of Video Detection System</b>		<b># of Cameras</b>			<b>Price to Install Video Detection</b>
EWR--TA-302	Both Approaches at this intersection		2			\$
EWR- CA 342	Both Side Streets Pitcarin		2			\$
EWR-NA-346	Side Street Conrad Road		1			\$
	<b>Replacement of Signal Bus mercury relays with solid state – all intersections</b>		<b># of Intersections</b>			<b>Price to Supply and Install new Solid State relays</b>
	All EWR Intersections		25			\$
	<b>Port Authority Staff Training</b>		Frequency			<b>Price to Provide Training</b>
	Training of Port Authority Staff at Newark Airport		16 Hours Total for Base Term			\$

**C. ESTIMATED FOUR YEAR CONTRACT PRICE FOR PROJECT WORK: \$\_\_\_\_\_**

**Contractor's Pricing Sheets**  
**Exhibit D – Annual Certification**

**YEAR ONE**

Intersection Number	Intersection	Intersection Certification Unit Price
EWR-TA-301	South Service Road and Hotel Road	\$
EWR-TA-302	Route 1/9 Ramp to Parking and South Service Road Merge	\$
EWR-TA-303	Terminal A HOV Roadway Pedestrian Crossing 1	\$
EWR-TA-304	Terminal A HOV Roadway Pedestrian Crossing 2	\$
EWR-TB-310	Terminal B HOV Roadway Pedestrian Crossing 1	\$
EWR-TB-311	Terminal B HOV Roadway Pedestrian Crossing 2	\$
EWR-TB-312	Terminal B INNER Roadway Pedestrian Crossing 1	\$
EWR-TB-313	Terminal B INNER Roadway Pedestrian Crossing 2	\$
EWR-TB-314	Terminal B HOV Fron. Rd. and CTA/Parking Rd. Red. Crosswalk 1	\$
EWR-TB-315	Terminal B HOV Fron. Rd. and CTA/Parking Rd. Red. Crosswalk 2	\$
EWR-TC-319	Terminal C HOV Pedestrian Crossing 1	\$
EWR-TC-320	Terminal C HOV Pedestrian Crossing 2	\$
EWR-TC-321	Terminal C LOV Pedestrian Crossing 1	\$
EWR-TC-322	Terminal C LOV Pedestrian Crossing 2	\$
EWR-CA-328	Lindbergh Road and Earhart Drive	\$
EWR-CA-329	Lindbergh Road and Hertz Driveway	\$
EWR-CA-335	Pitcairn Road and Martin Road	\$
EWR-CA-341	Brewster Road and Lindbergh Road	\$
EWR-CA-342	Brewster Road and Pitcairn Road	\$
EWR-NA-343	Brewster Road and I-78 Entrance Ramp	\$
EWR-NA-345	Brewster Road and Entrance from 1&9 North	\$
EWR-NA-346	Brewster Road and Conrad Road	\$
EWR-NA-347	Brewster Road and Port Street Connector	\$
EWR-NA-348	Port Street and Port Street Connector (Entrance to P6)	\$
EWR-SA-354	Earhart Drive and Wiley Post Road	\$
<b>ESTIMATED YEAR ONE ANNUAL CERTIFICATION PRICE (SUM OF ABOVE)</b>		= \$

**Contractor's Pricing Sheets  
Exhibit D – Annual Certification**

**YEAR TWO**

<b>Intersection Number</b>	<b>Intersection</b>	<b>Intersection Certification Unit Price</b>
EWR-TA-301	South Service Road and Hotel Road	\$
EWR-TA-302	Route 1/9 Ramp to Parking and South Service Road Merge	\$
EWR-TA-303	Terminal A HOV Roadway Pedestrian Crossing 1	\$
EWR-TA-304	Terminal A HOV Roadway Pedestrian Crossing 2	\$
EWR-TB-310	Terminal B HOV Roadway Pedestrian Crossing 1	\$
EWR-TB-311	Terminal B HOV Roadway Pedestrian Crossing 2	\$
EWR-TB-312	Terminal B INNER Roadway Pedestrian Crossing 1	\$
EWR-TB-313	Terminal B INNER Roadway Pedestrian Crossing 2	\$
EWR-TB-314	Terminal B HOV Fron. Rd. and CTA/Parking Rd. Red. Crosswalk 1	\$
EWR-TB-315	Terminal B HOV Fron. Rd. and CTA/Parking Rd. Red. Crosswalk 2	\$
EWR-TC-319	Terminal C HOV Pedestrian Crossing 1	\$
EWR-TC-320	Terminal C HOV Pedestrian Crossing 2	\$
EWR-TC-321	Terminal C LOV Pedestrian Crossing 1	\$
EWR-TC-322	Terminal C LOV Pedestrian Crossing 2	\$
EWR-CA-328	Lindbergh Road and Earhart Drive	\$
EWR-CA-329	Lindbergh Road and Hertz Driveway	\$
EWR-CA-335	Pitcairn Road and Martin Road	\$
EWR-CA-341	Brewster Road and Lindbergh Road	\$
EWR-CA-342	Brewster Road and Pitcairn Road	\$
EWR-NA-343	Brewster Road and I-78 Entrance Ramp	\$
EWR-NA-345	Brewster Road and Entrance from 1&9 North	\$
EWR-NA-346	Brewster Road and Conrad Road	\$
EWR-NA-347	Brewster Road and Port Street Connector	\$
EWR-NA-348	Port Street and Port Street Connector (Entrance to P6)	\$
EWR-SA-354	Earhart Drive and Wiley Post Road	\$
<b>ESTIMATED YEAR TWO ANNUAL CERTIFICATION PRICE (SUM OF ABOVE)</b>		<b>= \$</b>

**Contractor's Pricing Sheets**  
**Exhibit D – Annual Certification**

**YEAR THREE**

Intersection Number	Intersection	Intersection Certification Unit Price
EWR-TA-301	South Service Road and Hotel Road	\$
EWR-TA-302	Route 1/9 Ramp to Parking and South Service Road Merge	\$
EWR-TA-303	Terminal A HOV Roadway Pedestrian Crossing 1	\$
EWR-TA-304	Terminal A HOV Roadway Pedestrian Crossing 2	\$
EWR-TB-310	Terminal B HOV Roadway Pedestrian Crossing 1	\$
EWR-TB-311	Terminal B HOV Roadway Pedestrian Crossing 2	\$
EWR-TB-312	Terminal B INNER Roadway Pedestrian Crossing 1	\$
EWR-TB-313	Terminal B INNER Roadway Pedestrian Crossing 2	\$
EWR-TB-314	Terminal B HOV Fron. Rd. and CTA/Parking Rd. Red. Crosswalk 1	\$
EWR-TB-315	Terminal B HOV Fron. Rd. and CTA/Parking Rd. Red. Crosswalk 2	\$
EWR-TC-319	Terminal C HOV Pedestrian Crossing 1	\$
EWR-TC-320	Terminal C HOV Pedestrian Crossing 2	\$
EWR-TC-321	Terminal C LOV Pedestrian Crossing 1	\$
EWR-TC-322	Terminal C LOV Pedestrian Crossing 2	\$
EWR-CA-328	Lindbergh Road and Earhart Drive	\$
EWR-CA-329	Lindbergh Road and Hertz Driveway	\$
EWR-CA-335	Pitcairn Road and Martin Road	\$
EWR-CA-341	Brewster Road and Lindbergh Road	\$
EWR-CA-342	Brewster Road and Pitcairn Road	\$
EWR-NA-343	Brewster Road and I-78 Entrance Ramp	\$
EWR-NA-345	Brewster Road and Entrance from 1&9 North	\$
EWR-NA-346	Brewster Road and Conrad Road	\$
EWR-NA-347	Brewster Road and Port Street Connector	\$
EWR-NA-348	Port Street and Port Street Connector (Entrance to P6)	\$
EWR-SA-354	Earhart Drive and Wiley Post Road	\$
<b>ESTIMATED YEAR THREE ANNUAL CERTIFICATION PRICE (SUM OF ABOVE)</b>		<b>= \$</b>

**Contractor's Pricing Sheets  
Exhibit D – Annual Certification**

**YEAR FOUR**

<b>Intersection Number</b>	<b>Intersection</b>	<b>Intersection Certification Unit Price</b>
EWR-TA-301	South Service Road and Hotel Road	\$
EWR-TA-302	Route 1/9 Ramp to Parking and South Service Road Merge	\$
EWR-TA-303	Terminal A HOV Roadway Pedestrian Crossing 1	\$
EWR-TA-304	Terminal A HOV Roadway Pedestrian Crossing 2	\$
EWR-TB-310	Terminal B HOV Roadway Pedestrian Crossing 1	\$
EWR-TB-311	Terminal B HOV Roadway Pedestrian Crossing 2	\$
EWR-TB-312	Terminal B INNER Roadway Pedestrian Crossing 1	\$
EWR-TB-313	Terminal B INNER Roadway Pedestrian Crossing 2	\$
EWR-TB-314	Terminal B HOV Fron. Rd. and CTA/Parking Rd. Red. Crosswalk 1	\$
EWR-TB-315	Terminal B HOV Fron. Rd. and CTA/Parking Rd. Red. Crosswalk 2	\$
EWR-TC-319	Terminal C HOV Pedestrian Crossing 1	\$
EWR-TC-320	Terminal C HOV Pedestrian Crossing 2	\$
EWR-TC-321	Terminal C LOV Pedestrian Crossing 1	\$
EWR-TC-322	Terminal C LOV Pedestrian Crossing 2	\$
EWR-CA-328	Lindbergh Road and Earhart Drive	\$
EWR-CA-329	Lindbergh Road and Hertz Driveway	\$
EWR-CA-335	Pitcairn Road and Martin Road	\$
EWR-CA-341	Brewster Road and Lindbergh Road	\$
EWR-CA-342	Brewster Road and Pitcairn Road	\$
EWR-NA-343	Brewster Road and I-78 Entrance Ramp	\$
EWR-NA-345	Brewster Road and Entrance from 1&9 North	\$
EWR-NA-346	Brewster Road and Conrad Road	\$
EWR-NA-347	Brewster Road and Port Street Connector	\$
EWR-NA-348	Port Street and Port Street Connector (Entrance to P6)	\$
EWR-SA-354	Earhart Drive and Wiley Post Road	\$
<b>ESTIMATED YEAR FOUR ANNUAL CERTIFICATION PRICE (SUM OF ABOVE)</b>		<b>= \$</b>

**D. ESTIMATED FOUR YEAR CONTRACT PRICE FOR INTERSECTION CERTIFICATION: \$ \_\_\_\_\_**

**Contractor's Pricing Sheets**

**Exhibit E – Maintenance of Traffic (MOT) Vehicle Compensation**

**YEAR ONE**

<b>Item of Work</b>	<b>Est. Annual Quantity Hours</b>		<b>Unit Price</b>		<b>Estimated Annual Total</b>
Signal Technician Bucket Truck	20	x	\$	=	\$
Attenuator Vehicle Including All Equipment Necessary for MOT Per Attachment "C" Entitled "Roadway Area Protection" (PA O&M Standard 20)	20	x	\$	=	\$
<b>ESTIMATED YEAR ONE MOT PRICE (SUM OF ABOVE)</b>				=	\$

**YEAR TWO**

<b>Item of Work</b>	<b>Est. Annual Quantity Hours</b>		<b>Unit Price</b>		<b>Estimated Annual Total</b>
Signal Technician Bucket Truck	20	x	\$	=	\$
Attenuator Vehicle Including All Equipment Necessary for MOT Per Attachment "C" Entitled "Roadway Area Protection" (PA O&M Standard 20)	20	x	\$	=	\$
<b>ESTIMATED YEAR TWO MOT PRICE (SUM OF ABOVE)</b>				=	\$

**Contractor's Pricing Sheets**

**Exhibit E – Maintenance of Traffic (MOT) Vehicle Compensation**

**YEAR THREE**

<b>Item of Work</b>	<b>Est. Annual Quantity Hours</b>		<b>Unit Price</b>		<b>Estimated Annual Total</b>
Signal Technician Bucket Truck	20	x	\$	=	\$
Attenuator Vehicle Including All Equipment Necessary for MOT Per Attachment "C" Entitled "Roadway Area Protection" (PA O&M Standard 20)	20	x	\$	=	\$
<b>ESTIMATED YEAR THREE MOT PRICE (SUM OF ABOVE)</b>				=	\$

**YEAR FOUR**

<b>Item of Work</b>	<b>Est. Annual Quantity Hours</b>		<b>Unit Price</b>		<b>Estimated Annual Total</b>
Signal Technician Bucket Truck	20	x	\$	=	\$
Attenuator Vehicle Including All Equipment Necessary for MOT Per Attachment "C" Entitled "Roadway Area Protection" (PA O&M Standard 20)	20	x	\$	=	\$
<b>ESTIMATED YEAR FOUR MOT PRICE (SUM OF ABOVE)</b>				=	\$

**E. ESTIMATED FOUR YEAR CONTRACT PRICE FOR MAINTENANCE OF TRAFFIC VEHICLE COMPENSATION: \$\_\_\_\_\_**

**CONTRACTOR'S PRICING SUMMARY SHEET**

- A. Estimated Four Year Contract Price For Labor:** \$ \_\_\_\_\_
- B. Estimated Four Year Contract Price For Parts, Materials And Equipment:** \$ \_\_\_\_\_
- C. Estimated Four Year Contract Price For Project Work:** \$ \_\_\_\_\_
- D. Estimated Four Year Contract Price For Annual Certification:** \$ \_\_\_\_\_
- E. Estimated Four Year Contract Price For Maintenance of Traffic Vehicle Compensation:** \$ \_\_\_\_\_

**ESTIMATED FOUR YEAR CONTRACT PRICE** \$ \_\_\_\_\_  
**(Sum of A+B+C+D+E)**

**PART V – SPECIFICATIONS, TABLE OF CONTENTS**

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Attachment A – Traffic Signal Certification Preventative Maintenance Checklist

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Attachment H – Drawings SK-1, SK-2, and SK-3

## **PART V – SPECIFICATIONS**

### **1. Specific Definitions**

To avoid undue repetition, the following terms, as used in this Contract, shall be construed as follows:

“Facility” shall mean Newark Liberty International Airport (EWR) in Newark, New Jersey.

“Maintenance of Traffic” (MOT) shall mean a plan for continued traffic flow in a safe manner. This plan shall include using necessary safety equipment such as early warning system, signs, traffic cones, and attenuator vehicles as needed. The Contractor shall be required to strictly adhere to Port Authority Operations and Maintenance (O&M) Standard 20 for typical roadway work area protection procedures (see Attachment C).

“Manager” shall mean the Manager of the Facility for the time being or his/her successor in duties for the purpose of this Contract, acting personally or through his/her duly authorized representative.

“Traffic Signal Electrician Technician Level I” shall mean an individual who specializes and possesses the technical skills and relevant experience in regard to the installation, maintenance, repair, troubleshooting and performance of modifications to traffic signal control equipment, wiring systems, outdoor overhead lighting, and other electrical devices and performs other related work as required.

“Traffic Signal Electrician Technician Level II” shall mean an individual who has had the proper training and is certified by the International Municipal Signal Association (IMSA) as a Traffic Signal Electrician Level II and has a deep understanding of traffic signal operation, troubleshooting, repair and maintenance.

### **2. Work Required by the Specifications**

These Specifications relate generally to the performance of traffic signal intersection certification, preventative maintenance, repair, inspection and emergency response to traffic signal knockdowns, traffic cabinet knockdowns and any traffic signal related issues deemed necessary by the Manager. Intersection Certification will consist of the work to be performed as per Attachment A - Port Authority of New York & New Jersey Annual Certification Checklist.

The Port Authority Electrical Maintenance unit is generally the first responder to any calls involving traffic signals and may perform any of the work described under this Contract

### **3. Prevailing Wages**

The Contractor shall pay or provide (and shall cause all subcontractors to pay or provide) to his or her Traffic Signal Electrician Technician Level I and Traffic Signal Electrician Technician Level II, which positions are to be equivalent to that of a journey person, (who are employed by him/her to work on an hourly or daily basis at any trade or occupation at or about the Facility) at least the prevailing rate of wage and supplements for others engaged in the same trade or occupation in the locality in which the Services are being performed as determined by the Manager and notwithstanding that such rate may be higher than the rate in effect on the date of opening of the bids.

For the purposes of this Contract, the prevailing rates of wage and supplements are those established by State of New Jersey Department of Labor and Workforce Development Division of Wage and Hour Compliance Prevailing Wage Rate Determination for Hudson County for the period of time in which the work is performed.

The provisions of this clause are inserted in this Contract for the benefit of such Traffic Signal Electrician Technician Level I and Traffic Signal Electrician Technician Level II as well as for the benefit of the Port Authority; and if the Contractor or any subcontractor shall pay or provide any such Traffic Signal Electrician Technician Level I and Traffic Signal Electrician Technician Level II less than the rates of wages and supplements above described, such Traffic Signal Electrician Technician Level I and Traffic Signal Electrician Technician Level II shall have a direct right of action against the Contractor or such subcontractor for the difference between the wages and supplements actually paid or provided and those to which he/she is entitled under this clause. If such Traffic Signal Electrician Technician Level I and Traffic Signal Electrician Technician Level II are employed by any subcontractor whose subcontract does not contain a provision substantially similar to the provisions of this clause (requiring the payment or provision of a least the above minimum, and providing for a cause of action in the event of the subcontractor's failure to pay or provide such wages and supplements) such Traffic Signal Electrician Technician Level I or Traffic Signal Electrician Technician Level II shall have a direct right of action against the Contractor. The Port Authority shall not be a necessary party to any action brought by any Traffic Signal Electrician Technician Level I and Traffic Signal Electrician Technician Level II to obtain a money judgment against the Contractor or any subcontractor pursuant to this clause.

Nothing herein contained shall be construed to prevent the Contractor or any subcontractor from paying higher rates or providing higher supplements than the minimum hereinbefore described; and nothing herein contained shall be construed to constitute a representation or guarantee by the Port Authority that the Contractor or any subcontractor can obtain Traffic Signal Electrician Technicians Level I or Traffic Signal Electrician Technicians Level II for the minimum hereinbefore described.

### **4. Technical Support**

The Contractor shall provide technical support from a certified Traffic Signal Electrician Technician Level II on as-needed basis when deemed necessary by the

Manager. Compensation for technical support labor will be as per the prices listed in Pricing Sheet "A".

#### **5. Communications**

The Contractor shall provide twenty-four (24) hour emergency service and shall provide the Port Authority with a landline phone number and a cellular number for communication.

#### **6. Personnel Requirements**

The Contractor shall have a sufficient number of experienced Traffic Signal Electrician Technicians on staff to perform signal certification, maintenance, repair and inspection work under this Contract.

Technicians responsible for the traffic signal controller and conflict monitor certification testing tasks shall be trained to service the controllers and conflict monitors that exist at the facility, shall be an IMSA Certified Traffic Signal Electrician Technician Level II and have a minimum of (2) two years of verifiable field experience as Traffic Signal Electrician Technicians.

The Contractor must submit to the Manager a copy of individual IMSA certification, on an annual basis, for each technician working on controllers, conflict monitors or in the controller cabinet under this Contract.

All personnel assigned to the Contract and that will be working on the Facility may be required to undergo background screening and/or a security investigation in order to obtain a credential to access the facility, as described in Part II, Section 12, entitled "Contractor Staff Background Screening." The Contractor will be obligated to replace any person who does not pass the security check. All personnel shall comply with all security regulations and display ID at all times. Failure to comply may result in removal from the Contract.

#### **7. Response to Emergency**

In the case of a traffic signal or controller issue deemed an emergency by the Manager, the Contractor will be required to respond with experienced traffic signal technicians, equipment and material necessary to start a repair within (6) six hours of the call. Emergency response will be compensated as per the Pricing Sheets for the applicable hourly labor rates, material markup and MOT.

#### **8. Management and Supervision**

The Contractor is responsible for all aspects of supervision for the Contractor's employees working under this Contract.

#### **9. Materials, Supplies and Equipment**

The Contractor will supply all materials, supplies and equipment to perform yearly certification work under this Contract at no additional cost to the Port Authority. Any parts needed for repairs found during yearly certification work will be compensated as per Pricing Sheet "B". Labor for these repairs shall be at no additional cost to the Port Authority.

All other materials, supplies and equipment supplied at the request of the Manager and the Contractor will be compensated for this material, supplies and equipment as per Pricing Sheet "B"

#### **10. Annual Certification of Traffic Signal Intersections**

Annual Certification includes the performance of inspections and preventative maintenance tasks for specified intersection(s) on an annual basis to ensure the electrical, operational and mechanical integrity of the facilities traffic signals as more fully detailed below and in Attachment A - Traffic Signal Certification Preventative Maintenance Checklist.

Within thirty (30) days of Contract Award, the Contractor shall submit a schedule to perform the Annual Certification and Preventative Maintenance Work, and the date for the Work to be performed shall not exceed (45) forty-five days of the start of this Contract.

For the remaining years under this Contract, the Annual Certification and Preventative Maintenance Work shall be performed every (12) twelve months thereafter. Annual Certification and Preventative Maintenance will include all labor, equipment, vehicles and signage necessary to safely perform this task. Costs for all Maintenance of Traffic equipment (MOT) needed shall be included in the bid price for this work. No separate payment will be made for MOT associated with Certification and Preventative Maintenance Work, nor for any testing equipment needed.

Below is a brief description of the Annual Certification requirement:

The Contractor will inspect and clean each signal head, check wiring connections in each signal head and tighten same as needed, inspect associated brackets, inspect and clean signs, inspect poles, inspect pole bases and tighten all hardware as needed.

The Contractor will inspect the intersection controllers and wiring connections and tighten as needed. The Contractor is to inspect and check that the intersections controller, conflict monitor, modems, video detection equipment, vehicle detectors, loops, switches, relays, Uninterruptible Power Supply (UPS) batteries, transfer switches and all associated equipment is working properly. The Contractor shall perform the following tests:

a) Loop and Loop Detector Test:

The Work shall require testing of loops and loop detectors. The Contractor shall be required to perform the following tasks to identify failed loop detection components when directed by the Authority:

- i. Open the loop wire to lead-in cable splice in the curbside pull/junction box and test the inductance, series resistance, ground

leakage functions for each loop utilizing an ATSI Model HILT 9000 handheld inductive loop tester or an approved equal.

- ii. All loop lead-in cables shall also be tested for continuity between the curbside pull box/junction box and the controller cabinet.
- iii. Loops and lead-in cable that are demonstrated to be operable shall be re-spliced in accordance with Port Authority standards. A hard copy of all loop and lead-in test results must be provided to the Manager for each loop tested.
- iv. Loops that are demonstrated to be inoperable will either be repaired by the Port Authority facility staff or the Contractor as directed by the Manager. Compensation for Labor and Material for replacement of loops or loop detectors will be as per the cost included on the Pricing Sheets.

b) Conflict Monitor Test

This test shall include all work and all other things necessary and required to test traffic signal conflict monitors as specified herein. The Port Authority will furnish one new conflict monitor assembly to initiate the conflict monitor testing process. Conflict monitors removed from Facility intersections shall be tested, utilizing factory-supplied program boards, in accordance with the below noted procedure and factory recommendations. Subsequent to successful testing, these units will be utilized in rotation to continue the prescribed process until all facility conflict monitors have been tested. Conflict monitors shall be tested in accordance with the following procedure utilizing an ATSI Model PCMT 2600 test unit or an approved equal. Upon completion of the testing process, the conflict monitor supplied by the Port Authority shall be returned to the Facility.

Testing Procedure:

The Contractor shall be required to maintain traffic during the following process to avoid motorist confusion. The Contractor shall submit a work plan to the Manager for approval, prior to starting test procedures.

The Contractor shall replace the existing conflict monitor with a previously tested unit, utilizing the existing intersection specific monitor program board at each location.

- i. Conflict monitor program board test - Force a green indication on conflicting phases to verify that the conflict is detected on all non-concurrent phases.
- ii. Absence of red test - Simulate the absence of red on each phase to verify that this condition is detected.

- iii. Controller power failure test- Simulate a controller power failure to verify that this condition is detected.

A hard copy and a digital file of the above conflict monitor test (using the model PCMT-2600 unit) must be provided to the Manager for each conflict monitor tested. Digital files must be downloaded to a laptop computer in the field subsequent to each monitor test procedure. In addition, a hard copy of the conflict monitor test results shall also be provided to the Manager.

The Contractor shall provide all materials, tools and equipment that is required to test conflict monitors, as described herein, including the specified conflict monitor tester. All costs for conflict monitor testing including MOT shall be included in the bid price for "Annual Certification of Traffic Signal intersections". No separate payment will be made for purchasing/acquiring of required test equipments herein.

The Contractor will verify that the intersection is running as per Port Authority Traffic Engineering timing plans for each intersection.

The Contractor will completely fill out Attachment A, noting any deficiencies and corrective action taken. An original of this list is to be supplied to the Manager.

The Contractor will immediately notify the Manager of any deficiencies found while performing the Annual Certification. The Manager will determine if the repair should be made immediately. There will be no additional compensation for labor due to repairs made as a result of certification work findings. The Contractor will be compensated for material only as per Pricing Sheet "B".

The Contractor will supply a schedule for performing the Annual Certification to the Manager and once approved by the Manager, the Contractor may proceed with work within that schedule. Any changes to this schedule must be approved by the Manager. No work on any of the traffic signals will be performed unless it is authorized verbally or in writing by the Manager.

## **11. Inspection of Traffic Controller Cabinet and Equipment**

The Contractor shall inspect each traffic controller cabinet and all of the cabinets' contents for proper operation including controller, conflict monitor, vehicle detectors, video detection, relays, load switches, cabinet light, cabinet fan, filters and shall verify the intersection timing is correct as per the Port Authority's Traffic Engineering specification for the intersection. The Contractor will perform a visual inspection from the ground of all poles, pole bases, signals, pushbuttons and supply the Port Authority with a written inspection report for each Intersection. The Contractor shall perform inspections six (6) months after each yearly certification work is completed for the duration of this Contract.

See Attachment B for listing of the facilities intersections.

## **12. Traffic Signal Repair**

The Contractor shall supply all qualified labor and necessary materials to respond to any and all traffic signal repairs as requested by the Manager. Compensation for labor will be per Pricing Sheet "A" and compensation for material will be as per Pricing Sheet "B".

## **13. Port Authority Staff Training**

The Contractor shall supply materials and labor to perform training sessions for the Port Authority Electrical Maintenance staff on site at the Facility when requested by the Manager. The training will consist of instruction on traffic controller cabinet maintenance, overview of traffic signal controller operation including operation of conflict monitor, vehicle detectors, video detection systems, UPS and transfer switches. This training will fall under the category of Project Work and the Contractor will be compensated as per the Project Work Pricing Sheet "C". This training shall be conducted by an IMSA Certified Traffic Signal Electrician Technician Level II and will consist of a total of 16 hours of training during the base term.

## **14. Work Authorization and Coordination**

The Contractor shall coordinate all work activities with the Manager for authorization to perform any work under this contract. No work will commence unless it has been authorized in writing via letter or electronically via e-mail from the Manager. In the case of an emergency, the Manager may elect to notify the Contractor verbally by phone.

The Port Authority Electrical Maintenance Unit at Newark Liberty International Airport is responsible for the daily operation of the traffic signal system. Facility Electricians will be always be first responders to all traffic signal complaints.

From time to time, the Contractor shall be required to coordinate and interact with the Port Authority's Electrical Maintenance Unit and the Port Authority Traffic Engineering Group to address traffic signal issues and concerns as directed by the Manager.

## **15. Maintenance of Traffic**

The Contractor shall furnish all required MOT equipment necessary and required when performing Work under this Contract.

The Contractor shall be required to strictly adhere to Port Authority Operations and Maintenance (O&M) Standard 20 for typical roadway work area protection procedures (see Attachment C).

All vehicles used in performance of Work in the roadways shall be equipped with warning lights, safety signs, safety cones and other equipment necessary for protection of Facility patrons and workers.

Compensation for attenuator backup vehicle and other necessary equipment for roadway work other than Annual Certification will be compensated as per Pricing Sheet "E".

For any work areas that require site-specific MOT plans, those plans will be provided by Port Authority Traffic Engineering. The Contractor shall at all times conduct operations to ensure the convenience of all travelers and the abutting property owners and their safety as well as the safety of his own employees. Such conduct shall include, but not be limited to, ensuring that all materials and equipment are removed from the work site during non-working hours, or are protected in such manner that they shall not constitute a hazard.

Compensation for MOT work required for additional or extra work will be made as per Pricing Sheet "A" (Labor) and Pricing Sheet "E" (MOT Vehicle Compensation).

#### **16. Lane Closure Restrictions**

Peak hour lane closure restrictions may apply for annual certification work; however, this work will be scheduled during the daytime on non-holiday weekdays.

#### **17. Records**

In addition to record keeping requirements outlined elsewhere in this Contract, the Contractor shall maintain complete and accurate records in hard copy and electronic file format, acceptable to and approved by the Manager, of all maintenance, repair, annual certifications and any other events relating to and performed on the traffic signals under this Contract. The project records, files, and equipment owned by the Port Authority shall be delivered to the Manager with submittal of the final invoice by the Contractor. The Port Authority shall not render final payment until all conditions of the Contract have been met.

#### **18. Salvaged Equipment**

The Port Authority shall retain the rights to all traffic signal equipment. The Contractor shall deliver components of salvaged equipment to a Port Authority designated site at the Facility when directed by the Manager.

#### **19. Supply and Delivery of Materials**

The Contractor must supply and deliver various traffic signal-related materials including, but not limited to: traffic signal fixtures, traffic signal poles, traffic signal controllers, conflict monitors, vehicle detectors, and all other traffic signal material as per the Manager's request. Compensation for these materials will be as per Pricing Sheet "B".

## 20. Project Work

The Contract includes Project Work that the Port Authority may or may not elect to perform. Work listed below is identified as Project Work in this Contract and is detailed in Pricing Sheet "C" entitled "Project Work".

- i) Removal and disposal of existing traffic signal head fixtures. Replace traffic signal head fixtures including all brackets, hangars chains and all other necessary parts, materials, equipment and hardware for complete- installation of new replacement traffic signals as required. The new signals will be polycarbonate construction, 12" in diameter, color federal yellow, complete with visors, sun guards and LED 12 inch modules in red, yellow & green.

NOTE: Exception, pole top mounted and hanging signal head fixtures will be constructed of aluminum, the intersections and number of fixtures to be aluminum are noted with an asterisk(\*) in Pricing Sheet "C" Project Work Pricing

The traffic signal replacement will be as per the attached Port Authority specifications:

Attachment "D" entitled Painting Division 9 Section 09910

Attachment "E" entitled Vehicular Traffic Signal Heads and Mounting Hardware"

Attachment "F" entitled "Traffic Signal Details".

Signal and video mounting equipment and hardware, and back side of back plates shall be painted using the following facility-specific descriptions below. Controller cabinets, side mount enclosures, signal heads, and video detection unit housings shall not be painted.

Equipment shall be painted with an N-2G system as per the Specification Section 09910. The top finish paint coat shall be umber to match Carboline Carbothan 134HG, color code #8206 or approved equal. Prior to painting, prepare galvanized surfaces in accordance with Section 09910, Part 3.01B.2

Traffic Intersection locations are as per Attachment "G" entitled "Intersections ID Key Plan"

Pedestrian signals and pedestrian Pushbuttons are not included in this project.

- ii) Complete installation of new video detection system and all associated necessary, parts, materials, equipment and hardware for complete installation of proper working video detection system at intersections

302, 342 and 346. This video detection will be installed as per Attachment "H" drawings SK-1, SK-2, and SK-3 and Attachment "F" Port Authority specifications entitled "Traffic Signal Details".

The video detection system shall consist of:

Iteris Vantage RZ4 cameras

Iteris Vantage Rack

Iteras Vantage Edge 2 Machine vision

Processors A black & white 9" video monitor  
and mouse.

- iii) Replacement of signal bus mercury relays and upgrade to solid state type signal bus relay at all intersections
  
- iv) The Contractor shall supply materials and labor to perform training sessions for the Port Authority Electrical Maintenance staff on site at the Facility at a designated location when requested by the Manager. The training will consist of instruction on traffic controller cabinet maintenance, overview of traffic signal controller operation including operation of conflict monitor, vehicle detectors, video detection systems, UPS and transfer switches. This training will be conducted by an IMSA Certified Level II Signal Technician.

**Attachment A**  
**Traffic Signal Certification Preventive Maintenance Checklist (6/2014)**

Facility: \_\_\_\_\_ Date: \_\_\_\_\_  
 Int. No: \_\_\_\_\_ Start Time: \_\_\_\_\_  
 Location: \_\_\_\_\_ Finish Time: \_\_\_\_\_  
 Contractor: \_\_\_\_\_ Signal Technician: \_\_\_\_\_

OK	TASK	DEFICIENCY NOTED	DEFICIENCY CORRECTED
----	------	------------------	----------------------

**Cabinet**

	Replace cabinet air filter		
	Check operation of fan and thermostat		
	Vacuum control cabinet to remove all dust and debris		
	Check operation of cabinet light and switch; replace if necessary		
	Check bonding and resistance to ground rod, clean and re-tighten as required		
	Measure and record incoming AC service voltage at input side of mercury / solid state relay: (V = _____)		
	Check and tighten all terminal connections		
	Check all Police functions: Flash Switch and Manual Control		
	Test & reset ground fault receptacles, circuit breakers and all equipment fuses, replace as required		
	Check radio interference filter and surge arrestor, replace as required		
	Lubricate hinges and locks		
	Tighten anchor bolts as required		
	Replace duct seal as required <b>for all conduit entrances</b>		
	Check for water accumulation in the cabinet, seal as required		
	<b>Check the perimeter of foundation mounted cabinets. Seal around cabinet base with silicone sealant as required</b>		
	Verify that all spare conductors are landed on spare terminal blocks or taped off		
	Test and reset GFCI receptacle on power distribution panel; replace as required		
	Check door gaskets and realign or replace as required		

**Vehicle and Pedestrian Signal Heads**

	Check safety chains to make sure they are securely fastened		
	Check signal and mast arm sign mounting hardware re-tighten as required		
	Check for cracked and/or damaged mounting brackets		
	Check for cracked and/or missing screws <b>on signal housing, visors and back plates. Replace / re-tighten as required.</b>		
	Check bushings on cable outlet and universal hangers; replace as required		

**Attachment A**  
**Traffic Signal Certification Preventive Maintenance Checklist (6/2014)**

Facility: \_\_\_\_\_ Date: \_\_\_\_\_  
 Int. No: \_\_\_\_\_ Start Time: \_\_\_\_\_  
 Location: \_\_\_\_\_ Finish Time: \_\_\_\_\_  
 Contractor: \_\_\_\_\_ Signal Technician: \_\_\_\_\_

OK	TASK	DEFICIENCY NOTED	DEFICIENCY CORRECTED
	Check terminal block connections and re-tighten as required		
	Check signal cable nicks or damage inside signal head and weather head		
	Check serrated rings in signal heads for damage and re-tighten as required. Missing serrated rings shall be reported to PA		
	Clean back plates and check for cracks or damage		
	Check and clean lenses, visors and signs		
	Check gaskets for water infiltration and deterioration		
	Check signal head doors, wing nuts, hinges, visors & louvers (if installed).		
	Inspect traffic signal housing for cracks or damages		
	Check Vehicular and Pedestrian heads LED module failures. Notify PANYNJ		
	Re-lamp all incandescent signals and clean reflectors (Excludes LED. & Optically programmed). Notify PA of all existing incandescent lamp locations		
	Re-lamp sealed beams for programmed signal heads		
	Measure and record vertical clearance for span wire mounted signals (roadway to bottom of signal).		
	Check alignment of vehicle & pedestrian heads for the approach they serve, reorient as required		
	Check for branches & foliage obstructing signal indications-Report to the Port Authority		
<b>Pushbuttons</b>			
	Check pushbutton and sign condition. Re-tighten / replace hardware as required		
	Test pushbuttons for proper operation		
	Check for damage to paint. Touch up as required		
<b>Poles, Mast Arms &amp; Span Wires</b>			
	Check poles, transformer bases and arms for wear and/or damage		
	Adjust alignment & tighten mast arms to conform with approved drawing located in the cabinet		
	Check and tighten bolts between transformer base and foundation and shoe base		
	Check wire at outlets for chafing, ensure drip loop is properly installed; report issues to PANYNJ for action		
	Check paint condition and/or corrosion and notify PANYNJ		

**Attachment A**  
**Traffic Signal Certification Preventive Maintenance Checklist (6/2014)**

Facility: \_\_\_\_\_ Date: \_\_\_\_\_  
 Int. No: \_\_\_\_\_ Start Time: \_\_\_\_\_  
 Location: \_\_\_\_\_ Finish Time: \_\_\_\_\_  
 Contractor: \_\_\_\_\_ Signal Technician: \_\_\_\_\_

OK	TASK	DEFICIENCY NOTED	DEFICIENCY CORRECTED
	Check for missing pole caps and mast arm end caps; replace as required		
	Replace missing pole base access door		
	Re-tighten / replace bolt cover hardware		
	Check that each pole is electrically bonded. Install / replace bonding as required.		
	Visually inspect pole condition. Check for cracks and / or checks (wood poles)		
	Clear drain holes in pole bases if present		
	Check all splices in pole bases and on span wire. Re-splice as required.		
	Check condition of varmint screen at base of pole if present. Repair / replace as required.		
	Visually check the condition of traffic signal cable for dry rot, nicks, cuts, deterioration.		
	Check signal cable on span wire for nicks / damage and ensure that cables are properly secured to span		
	Check foundations for damage or deterioration		
	Check condition of strain vises, if applicable		
	Visually inspect each upper and lower tether span wire for damage or deterioration		
	Visually inspect each upper and lower tether span wire for excess sag; report issues to PANYNJ for action		
	Inspect all connecting span wire hardware; report issues to PANYNJ for action		
	Inspect guy anchors for proper attachment and/or damage		
<b>Detection</b>			
	Perform visual inspection of all loop detectors and roadway area		
	Check operation of loop amplifiers & tune as required <sup>1</sup>		
	Check all loop detectors to verify that vehicles are being detected. Test loops as required <sup>1</sup>		
	Check amplifier connectors for tightness		
	Check microwave detectors to verify that vehicles are detected in all zones, tune as required		
	Clean and inspect video detection camera housings and lenses		
	Check video detectors to verify that vehicles are detected in all target zones, tune as required		
	Check camera mounting hardware to verify that it is secure		

**Attachment A**  
**Traffic Signal Certification Preventive Maintenance Checklist (6/2014)**

Facility: \_\_\_\_\_ Date: \_\_\_\_\_  
 Int. No: \_\_\_\_\_ Start Time: \_\_\_\_\_  
 Location: \_\_\_\_\_ Finish Time: \_\_\_\_\_  
 Contractor: \_\_\_\_\_ Signal Technician: \_\_\_\_\_

OK	TASK	DEFICIENCY NOTED	DEFICIENCY CORRECTED
----	------	------------------	----------------------

**Controller and Cabinet Equipment**

	Note and record make, model, firm ware version, and serial number for controllers, conflict monitors and other major components		
	Check and verify signal timing with the timing plan located in the cabinet and time, day & daylight savings settings		
	Check conflict monitor by actual conflicts with recording conflict monitor tester <sup>2</sup>		
	Check and verify communications to master controller and ID number of controller		
	Verify the time settings in the local to match the master		
	Verify vehicle and pedestrian calls		
	Check and verify that central to local controller communications is operational. Report communications failures to PA.		
	Check controller to verify it operates in the mode selected by the supervisory master		
	Disconnect from the master supervisory system and check for "free" or backup operation		
	Check load switches, flasher and relays for proper fit into socket		
	Wipe dust off controller, detectors, and auxiliary equipment		
	Check indicator lamps on controller, loop amplifiers and other electronics in cabinet		
	Check for electrical wiring plan, Traffic Signal sequencing plan and timing chart, Notify PANYNJ if missing		
	Check and verify operation of UPS equipment. Restore operation as required		
	Verify UPS automatic transfer switch operation		
	Verify UPS incoming line voltage		
	Verify UPS DC output to batteries		
	Verify UPS AC output on inverter		
	Check UPS electrical connections		
	Test UPS system via simulated power outage at cabinet		

**Miscellaneous Tasks**

	Check splice boxes and pull boxes for proper grade		
	Check splice box & pull box ground rod, clean and tighten conduit clamp as required		



# Attachment B - Facility Intersection Listing

## Signalized Intersections

## Assets

Intersection Number	Old Intersection Number	Signal Inventory Book Number	Facility Area	Cabinet Number	Intersection Name	Controller Cabinet Type	Controller		Conflict Monitor	Loop Detection Equipment	Video Detection Equipment	Microwave Detection Equipment	Communications Equipment	Other Equipment	Number of Pedestrian Signal Head	Number of Vehicular Signal Head (3 Sections)	Number of Vehicular Signal Head (4 Sections)	Number of Vehicular Signal Head (5 Sections)
							Model	Firmware Version										
EWR-TA-301		EWR 13	Terminal A		South Service Road and Hotel Road	p <sup>8</sup>	PEEK 3000E	5074V5.0	Naztec - NM512	Sarasota 537B-(4ch)	-	-	Twisted Pair, Comm panel	-	7	-	-	
EWR-TA-302		EWR 14	Terminal A		Route 119 Ramp to Parking and South Service Road Merge	p <sup>8</sup>	PEEK 3000E	5074V5.0	Naztec - NM512	Sarasota 537B-(4ch)	-	-	Twisted Pair, Comm panel	-	4	-	-	
EWR-TA-303		EWR 15	Terminal A		Terminal A HOV Roadway Pedestrian Crossing 1	p <sup>8</sup>	PEEK 3000E	5074V5.0	Naztec - NM512	-	-	-	Twisted Pair, Comm panel	4	5	-	-	
EWR-TA-304		EWR 16	Terminal A		Terminal A HOV Roadway Pedestrian Crossing 2	p <sup>8</sup>	PEEK 3000E	5074V5.0	Naztec - NM512	-	-	-	Twisted Pair, Comm panel	4	5	-	-	
EWR-TB-310		EWR 17	Terminal B		Terminal B HOV Roadway Pedestrian Crossing 1	p <sup>8</sup>	PEEK 3000E	5074V5.0	Peek Double Diamond	-	-	-	Twisted Pair, Comm panel	4	5	-	-	
EWR-TB-311		EWR 18	Terminal B		Terminal B HOV Roadway Pedestrian Crossing 2	p <sup>8</sup>	PEEK 3000E	5074V5.0	Peek Double Diamond	-	-	-	Twisted Pair, Comm panel	4	5	-	-	
EWR-TB-312		EWR 19	Terminal B		Terminal B LOV Roadway Pedestrian Crossing 1 (Non-operational)	p <sup>8</sup>	PEEK 3000E	5074V5.0	Peek Double Diamond	-	-	-	Twisted Pair, Comm panel	4	4	-	-	
EWR-TB-313		EWR 20	Terminal B		Terminal B LOV Roadway Pedestrian Crossing 2 (Non-operational)	p <sup>8</sup>	PEEK 3000E	5074V5.0	Peek Double Diamond	-	-	-	Twisted Pair, Comm panel	4	4	-	-	
EWR-TB-314		EWR-27	Terminal B		Term. B HOV Fron. Rd. and CTAParking Rd Ped. Xwalk #1	p <sup>8</sup>	PEEK 3000E	8216A	Peek Double Diamond	-	-	-	Twisted Pair, Comm panel	4	5	-	-	
EWR-TB-315		EWR-28	Terminal B		Term. B HOV Fron. Rd. and CTAParking Rd Ped. Xwalk #2	p <sup>8</sup>	PEEK 3000E	8216A	Peek Double Diamond	-	-	-	Twisted Pair, Comm panel	4	5	-	-	
EWR-TC-319		EWR 22	Terminal C		Terminal C HOV Roadway Pedestrian Crossing 1	p <sup>8</sup>	PEEK 3000E	5074V5.0	Naztec - NM512	-	-	-	Twisted Pair, Comm panel	4	6	-	-	
EWR-TC-320		EWR 24	Terminal C		Terminal C HOV Roadway Pedestrian Crossing 2	p <sup>8</sup>	PEEK 3000E	5074V5.0	Naztec - NM512	-	-	-	Twisted Pair, Comm panel	4	6	-	-	
EWR-TC-321		EWR 21	Terminal C		Terminal C LOV Roadway Pedestrian Crossing 1	p <sup>8</sup>	PEEK 3000E	5074V5.0	Naztec - NM512	-	-	-	Twisted Pair, Comm panel	4	6	-	-	
EWR-TC-322		EWR 23	Terminal C		Terminal C LOV Roadway Pedestrian Crossing 2	p <sup>8</sup>	PEEK 3000E	5074V5.0	Naztec - NM512	-	-	-	Twisted Pair, Comm panel	4	6	-	-	
EWR-CA-328		EWR 1	Central Area		Lindbergh Road and Earhart Drive	p <sup>8</sup>	PEEK 3000E	5074V5.0	Transyt 12ELRA	YES	-	-	Twisted Pair, Comm panel	4	9	-	-	
EWR-CA-329		EWR 2	Central Area		Lindbergh Road and Hertz Driveway	p <sup>8</sup>	PEEK 3000E	5074V5.0	Transyt 12ELRA	YES	-	-	Twisted Pair, Comm panel	-	10	2	-	
EWR-CA-335		EWR 6	Central Area		Pitcairn Road and Martin Road	p <sup>8</sup>	PEEK 3000E	5074V5.0	Peek Double Diamond	YES	-	-	-	2	11	-	-	
EWR-CA-341		EWR 3	Central Area		Brewster Road and Lindbergh Road	p <sup>8</sup>	PEEK 3000E	5074V5.0	EDI-NSM-12	YES	-	-	Twisted Pair, Comm panel	-	15	-	-	
EWR-CA-342		EWR 4	Central Area		Brewster Road and Pitcairn Road	p <sup>8</sup>	PEEK 3000E	5074V5.0	Peek 12ELRA	Reno U-1200-R (4ch)	-	-	Twisted Pair, Comm panel	-	13	-	-	
EWR-NA-343		EWR 5	North Area		Brewster Road and I-78 Entrance Ramp	p <sup>8</sup>	PEEK 3000E	5074V5.0	Transyt 12ELRA	Sarasota 537B-(4ch)	-	-	Twisted Pair, Comm panel	-	8	-	-	
EWR-NA-345		EWR 25	North Area		Brewster Road and Entrance from 169 North	p <sup>8</sup>	PEEK 3000E	5074V5.0	Naztec - NM512	Reno U-1200-R (4ch)	-	-	Twisted Pair, Comm panel	Peek 3000 Master	11	-	-	
EWR-NA-346		EWR 26	North Area		Brewster Road and Conrad Road	p <sup>8</sup>	PEEK 3000E	5074V5.0	Naztec - NM512	Reno U-1200-R (4ch)	-	-	Twisted Pair, Comm panel	-	4	7	5	
EWR-NA-347		EWR 29	North Area		Brewster Road and Port Street Connector	p <sup>8</sup>	Siemens M52	TBD	TBD	-	TBD	-	TBD	Interconnect cable	6	-	-	
EWR-NA-348		EWR 30	North Area		Port Street and Port Street Connector (Entrance To P6)	p <sup>8</sup>	Siemens M52	TBD	TBD	-	TBD	-	TBD	Interconnect cable	2	12	-	
EWR-SA-354		EWR 7	South Area		Earhart Drive and WileyPost Road	p <sup>8</sup>	PEEK 3000E	5074V5.0	Peek Double Diamond	YES	-	-	-	4	14	-	2	
															64	189	2	7

The intersections are numbered based on the following format: Facility - Facility Area - Number

EWR - Newark Liberty International Airport	
TA - Terminal A	
TB - Terminal B	
TC - Terminal C	
CA - Central Area	
NA - North Area	
SA - South Area	

## Attachment C

### Port Authority Operations and Maintenance Standard 20

## ROADWAY WORK AREA PROTECTION

### I. INTRODUCTION:

This Standard establishes the typical methods and procedures to ensure protection of motorists, and Port Authority and Contractor'(s) crew working on Port Authority roadways for short durations. (One day's work schedule is considered short-term although it may be necessary to reconstruct the protection schemes on following days.) Work projects requiring long-term barricading, detour design, etc., require special study by the Chief Traffic Engineer's Office, which shall provide appropriate traffic drawings before the work is started.

### II. SHORT DURATION WORK AREA PROTECTION SCHEMES:

Four typical roadway work area protection schemes are illustrated.

They include:

1. Closure of left lane (on a divided or non-divided roadway.)
2. Closure of right lane.
3. Closure of Center lane of a one way roadway.
4. Closure of two adjacent lanes of a one way roadway.

Examination of these schemes will guide maintenance crews in the required procedures.

### III. USE OF TRAFFIC CONTROL DEVICES:

#### A. General

Traffic control devices shall be properly installed prior to the commencement of construction or maintenance operations, and shall be continually monitored and properly maintained. The devices shall remain in place as long as construction or maintenance is in progress and shall be immediately removed thereafter. Where operation are performed in stages, only those devices that apply to the current stage shall be in place. Signs not applicable to the particular stage shall be removed, covered, or turned so as not to be readable by oncoming traffic. Signs shall be erected in a workmanlike manner.

B. Trailer Mounted Flashing Arrow Sign

This sign consists of lights in the form of an arrow. The arrow lights flash indicating the required traffic movement.

C. Flashing Arrow Mounted on Backup Truck

Flashing arrow mounted on backup truck shall either flash in "Caution mode" when proceeded by a trailer mounted flashing arrow. When not proceeded by trailer mounted flashing arrow, the truck mounted flashing arrow sign shall display the appropriate arrow direction.

IV. RESPONSIBILITIES:

Facility management and the Engineering Department's Construction Division Staff shall assure that the Facility, SEMAC, and or Contractors crew adhere, as a minimum, to this standard.

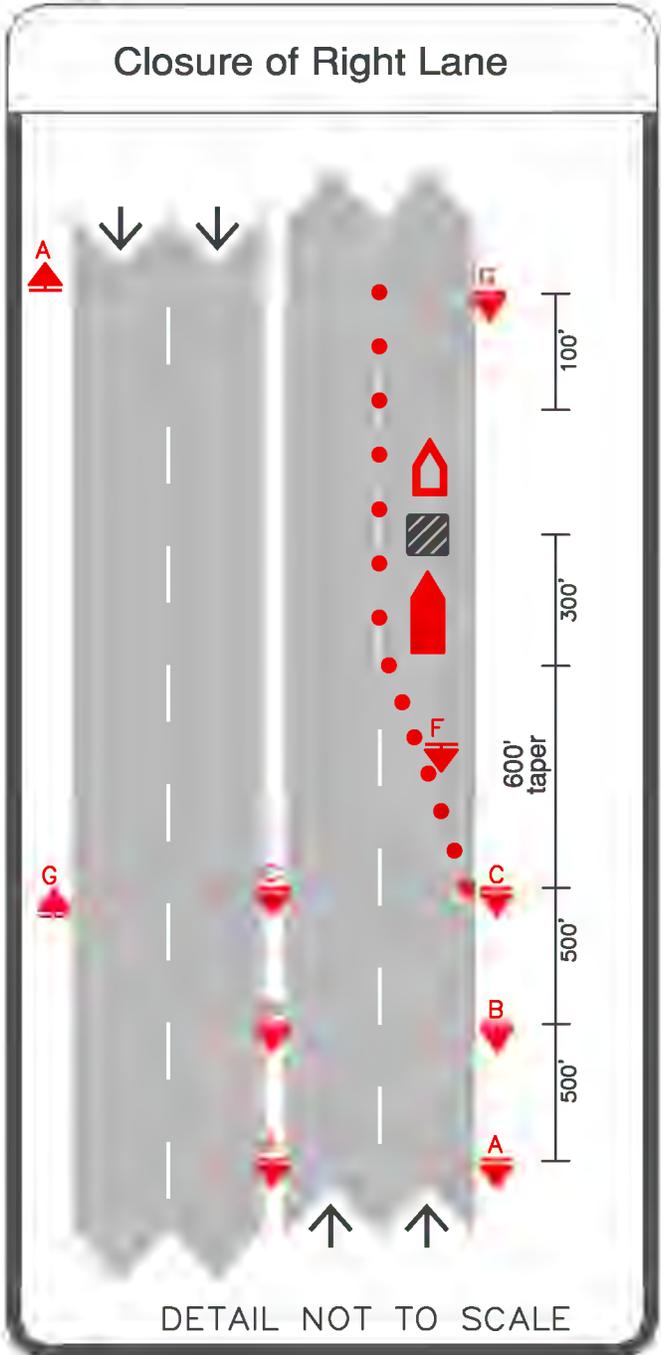
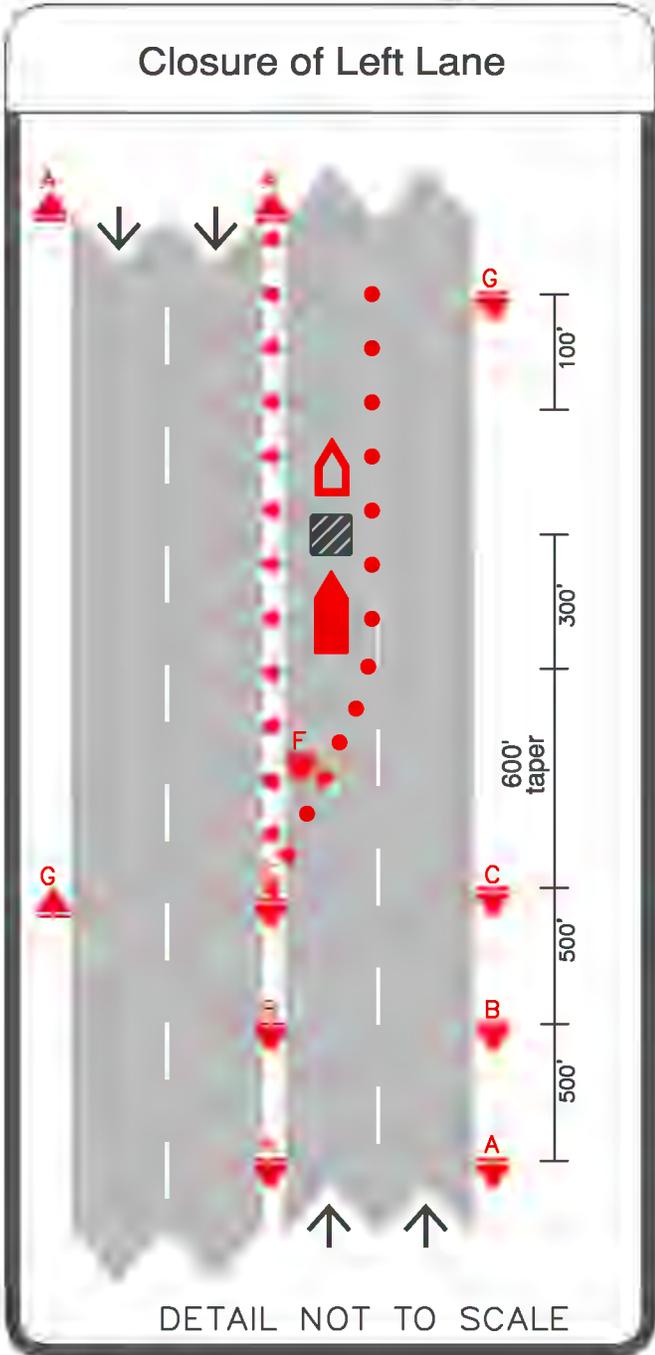
The Port Authority Sign Shop shall, upon Traffic Engineering request, supply the necessary signing when it is not available at a Facility.

Chief Traffic Engineer's office shall design roadway protection schemes for special conditions and operations of long duration.

If contractor services are required, the Contractor will supply and maintain those traffic control devices, barricades, and other equipment as noted in the contract documents.

*This Standard shows the minimum traffic control devices, required but is not a substitute for Engineering discretion exercised in particular circumstances.*

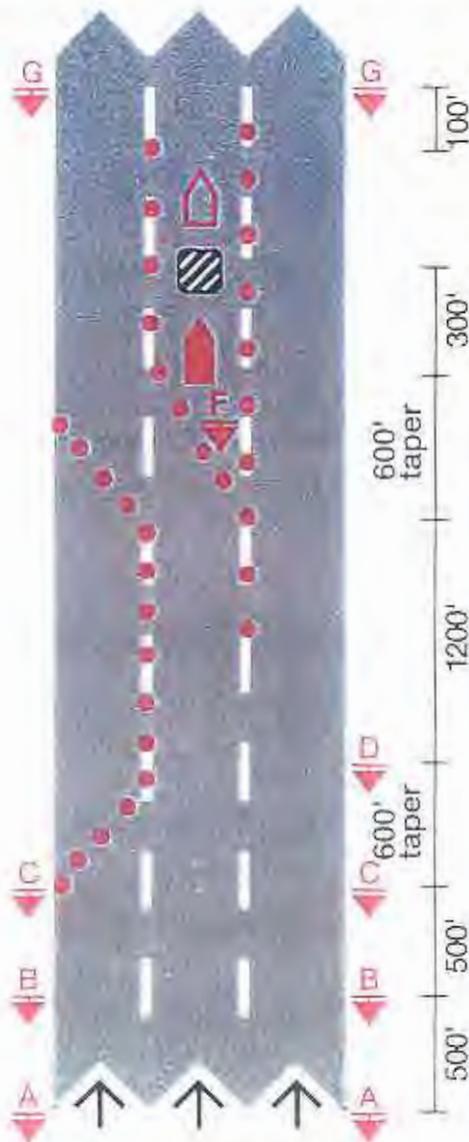
# Short Duration Typical Roadway Work Area Protection



Legend		see other side for notes	
A	High intensity flashing lights 48" sign	D	48" sign
B	LEFT, CENTER, or RIGHT 48" sign	E*	2' x 4' sign
C	LEFT or RIGHT 48" sign	F*	flashing arrow 4' x 8' sign (set on low intensity at night) * Arrow points to open lane.
G	2' x 4' sign	[Hatched Box]	work area
[Back-up Vehicle]	back-up vehicle with impact attenuator 50'-100' in advance of the work area	[Work Vehicle]	work vehicle with flashing warning lights. (impact attenuator is not required on this vehicle)
[Cones]	28" high orange traffic cones at 25' intervals		

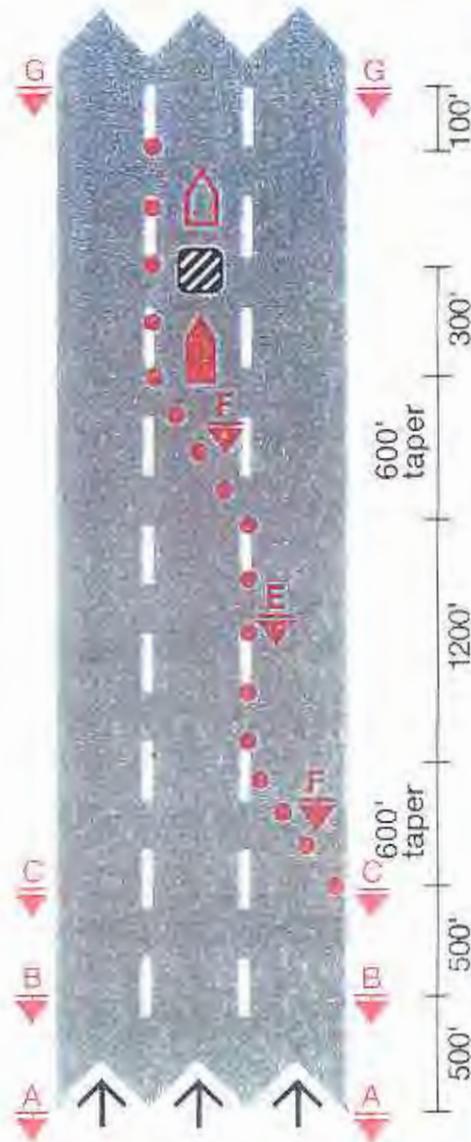
# Short Duration Typical Roadway Work Area Protection

## Closure of Center Lane



DETAIL NOT TO SCALE

## Closure of Two Adjacent Lanes



DETAIL NOT TO SCALE

### Notes

see other side for legend

1. Place Sign A, B and C on Both Sides of Roadway Where Possible.
2. All Fixed Signs Are Black on Reflective Florescent Orange.
3. Where Speeds Are Less than 30MPH, 500' Spacing May be Reduced to 200', and 600' Taper Reduced to 200'.
4. Median Cone Line, Reverse Direction Signs not Required on Roadways Divided by Raised Barrier or Medians Over 12' Wide.
5. Gross Back-Up Vehicle Weight Between 11,000 lbs. and 26,000 lbs.
6. For Long Duration or Special Conditions, Contact CHIEF TRAFFIC ENGINEER'S Office for Special Traffic Control Plans.
7. A Second Vehicle in Front of Work Area is Required As Shown; Attenuator not Required on This Vehicle.

**DIVISION 9**

**SECTION 09910**

**PAINTING**

**PART 1. GENERAL**

1.01 SUMMARY

- A. This Section specifies requirements for shop and construction site application of paint as shown on the Contract Drawings.
- B. Work of this Section includes surface preparation and painting of the following items and surfaces:
  - 1. Exterior and interior painting in accordance with Appendix "B" to this Section.
  - 2. Exposed bare and covered pipes, ducts and conduits, including color coding (if any), and hangers and supports.
  - 3. Galvanized steel, iron work and miscellaneous metal items, and surfaces of architectural, mechanical and electrical items, if any.
  - 4. Architectural woodwork and casework, if any.
    - a. Surface preparation and shop staining or painting of architectural woodwork and casework is specified in other Sections of the Specifications.
- C. These and similar items shall not be painted:
  - 1. Items with factory-applied top coat.
  - 2. Finished metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished metals.
  - 3. Concealed pipes, ducts and conduits.
  - 4. Concealed or inaccessible surfaces.
  - 5. Code required labels such as Underwriters Laboratories and Factory Mutual.
  - 6. Identification, performance rating, name or nomenclature plates of mechanical, electrical and fire equipment.
  - 7. Operating and moving parts of operating units and mechanical and electrical equipment such as: valves, damper operators, linkages, sinkages, sensing devices, motors, shafts and sheaves.
  - 8. Surfaces shown or scheduled on the Contract Drawings to receive spray-applied fire resistive material.
- D. Definitions: "QC" refers to quality control or a quality control program. This is a methodology employed by the Contractor to ensure compliance with Contract requirements.

# Attachment D

## 1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

### American Society for Testing and Materials (ASTM)

ASTM A 780	Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
ASTM D 521	Standard Test Methods for Chemical Analysis of Zinc Dust (Metallic Zinc Powder).
ASTM D 523	Test Method for Specular Gloss.
ASTM D 562	Standard Test Method for Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using a Stormer-Type Viscometer.
ASTM D 1475	Standard Test Method for Density of Liquid Coatings, Inks, and Related Products.
ASTM D 2369	Standard Test Method for Volatile Content of Coatings.
ASTM D 2371	Standard Test Method for Pigment Content of Solvent-Reducible Paints.
ASTM D 2697	Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings.
ASTM D 3359	Standard Test Method for Measuring Adhesion by Tape Test.
ASTM D 4263	Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
ASTM D 4285	Standard Test Method for Indicating Oil or Water in Compressed Air.
ASTM D 4414	Standard Practice for Measurement of Wet Film Thickness by Notch Gages.
ASTM D 4417	Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel.
ASTM D 4541	Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.
ASTM D 6386	Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting.
ASTM F 1869	Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor using Anhydrous Calcium Chloride.

### Northeast Protective Coating Committee (NEPCOAT)

NEPCOAT QPL      Qualified Products List

### The Society for Protective Coatings (SSPC)

SSPC-PA 1	Shop, Field and Maintenance Painting of Steel
SSPC-PA 2	Measurement of Dry Coating Thickness with Magnetic Gages.
SSPC-SP 1	Solvent Cleaning.
SSPC-SP 2	Hand Tool Cleaning.

## Attachment D

SSPC-SP 3	Power Tool Cleaning.
SSPC-SP 5	White Metal Blast Cleaning.
SSPC-SP 6	Commercial Blast Cleaning.
SSPC-SP 7	Brush-Off Blast Cleaning.
SSPC-SP 10	Near-White Blast Cleaning.
SSPC-SP 11	Power Tool Cleaning to Bare Metal.
SSPC-VIS 1	Visual Standard for Abrasive Blast Cleaned Steel.

### 1.03 AMBIENT TEMPERATURE AND HUMIDITY REQUIREMENTS

- A. Comply with the manufacturer's technical data sheets subject to approval by the Engineer as to environmental conditions under which paint and finishes may be applied, and with the following:
1. Do not apply paints in rain, snow, fog or mist, or when relative humidity exceeds 85 percent. Painting may be performed during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by the manufacturer(s) during application and drying periods.
  2. Apply solvent based paint only when temperature of surfaces to be painted and surrounding air temperatures are between 45 degrees F and 95 degrees F.
  3. Apply water-based paint only when temperature of surfaces to be painted and surrounding air temperatures are between 50 degrees F and 90 degrees F.
  4. Apply paint to surfaces only when the surface temperature is at least 5 degrees F above the dew point.
  5. Apply primer to non-metal surfaces only when the moisture content of surfaces meets the following criteria:
    - a. Gypsum Wallboard: 0.5 percent maximum, when measured with an electronic moisture meter.
    - b. Wood: 15 percent maximum, when measured with an electronic moisture meter.
    - c. Concrete, Masonry and Plaster Walls: No visible moisture when measured in accordance with ASTM D 4263.
  6. Do not apply primer to concrete floors unless the moisture vapor emission rate is less than 3 pounds/1,000 square feet/24 hours when tested in accordance with ASTM F 1869.
- B. When painting and/or abrasive blasting operations are performed out of doors, no Work shall be performed when the U.S. Weather Bureau forecasts precipitation to commence prior to or within two hours after completion of such procedures and application of paint.

## Attachment D

### 1.04 QUALITY ASSURANCE

#### A. Paint System Compatibility

The paint system, including all primers and undercoats, shall be produced by the manufacturer of the topcoat. Where this is not possible (as in cases of specialized primers used in the coating of miscellaneous components) review other Sections of the Specifications to determine the primer, surface preparation and treatment for the substrates and items to be field painted or finished as Work of this Section.

1. Notify the Engineer in writing of compatibility problems associated with the Work of this Section and substrates primed under other Sections of these Specifications.

#### B. Where shown on the Contract Drawings, provide not less than a 100 square foot full-coat finish sample(s) on actual surface(s) of coating material to be applied as Work of this Section, at a location selected by the Engineer. Such sample(s), when approved by the Engineer, may be incorporated into the Work and shall establish standards for color, texture and workmanship for the remainder of the Work of this Section.

#### C. Painting of Structural Steel - Requirements

All painting of structural steel must be done by firms that are approved by the Engineer. The firm shall have as a minimum the following:

1. Technical Capabilities
  - a. Shops shall have areas available for specific operations, such as: receiving and lay down for steel to be coated; pre-cleaning of items to be coated; surface preparation; coating application; drying and curing of coated items; storage of coating materials.
  - b. Blasters and painters must be trained. This training shall consist of at least 4 hours of instruction by a qualified instructor and shall cover various types of surface preparation equipment, paints and application equipment. Maintain instructor qualifications and training records and produce them when requested.
  - c. There shall be procedures or processes in place to record specifications and revisions and to clarify ambiguous or incomplete specifications.
  - d. There shall be a procedure for informing quality control and production personnel of job/shop procedures to meet requirements of this Specification.

#### 2. Quality Control (QC)

The entity performing painting of steel and galvanized steel shall have a written quality control program. The program shall contain, but not be limited to, the following:

- a. The qualifications of QC staff, including training records and experience.
- b. The authority of QC staff and reporting lines in the firm organization chart.
- c. Standards and specifications used by QC staff for inspection purposes.
- d. Inspection reports and other records documenting compliance with Authority requirements.

## Attachment D

- e. Inspection equipment and calibration standards used by QC staff and calibration procedures.
  - f. Procedure for QC staff to advise the shop foreman, in writing, of non-conforming Work.
3. Contractor's Responsibility
- a. The Contractor is responsible for Quality Control, which entails the daily inspection of all painting. The Quality Control Program shall ensure that coating systems are applied according to the coating manufacturer's technical data sheets subject to approval by the Engineer for surface preparation, ambient conditions, application parameters, curing and film thickness.
  - b. The Engineer will perform Quality Assurance inspections to verify that the Contractor's Quality Control program is being followed.
4. Technical Advisor
- Obtain the services of a technical advisor employed by the coating manufacturer to assist the Engineer and the Contractor during this Work. The technical advisor shall be a qualified representative, approved by the Engineer and shall be at the shop or work site prior to the opening of the coating containers. Consult with the technical advisor for instruction in the proper mixing of components and application of the materials. Arrange for the technical advisor to remain at the site until the Engineer is satisfied that the Contractor's personnel have mastered the proper handling, mixing and application of the materials.
5. Schedule and Engineer Approval
- a. Submit a schedule for surface preparation and painting at least 30 days prior to beginning Work.
  - b. At least 10 days prior to painting, notify the Engineer.
  - c. Do not paint steel until approval to proceed is given by the Engineer.

### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in the manufacturer's original unopened packages and containers bearing manufacturer's name, label and the following information:
  - 1. Manufacturer's name.
  - 2. Name or title of material.
  - 3. Manufacturer's stock number and date of manufacture.
  - 4. Shelf life.
  - 5. Contract or order number under which the material has been ordered.
  - 6. Lot and batch numbers.

## Attachment D

- B. Store materials not in actual use in tightly covered containers at a minimum ambient temperature of 45 degrees F and a maximum temperature of 90 degrees F in a well-ventilated area. Maintain containers used in storage of coatings in a clean condition, free of foreign materials and residue. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take all necessary precautionary measures to ensure that workmen and Work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing and application of materials.
- C. Provide paint ready mixed to approved colors. Construction site tinting is prohibited.
- D. Extra Material

Where requirements for extra materials are shown on the Contract Drawings, deliver to the Engineer prior to issuance of the Certificate of Final Completion not less than one gallon of each color of each coating applied as Work of this Section. Deliver extra material in the manufacturer's original, unopened containers, clearly labeled with product identification and Contract number.

### 1.06 SUBMITTALS

See Appendix "A" for submittal requirements.

## **PART 2. PRODUCTS**

### 2.01 MANUFACTURERS

- A. Provide paint systems and products of manufacturers in accordance with Appendix "B" to this Section, or approved equal.
- B. When materials or products proposed to be used are products of manufacturers other than manufacturers specified in Appendix "B" to this Section, submit product information in accordance with the requirements of Division 1 - GENERAL PROVISIONS clause entitled "Substitution".

### 2.02 MATERIALS

- A. Provide colors as shown on the Contract Drawings, or if not shown as required by the Engineer.

### 2.03 MIXES

- A. Verify that the paint to be mixed has not exceeded its shelf life.
- B. Mix and prepare painting materials in accordance with the manufacturer's technical data sheets subject to approval by the Engineer and 1.05 C.
- C. Stir materials before application, and as required during application to produce a mixture of uniform density. Do not stir surface film into material. Remove film and, if necessary, strain material before using.
- D. Mix only complete kits of multi-component materials.

## Attachment D

### E. Colors

Each undercoat shall be a contrasting color to facilitate identification of each coat where multiple coats are to be applied as shown on the Contract Drawings.

### 2.04 ABRASIVES

- A. Provide expendable or recyclable abrasives that are dry and free of oil, grease and corrosion-producing or other deleterious contaminants.
- B. For the preparation of steel that is specified to be blasted, provide abrasives that are sized to produce a sharp, angular, uniform anchor pattern with a profile height of 2-3 mils, unless the requirements of the coating manufacturer are more restrictive. In this case, comply with profile requirements specified by coating manufacturer.

### 2.05 EQUIPMENT

- A. Surface Preparation Equipment
  - 1. Provide brushes, discs, wheels, scrapers, water jetting, blast cleaning and other surface preparation equipment sized properly to conduct the Work as specified in this Section and shown on the Contract Drawings.
  - 2. Provide specialized equipment for the surface preparation of difficult-to-clean areas. Specialized equipment may include, but is not limited to:
    - a. Angled nozzles or short nozzles for abrasive blast cleaning.
    - b. Spin blast equipment.
- B. Paint Application Equipment
  - 1. Provide paint brushes, rollers and spray equipment to conduct the Work as specified in this Section.
  - 2. Provide specialized equipment as required for the painting of difficult-to-paint areas. Specialized equipment may include, but is not limited to:
    - a. Angled brushes for backs of nuts and bolts and other hard to reach areas.
    - b. Mitts, daubers or other methods to supplement brush application.

## **PART 3. EXECUTION**

### 3.01 PREPARATION

#### A. General

Perform preparation and cleaning procedures in accordance with the paint manufacturer's technical data sheets subject to approval by the Engineer and as specified in this Section, for each particular substrate condition.

- 1. Ensure paint system compatibility in accordance with 1.04 A.

## Attachment D

2. Do not conduct final surface preparation which exposes the substrate to damp environmental conditions, or when the surface temperature is less than 5 degrees F above the dew point.
3. Remove hardware, hardware accessories, machined surfaces, lighting fixtures and similar items in place and not to be painted, or provide surface-applied protection prior to surface preparation and painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items.
4. When previously painted surfaces requiring field top coating are glossy (greater than 50 units at 60 degrees), first dull them using a 120 grit or greater (finer) grade sandpaper.
5. Thoroughly clean and remove all dust, oil, grease and other contaminants from surfaces to be painted. Schedule cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.

### B. Surface Preparation

#### 1. Steel

Remove slag, flux deposits, weld splatter and surface irregularities such as slivers, tears, fins and hackles; follow AWS Guidelines. Grind any resulting burrs smooth, including burrs around holes, if any. Do not remove any welding material that will weaken weld strength.

Prior to preparation, break sharp edges such as those created by flame cutting and shearing. Do not break rolled edges of angles, channels and wide flange beams without Engineer's approval.

Clean surfaces to remove oil, grease, soil and other soluble contaminants in accordance with SSPC-SP1 Solvent Cleaning. Where shown on the Contract Drawings, prepare surface in accordance with one or more of the following: SSPC-SP 2, SSPC-SP 3, SSPC-SP 5, SSPC-SP 6, SSPC-SP 7, SSPC-SP 10 and SSPC-SP 11. For welds, edges and holes, prepare surfaces to the same cleanliness level and profile as the surrounding steel.

#### a. Steel – Blast Cleaned

Unless otherwise shown on the Contract Drawings, perform abrasive blasting in accordance with SSPC-SP 10 Near White Blast Cleaning using a production line shot and grit blast machine or by air blast. Maintain the abrasive work mix such that the final surface profile is within the required range. Use SSPC-VIS 1 to evaluate the degree of cleaning.

- b. Provide expendable or recyclable abrasives that are dry and free of oil, grease, and corrosion producing, or other deleterious contaminants. Daily (or more frequently if required) check the abrasive for oil, grease or dirt contamination with the vial test. The test consists of adding a sample of abrasive from the inside of the blast machine to a sealable vial filled with deionized water. The vial is shaken for one minute and allowed to settle for five minutes. If any oil or grease is floating on top of the water, then the abrasive is contaminated. If the water becomes cloudy, then it contains dirt. Do not use contaminated or dirty abrasives to blast steel surfaces.

## Attachment D

### c. Compressed Air Cleanliness

- (1) Provide compressed air that is free from moisture and oil contamination.
- (2) Use the white blotter test in accordance with ASTM D 4285 to verify the cleanliness of the compressed air. Conduct the test at least once per day for each compressor system. Sufficient freedom from oil and moisture is confirmed if soiling or discoloration are not visible on the paper.
- (3) If air contamination is observed, change filters, clean traps, add moisture separators or filters or make adjustments as necessary to achieve clean, dry air. Reinspect surfaces prepared or coated since the last satisfactory test and repair, at no cost to the Authority, defective Work caused by contaminated air.

### d. Surface Profile

The steel surface profile shall be 2-3 mils. Measure the surface profile of each girder, beam or diaphragm at three locations, paying special attention to areas that may have been shielded during blasting. Measure the surface profile using Testex Replica Tape in accordance with ASTM D 4417. File the impressed tapes with the Quality Control inspection records.

## 2. Galvanized Steel Surfaces

- a. Hot-dip galvanizing shall be by the "dry kettle" process. Do not quench galvanized items following galvanizing nor shall galvanized surfaces be treated with waxes, oils or chromates.
- b. Chemical Treatment

Prepare the surface for painting in accordance with ASTM D 6386 Zinc Phosphate Treatment. Follow the manufacturer's instructions for use of the materials. Prior to chemical treatment, remove white rust and other contaminants.

## 3. Aluminum Surfaces

Clean surfaces of oil, grease, dirt, and other foreign substances. Do not damage the aluminum. Use solvent cleaning in accordance with SSPC-SP 1.

## 4. Cementitious Materials

Prepare cementitious surfaces (concrete, concrete block and cement plaster) by removing efflorescence, chalk, dust, dirt, grease and oils. Remove oil and grease by detergent water cleaning and steam cleaning. Do not use solvents. For concrete surfaces, after removing oil and grease, prepare the surface for painting by abrasive blasting.

- a. For concrete and other cementitious materials, perform appropriate tests as described in 1.03 A.5 to ensure that the moisture content is at or below the limit for painting and use only materials that are capable of being applied to alkaline surfaces. Do not paint over surfaces where moisture content exceeds that permitted in 1.03 A.5.

## Attachment D

### 5. Wood

Wipe off dust and grit from miscellaneous wood items and millwork prior to priming, using a solution of tri-sodium phosphate and water. Rinse off surfaces with clean water. Spot coat knots, pitch streaks and sappy sections with sealer. Fill nail holes and cracks after primer has dried and sand with a fine grade sand paper between coats. Back prime interior and exterior woodwork.

- a. Where clear finishes are shown on the Contract Drawings, ensure that fillers match wood tint. Work fillers into grain. Wipe excess from the surface.

### 3.02 APPLICATION

#### A. General

1. Apply paint in accordance with SSPC-PA 1 and the manufacturer's technical data sheets subject to approval by the Engineer. Use applicators and techniques best suited for substrate and type of material being applied. Follow the manufacturer's technical data sheets, subject to approval by the Engineer, for cure times, temperature and humidity conditions and recoat times as the individual coats of the specified system are applied.
  - a. For blast cleaned steel, apply the prime coat on the same day (within 12 hours) that the substrate was cleaned. If the base substrate is allowed to remain uncoated for more than 12 hours, or rerusting is observed, reblast the steel prior to painting.
2. Do not apply paint in areas where dust is being generated.
3. Apply each coat at proper consistency. After each coat has dried, visually examine for pinholes, fish eyes, blisters, runs, sags and missed areas. Repair defects and repaint.
4. Apply additional coats when undercoats, stains or other conditions show through top coat of paint, until paint film is of uniform finish, color and appearance. Apply stripe coats of the prime and finish coat to all edges, corners, crevices, welds and other surface irregularities.
5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat only before final installation of equipment.
6. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.
7. Paint backsides of access panels, and removable or hinged covers to match exposed surfaces.
8. Finish exterior doors on tops, bottoms and side edges the same as exterior faces.
9. Sand lightly between each succeeding enamel or varnish coat.
10. Omit first coat (primer) on metal surfaces which have been shop-primed.
11. Paint primed surfaces to color shown on the Contract Drawings.

## Attachment D

12. Where shown on the Contract Drawings, prime and paint the following to match adjacent surface: exposed bare pipes, ducts, conduits, boxes, hangers, brackets and supports, except where items are covered with a prefinished coating.
13. Color code equipment, piping conduit and exposed ductwork as shown on the Contract Drawings.

### B. Scheduling Painting

Apply paint to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. Allow sufficient time between successive coats to permit proper drying. Abide by the coating manufacturer's minimum and maximum recoat times subject to approval by the Engineer. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

### C. Coating Thickness

Apply materials at the manufacturer's recommended spreading rate, to establish a total dry film thickness as shown on the Contract Drawings or, if not shown, as recommended by coating manufacturer and as approved by the Engineer. Monitor paint application rate by use of wet film thickness gage in accordance with ASTM D 4414. For metal surfaces, measure dry film thickness in accordance with SSPC-PA 2. Use a non-ferrous guage to measure coating thickness on galvanized surfaces or aluminum.

1. Give special attention to ensure that surfaces such as edges, corners, crevices, welds and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
2. Apply additional coating to areas of insufficient thickness. Use care during application to assure that all repairs blend in with the surrounding surfaces.
3. Unless directed otherwise by the Engineer, remove excessive coating thickness and reapply the affected coat(s).

### D. Coating Adhesion

1. Apply all coats in such a manner to assure that they are well-adhered to each other and to the substrate. If the application of any coat causes lifting of an underlying coat, or if there is poor adhesion between coats or to the substrate, remove the coating in the affected area to adjacent sound, adherent coating and reapply the material.
2. If adhesion is suspect, conduct adhesion tests in accordance with ASTM D 3359 or ASTM D 4541 as directed by the Engineer and repair all test areas. The acceptance criteria for the testing will be established by the Engineer. Replace all defective coating that is revealed by the testing.

### E. Completed Work

Match approved samples for color, texture and coverage. Remove, refinish or repair Work not in compliance with the requirements specified in this Section.

## Attachment D

- F. Field Painting – Fasteners
1. After erection or installation, all rust, scale, dirt, grease and other foreign material on bolts, nuts and washers shall be completely removed by solvent cleaning in accordance with SSPC-SP 1 followed by hand tool cleaning SSPC-SP 2, or power tool cleaning SSPC-SP 3.
  2. Apply brush applications of primer and intermediate to bolts, nuts and washers after tensioning. Apply topcoat by spray application. Give careful attention to bolted connections to ensure that all bolts, nuts and washers are fully coated.
- G. Repair of Damaged and Unacceptable Coatings
1. Surface Preparation of Localized Areas
    - a. Repair localized damage, corrosion and unacceptable coatings.
    - b. Prepare the surface by cleaning in accordance with SSPC-SP 1 Solvent Cleaning followed by SSPC-SP 2 Hand Tool Cleaning or SSPC-SP 3 Power Tool Cleaning. Use a solvent that is acceptable to the paint manufacturer.
    - c. For previously blast-cleaned steel, if the damage exposes the substrate, remove all loose material and prepare the steel in accordance with SSPC-SP 11.
    - d. For galvanized steel, repair damaged galvanizing in accordance with ASTM A 780. Use a zinc-rich coating containing a minimum of 92 percent zinc in the dry film.
  2. Surface Preparation of Extensive Areas
    - a. Repair extensive areas of damage or unacceptable coating by methods acceptable to the Engineer, based on the nature of the defect.
    - b. For previously blast-cleaned steel, blast surfaces back to original requirements. Use extreme care to avoid overblast damage to the surrounding coating.
  3. Feathering of Repair Areas
    - a. Feather the existing coatings surrounding each repair location. Feather for a distance of 1 to 2 inches to provide a smooth, tapered transition into the coating.
    - b. Verify that the edges of coating around the periphery of the repair areas are tight and intact by probing with a putty knife in accordance with the requirements of SSPC-SP 3 Power Tool Cleaning. Roughen the existing coating in the feathered area to assure proper adhesion of the repair coats.
- H. Coating Application in Repair Areas
1. When the bare substrate is exposed in the repair area, apply all coats of the system to the specified thicknesses.
  2. When the damage does not extend to the bare substrate, apply only the affected coats.
  3. Maintain the thickness of the system in overlap areas within the specified total thickness tolerances.

## Attachment D

### I. Clean-up

During progress of Work, remove discarded paint materials, rubbish, cans and rags daily. Upon completion of painting Work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

### 3.03 PAINT TESTING

- A. The Authority reserves the right to conduct tests of the materials at any time, and any number of times during shop or field painting.
1. The Engineer may sample the paint(s) being used. A representative pint or quart sample of each component of paint(s) at the construction site will be transferred to metal containers, identified, sealed and certified in the presence of the Contractor.
  2. Tests on paint samples may be conducted by the Engineer to confirm manufacturer's submittals made under Appendix "A". Any or all of the following tests may be conducted:
    - a. Viscosity (Stormer @ 25 degrees C) KU, ASTM D 562.
    - b. Percent Total Solids by Weight, ASTM D 2369.
    - c. Volatile Organic Compounds (VOC), ASTM D 2369.
    - d. Weight per Gallon, ASTM D 1475.
    - e. Volume Nonvolatile Matter, ASTM D 2697.
    - f. Pigment Content, ASTM D 2371.
    - g. Percent Metallic Zinc in Primer, ASTM D 521.
    - h. Specular Gloss of Finish Coat, ASTM D 523.
    - i. Infrared Identification - of individual components and of the mixed coatings for 2 component materials. Obtain each spectrum by sandwiching a small quantity (i.e., 1-2 drops) of material between 2 potassium bromide plates and obtaining a transmission infrared spectrum. For the mixed and cured material, use a solid sampling technique.
  3. If the Engineer determines upon review of laboratory tests that the material being used does not comply with the requirements specified in this Section, he may direct the Contractor to stop painting Work and remove non-complying paint, to repaint surfaces coated with rejected paint or to remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are incompatible.

## Attachment D

### 3.04 PROTECTION

Protect other adjacent Work against damage by painting and finishing Work. Correct damage by cleaning, repairing or replacing, and repainting, as approved by the Engineer.

- A. Provide "Wet Paint" signs to protect newly painted finishes. After completion of painting operations, remove temporary protective wrappings for protection of adjacent and existing conditions.
- B. At completion of Work of other trades, touch-up and restore damaged or defaced painted surfaces.
- C. Ensure that coated items are not shipped until cured. Protect all fully coated and cured items from handling and shipping damages using padded slings, dunnage, separators and tie-downs.

END OF SECTION

# Attachment D

## SECTION 09910

### PAINTING

#### APPENDIX "A"

#### SUBMITTALS

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts and Samples" of Division 1 - GENERAL PROVISIONS:

A. Product Data

Manufacturer's technical data sheets including the following information for each coating:

- Volume Solids
- VOC
- DFT range
- DFT maximum
- Zinc content (zinc primers only)
- Slip coefficient (zinc primers only)
- Substrates
- Surface preparation
- Profile
- Storage temperature
- Primers
- Topcoats
- Application equipment, including touchup
- Mixing
- Thinners
- Thinning maximum
- Sweat-in-time
- Pot life
- Application schedule -
- Minimum surface/air temperatures and humidity
- Maximum surface/air temperatures and humidity
- Drying schedule -
- Dry to handle
- Dry to topcoat
- Maximum recoat
- Cure

B. Samples

1. Submit in color(s) shown on the Contract Drawings, or if not shown, in color(s) as selected by the Engineer from manufacturer's color chart.
2. On a 12 inch by 12 inch hardboard or metal panels, two samples of each paint and coating material, if required by the Engineer. If more than one application method is to be used, submit two samples of each paint and coating material for each application method.
3. Identify each sample as to manufacturer, color name and number, location and application.
  - a. On actual wood surfaces, two 4 inch by 8 inch samples of each natural and stained wood material. Identify each sample as to manufacturer and location application.

C. Submit to the Engineer one copy of U.S. Department of Labor, Material Safety Data Sheets (MSDS) for hazardous chemicals utilized during the Work of this Section.

## Attachment D

- D. Submit the paint applicator's qualifications and/or experience.
- E. Submit a copy of the quality control program, as required by 1.04 C.2, if requested by the Engineer.
- F. Submit instructor qualifications and training records for blasters and painters as required by 1.04 C.1.b, if requested by the Engineer.
- G. Submit copy of daily inspection reports if requested by the Engineer.

END OF APPENDIX "A"

Attachment D

**SECTION 09910**

**PAINTING**

**APPENDIX "B"**

**PAINT SCHEDULE**

**A. Exterior**

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Concrete Gloss	C-1G	Water Based Primer Sealer	Carboline Carbocrylic 120	Acrylic Gloss	Carboline Carbocrylic 3359 DTM	Acrylic Gloss	Carboline Carbocrylic 3359 DTM
			PPG Perma-Crete 4-603		PPG Pitt-Tech Plus 90-1310		PPG Pitt-Tech Plus 90-1310
			SW Loxon Acrylic Primer A24W8300		SW DTM Acrylic B66-100 Series		SW DTM Acrylic B66-100 Series
Concrete Semi-Gloss	C-1S	Water Based Primer Sealer	Carboline Carbocrylic 120	Acrylic	Carboline Sanitile 155	Acrylic Semi-Gloss	Carboline Sanitile 155
			PPG Perma-Crete 4-603		PPG Pitt-Tech Plus 90-1210		PPG Pitt-Tech Plus 90-1210
			SW Loxon Acrylic Primer A24W8300		SW DTM Acrylic B66-200 Series		SW DTM Acrylic B66-200 Series

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Concrete Masonry Gloss	CM-1G	Water Based Block Filler	Carboline Sanitile 100	Acrylic Gloss	Carboline Carbocrylic 3359 DTM	Acrylic Gloss	Carboline Carbocrylic 3359 DTM
			SW Heavy Duty Block Filler B42W46		SW DTM Acrylic B66-100 Series		SW DTM Acrylic B66-100 Series
			PPG Speedhide 6-15		PPG Pitt-Tech Plus 90-1310		PPG Pitt-Tech Plus 90-1310
Concrete Masonry Semi-Gloss	CM-1S	Water Based Block Filler	Carboline Sanitile 100	Acrylic Semi-Gloss	Carboline Sanitile 155	Acrylic Semi-Gloss	Carboline Sanitile 155
			PPG Speedhide 6-15		PPG Pitt-Tech Plus 90-1210		PPG Pitt-Tech Plus 90-1210
			SW Heavy Duty Block Filler B42W46		SW DTM Acrylic B66-200 Series		SW DTM Acrylic B66-200 Series
Cement Plaster Walls & Soffits Gloss	P-1G	Water Based Primer Sealer	Carboline Carbocrylic 120	Alkyd Gloss	Carboline Carbocoat 30R	Alkyd Gloss	Carboline Carbocoat 30R
			PPG Perma-Crete 4-603		PPG 95-5000 Series		PPG 95-5000 Series
			SW Loxon Acrylic Primer A24W8300		SW Industrial Enamel HS B54Z-400 Series		SW Industrial Enamel HS B54Z-400 Series
Steel Gloss	S-1G*	Organic Zinc Rich	Carboline Carbozinc 859	Epoxy	Carboline Carboguard 888	Aliphatic Polyurethane Gloss	Carboline Carbothane 134 HG
			PPG PMC Amercoat 68 HS		PPG PMC Amercoat 399		PPG PMC Amercoat 450 H
			SW Zinc Clad III HS		SW Macropoxy 646		SW Acrolon 218 B65-600

\*Paint system S-1G must be on the current New England Protective Coatings (NEPCOAT) Qualified Product List.

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Steel Gloss	S-2G	Inorganic Zinc Rich	Carboline Carbozinc 11 HS	Epoxy	Carboline Carboguard 893	Aliphatic Polyurethane Gloss	Carboline Carbothane 134 HG
			PPG PMC Dimetcote 9 HS		PPG PMC Amercoat 385		PPG PMC Amercoat 450 H
			Sherwin-Williams Zinc Clad II		Sherwin Williams Macropoxy 646		Sherwin-Williams Acrolon 218HS B65-600
Steel Semi-Gloss	S-1S*	Organic Zinc Rich	Carboline Carbozinc 859	Epoxy	Carboline Carboguard 888	Aliphatic Polyurethane Semi-Gloss	Carboline Carbothane 133 LH
			PPG PMC Amercoat 68 HS		PPG PMC Amercoat 399		PPG PMC Amercoat 450 HSG
			SW Zinc Clad III HS		SW Macropoxy 646		SW Acrolon 218 HS
*Paint system S-1S must be on the current New England Protective Coatings (NEPCOAT) Qualified Product List.							
Steel Semi-Gloss	S-2S	Inorganic Zinc Rich	Carboline Carbozinc 11 HS	Epoxy	Carboline Carboguard 893	Aliphatic Polyurethane Semi-Gloss	Carboline Carbothane 133 LH
			PPG PMC Dimetcote D9 HS		PPG PMC Amercoat 385		Amercoat 450 HSG
			Sherwin-Williams Zinc Clad II		Sherwin-Williams Macropoxy 646		Sherwin-Williams Acrolon 218 HS

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Steel Semi-Gloss	S-3S	Aluminum Epoxy Mastic	Carboline Carbomastic 15	Epoxy	Carboline Carboguard 890	Aliphatic Polyurethane Semi-Gloss	Carboline Carbothane 133 LH
			PPG PMC Amerlock 2 AL		PPG PMC Amercoat 385		PPG PMC Amercoat 450 HSG
			SW Epoxy Mastic Aluminum II		SW Macropoxy 646		SW Acrolon 218 HS
Galvanized & Aluminum Gloss	N-1G	Primer	PPG Pitt-Tech Plus 90- 912		N/A	Acrylic Gloss	PPG Pitt-Tech Plus 90-1310
			SW Pro-Cryl B66 - 310 Series				SW DTM Acrylic B66-100 Series
			Carboline Galoseal WB				Carboline 3359 DTM
Galvanized & Aluminum Semi-Gloss	N-1S	Primer	PPG Pitt-Tech Plus 90- 912		N/A	Acrylic Semi-Gloss	PPG Pitt-Tech Plus 90-1210
			SW Pro-Cryl B66 - 310 Series				SW DTM Acrylic B66-200 Series
			Carboline Galoseal WB				Carboline 3359
Galvanized & Aluminum (Marine & Bridge)	N-2S	Epoxy Primer	Carboline Carboguard 888		N/A	Aliphatic Polyurethane	Carboline Carbothane 133 LH
			SW Macropoxy 646				SW Acrolon 218 HS
			PPG PMC Amercoat 385				PPG PMC Amercoat 450 HSG

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>	
Galvanized & Aluminum (Marine & Bridge) Gloss	N-2G	Epoxy Primer	Carboline Carboguard 888		N/A	Aliphatic Polyurethane Gloss	Carboline Carbothane 134 HG	
			PPG PMC Amercoat 385				PPG PMC Amercoat 450 H	
			SW Macropoxy 646				SW Acrolon 218 HS B65-600	
Plywood Semi-Gloss	PW-1S	Acrylic Wood Primer	Carboline Carbocrylic 120	Acrylic Semi-Gloss	Carboline Carbocrylic 3359	Acrylic Semi-Gloss	Carboline Carbocrylic 3359	
			SW A-100 Latex B42W42				SW Metalatex B42 Series	SW Metalatex B42 Series
			PPG Speedhide 6-609				PPG Speedhide 6-900	PPG Speedhide 6-900
Concrete, Brick & Granite Clear Gloss Anti-Graffiti	AG-1	Primer Sealer	Carboline Carboguard 1340		N/A	Aliphatic Urethane	Carboline Carbothane 130	
			Visual Pollution Tech. Crystal Clear				Visual Pollution Tech. Crystal Clear	
Concrete, Brick & Granite Clear Flat Anti-Graffiti	AG-2	Primer Sealer	Degussa Tagguard		N/A	Various	Degussa Tagguard	
			Sivento Protectosil				Sivento Protectosil	
			Tristar Proteus Masonry Sealer				Tristar Proteus 940	

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Steel & Concrete Saltwater Immersion	CT-1	Coal Tar Epoxy (C-200A)	Carboline Bitumastic 300M		N/A	Coal Tar Epoxy (C-200A)	Carboline Bitumastic 300M
			International Intertuf 702				International Intertuf 702
			Sherwin-Williams Targuard				Sherwin-Williams Targuard
Steel, Jet Fuel Splash & Spill	S-4	Organic Zinc Rich	Carboline Carbozinc 859	Epoxy	Carboline Carboguard 890	Polyester Polyurethane	Carboline Carbothane 133 LH
			Tnemec 90-97 Tnemec-Zinc		Tnemec Epoxoline II Series N69		Tnemec CRU Series 290
			SW Zinc Clad III HS		SW Macropoxy 646		SW Poly-Lon HP
Steel Slip Critical "B"	S-5	Organic Zinc Rich	Carboline Carbozinc 859		N/A		N/A
			PPG PMC Amercoat 68 HS				
			SW Zinc Clad III HS				
Steel Slip Critical "B"	S-6	Inorganic Zinc Rich (Shop Only)	PPG PMC Dimetcote 9		N/A		N/A
			Carboline Carbozinc 11 HS				
			Sherwin-Williams Zinc Clad II				

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Steel (under concrete or grout)	S-7	Epoxy Mastic	Carboline Carboguard 890	N/A	N/A	Epoxy (immersion grade)	Carboline Carboguard 890
			PPG PMC Amerlock 2				PPG PMC Amerlock 2
			Sherwin-Williams Macropoxy 646				Sherwin-Williams Macropoxy 646
Steel, Saltwater, Tidal	S-8	Epoxy	Duramar 2510 UW	N/A	N/A	Epoxy	Duramar 2510 UW
			International Interzone 954				International Interzone 954
			Sherwin-Williams Sher-Glass				Sherwin-Williams Sher-Glass
Steel, Ultra-Weatherable	S-9	Zinc Rich	Carboline Carbozinc 859	Urethane	Carboline Carbothane 134 HG	Fluorocarbon	Carboline Carboxane 950
			SW Zinc Clad III HS		SW Acrolon 218 HS		SW FluoroKem
			PPG PMC Amercoat 68 HS		PPG BRP 1000 Series		PPG Corafon ADS
Steel, Rapid Deployment	S-10	Zinc Rich	PPG PMC 68 HS	N/A	N/A	N/A	PPG PMC PSX 700
			Sherwin-Williams Corothane I - Galvapak				Sherwin-Williams Fast Clad Urethane
Aluminum Ultra-Weatherable	N-3	Epoxy	Carboline Carboguard 888	Urethane	Carboline Carbothane 133 LH	Fluorocarbon	Carboline Carboxane 950
			Sherwin-Williams Macropoxy 646		Sherwin-Williams Acrolon 218 HS		Sherwin-Williams FluoroKem
			PPG PMC Amercoat 385		PPG BRP 1000 Series		PPG Corafon ADS

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
<b>B. Interior</b>							
Steel, water tank	S-11	Epoxy	PPG PMC Amerlock 2	Epoxy	PPG PMC Amerlock 2	Epoxy	PPG PMC Amerlock 2
			Carboline Carboguard 891		Carboline Carboguard 891		Carboline Carboguard 891
			SW Duraplate 235 NSF		SW Duraplate 235 NSF		SW Duraplate 235 NSF
Steel, jet fuel tank	S-12	Epoxy Amine	PPG PMC Amercoat 395 FD		N/A	Epoxy Amine	PPG PMC Amercoat 395 FD
			Carboline Plasite 9060				Carboline Plasite 9060
			SW Shelcote II				SW Shelcote II
Concrete Flat	C-2F	Water Based Sealer	PPG Speedhide 6-2	Acrylic	PPG Speedhide 6-70	Acrylic Flat	PPG Speedhide 6-70
			ProMar B28W8200		SW ProMar B30W200		SW ProMar B30W200
			Carboline 120		Carboline 3130		Carboline 3130
Concrete Semi-Gloss	C-2S	Water Based Sealer	Carboline Carbocrylic 120	Acrylic	Carboline Carbocrylic 3359	Acrylic Semi-Gloss	Carboline Carbocrylic 3359
			SW ProMar B28W8200		SW ProMar B31W200		SW ProMar B31W200
			PPG Speedhide 6-2		PPG Speedhide 6-500		PPG Speedhide 6-500

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Concrete Heavy-Duty Gloss	C-3G	Epoxy	Carboline Carboguard 1340	Epoxy	Carboline Carboguard 890	Epoxy Gloss	Carboline Carboguard 890
			SW Macropoxy HS Epoxy		SW HP Epoxy B67-200		SW HP Epoxy B67-200
Concrete Masonry Flat	CM-2F	Block Filler	PPG Speedhide 6-7	Acrylic	PPG Speedhide 6-70	Acrylic Flat	PPG Speedhide 6-70
			SW PrepRite B25W25		SW ProMar B30W200		SW ProMar B30W200
			Carboline Sanitile 100		Carboline 3130		Carboline 3130
Concrete Masonry Semi-Gloss	CM-2S	Block Filler	Carboline Sanitile 100	Acrylic	Carboline Carbocrylic 3359	Acrylic Semi-Gloss	Carboline Carbocrylic 3359
			SW PrepRite B25W25		SW ProMar B31W200		SW ProMar B31W200
			PPG Speedhide 6-7		PPG Speedhide 6-500		PPG Speedhide 6-500
Concrete Masonry Heavy-Duty Gloss	CM-3	Epoxy Block Filler	Carboline Carboguard 954HB	Epoxy	Carboline Carboguard 890	Epoxy Gloss	Carboline Carboguard 890
			SW Kem Cati-Coat HS B42W400		SW HP Epoxy B67-200		SW HP Epoxy B67-200
Cement & Gypsum Plaster Walls & Soffits Flat	P-1F	Acrylic Sealer	SW PrepRite B28W300	Acrylic	SW ProMar B30W200	Acrylic Flat	SW ProMar B30W200
			PPG Speedhide 6-2		PPG Speedhide 6-70		PPG Speedhide 6-70
			Carboline Sanitile 120		Carboline 3130		Carboline 3130

## Attachment D

<b><u>Surface</u></b>	<b><u>System Designation</u></b>	<b><u>Primer</u></b>	<b><u>Manufacturer's Product</u></b>	<b><u>2nd Coat</u></b>	<b><u>Manufacturer's Product</u></b>	<b><u>Top Coat</u></b>	<b><u>Manufacturer's Product</u></b>
Cement & Gypsum Plaster Walls & Soffits Semi-Gloss	P-1S	Acrylic Sealer	Carboline Carbocrylic 120	Acrylic	Carboline Carbocrylic 3359	Acrylic Semi-Gloss	Carboline Carbocrylic 3359
			SW PrepRite B28W300		SW ProMar B31W200		SW ProMar B31W200
			PPG Speedhide 6-2		PPG Speedhide 6-500		PPG Speedhide 6-500
Gypsum Board Flat	GB-1F	Acrylic Sealer	SW PrepRite B28W8200	Acrylic	SW ProMar B30W200	Acrylic Flat	SW ProMar B30W200
			PPG Speedhide 6-2		PPG Speedhide 6-70		PPG Speedhide 6-70
			Carboline Sanitile 120		Carboline 3130		Carboline 3130
Gypsum Board Semi-Gloss	GB-1S	Acrylic Sealer	Carboline Carbocrylic 120	Acrylic	Carboline Carbocrylic 3359	Acrylic Semi-Gloss	Carboline Carbocrylic 3359
			SW PrepRite B28W8200		SW ProMar B31W200		SW ProMar B31W200
			PPG Speedhide 6-2		PPG Speedhide 6-500		PPG Speedhide 6-500
Steel Semi-Gloss	S-13S	Acrylic Steel Primer	PPG Pitt-Tech Plus 90-912	Acrylic	PPG Pitt-Tech Plus 90-1210	Acrylic Semi-Gloss	PPG Pitt-Tech Plus 90-1210
			SW DTM B66 W1		SW Sher-Cryl B66-350		SW Sher-Cryl B66-350
			Carboline 3358		Carboline 3359		Carboline 3359

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Steel Gloss	S-14G	Acrylic Steel Primer	Carboline Carbocrylic 3358	Acrylic	Carboline Carbocrylic 3359 DTM	Acrylic Semi-Gloss	Carboline Carbocrylic 3359 DTM
			SW DTM B66W1		SW DTM Sher-Cryl B66-300		SW DTM Sher-Cryl B66-300
			PPG Pitt-Tech Plus 90-912		PPG Pitt-Tech Plus 90-1310		PPG Pitt-Tech Plus 90-1310
Steel Heavy-Duty Semi-Gloss (UV Exposure)	S-14S	Organic Zinc Rich	Carboline Carbozinc 859	Epoxy	Carboline Carboguard 888	Aliphatic Polyurethane Semi-Gloss	Carboline Carbothane 133 LH
			PPG PMC Amercoat 68 HS		PPG PMC Amercoat 399		PPG PMC Amercoat 450 HSG
			SW Zinc Clad III HS		SW Macropoxy 646		SW Acrolon 218 HS
Steel Heavy-Duty	S-15	Organic Zinc Rich	Carboline Carbozinc 859	Epoxy	Carboline Carboguard 890	Epoxy	Carboline Carboguard 890
			SW Zinc Clad III HS		SW Macropoxy 646		SW Macropoxy 646
			PPG PMC Amercoat 68 HS		PPG PMC Amerlock 2		PPG PMC Amerlock 2
Galvanized & Aluminum Gloss	N-4G	Primer	Carboline Carbocrylic 120		N/A	Acrylic Gloss	Carboline Carbocrylic 3359 DTM
			PPG Pitt-Tech Plus 90-912				PPG Pitt-Tech Plus 90-1310
			SW Pro-Cryl B66-310 Series				SW Sher-Cryl B66-300

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Galvanized & Aluminum Semi-Gloss	N-4S	Primer	PPG Pitt-Tech Plus 90-912		N/A	Acrylic Semi-Gloss	PPG Pitt-Tech Plus 90-1210
			SW Pro-Cryl B66-310 Series				SW Sher-Cryl B66-350
			Carboline Carbocrylic 120				Carboline 3359
Galvanized & Aluminum Heavy Duty Semi-Gloss	N-5S	Epoxy	Carboline Carboguard 888		N/A	Aliphatic Polyurethane Semi-Gloss	Carboline Carbothane 133 LH
			SW Macropoxy 646				SW Acrolon 218 HS B65-650
			PPG PMC Amercoat 385				PPG Amercoat 450 HSG
Plywood Flat	PW-2F	Acrylic	Carboline Carbocrylic 120	Acrylic	Carboline 3130	Acrylic	Carboline 3130
			SW PrepRite ProBlock B51W20		SW ProMar B30W200		SW ProMar B30W200
			PPG SealGrip 17-921		PPG Speedhide 6-70		PPG Speedhide 6-70
Plywood Semi-Gloss	PW-2S	Acrylic	Carboline Carbocrylic 120	Acrylic	Carboline Carbocrylic 3359	Acrylic	Carboline Carbocrylic 3359
			SW Preprite ProBlock B51W20		SW ProMar B31W200		SW ProMar B31W200
			PPG SealGrip 17-921		PPG Speedhide 6-500		PPG Speedhide 6-500

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Concrete Floor Clear Finish	CF-2	Epoxy	PPG MegaSeal HSPC 99-12700 SW ArmorSeal 33 Carboline Carboguard 1340		N/A	Epoxy	PPG MegaSeal SL 99-12600 SW 650 SL/RC Carboline Sanitile 925
Concrete Floor Color Finish Heavy-Duty Gloss	CF-3	Epoxy	Carboline Semstone 110 SW ArmorSeal 33 PPG MegaSeal HSPC 99-12710	Epoxy	Carboline Sanitile 945 SL SW ArmorSeal 650 SL/RC PPG MegaSeal SL	Epoxy	Carboline Sanitile 945 SL SW ArmorSeal 650 SL/RC PPG MegaSeal SL
Concrete Color Finish Anti-Graffiti	AG-3	Epoxy	Carboline Rustbond Penetrating Sealer SW Macropoxy 920		N/A	Polyester Urethane	Carboline Carbothane 133 LH SW Polylon HP
Concrete Masonry, Color Finish Anti-Graffiti	AG-4	Concrete Block Filler	Carboline Carboguard 954 HB SW Kem Cati-Coat HS		N/A	Polyester Urethane	Carboline Carbothane 133 LH Sherwin-Williams Polylon HP

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
<b>C. Overcoat Systems</b>							
Steel	S-16	Alkyd Spot Primer	Carboline Carbocoat 8215C SW Kromik Metal Primer PPG Multiprime 97-680		N/A	Silicone Alkyd	Carboline 30 R SW Steel Master 9500 B56-300 Series PPG Sil-Shield 95-5000
Steel	S-17	MC Urethane Spot Primer	Wasser MC-Prepbond Xymax MonoLock PP SW Corothane I Mio-Aluminum	MC Urethane	Wasser MC-Prepbond Xymax MonoLock PP SW Corothane I Ironox B	MC Urethane	Wasser MC-Luster Xymax Bridge Finish SW Corothane I HS
Galvanized & Aluminum Semi-Gloss	N-6S	Epoxy Spot Primer	Carboline 888 Epoxy SW Macropoxy 646 PPG PMC Amercoat 385	Tie Coat	Carboline Rustbond SW Macropoxy 920 Pre-Prime PPG PMC Amerlock Sealer	Urethane	Carboline 133LH SW Acrolon 218 HS PPG PMC 450 HSG
Steel Semi-Gloss	S-18	Epoxy Mastic Spot Primer	PPG PMC Amerlock 2AL Carboline Carbomastic 615 HS SW Epoxy Mastic Aluminum II	Tie Coat	PPG PMC Amerlock Sealer Carboline Rustbond SW Macropoxy 920 Pre-Prime	Polyurethane	PPG PMC Amercoat 450 HSG Carboline 133 LH SW Acrolon 218 HS

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Concrete Semi-Gloss	C-4S	Spot Primer	Carboline Sanitile 120	Acrylic	Carboline Sanitile 155	Acrylic	Carboline Sanitile 155
			PPG Perma-Crete 4-603		PPG Pitt-Tech Plus 90-1210		PPG Pitt-Tech Plus 90-1210
			SW Loxon A24W8300		SW DTM Acrylic B66-200		SW DTM Acrylic B66-200
Concrete Masonry Semi-Gloss	CM-4S	Block Filler Spot Primer	Carboline Sanitile 100	Acrylic	Carboline Sanitile 155	Acrylic	Carboline Sanitile 155
			SW H.D. Block Filler B42W46		SW DTM Acrylic B66-200		SW DTM Acrylic B66-200
			PPG Pitt-Glaze 16-90		PPG Pitt-Tech Plus 90-1210		PPG Pitt-Tech Plus 90-1210

### D. Interior - Sustainable Design

Concrete Masonry Flat	CM-5F	Block Filler	PPG 6-7 Speedhide Latex Block Filler	Acrylic Flat	PPG 9-100 Pure Performance Flat Interior Latex	Acrylic Flat	PPG 9-100 Pure Performance Flat Interior Latex
			SW PrepRite B25W25		SW ProGreen B30-600		SW ProGreen B30-600
			Carboline Sanitile 100		Carboline 3130		Carboline 3130

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Concrete Masonry Semi-Gloss	CM-5S	Block Filler	PPG 6-7 Speedhide Latex Block Filler	Acrylic	PPG 9-500 Pure Performance Interior Latex Primer	Acrylic Semi-Gloss	PPG 9-500 Performance Interior Latex Finish Semi- Gloss
			SW PrepRite B25W25		SW ProGreen B31-600		SW ProGreen B31- 600
			Carboline Sanitile 100		Carboline 3234		Carboline 3234
Cement & Gypsum Plaster Walls & Soffits Semi-Gloss	P-2S	Acrylic Sealer	PPG 9-900 Pure Performance Interior Latex Primer	Acrylic	PPG 9-500 Pure Performance Interior Latex	Acrylic Semi-Gloss	PPG 9-500 Pure Performance Interior Latex
			SW Loxon A24W8300		SW ProGreen B31-600		ProGreen B31-600
			Carboline Sanitile 120		Carboline 3234		Carboline 3234
Gypsum Board Flat	GB-2F	Acrylic Sealer	PPG 9-900 Pure Performance Latex Primer	Acrylic	PPG 9-100 Pure Performance Latex	Acrylic Flat	PPG 9-100 Pure Performance Latex
			SW ProGreen 200 B28W600		SW ProGreen 200 B30- 600		SW ProGreen 200 B30-600
			Carboline Sanitile 120		Carboline 3130		Carboline 3130
Gypsum Board Semi-Gloss	GB-2S	Acrylic Sealer	PPG 9-900 Pure Performance Latex	Acrylic	PPG 9-500 Pure Performance Latex	Acrylic Semi-Gloss	PPG 9-500 Pure Performance Latex
			SW ProGreen 200 B28W600		SW ProGreen 200 B31- 600		SW ProGreen 200 B31-600
			Carboline Sanitile 120		Carboline 3234		Carboline 3234

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Steel Semi-Gloss	S-19S	Acrylic Steel Primer	PPG 90-912 Series Pitt-Tech DTM Industrial Enamel	Acrylic	PPG Pitt-Tech Plus 90-1210	Acrylic Semi-Gloss	PPG Pitt-Tech Plus 90-1210
			Carboline Carbocrylic 3358 MC		Carboline 3234		Carboline 3234
			SW Pro-Cryl Universal Primer		SW Pro Industrial B66-650		SW Pro Industrial B66-650
Steel-Heavy Duty Gloss	S-20G	Organic Zinc-Rich	PPG PMC Amercoat 68 HS VOC	Epoxy	PPG PMC Amercoat 399	Urethane	PPG PMC Amershield VOC
			Carboline Carbozinc 859 VOC		Carboline Carboguard 894		Carboline Carbothane 134 VOC
			SW Zinc Clad III HS-100		SW Macropoxy 646-100		SW Hi-Solids Polyurethane-100
Galvanized & Aluminum Semi-Gloss	N-7S	Primer	PPG 90-912 Series Pitt-Tech DTM Industrial Enamel		N/A	Acrylic Semi-Gloss	PPG Pitt-Tech Plus 90-1210
			Carboline Galoseal WB				Carboline Carbocrylic 3234
			SW Pro-Cryl Universal Primer				SW Pro Industrial B66-650
Plywood Semi-Gloss	PW-3S	Acrylic	PPG 9-900 Pure Performance Interior Latex Primer	Acrylic	PPG Speedhide 6-500	Acrylic Semi-Gloss	PPG Speedhide 6-500
			SW Wood Primer B28W8111		SW Pro Industrial B66-650		SW Pro Industrial B66-650
			Carboline Carbocrylic 120		Carboline 3234		Carboline 3234

## Attachment D

<u>Surface</u>	<u>System Designation</u>	<u>Primer</u>	<u>Manufacturer's Product</u>	<u>2nd Coat</u>	<u>Manufacturer's Product</u>	<u>Top Coat</u>	<u>Manufacturer's Product</u>
Concrete Floor Clear Finish	CF-4	Epoxy	PPG MegaSeal HSPC 99-12700		N/A	Epoxy	PPG MegaSeal SL 99-12600
			Carboline Carboguard 1340				Carboline Sanitile 925
			SW ArmorSeal 33 B58CQ33				SW ArmorSeal 650 SL/RC Clear
Concrete Floor Color Finish	CF-5	Epoxy	PPG MegaSeal HSPC		N/A	Epoxy	PPG MegaSeal SL
			Carboline Carboguard 1340				Carboline Sanitile 555
			SW ArmorSeal 33 B58 AQ33				SW ArmorSeal 650 SL/RC
Concrete, Heavy Duty	C-5	Epoxy	Carboline Carboguard 1340	Epoxy	Carboline Carboguard 890 VOC	Epoxy	Carboline Carboguard 890 VOC
			PPG PMC Amerlock Sealer				PPG PMC Amerlock 400 VOC
Concrete Masonry, Heavy Duty	CM-6	Epoxy block filler	Carboline Carboguard 954 HB	Epoxy	Carboline Carboguard 890 VOC		Carboline Carboguard 890 VOC

END OF APPENDIX "B"

**SECTION 09910**

**PAINTING**

**INSTRUCTIONS TO SPECIFIER**

A. General

1. Do not alter or revise the text of this Section. Select appropriate Appendix "B" to specify whether the Work of the Contract includes exterior or interior painting, or both.
2. In Appendix "B" select surfaces and coatings required, and delete surfaces and coatings not required.
3. Do not add manufacturers or paint materials unless such additions have been reviewed and approved by the Materials Engineering Unit prior to issuance of the Contract.
4. Do not use this Section for the following painting applications:
  - a. Painting of luminaires and traffic signals.
  - b. Painting of piles, sheet piling, or shoring and underpinning systems.
5. Care must be used in specifying the anti-graffiti coatings for concrete and masonry surfaces on the exterior, due to the impermeability of the coating system.

B. Contract Drawings

Ensure that the Contract Drawings show the following items specified in the text:

- |                                  |  |
|----------------------------------|--|
| (1.01 B.1; 1.01 B.2; 2.01 A)     | Finish schedule which includes System Designation as selected from Appendix "B" or Appendix "C" as appropriate.    |
| (2.02 B; 1.06 A.2)               | Color schedule.  |
| (1.01 B.3; 3.02 A.10; 3.02 A.12) | Color-coding of electrical or mechanical equipment, if any.  |
| (1.04 B)                         | Sample panel(s), if any.   |
| (1.05 D)                         | Extra stock required, if any.  |
| (3.01 B)                         | Show required ferrous metal surface preparation.   |
| (3.02 A.7)                       | Finish color on top, bottom and side edges of doors if other than color of exterior face.                          |
| (3.02 A.11)                      | Color of exposed, pipes, ducts, conduits, hangers, brackets and supports, if other than same as adjacent surfaces. |
| (3.02 C)                         | Dry film thickness of coatings, if other than those recommended by coating manufacturer.                           |

C. Other Items

1. Coordinate with the Structural Task Leader to ensure that no shop primer is applied to structural steel shown or scheduled to receive sprayed on fire-resistive material (1.01 C.8).

## Attachment D

2. When the Contract Drawings show "Color(s) shall match sample(s) in the Engineer's Office", ensure that required samples are maintained for Contractor's viewing and coordinate with Division 1 requirements.
3. Sustainable Design Requirements

For buildings and facilities which need to comply with the Sustainability Guidelines, revise the paint systems in Appendix "B" to comply with the following requirements:

- a. Paints and coatings used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the following criteria:
  - (1) Architectural paints, coatings and primers applied to interior walls and ceilings: Do not exceed the VOC content limits established in Green Seal Standard GS-11, Paints, First Edition, May 20, 1993.
    - Flats: 50 g/L
    - Non-Flats: 150 g/L
    - Primers: 150 g/L
  - (2) Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates: Do not exceed the VOC content limit of 250 g/L established in Green Seal Standard GC-03, Anti-Corrosive Paints, Second Edition, January 7, 1997.
  - (3) Clear wood finishes, floor coatings, stains and shellacs applied to interior elements: Do not exceed the VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004. The following list are examples. Refer to standard for complete details.
    - Clear wood finishes: Varnish 350 g/L; lacquer 550 g/L
    - Floor coatings: 100 g/L
    - Sealers: Waterproofing sealers 250g/L; sanding sealers 275 g/L; all other sealers 200 g/L
    - Shellacs: Clear 730 g/L; pigmented 550 g/L
    - Stains: 250 g/L

END OF INSTRUCTIONS

**DIVISION 16****SECTION 16571****VEHICULAR TRAFFIC SIGNAL HEADS  
AND MOUNTING HARDWARE****PART 1. GENERAL**

## 1.01 SUMMARY

This Section specifies requirements for vehicular traffic signal heads, including flashing signals, optically programmable units and light emitting diode (LED) signals.

## 1.02 REFERENCES

The following is a listing of the publications referenced in this Section:

	<u>American Society for Testing and Materials (ASTM)</u>
ASTM B 85	Specification for Aluminum-Alloy Die Castings.
	<u>Federal Communications Commission (FCC)</u>
Title 47	Telecommunication.
	<u>Federal Highway Administration (FHWA)</u>
MUTCD	Manual on Uniform Traffic Control Devices.
	<u>Institute of Transportation Engineers (ITE)</u>
ITE ST-017B	Equipment and Material Standards of the Institute of Transportation Engineers.
	Vehicle Traffic Control Signal Heads –Part 3: Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Modules.
ITE ST-052	Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement.
	<u>National Electrical Manufacturers Association (NEMA)</u>
NEMA TS 2	Traffic Controller Assemblies with NTCIP Requirements.
NEMA 250	Enclosures for Electrical Equipment (1,000 Volts Maximum).
	<u>The Port Authority of New York and New Jersey (PA)</u>
	Traffic Signal Design and Drawing Preparation Guidelines.
	<u>Underwriters Laboratories, Inc. (UL)</u>
UL 94VO	Tests for Flammability of Plastic Materials for Parts in Devices and Appliances.
	<u>US Department of Defense Military Standards</u>
MIL-STD-883	Test Method Standard Microcircuits.

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### 1.03 DESIGN AND PERFORMANCE REQUIREMENTS

- A. Vehicular traffic signal heads shall conform to requirements specified in this Section. Where specific requirements are not listed herein, the vehicular traffic signal heads shall, as a minimum, conform to the requirements of the standards and publications listed in 1.02.
- B. The units furnished as Work of this Section shall be of the size, number of indicators, colors and faces shown on the Contract Drawings, constructed to standard similar dimension sections or combination head arrangements with lenses, aluminum alloy housings, mounting brackets and hardware, aluminum reflectors, lamps, visors, strobes, safety chains and, where shown on the Contract Drawings, with backplates.
- C. Polycarbonate housings and visors in the quantities shown shall be furnished only if specified on the Contract Drawings.
- D. Vehicular traffic signal heads shall consist of readily available and proven equipment, fully consistent with their intended design and operation as specified herein. Special or custom-built components may be used only upon written approval from the Engineer.
- E. Use modular type construction with assemblies, sub-assemblies and modules that are available from a second source of supply wherever possible.
- F. All assemblies, sub-assemblies and modules shall be readily accessible for removal, testing or replacement without removal of other modules, assemblies or components. Components shall be located so that there is visibility and access for the use of hand tools and standard test probes where maintenance is required. Test points shall be provided to facilitate troubleshooting.

### 1.04 ENVIRONMENTAL REQUIREMENTS

- A. The vehicular traffic signal head equipment shall operate over an ambient temperature range from minus 40 degrees F to plus 165 degrees F (minus 40 degrees C to 74 degrees C). Operation of the vehicular traffic signal head equipment shall not be degraded by rain, snow, fog or normally encountered ambient humidity conditions.
- B. The equipment shall be protected against the intrusion of dust and moisture to protect all internal components.
- C. The equipment shall operate without degradation or damage under ambient shock (thermal and mechanical), vibration, lightning and electromagnetic/electrical interference at the construction site.

### 1.05 QUALITY ASSURANCE

- A. Verify that all LED vehicular traffic signal heads have undergone Design Qualification (DQ) testing prior to shipment as specified herein and ITE ST-017B. Failure of any LED signal to meet requirements of the DQ tests shall be cause for rejection. If any equipment has been damaged or if, for any reason, the equipment does not comply with the requirements or test standards specified, the Contractor shall repair or replace the equipment at his own expense. Provide DQ process and test results documentation to the Engineer.

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- B. Ensure that all LED vehicular traffic signal heads undergo the following production Quality Assurance (QA) testing prior to shipment in accordance with ITE ST-017B. Failure of any LED signal to meet requirements of the QA tests shall be cause for rejection. If any equipment has been damaged or if, for any reason, the equipment does not comply with the requirements or test standards specified, the Contractor shall repair or replace the equipment at his own expense. Provide QA process and test results documentation to the Engineer.
  - 1. Signal Burn-in.
  - 2. Maintained Minimum Luminous Intensity.
  - 3. Power Factor.
  - 4. Current.
  - 5. Visual Inspection.
- C. After delivery of equipment, the Engineer may perform a construction site inspection of the equipment. If any equipment has been damaged or if, for any reason, the equipment does not comply with the requirements or testing hereof, the Contractor shall repair or replace the equipment at his own expense, even though the equipment had been inspected for shipment. After such satisfactory replacement and/or repair and the Engineer's subsequent written approval, the equipment may be installed.
- D. After installation, test the equipment in the presence of the Engineer to show compliance with the requirements of this Section and with the Contract Drawings. Continue testing until the results are satisfactory to the Engineer. If any equipment has been damaged or if, for any reason, the equipment does not comply with this Section, the Contractor shall repair or replace the equipment at his own expense. Provide installation process and test results documentation to the Engineer. Perform any repairs, construction and modifications required to comply with the Specifications and the Contract Drawings.

### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. All materials shall be delivered to the construction site in original unopened containers or bundles with labels, which clearly identify the manufacturer and product name, including storage requirements and instructions.
- B. Properly store and handle all materials delivered to prevent deterioration or damage due to moisture, temperature change, contaminants and other causes.

### 1.07 SPARE EQUIPMENT

For items with no second source of supply, provide replacement assemblies in quantities as shown on the Contract Drawings.

### 1.08 SUBMITTALS

See Appendix "A" for submittal requirements.

## **PART 2. PRODUCTS**

### 2.01 MATERIALS

- A. Head Housing and Door: Virgin metal die cast aluminum alloy conforming to ASTM B 85 of one of the following alloys:
  - 1. S12A (A14130).

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2. S12B (A04130).
  3. SC84A (A13800).
  4. SC84B (A03800).
  5. SG100B (A03600).
- B. Backplates: 1/8-inch thick minimum, black Acrylonitrile Butadiene Styrene (ABS), ultraviolet (UV) stabilized plastic sheet with hair cell finish on the front side, smooth finish on the back side and 3-inch corner radii. Vacuum formed backplates shall have a 5/8-inch flange on all sides providing rigidity and structural integrity. Backplates shall be designed to precisely fit manufacturer's signal head and supplied with necessary mounting hardware.
- C. Polycarbonate housings and visors shall be molded, ultraviolet and heat stabilized, flame retardant, unaffected by the heat of the lamp used and permanently colored.
- D. All bolts, nuts, washers and lock washers supplied shall be stainless steel.

### 2.02 CONSTRUCTION FEATURES

#### A. General

1. Design signal head equipment for operation from line voltage at 120 plus or minus 3 VAC RMS nominal and over a voltage range from 80 VAC RMS to 135 VAC RMS, 60 Hz plus or minus 3 Hz, AC line power. Variations in operating line voltage shall have no visible effect on luminous intensity and shall not vary by more than 10 percent over the entire operating voltage range.
2. Signal heads, bracket arms and mounting attachments shall receive three coats of paint, each of which shall be baked after application. The first or primer coat shall be a non-lead or chromium containing paint for aluminum surfaces. The second and third coats shall be Federal Yellow matching Color No. 13538 conforming to Federal Standard No. 595B, except for the underside of visor, which shall be flat black enamel. Each coat shall be baked on separately. All metal surfaces to be painted shall be suitably cleaned of all foreign deposits, oil and grease, and then neutralized for priming. Paint separate parts before assembly. Do not paint stainless steel housing latching assembly.
3. Unless specified otherwise, equipment shall be fabricated in accordance with ITE ST-017B.
4. Identify all wire terminations and terminal block connections. At mast arm installations, bring separate continuous #14 AWG, 19 strand wires from the terminal block of the signal head to the traffic signal controller cabinet without splicing. At overhead span installations, secure separate continuous traffic signal cables to the span wire and terminate on the traffic signal head terminal block. Terminate cables with insulated spade terminals conforming to NEMA TS 2.

#### B. Vehicular Traffic Signal Heads

1. Shall be of the size, number of indicators, color and faces as shown on the Contract Drawings.
2. The Vehicular Traffic Signal Heads shall be of the type Optically Programmable or LED as specified herein and as shown on the Contract Drawings.

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3. The housing for each signal face shall be of unitized sectional construction and shall consist of as many sections as necessary to provide the signal indications shown on the Contract Drawings. Rigidly and securely fasten sections together into a weather tight signal face. Adjustable traffic signal heads shall consist of two or more signal faces fastened to and supported by a pipe assembly and suitable entrance fittings. No special tools shall be required to fasten the signal heads together.
  - a. Arrange each housing with openings in the top and bottom so that it may be rotated about a vertical axis between waterproof supporting brackets or trunnions and shall be capable of being securely fastened at increments of not more than five degrees of rotation, designed to accommodate standard 1-1/2-inch pipe brackets.
  - b. The top and bottom of each housing shall have integral cast locking rings or other provisions to provide positive interlocking and indexing. The top and bottom housing coupler shall be free of sharp edges and protrusions that might damage conductor cable insulation and shall provide sufficient space for the entrance of the required signal cable. Provide tees or crosses equipped with pipe plug knobs or caps at the top and bottom of the housings that can be removed to assist in wiring. As an alternative, flat arms or spiders will be acceptable for use on the bottom of adjustable signals. One-section beacons may be supplied without bottom bracket arms.
  - c. Each signal face shall be locked by engagement of serrations in the end signal sections engaging with similar serrations in the mounting bracket assembly. The serrations shall be recessed and integral with the signal section. All signal brackets shall be designed for use with a tabbed lock ring to lock the signal face in position.
  - d. Housing construction shall permit the assembly of 12-inch signal sections with 8-inch signal sections of the same manufacturer. The assembly shall permit the joining of 8-inch sections to 12-inch sections, either above or below for vertical mounted signals and either to the right or left for horizontally mounted signals.
4. Provide neoprene gaskets between the body of the housing and the doors. The door shall be hinged and forced tightly against the gasket and the housing by a simple stainless steel locking mechanism.
  - a. Cast hinge lugs integral with the door. All other exterior hardware such as hinge pins, lens or clips shall be stainless steel. The locking device shall operate without the use of tools.
  - b. Arrange hinges to allow convenient re-lamping. On the outside of the door, there shall be a rim encircling the lens opening to prevent any light leakage between optical systems.
  - c. Each door shall contain four Number 10-24 tapped holes equally spaced and straddling the vertical centerline through bosses on the door to accommodate visor clip connections on the outside and lens clip connections on the inside of the door.

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5. Provide each completed vehicular traffic signal head with a barrier type terminal block, equipped with connectors for the lamp receptacle leads and screw terminals for the field wires, located within the bottom section of the signal unit. The terminal board for standard three-section units shall be a four-position, eight-terminal, barrier-type strip. Attach the white, red; orange and green color-coded section leads to one side of each terminal strip leaving the opposite terminals for field wires. All wires shall be stranded 18 AWG minimum with an insulation rating of 221 degrees F (105 degrees C). Greater than three-section head clusters shall be designed accordingly.
6. The visors shall be separate and removable from the doors, held in place by stainless steel fastenings attached to the door in such a manner as to prevent the possibility of any light leakage between the door and the visor hood, which might be discernible from the side. Fabricate visors of sheet aluminum, not less than 0.050 inches thick, and equip with bayonet slots or other provisions to permit snap-on attachment and rotation of the visor.
  - a. Visors shall be either the standard open type or the type shown on the Contract Drawings. Paint the inside of the visors flat black to minimize light reflection to the sides of the signal.
  - b. Visors shall tilt down from the horizontal a minimum of 3-1/2 degrees and shall be 10 inches nominally in length for 12-inch diameter lenses and 8 inches nominally in length for 8-inch diameter lenses.
7. Directional Louvers
  - a. Furnish and install directional louvers in signal visors where shown on the Contract Drawings.
  - b. Directional louvers shall be so constructed as to have a snug fit in the signal visors. The outside cylinder shall be constructed of 0.030-inch nominal thickness, or thicker, sheet steel and the vanes shall be constructed of 0.016-inch nominal thickness, or thicker, sheet steel or the cylinder and vanes shall be constructed of 5052-H32 aluminum alloy of equivalent thickness. Dimensions of louvers and arrangements of vanes shall be as shown on the Contract Drawings.
  - c. The entire surface of louvers used in front of signal lenses shall be painted a flat black to minimize light reflection to the sides of the signals.
8. Provide removable black ABS, UV-stabilized plastic backplates at locations and of configuration shown on the Contract Drawings, 1/8-inch minimum thickness. Backplates shall attach to the signal head in such a manner so as not to obstruct the signal housing door opening. The backplates shall be designed to precisely fit manufacturer's signal head and shall be supplied with necessary hardware.
9. The housing assembly shall accommodate the installation and/or replacement of either Optically Programmable or LED vehicular traffic signal head as specified herein.

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10. Polycarbonate housings and visors in the quantities shown shall be furnished only if specified on the Contract Drawings.
  - a. The polycarbonate housing shall be one piece molded or shall be fabricated from two or more pieces joined into a single piece. The housing thickness shall be a minimum of 0.090 inches thick. All sections shall be identical and interchangeable with each other and shall be so designed that they interlock with each other forming a weatherproof assembly. Hinges or lugs shall be located inside each section for attaching the reflector assembly. Each signal section shall be dust-tight.
  - b. The polycarbonate-housing door of each section shall be a one-piece unit with an opening of sufficient diameter to accommodate the lens. On one side of the door, at top and bottom, there shall be a hinge so as to ensure perfect alignment of the door. On the opposite side of the door, there shall be a wingnut assembly-locking device to ensure even gasket pressure. Twelve-inch signal sections shall be secured with two wingnut assemblies. Hinge pins and locking device shall be stainless steel.
  - c. Each polycarbonate signal face shall be provided with polycarbonate or metal visor. Polycarbonate visors shall be a minimum of 0.100-inch thick, formed from sheet polycarbonate or assembled from one or more injection, rotational or blow molded polycarbonate sections of black homogeneous colored material with a lusterless finish. Sections shall be joined using thermal, chemical or ultrasonic bonding.
  - d. Polycarbonate signal faces that require backplates shall be provided with ABS backplates, a minimum of 1/8-inch thick.
- C. Optically Programmable Vehicular Signal Heads
  1. Optically programmable vehicular signal heads, if any, shall be located as shown on the Contract Drawings. Such units shall permit the visibility zone of the indication to be determined optically without hoods or louvers. The projected indication may be selectively visible or veiled anywhere within 15 degrees of the optical axis. No indication shall result from external illumination nor shall one light unit illuminate a second.
  2. The optical system shall be comprised of the lamp, a lamp collar, an optical limiter/diffuser and the objective lens.
    - a. Lamp shall be a nominal 150 watts, 120 VAC, three prong, sealed beam having an integral reflector with stippled cover and an average rated life of at least 7,000 hours, coupled to the diffusing element with a collar including a specular inner surface. The diffusing element may be discrete or integral with the convex surface of the optical limiter/diffuser.
    - b. The optical limiter/diffuser shall provide an accessible imaging surface at focus on the optical axis for objects 900 to 1,200-feet distance, and shall permit an effective veiling mask to be variously applied as determined by the desired visibility zone. Provide the optical limiter/diffuser with positive indexing means, composed of heat resistant glass or polycarbonate.
    - c. The objective lens shall be a high resolution, planar incremental lens hermetically sealed within a flat laminate of weather resistant acrylic, or approved equal. The lens shall be symmetrical in outline and able to be rotated to any 90-degree orientation about the optical axis without displacing the primary image.

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- d. The optical system shall accommodate projection of diverse, selected signal displays to separate portions of the roadway such that only one display will be apparent to any viewer.
  3. Mount the signals to standard 1-1/2 inch pipe fittings as a single section, as a multiple section face, or in combination with other signals, as shown on the Contract Drawings. Provide the signal sections with an adjustable connection that permits incremental tilting from 0 to 10 degrees above or below the horizontal while maintaining a common vertical axis through couplers and mounting. Terminal connection shall permit external adjustment about the mounting axis in 5-degree increments. Construct the signal such that it can be installed with ordinary tools and serviced with no tools.
    - a. Visor, backplate and adapter attachments shall conform and readily fasten to mounting surfaces without affecting the water and light integrity of the signal.
    - b. Arrange the programmed signal heads for rigid mounting to maintain optical orientation with the roadway. Where span wires are used, securely tether to the lower span wire.
  4. The lamp fixture shall be comprised of a separately accessible housing and integral lamp support, an indexed ceramic socket and a self-aligning, quick-release lamp retainer. Provide electrical connection between the case and lamp housing with an interlock assembly that disconnects the lamp housing when opened. Each signal head shall include a covered terminal block for screw attachment of field wires.
  5. Provide each signal section with integral means for regulating its intensity between limits as a function of individual background illumination. Lamp intensity shall not be less than 97 percent of uncontrolled intensity at 1,000 ft-c. and shall reduce to 15 plus or minus 2 percent of maximum at less than one ft-c. over the applied voltage and ambient temperature range. Response shall be proportional and essentially instantaneous to any detectable increase in illumination from darkness to 1,000 ft-c. and damped for any decrease from 1,000 ft-c.
    - a. The intensity controller shall be comprised of an integrated, directional light sensing and regulating device interposed between the lamp and field wires; responsive over an applied voltage of 105 VAC RMS to 135 VAC RMS, 60 Hz plus or minus 3 Hz, AC line power, and may provide phase-controlled output voltage but shall also have a nominal open circuit terminal impedance of 1,500 ohms.
    - b. The light intensity mechanism shall not produce electrical noise or interference sufficient to adversely affect the operation of solid-state electronic equipment used in the traffic signal controllers and associated auxiliary equipment and shall not cause false tripping of the conflict monitors.
- D. LED Vehicular Traffic Signal
1. General
    - a. LED vehicular traffic signal shall not require special tools for installation when used as a retrofit replacement for existing traffic signal lamps.
    - b. LED vehicular traffic signal shall fit into new or existing traffic housings built in accordance with ITE ST-017B without any modification to the housing.
    - c. LED vehicular traffic signal shall be weather tight, shall fit securely in the housing and shall connect directly to existing electrical wiring.

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- d. Installation of a retrofit replacement LED vehicular traffic signal into the existing signal housing shall require only the removal of the existing optical unit components, i.e., lens, lamps, gaskets and reflector.
  - e. Each retrofit kit shall include all necessary components to complete conversion, including a one-piece gasket.
2. LED Signal Lens
- a. The LED signal lens may be a replaceable part, without the need to replace the complete LED signal.
  - b. The LED signal lens may be tinted with the appropriate color to enhance on/off contrast. The material used to tint the lens shall not affect the luminous intensity or chromaticity and shall be uniform across the face of the lens.
  - c. The LED signal lens shall be polycarbonate and shall withstand ultraviolet light (direct sunlight) exposure for a minimum time period of five years without exhibiting evidence of deterioration.
3. LED Signal Construction
- a. The LED signal shall be a single, self-contained device, not requiring on-site assembly, for installation into the existing traffic signal housing.
  - b. All LEDs shall be rated for 100,000 hours or more at 77 degrees F (25 degrees C) and 20 milliamps.
  - c. All internal LED and electronic components shall be adequately supported to withstand mechanical shock and vibration from high winds and other sources.
  - d. The signal enclosure shall be made of UL 94VO flame-retardant materials. The lens is excluded from this requirement.
  - e. The LED signal shall have a prominent and permanent vertical indexing indicator for correct indexing and orientation inside the signal housing.
  - f. Each individual LED signal shall be identified for warranty purposes with the manufacturer's name, serial number and operating characteristics, such as rated voltage and power consumption.
  - g. The LED arrow signal pattern shall conform to ITE ST-017B Vehicle Traffic Control Signal Heads – Part 3: Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Modules for color, size and shape. The LED arrow signal shall not require a specific orientation or have a variance in light output, pattern or visibility for any orientation.
  - h. The LED ball signal shall conform to ITE ST-017B and Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement for color, size and shape.
  - i. The beam color, beam intensity and radiation pattern shall conform to the requirements for maintained minimum luminous intensity for LED signal and chromaticity as specified in ITE ST-017B Vehicle Traffic Control Signal Heads – Part 3: Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Modules and ITE ST-052 Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement.
  - j. Red LEDs shall be AlInGaP (Aluminum Indium Gallium Phosphorus) and shall be ultra bright type. ALGaAs LEDs are not permitted.
  - k. Green LEDs shall be GaN (Gallium Nitride) and shall be ultra bright type.

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1. Yellow LEDs shall be AlInGaP (Aluminum Indium Gallium Phosphorus) and shall be ultra bright type. ALGaAs LEDs are not permitted.
4. Environmental Requirements
  - a. LED signal shall satisfy all the environmental requirements specified in 1.04.
  - b. LED signal, when properly installed with gasket, shall be protected against dust and moisture intrusion per requirements of NEMA 250 Type 4 enclosures to protect all internal LED, electronic and electrical components.
5. Luminous Intensity
  - a. The Maintained Minimum Luminous Intensity shall be in accordance with ITE ST-017B Vehicle Traffic Control Signal Heads – Part 3: Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Modules and ITE ST-052 Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement.
6. Chromaticity
  - a. The measured chromaticity coordinates of the LED signal shall conform to the chromaticity requirement of ITE ST-017B Vehicle Traffic Control Signal Heads – Part 3: Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Modules and ITE ST-052 Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement.
7. Electrical
  - a. The LED signal shall operate from a 60 plus or minus 3 Hz AC line over a voltage range of 80 VAC RMS to 135 VAC RMS. The current drawn shall be sufficient to ensure compatibility and proper triggering and operation of load switches and conflict monitors in the signal controller units.
  - b. Nominal operating voltage for all measurements shall be 120 plus or minus 3 VAC RMS.
  - c. The 8-inch nominal and 12-inch nominal LED ball shall consume no more than 20 watts and 30 watts respectively. The 8-inch nominal and 12-inch nominal LED arrow shall not consume more than 15 watts and 20 watts respectively.
  - d. The forward current, as measured through each LED, shall not exceed 60 percent of the LED manufacturer's maximum current rating when operating at 77 degrees F (25 degrees C).
  - e. The LEDs shall emit no visible light when subjected to a 120 VAC, 4-milliamp leakage current from a NEMA-rated solid-state load switch (load switch in the off state).
  - f. The LEDs shall be wired in series parallel strings. The failure of any one LED, and its associated string of LEDs, shall not cause the loss of more than 20 percent of the light output of the complete LED signal.
  - g. The LED circuitry shall prevent flicker at less than 100 Hz over the voltage range specified above.
  - h. The LED circuitry shall include voltage surge protection against high-repetition noise transients and low-repetition noise transients as stated in NEMA TS 2.
  - i. The LED signal, including its circuitry, shall meet FCC Title 47, Subpart B, Section 15 regulations concerning the emission of noise.
  - j. The LED signal shall provide a power factor of 0.90 or greater over the operating voltage range and temperature range specified above.

## Attachment E

8. Total harmonic distortion (current and voltage) induced in an AC power line by an LED signal shall not exceed 20 percent over the operating voltage range and temperature range specified above.
9. Design Qualification Testing

Complete and document the Design Qualification testing described below. Carry out all Design Qualification testing after a burn-in (module energized for a minimum of 24 hours at 100 percent duty cycle and at an ambient temperature of 140 degrees F (60 degrees C)). Signals submitted for test shall be representative of typical production units.

- a. The LED signal shall be measured for chromaticity per the requirements of this Section and ITE ST-017B using a spectroradiometer at an ambient temperature of 77 degrees F (25 degrees C).
- b. The LED signal shall be measured for power factor per the requirements of this Section by an independent testing laboratory.
- c. The LED signal shall be measured for total harmonic distortion per the requirements of this Section by an independent testing laboratory.
- d. The LED signal shall be tested for electronic noise per the requirements of this Section with reference to Class A emission limits referenced in FCC Title 47, Subpart B, Section 15 by an independent testing laboratory.
- e. The LED signal shall be tested for compatibility with controller unit, conflict monitor and load switches. These tests are to be conducted in accordance with ITE ST-017B.
- f. The LED signal shall be tested for transient immunity (e.g., early electronic component mortality failures, component reliability problems) using NEMA TS 2 by an independent testing laboratory.
- g. Mechanical vibration testing shall be performed on the LED signal, by an independent testing laboratory, in accordance with MIL-STD-883, Test Method 2007, using three 4-minute cycles along each x, y, and z axis, at a force of 2.5 Gs, with a frequency sweep from 2 Hz to 120 Hz. The loosening of the lens or of any internal components or any other physical damage shall be cause for rejection.
- h. The maintained minimum luminous intensity testing shall be in accordance with ITE ST-017B.

### E. Electrical Connections

Wire the traffic signal heads to implement the signal operations shown on the Contract Drawings. At mast arm installations, separate continuous #14 AWG, 19 strand wires shall be brought from the terminal block of the signal head to the base of pole and spliced to the traffic signal cable. At overhead span installations, separate continuous traffic signal cables shall be secured to the span wire and terminated on the traffic signal head terminal block.

### F. Mechanical Connections

Furnish safety chain and bolted connections securing the signal heads to the mast arm on all installations. The safety chain shall be a minimum of 1/4 inch hot-dip galvanized coil proof straight link chain with 5/16 inch stainless steel bolts, nuts, flat and lock washers.

**PART 3. EXECUTION**

**3.01 PREPARATION**

- A. Before manufacture or procurement of equipment, submit Catalog Cuts and Shop Drawings outlining the construction and operation details of all equipment for prior Engineer approval as specified in 1.08. No equipment shall be procured until the Engineer has given written approval.
- B. Related equipment to be removed and not required for relocation under the Contract, if any, as shown on the Contract Drawings, shall remain the property of the Authority and shall be delivered to a location in the Port District as designated by the Engineer. Removed equipment, if any, shall not be used in a new installation unless specifically called for on the Contract Drawings.

**3.02 INSTALLATION**

- A. Install signal head equipment in accordance with the guidelines specified in the FHWA Manual on Uniform Traffic Control Devices and as shown on the Contract Drawings.
- B. Arrange signal heads for mounting on span wire, mast arms, post tops or vertical pole bracket mounts as shown on the Contract Drawings.
  - 1. For span wire mounting, furnish the signal heads with a span wire clamp and wire outlet fitting, with span wire clamp comprised of a shoe, lock bar, and two "U" bolts, equipped with a balance adjuster. Assemble the heads so that they hang plumb and include means for adjusting the signal heads to the proper vertical alignment, including circuit disconnect hangers, extension pipes and swivel balancer assemblies. In addition to the upper suspension fitting, provide signal heads with similar mounting attachments for securing the signal to an upper or lower span or tether wire as called for on the Contract Drawings.
  - 2. Furnish signal heads for Vertical, Horizontal and Mid-mast arm mounting with a mount consisting of upper and lower horizontal arms attaching to the top and bottom of the signal head housing. The horizontal arm shall attach to a vertical member that in turn clamps to the mast arm. The mast arm mount shall have provision for adjusting the vertical, angular and rotational positioning of the head in relation to the mast arm so that it is plumb, in line with other signal heads and properly oriented in relation to traffic, including the use of extension pipes, plumbizers, and swivel balancers. Safety chains securing the signal heads to the mast arm are required. Conceal wiring within the mounting assembly.
  - 3. Furnish post top mounted signal heads with a post top type slip fitter mount that is designed for use with a tabbed serrated lock ring to lock the signal face in position.
  - 4. Furnish vertical pole bracket mount signal heads with upper and lower horizontal brackets equipped with pole plates for attachment to the pole with stainless steel straps.
- C. Until the installed signal heads are placed into operation, they shall be bagged with an opaque or other approved material. The material shall be adequately secured to the signal heads in an orderly and neat manner.

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- D. After installation of equipment, the Engineer may perform a site inspection of the equipment. If any equipment has been damaged or if, for any reason, the equipment does not comply with the requirements or testing hereof, the Contractor shall repair or replace the equipment at his own expense, even though the equipment had been inspected previously. After such satisfactory replacement and/or repair and Engineer's subsequent written approval, the equipment may be tested as per 1.05 D.

### 3.03 FIELD TESTS

Perform initial installation test in accordance with 1.05 D.

END OF SECTION

**SECTION 16571**

**VEHICULAR TRAFFIC SIGNAL HEADS  
AND MOUNTING HARDWARE**

**APPENDIX "A"**

**SUBMITTALS**

Submit the following in accordance with the requirements of "Shop Drawings, Catalog Cuts, and Samples" of Division 1 - GENERAL PROVISIONS:

- A. Submit the following to the Engineer within forty-five (45) days after acceptance of Proposal:
1. A list of manufacturers of equipment to be furnished for the Work of this Section.
  2. Detailed drawing(s) for signal head equipment, backplates, visors, lens, mounting brackets and hardware including recommended mounting instructions. The submittal shall include the environmental tolerance provisions of the proposed equipment, including the material that the housing, backplates, visors, lens, mounting brackets and hardware were fabricated from. Include within this documentation electrical schematic wiring diagrams for the equipment, defining terminal identification number assignment.
  3. Five complete sets and one reproducible master set of all test process and results. This shall include but not limited to the Quality Assurance (QA) process and test results documentation, Design Qualification (DQ) process and test results documentation and installation process and test results documentation.
  4. A complete set of reproducible Mylar Shop Drawings for the signal head equipment, from which clear prints can be made.
  5. Five complete sets and one reproducible master set of operations and maintenance instructions including preventive and corrective maintenance.

END OF APPENDIX "A"



**THE PORT AUTHORITY** OF NY & NJ

Attachment F

# TRAFFIC SIGNAL DETAILS

No.	Date	Revision	Approved
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SEPTEMBER 2005

**TRAFFIC STANDARD DETAILS  
TRAFFIC SIGNALS TD20  
INDEX**

Sheet of



- TD20.01 TYPE "T" TRAFFIC SIGNAL POLE AND TRUSS TYPE MAST ARM ASSEMBLY
- TD20.02 TYPE "K" TRAFFIC SIGNAL POLE AND TRUSS TYPE MAST ARM ASSEMBLY
- TD20.03 TYPE "K-H" TRAFFIC SIGNAL POLE AND TRUSS TYPE MAST ARM ASSEMBLY
- TD20.04 TYPE "S" STEEL TRAFFIC SIGNAL POLE, ARM AND BASE
- TD20.05 PULL BOX, FRAME, COVER, AND LOOP DETECTOR SPLICE BOX
- TD20.06 CONDUIT INSTALLATION
- TD20.07 ALUMINUM TRAFFIC SIGNAL POLE FOUNDATION (SFT, SPF, SFK)
- TD20.08 ALUMINUM TRAFFIC SIGNAL POLE FOUNDATION (SFK-H)
- TD20.09 STEEL TRAFFIC SIGNAL POLE FOUNDATION
- TD20.10 TYPE "P" CONTROLLER CABINET FOUNDATION
- TD20.11 "T" AND "K" POLES – ELEVATION, SHOE BASE, CABLE OUTLET AND CAST CAP
- TD20.12 "T" POLE TRANSFORMER BASE
- TD20.13 "K" POLE TRANSFORMER BASE
- TD20.14 "T" POLE TRUSS TYPE MAST ARM, CLAMP AND END
- TD20.15 "K" POLE TRUSS TYPE MAST ARM, CLAMP AND END
- TD20.16 TRAFFIC SIGNAL PEDESTAL ASSEMBLY
- TD20.17 POLE CLAMP MOUNTING ASSEMBLIES
- TD20.18 SIGNAL HEAD POLE TOP AND BRACKET MOUNTING
- TD20.19 UNIVERSAL JOINT, WIRE OUTLET, ELEVATION PLUMBIZER, AND MAST ARM SLIP FITTER
- TD20.20 SIGNAL HEAD MID-MAST ARM AND SAFETY CHAIN MOUNTING
- TD20.21 HOLLOW SPIDER ASSEMBLY
- TD20.22 SIGNAL HEADS AND BACKPLATES
- TD20.23 OVERHEAD MAST ARM SWING SIGN BRACKET
- TD20.24 P CABINET LAYOUT
- TD20.25 CONTROLLER CABINET SKIRT FOR UPS
- TD20.26 LOOP DETECTOR INSTALLATION
- TD20.27 CABLE IDENTIFICATION TAG
- TD20.28 SPAN WIRE MOUNTED INSTALLATION
- TD20.29 SPAN WIRE TRAFFIC SIGNAL POLE FOUNDATION
- TD20.30 TRAFFIC SIGNAL ASSEMBLY
- TD20.31 TEMPORARY SPAN WIRE SIGNAL INSTALLATION 1
- TD20.32 TEMPORARY SPAN WIRE SIGNAL INSTALLATION 2
- TD20.33 TEMPORARY MAST ARM AND PEDESTAL
- TD20.34 VIDEO CAMERA MOUNTING DETAILS

No.	Date	Revision	Approved
<b>ENGINEERING DEPARTMENT</b>			
<b>PANYNJ</b>			
<b>Traffic Standard Details</b>			

**TRAFFIC**  
Title  
**TRAFFIC SIGNALS**

**INDEX**

This drawing subject to conditions in contract. All conditions, items, changes and methods herein are approved by Port Authority and may not be modified by contract documents, including Addenda and those who do not bid and their professional representatives and engineers who may receive it as a part of the Contract documents or "Notice to Proceed", and shall make every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further circulation of the information contained in the documents. Secure and appropriate disposal includes methods of document destruction such as shredding or incineration with refuse handlers that ensure that third persons will not have access to the documents' contents either before, during, or after disposal. Documents may not be released for disposal prior to the Contract bid on the 5th Floor, 3 Gateway Center, Newark, NJ 07102 or the office of the Director of Procurement, One Madison Avenue, 7th Floor, New York, NY 10017.

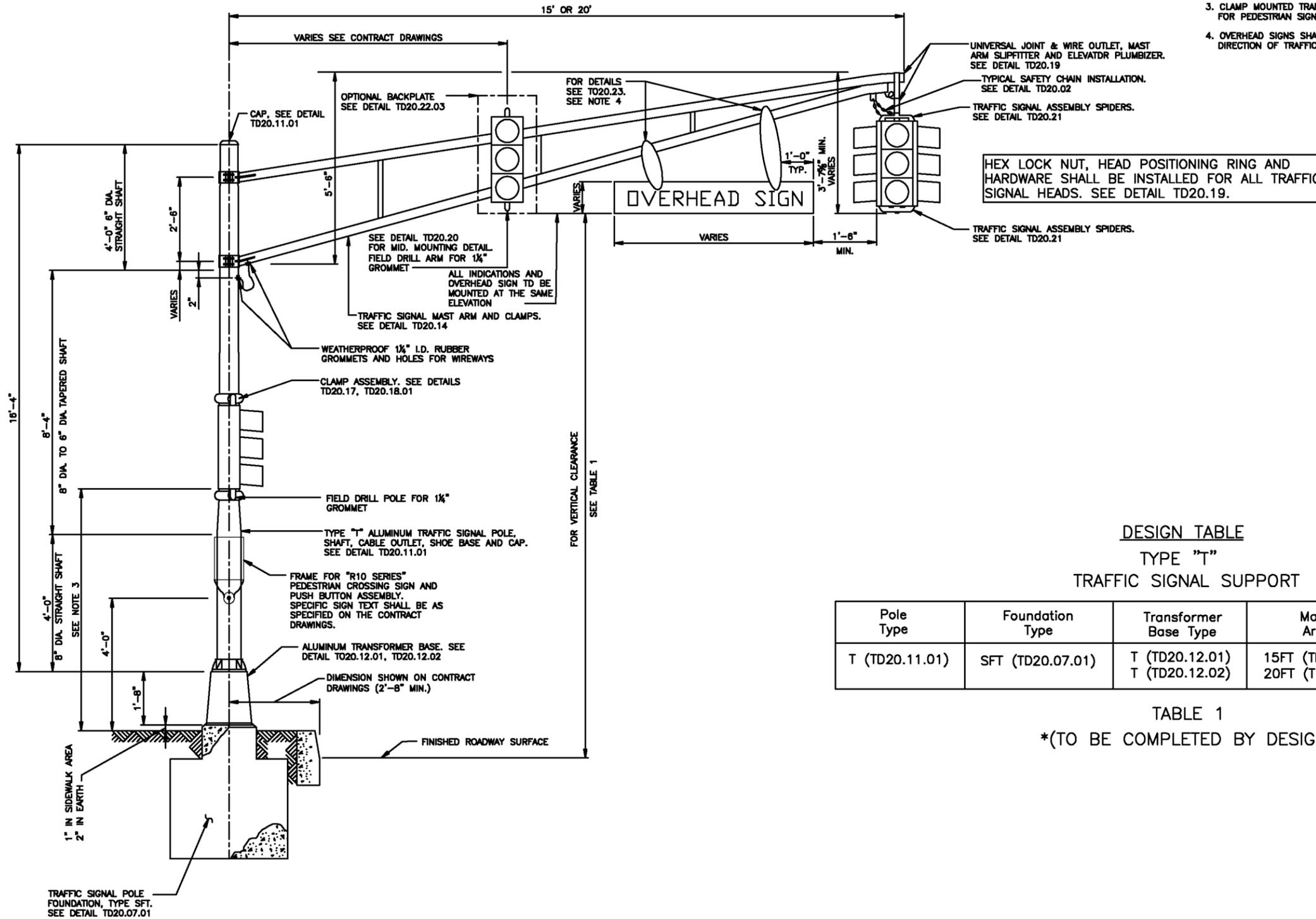
Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_  
Date **SEPTEMBER 2005**

Contract Number \_\_\_\_\_  
Drawing Number **TD20.IND**  
PID# \_\_\_\_\_

**NOTES:**

1. SEE DETAIL TD20.21.09 FOR FIVE SECTION INSTALLATION.
2. MINIMUM VERTICAL CLEARANCES CANNOT BE LESS THAN 15'-6".
3. CLAMP MOUNTED TRAFFIC SIGNAL HEAD HEIGHT SHALL BE 12 FEET. FOR PEDESTRIAN SIGNAL HEADS, THE HEIGHT IS 8 FEET.
4. OVERHEAD SIGNS SHALL BE MOUNTED PERPENDICULAR TO THE DIRECTION OF TRAFFIC WHICH THEY ARE INTENDED TO SERVE.

Sheet of



TYPICAL TYPE "T" TRAFFIC SIGNAL INSTALLATION  
N.T.S. TD20.01

HEX LOCK NUT, HEAD POSITIONING RING AND HARDWARE SHALL BE INSTALLED FOR ALL TRAFFIC SIGNAL HEADS. SEE DETAIL TD20.19.

DESIGN TABLE  
TYPE "T"  
TRAFFIC SIGNAL SUPPORT

Pole Type	Foundation Type	Transformer Base Type	Mast Arm	*Vertical Clearance
T (TD20.11.01)	SFT (TD20.07.01)	T (TD20.12.01) T (TD20.12.02)	15FT (TD20.14) 20FT (TD20.14)	

TABLE 1  
\*(TO BE COMPLETED BY DESIGNER)

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PANYNJ			
Traffic Standard			
Details			

TRAFFIC  
Title  
TRAFFIC SIGNALS

TYPE "T"  
TRAFFIC SIGNAL POLE  
AND TRUSS TYPE  
MAST ARM ASSEMBLY

This drawing subject to conditions in contract. All conditions, laws, codes and applicable laws are approved by Port Authority and may not be applicable for other jurisdictions. Including matters and those who do not fall under their professional jurisdiction and anyone who may be held liable as a part of the Contract documents or any other contract, and shall every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further disclosure of the information contained in the documents. Seals and signatures placed on drawings with reference numbers that cannot be traced back to the original drawings shall not have access to the documents' contents either before, during, or after the contract. Documents may not be released to other parties to the Contract without the prior written consent of the Port Authority. For more information, contact the Office of the Director of Procurement, One Madison Avenue, 7th Floor, New York NY 10017.

Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_

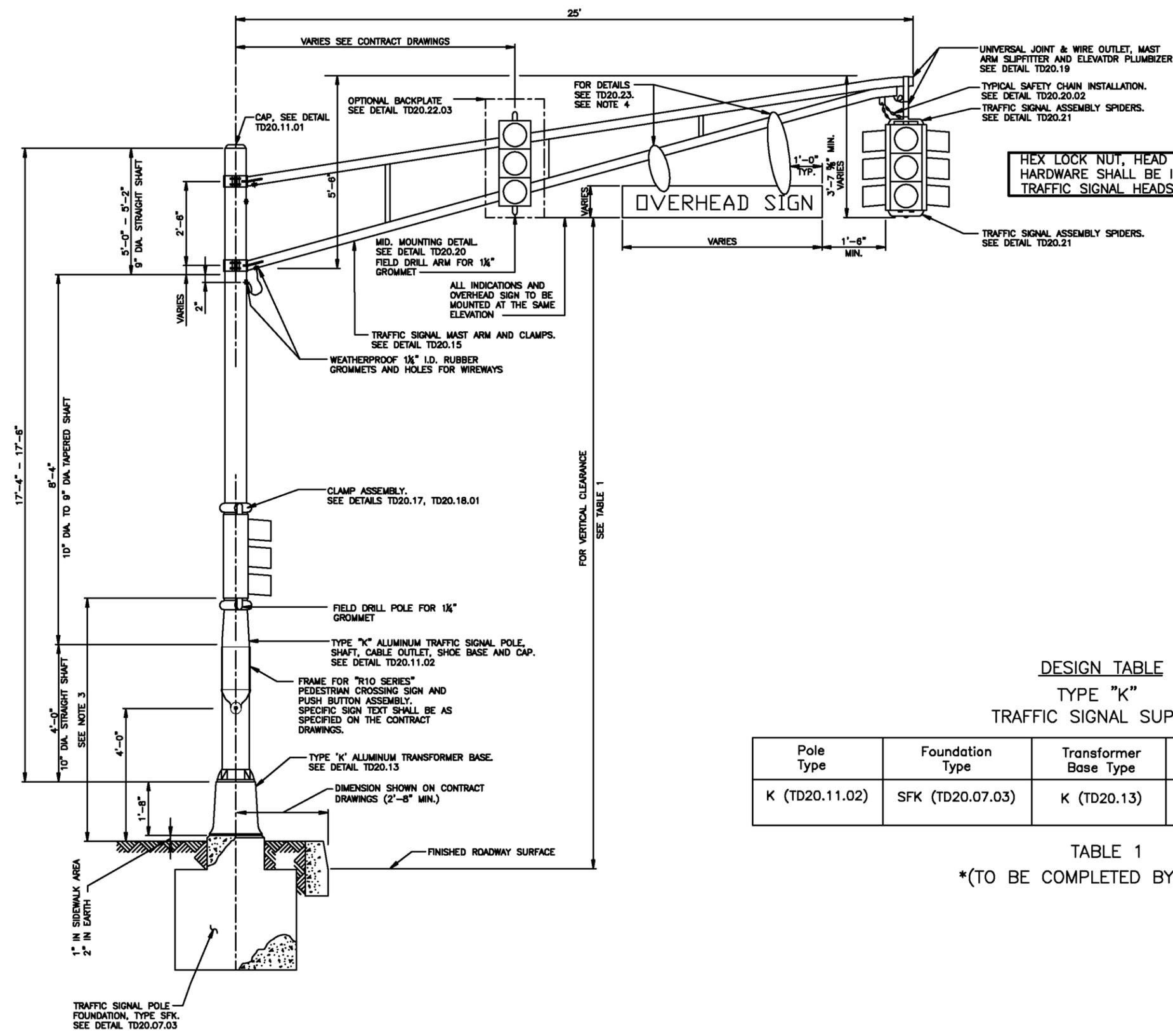
Date SEPTEMBER 2005

Contract Number

Drawing Number TD20.01

PID#

- NOTES:**
- SEE DETAIL TD20.21.09 FOR FIVE SECTION INSTALLATION.
  - MINIMUM VERTICAL CLEARANCES CANNOT BE LESS THAN 15'-6".
  - CLAMP MOUNTED TRAFFIC SIGNAL HEAD HEIGHT SHALL BE 12 FEET. FOR PEDESTRIAN SIGNAL HEADS, THE HEIGHT IS 8 FEET.
  - OVERHEAD SIGNS SHALL BE MOUNTED PERPENDICULAR TO THE DIRECTION OF TRAFFIC WHICH THEY ARE INTENDED TO SERVE.



**DESIGN TABLE**  
**TYPE "K"**  
**TRAFFIC SIGNAL SUPPORT**

Pole Type	Foundation Type	Transformer Base Type	Mast Arm	*Vertical Clearance
K (TD20.11.02)	SFK (TD20.07.03)	K (TD20.13)	25FT (TD20.15)	

**TABLE 1**  
 \*(TO BE COMPLETED BY DESIGNER)

**TYPICAL TYPE "K" TRAFFIC SIGNAL INSTALLATION**  
 N.T.S. [TD20.02]

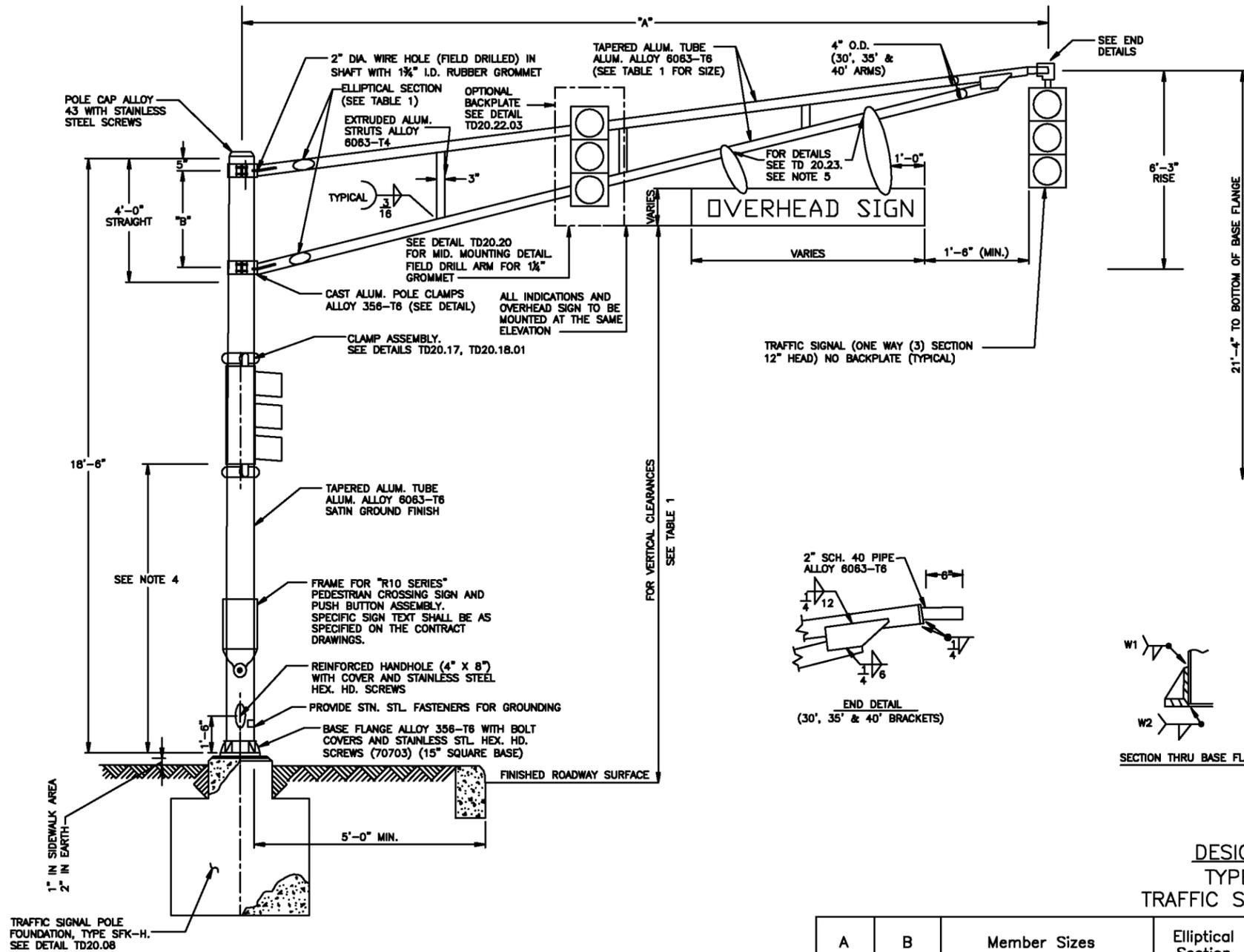
No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PANYNJ			
Traffic Standard			
Details			

**TRAFFIC**  
 Title

**TRAFFIC SIGNALS**  
**TYPE "K"**  
**TRAFFIC SIGNAL POLE AND TRUSS TYPE MAST ARM ASSEMBLY**

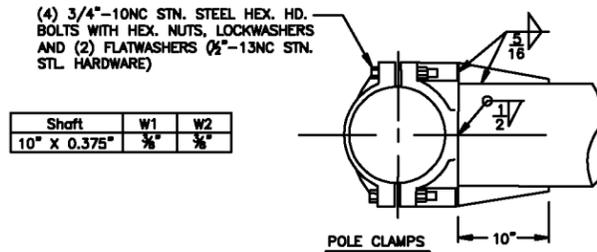
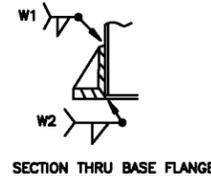
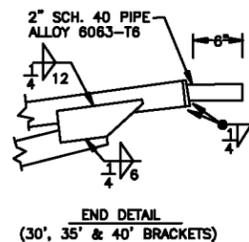
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Designed by	Drawn by	Checked by
Date	SEPTEMBER 2005	
Contract Number	TD20.02	
Drawing Number	PID#	



**NOTES:**

1. TRAFFIC ASSEMBLIES SHALL BE FABRICATED IN ACCORDANCE WITH THE 1994 AASHTO SPECIFICATION (EXCEPT BREAKAWAY SECTION) FOR THE LOADING CONDITIONS AS INDICATED. DESIGN WIND SPEED IS 90 MPH/117 MPH GUST.
2. SHAFT AND ARM ASSEMBLIES ARE ALUMINUM ALLOY 6063, HEAT TREATED TO -T6 TEMPER AFTER STRUCTURAL WELDING.
3. SHAFT TO BE FIELD DRILLED FOR WIRE ENTRANCE HOLE, AND ARMS TO BE FIELD DRILLED FOR MID MOUNT SIGNAL WIRE ENTRANCE.
4. CLAMP MOUNTED TRAFFIC SIGNAL HEAD HEIGHT SHALL BE 12 FEET. FOR PEDESTRIAN SIGNAL HEADS, THE HEIGHT IS 8 FEET.
5. OVERHEAD SIGNS SHALL BE MOUNTED PERPENDICULAR TO THE DIRECTION OF TRAFFIC WHICH THEY ARE INTENDED TO SERVE.



**DESIGN TABLE**  
TYPE "K-H"  
TRAFFIC SIGNAL SUPPORT

A	B	Member Sizes	Elliptical Section	Shaft Size	Foundation Type	*Vertical Clearance
30'	3'-0"	7" O.D. X 0.156" WALL	4" X 9 1/8"	10" X 9" X 0.375"	SFK-H (TD20.08)	
35'	3'-0"	7" O.D. X 0.188" WALL	4" X 9 1/8"	10" X 9" X 0.375"	SFK-H (TD20.08)	
40'	3'-0"	7" O.D. X 0.188" WALL	4" X 9 1/8"	10" X 9" X 0.375"	SFK-H (TD20.08)	

TYPICAL TYPE "K-H" TRAFFIC SIGNAL INSTALLATION  
N.T.S. TD20.03

TABLE 1  
\*(TO BE COMPLETED BY DESIGNER)

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PANYNJ			
Traffic Standard			
Details			

TRAFFIC  
Title

TRAFFIC SIGNALS

**TYPE "K-H"  
TRAFFIC SIGNAL POLE  
AND TRUSS TYPE  
MAST ARM ASSEMBLY**

This drawing subject to conditions in contract. All dimensions, sizes, design and materials herein are approved in Port Authority and may not be used for other projects without the express written consent of the Contract Administrator. The Contractor shall be responsible for all details of the design and shall provide all necessary details of the design and shall be responsible for all details of the design and shall be responsible for all details of the design.

Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_

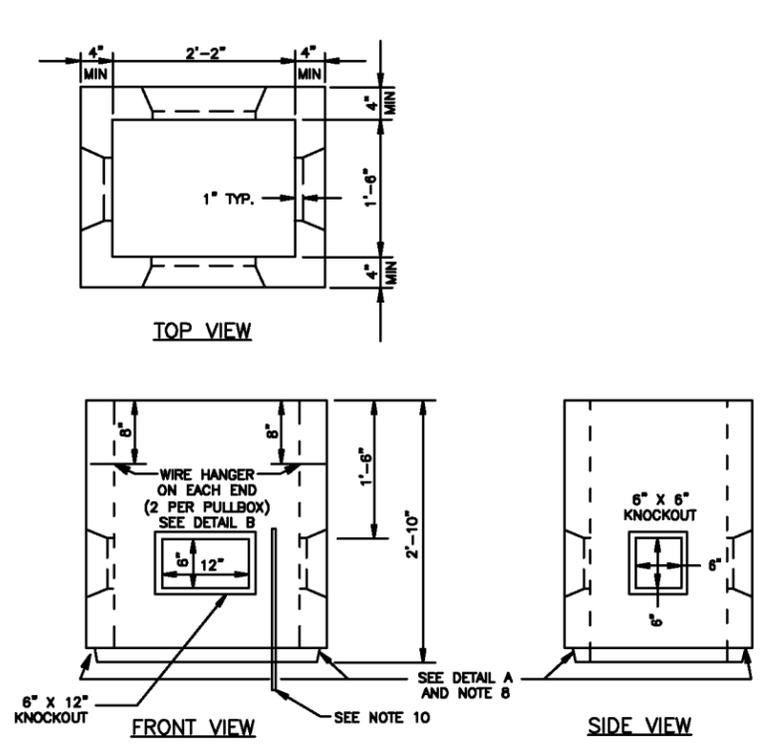
Date SEPTEMBER 2005

Contract Number

Drawing Number **TD20.03**

PID#

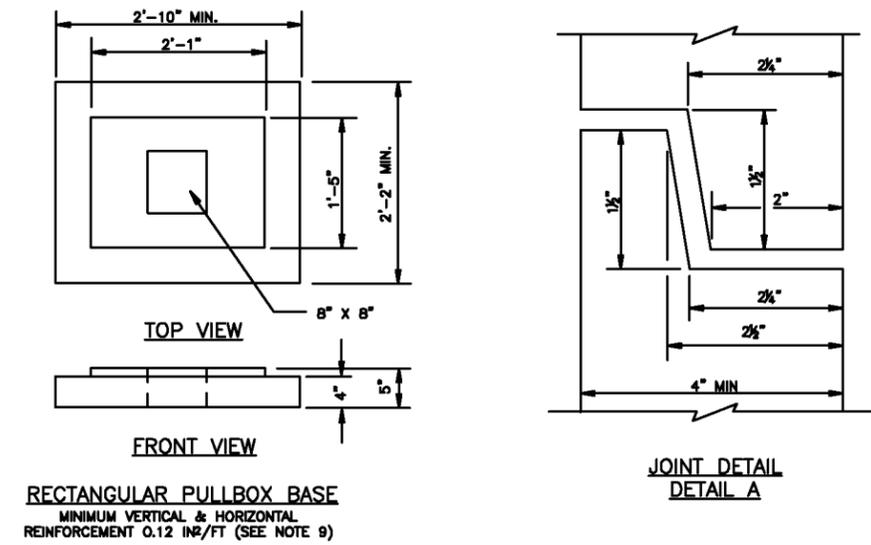




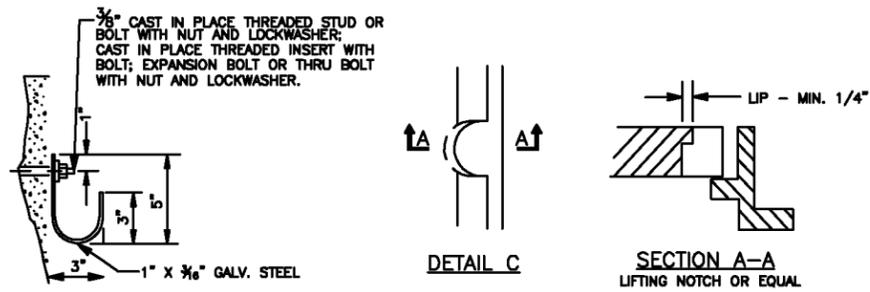
**REINFORCED CONCRETE RECTANGULAR PULLBOX**  
MINIMUM VERTICAL & HORIZONTAL REINFORCEMENT 0.12 IN<sup>2</sup>/FT (SEE NOTE 9)

- NOTES:**  
(APPLIES TO TD20.05.01)
1. CONCRETE CATEGORY VI SHALL BE POURED MONOLITHICALLY.
  2. STANDARD KNOCKOUT LOCATIONS ARE SHOWN FOR EACH PULLBOX. THE CONTRACTOR MAY ALSO ELECT TO FURNISH PULLBOXES WITH ONLY THE NUMBER AND SIZE CONDUIT OPENINGS THAT ARE REQUIRED FOR THAT PARTICULAR INSTALLATION.
  3. FRAMES AND COVERS SHALL BE HEAVY DUTY TO SUPPORT AN H-20 WHEEL LOADING.
  4. A NON-SKID TEXTURE SHALL BE CAST INTO THE TOP SURFACE OF THE COVER.
  5. PULLBOX BASES ARE REQUIRED ONLY FOR PULLBOXES PLACED IN THE PAVEMENT SHOULDER AND AS INDICATED ON THE PLANS. BASES, WHEN REQUIRED, MAY BE CAST OR INTEGRAL WITH THE PULLBOX.
  6. A ROUGH FINISH IS ACCEPTABLE FOR PULLBOX KNOCKOUTS.
  7. THE CONTRACTOR MAY ELECT TO FURNISH PULLBOXES PRECAST TO GREATER DEPTH, IN ONE FOOT INCREMENTS, INSTEAD OF USING EXTENSIONS.
  8. WHERE PULLBOXES ARE INTENDED FOR USE WITHOUT EXTENSIONS THE JOINT SHOWN IN "DETAIL A" MAY BE OMITTED.
  9. STEEL REINFORCEMENT SHALL BE PLACED WITHIN THE CENTER THIRD OF THE WALL. MINIMUM COVER SHALL BE 1".
  10. 3/8" X 10'-0" LG. COPPER CLAD GROUND ROD.
  11. THE TOP OF THE PULLBOX COVER SHALL BE SET FLUSH WITH THE SURROUNDING GRADE.

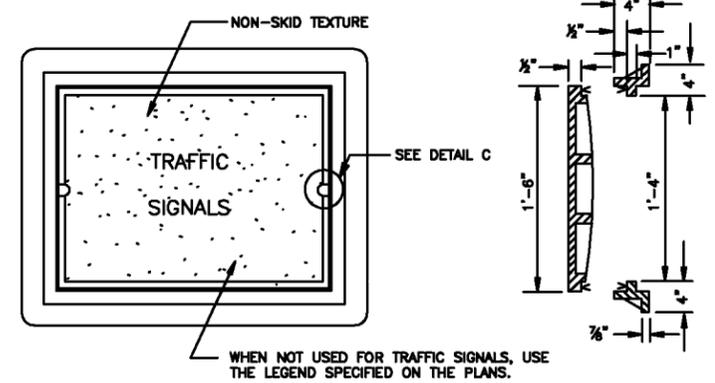
**PULL BOX, FRAME AND COVER**  
N.T.S. TD20.05.01



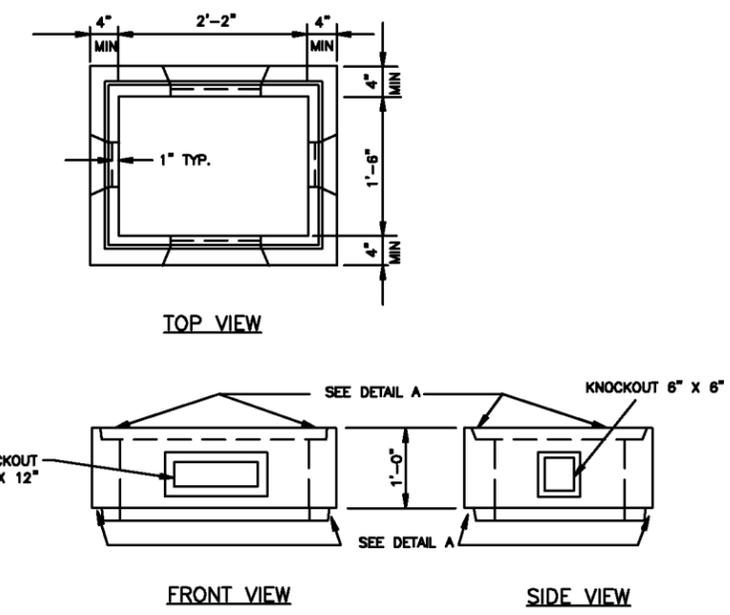
**RECTANGULAR PULLBOX BASE**  
MINIMUM VERTICAL & HORIZONTAL REINFORCEMENT 0.12 IN<sup>2</sup>/FT (SEE NOTE 9)



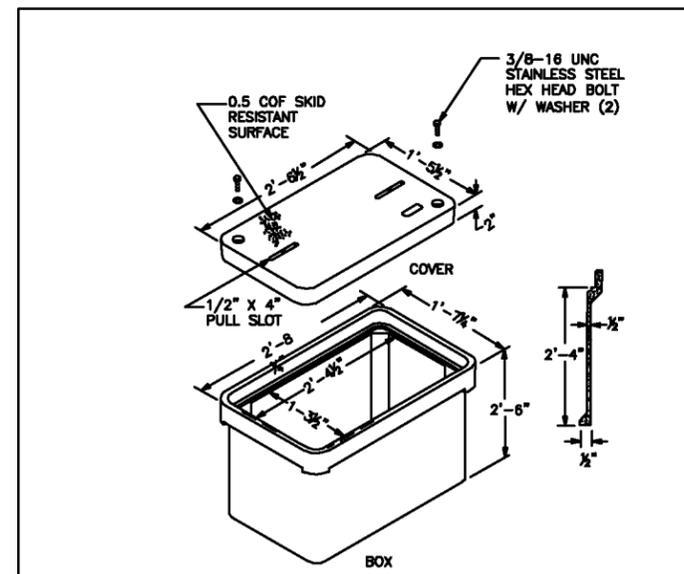
**WIRE HANGER DETAIL**  
DETAIL B



**CAST IRON FRAME AND COVER FOR RECTANGULAR PULLBOX**  
APPROXIMATE WEIGHT 300 LBS.



**EXTENSION FOR RECTANGULAR PULLBOX**  
MINIMUM VERTICAL & HORIZONTAL REINFORCEMENT 0.12 IN<sup>2</sup>/FT (SEE NOTE 9)



- NOTES:**  
(APPLIES TO TD20.05.02)
1. LOADINGS FOR COVERS SHALL COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCTE 77 EXCEPT THAT THE VERTICAL DESIGN LOAD IS 22,500 LBS. WITH A TEST LOAD OF 33,750 LBS. OVER A 10"x1'-6" PLATE.
  2. METHODS FOR CUTTING HOLDS SHALL BE ACCOMPLISHED BY USING EITHER A MASONRY HOLE SAW OR KNOCKOUT PUNCH DRIVER IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
  3. SPLICE BOX SHALL BE A QUARTZITE MATERIAL, OR APPROVED EQUAL.

**LOOP DETECTOR SPLICE BOX**  
N.T.S. TD20.05.02

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PANYNJ			
Traffic Standard			
Details			

TRAFFIC	
Title	
TRAFFIC SIGNALS	
<b>PULL BOX FRAME, COVER, AND LOOP DETECTOR SPLICE BOX</b>	

This drawing subject to conditions in standard. All dimensions, sizes, design and methods herein are approved by Port Authority and may not be used without the written consent of the Port Authority. The contractor shall be responsible for obtaining all necessary permits and approvals for the work shown on this drawing. The contractor shall be responsible for obtaining all necessary permits and approvals for the work shown on this drawing. The contractor shall be responsible for obtaining all necessary permits and approvals for the work shown on this drawing.

Designed by	Drawn by	Checked by
Date	SEPTEMBER 2005	
Contract Number		
Drawing Number	<b>TD20.05</b>	
	PID#	



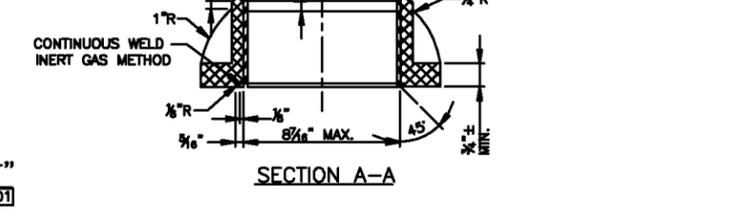
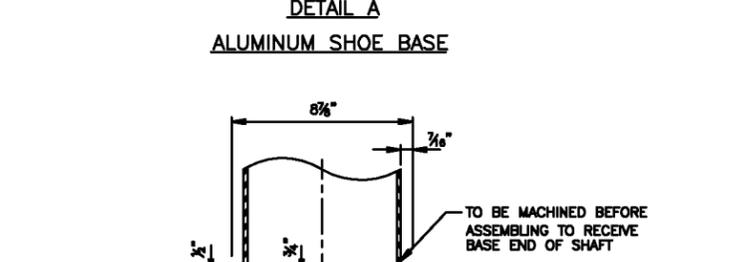
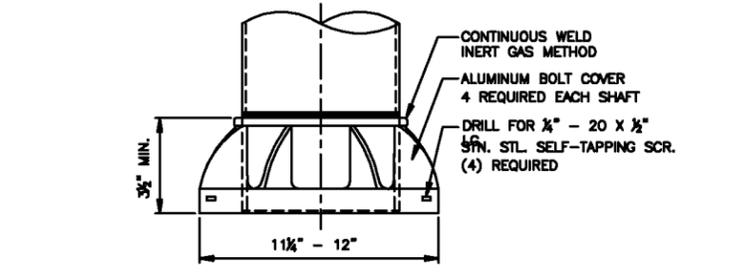
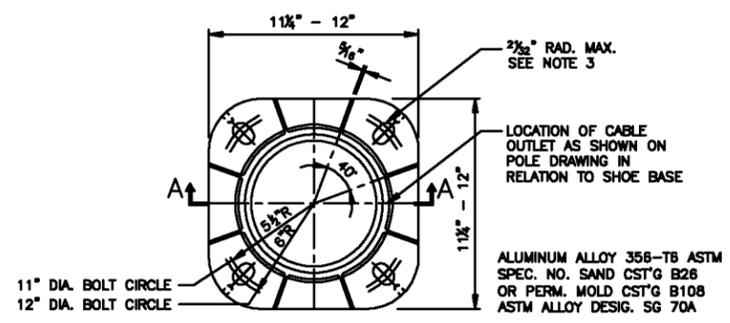
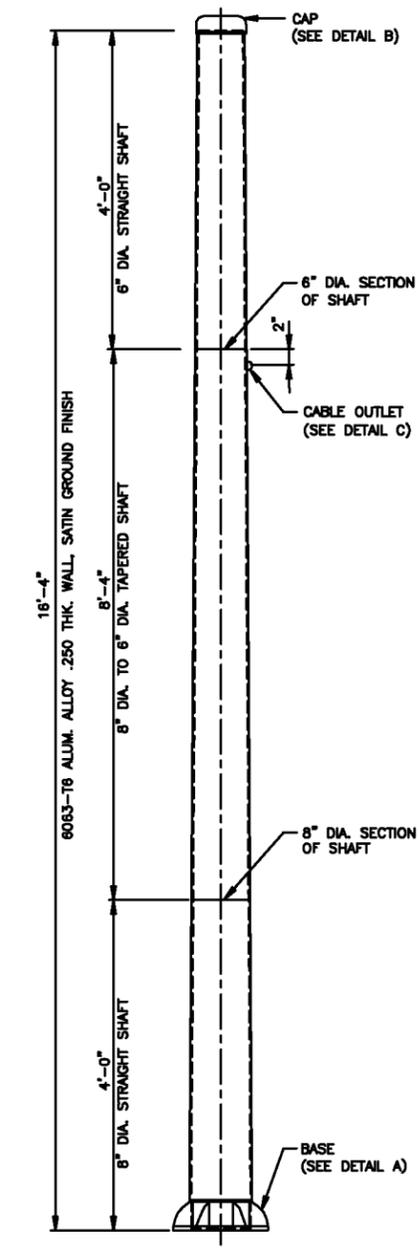




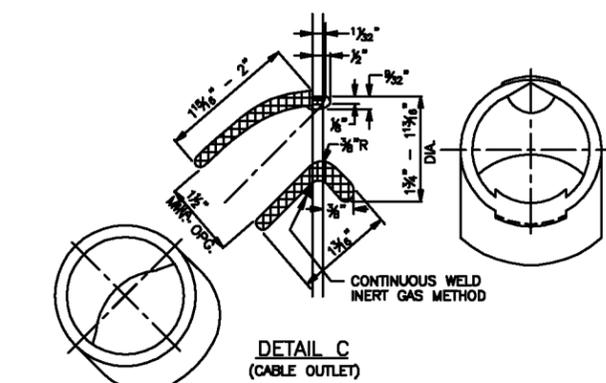
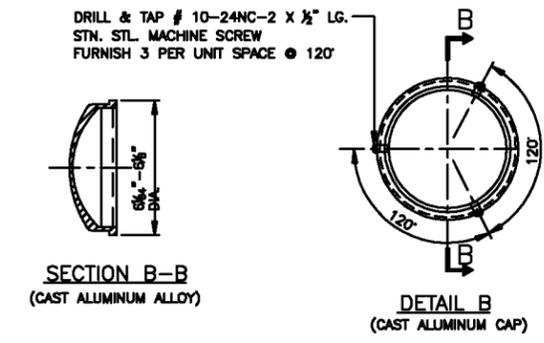




- NOTES:**
- UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
  - ALL TOLERANCES OF CASTINGS SHALL BE  $\pm .005$ .
  - HOLE SHALL BE OF SUFFICIENT DIAMETER TO ACCEPT 1" DIAMETER BOLT.
  - INSTALL NUTS AND WASHERS OUTSIDE "T" BASE.
- FURNISH WITH EACH POLE**
- 4- 1" DIA. X  $3\frac{1}{2}$ " LONG HEX HEAD BOLTS, 8 THREADS PER INCH CLASS 2 - FREE FIT STAINLESS STEEL ASTM A193 GRADE B8
  - 8- 1" DIA. PLAIN WASHERS, STAINLESS STEEL (4-2" O.D., 4-2 1/2" O.D.)
  - 4- 1" DIA. LOCK WASHERS, STN. STL.
  - 4- 1" DIA. HEX NUTS, STAINLESS STEEL
  - 4- BOLT COVERS ALUMINIUM ALLOY WITH STAINLESS STEEL SCREWS
  - 1- POLE CAP

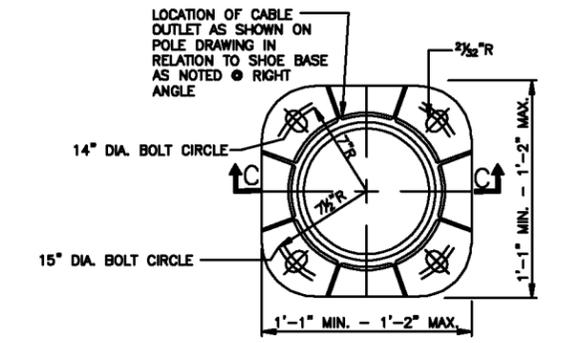
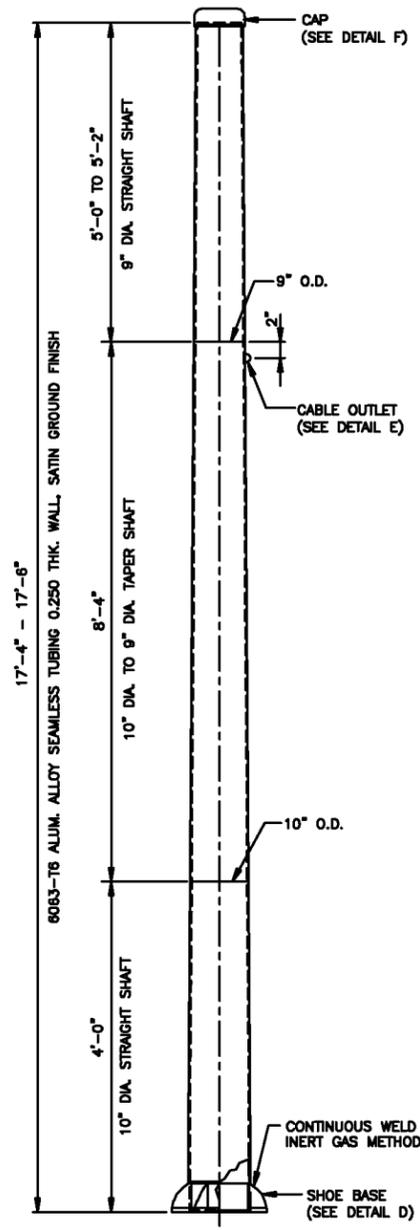


TRAFFIC SIGNAL POLE TYPE "T"  
N.T.S. TD20.11.01

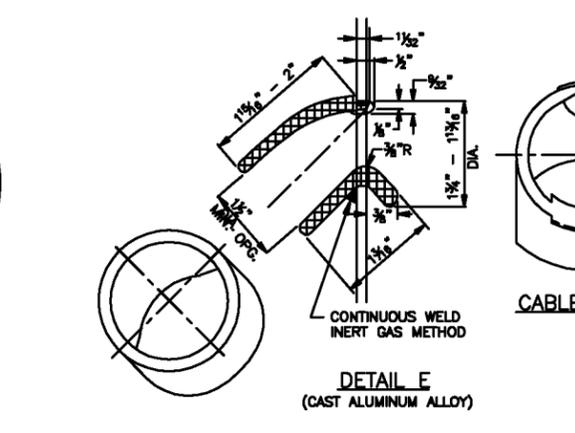
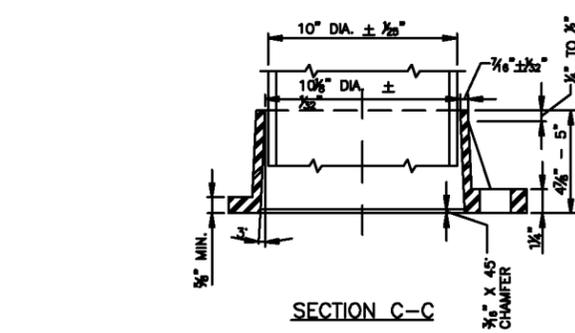


DETAIL B (CAST ALUMINUM CAP)

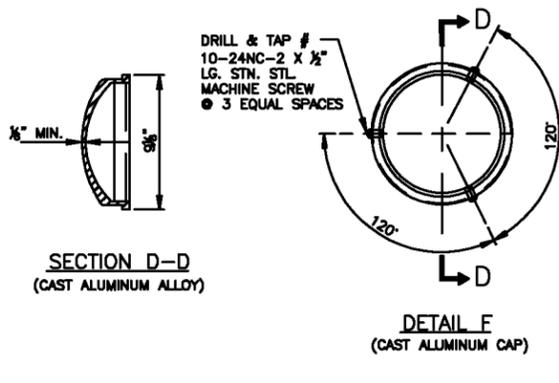
- NOTE:**
- UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH AASHTO STANDARD SPEC. LATEST REVISION FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
- FURNISH WITH EACH POLE**
- 4- 1" DIA. X  $4\frac{1}{2}$ " LONG HEX HD. BOLTS 8 THDS. PER INCH, CLASS 2-FREE FIT STAINLESS STEEL ASTM A-193 GRADE B8.
  - 4- 1" DIA. PLAIN WASHERS, STAINLESS STEEL (2" O.D. X  $\frac{1}{8}$ " THICK)
  - 4- 1" DIA. LOCK WASHERS, STAINLESS STEEL ( $\frac{1}{8}$ " THICK)
  - 4- 1" DIA. HEX NUTS, STAINLESS STEEL
  - 4- BOLT COVERS, ALUMINIUM ALLOY WITH GR. B8 STAINLESS STEEL SCREWS.
  - 4- 1" DIA. PLAIN WASHERS, STAINLESS STEEL (2 1/2" O.D.  $\frac{1}{8}$ " THK OR 2" O.D.  $\frac{1}{8}$ " THK AS RECOMMENDED BY MANUFACTURER.)
  - 1- POLE CAP



DETAIL D  
ALUMINUM SHOE BASE  
(ALUMINIUM ALLOY 356-T6 ASTM SPEC. NO. SAND CST'G B26 PERM. MOLD CST'G B108 ASTM ALLOY DESIG. SG 70A)



TRAFFIC SIGNAL POLE TYPE "K"  
N.T.S. TD20.11.02



SECTION D-D (CAST ALUMINUM ALLOY)

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PANYNJ			
Traffic Standard			
Details			

**TRAFFIC**  
Title

TRAFFIC SIGNALS

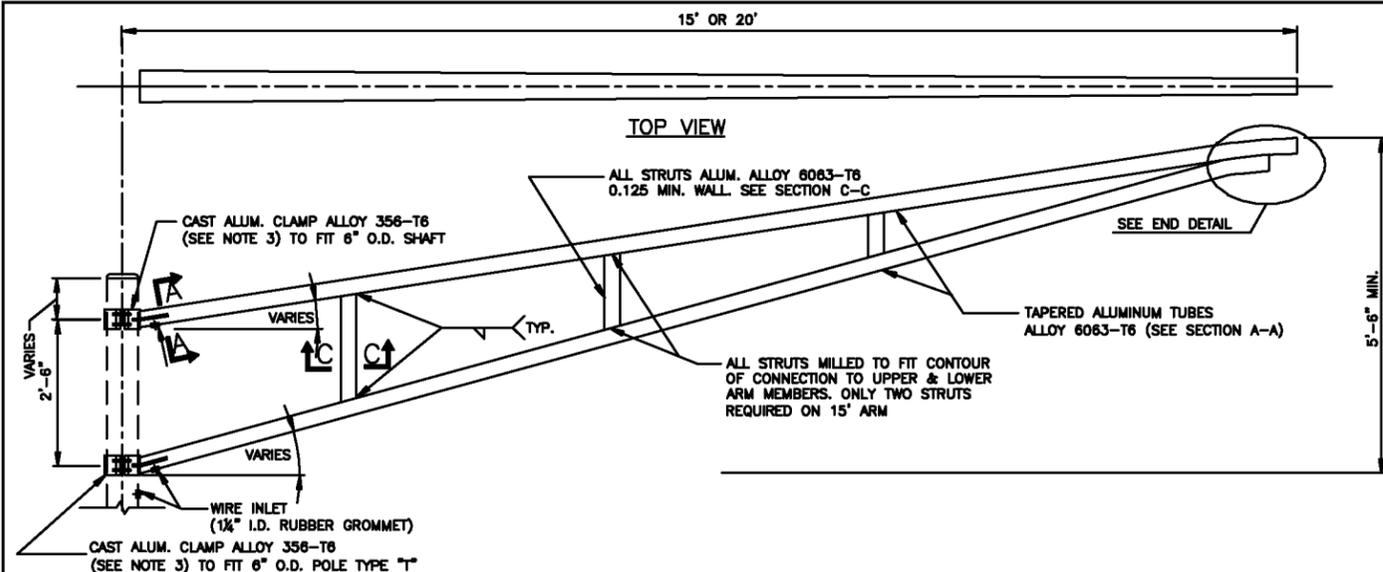
"T" AND "K" POLES  
ELEVATION, SHOE  
BASE, CABLE OUTLET  
AND CAST CAP

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Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_  
Date SEPTEMBER 2005  
Contract Number \_\_\_\_\_  
Drawing Number TD20.11  
PID#



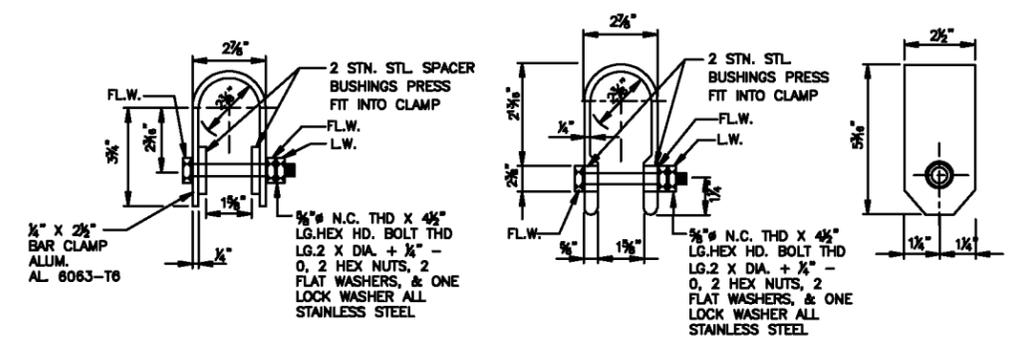




TRUSS TYPE MAST ARM FOR TYPE "T" POLES  
N.T.S. TD20.14

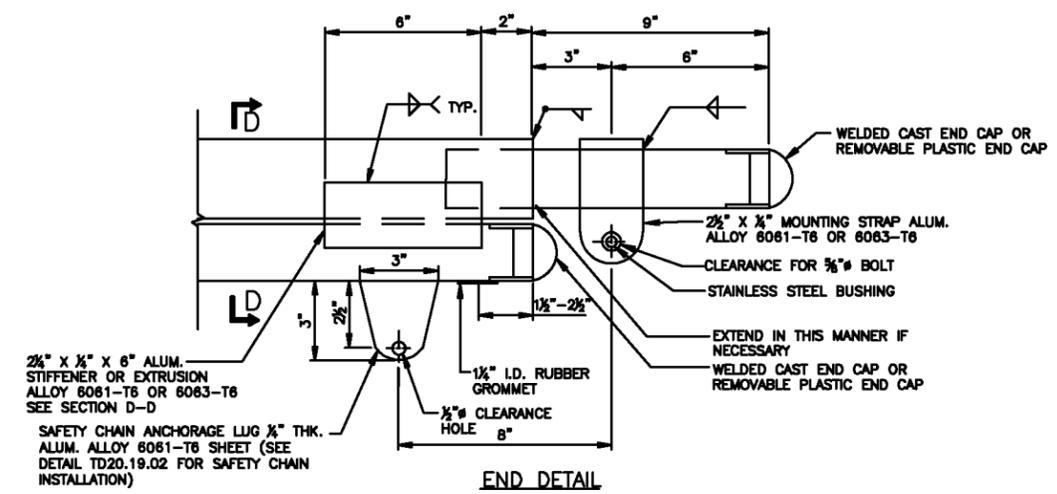
**NOTES:**

1. THE 15' AND 20' MAST ARMS SHALL SUPPORT 4-3 SECTION 12" ALUMINUM INDICATIONS. DO NOT USE FOR 12" SIGNAL FACE(S) OF 4 SECTIONS OR MORE SUSPENDED AT THE END OF THE MAST ARM FOR TYPE "T" POLES.
2. MAST ARMS WILL BE INSTALLED ON THE PORT AUTHORITY STANDARD ALUMINUM TRAFFIC SIGNAL POLE CONFORMING TO DETAIL TD20.11.01 WITH TRANSFORMER BASE DETAIL TD20.12.01 OR TD20.12.02.
3. AN EXTRUDED CLAMP MAY BE SUPPLIED AS AN ALTERNATE TO THE CAST BAND INDICATED. GENERAL CONFIGURATION MUST BE SIMILAR AND STIFFENERS MUST BE INSTALLED AS INDICATED. CLAMP MUST FIT A 6" POLE AND BOLT ARRANGEMENT MUST BE IDENTICAL STRENGTH OF ASSEMBLED ARM MUST EQUAL OR EXCEED CAST CLAMP CONSTRUCTION EXTRUSION ALLOY 6061-T6.
4. UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES, AND TRAFFIC SIGNALS.
5. ALL STAINLESS STEEL ITEMS PER ASTM A193 GRADE B6.6. ALL TOLERANCES OF CASTINGS SHALL BE  $\pm 1/32$ ".
6. 20' MAST ARMS MIN. 5" X 0.125" WALL TUBE ELLIPSIZED TO APPROX. 3" X 6 1/2".

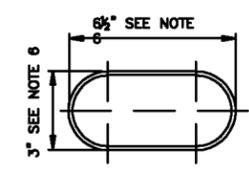


MOUNTING STRAP DETAIL

ALTERNATE MOUNTING STRAP

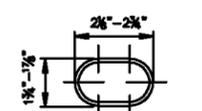


END DETAIL



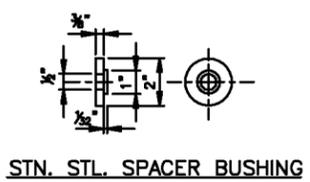
SECTION A-A

(TYPICAL BOTH MEMBERS)

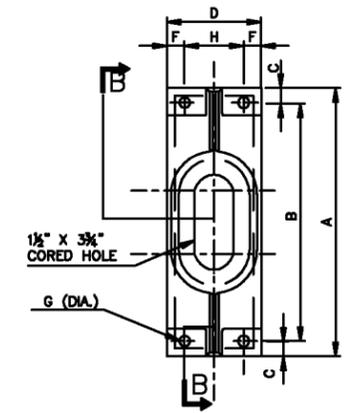


SECTION C-C

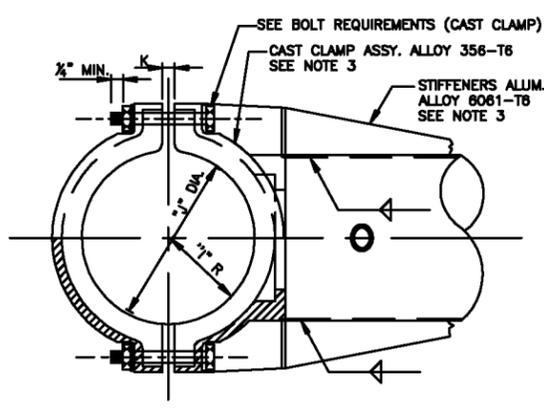
(TYPICAL ALL STRUTS)



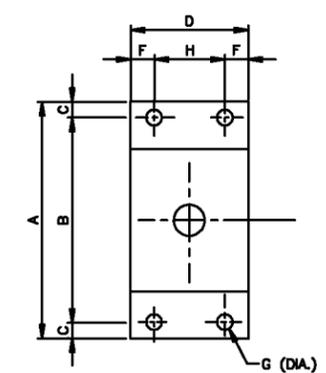
STN. STL. SPACER BUSHING



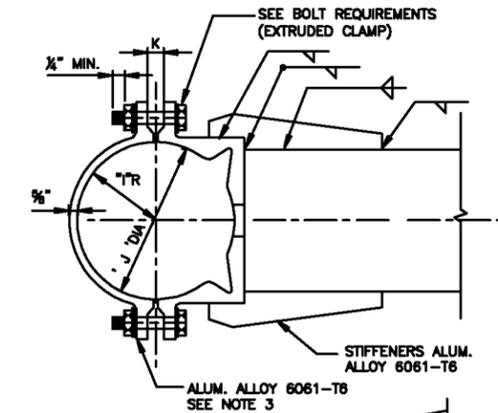
CAST CLAMP



SECTION B-B



ALTERNATE EXTRUDED CLAMP



**BOLT REQUIREMENTS**

- 8 - 3/8" # STN. STL. HEX HD. BOLTS ASTM 193, GRADE B8
- 16 - 3/8" # STN. STL. FLAT WASHERS
- 8 - 3/8" # STN. STL. LOCK WASHERS
- 8 - 3/8" # STN. STL. HEX NUTS

**NOTE:**

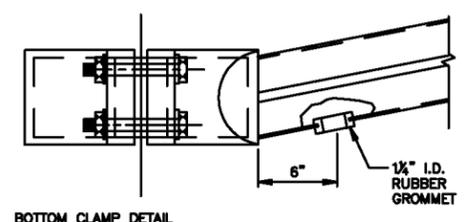
ALUM. ALLOY 356-T6 MIN. DRAFT WHERE REQUIRED

**BOLT REQUIREMENTS**

- 8 - 3/8" # STN. STL. HEX HD. BOLTS ASTM 193, GRADE B8
- 16 - 3/8" # STN. STL. FLAT WASHERS
- 8 - 3/8" # STN. STL. LOCK WASHERS
- 8 - 3/8" # STN. STL. HEX NUTS

DIMENSION CHART - CAST & EXTRUDED CLAMP

LETTER	A	B	C	D	E	F	G	H	I	J	K
MIN.	9 1/4"	7 1/8"	3 1/2"	4 1/2"	-	3/4"	1 1/8"	2 1/2"	3"	6 1/8"	1/2"
MAX.	10 1/2"	8 1/8"	3/8"	5"	-	1 1/8"	1 1/8"	3"	3 1/2"	6 1/8"	1/2"



BOTTOM CLAMP DETAIL

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PANYNJ			
Traffic Standard			
Details			

**TRAFFIC**  
Title

TRAFFIC SIGNALS

**T POLE TRUSS TYPE MAST ARM, CLAMP AND END**

This drawing subject to conditions in contract. All dimensions, sizes, design and methods herein are approved by Port Authority and may not be used for any other project without the written consent of the Port Authority. It is the responsibility of the contractor to ensure that all materials and workmanship conform to the drawings. Success and appropriate disposal of materials of demolition, including but not limited to, shall be the responsibility of the contractor. Success and appropriate disposal of materials of demolition, including but not limited to, shall be the responsibility of the contractor. Success and appropriate disposal of materials of demolition, including but not limited to, shall be the responsibility of the contractor. Success and appropriate disposal of materials of demolition, including but not limited to, shall be the responsibility of the contractor.

Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_

Date SEPTEMBER 2005

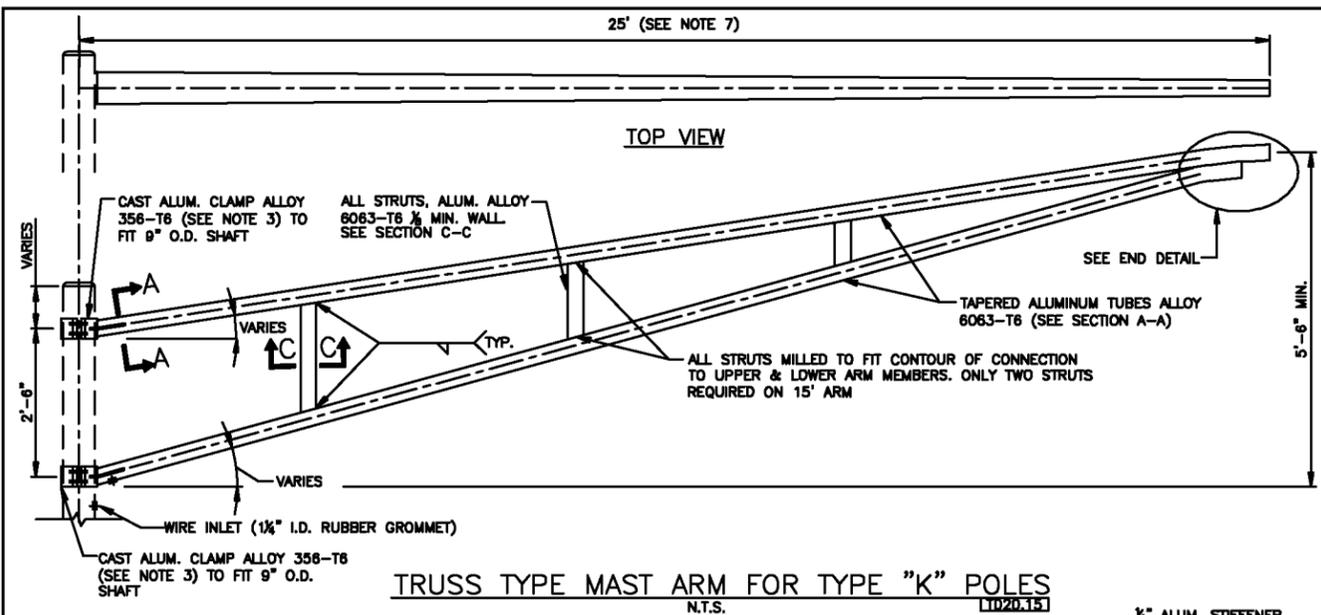
Contract Number \_\_\_\_\_

Drawing Number **TD20.14**

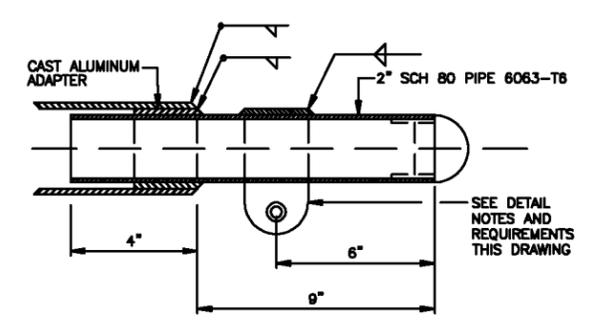
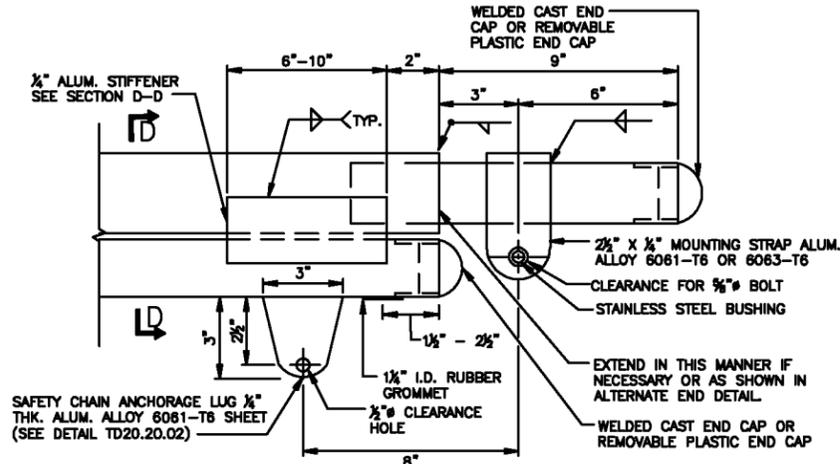
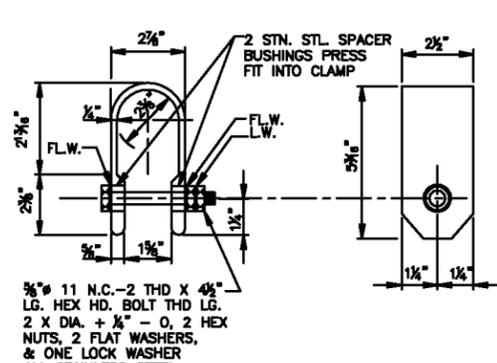
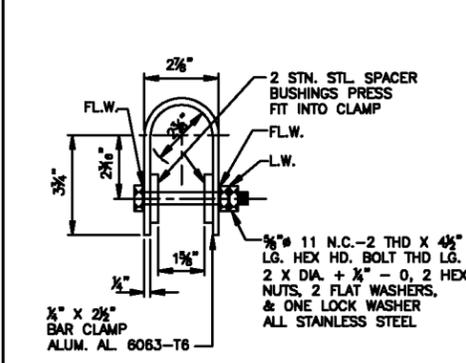


**NOTES:**

1. THE MAST ARM SHALL BE DESIGNED TO ADEQUATELY SUPPORT 4-4 SECTION 8" WITH 1-3 SECTION MID MOUNT, OR 4-3 SECTION 12" WITH 1-3 SECTION MID MOUNT, ALUMINUM TRAFFIC INDICATIONS AND ASSOCIATED MOUNTING HARDWARE.
2. MAST ARMS WILL BE INSTALLED ON THE PORT AUTHORITY STANDARD ALUMINUM TRAFFIC SIGNAL POLE TYPE "K" WITH TRANSFORMER BASE CONFORMING TO DETAIL TD20.13.
3. AN EXTRUDED CLAMP MAY BE SUPPLIED AS AN ALTERNATE TO THE CAST BAND INDICATED. GENERAL CONFIGURATION MUST BE SIMILAR AND STIFFENERS MUST BE INSTALLED AS INDICATED. CLAMP MUST FIT A 9" POLE AND BOLT ARRANGEMENT MUST BE IDENTICAL STRENGTH OF ASSEMBLED ARM MUST EQUAL OR EXCEED CAST CLAMP CONSTRUCTION EXTRUSION ALLOY 6061-T6.
4. UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS.
5. ALL STAINLESS STEEL ITEMS PER ASTM A 193 GRADE B8.
6. MAST ARMS MIN. 8" X 0.188" WALL TUBE ELLIPSIZED TO APPROX. 3 1/2" X 7 1/8" SECTION.
7. SHORTER MAST ARMS MAY BE USED IN COMBINATION WITH THE 25' MAST ARM SHOWN.



**TRUSS TYPE MAST ARM FOR TYPE "K" POLES**  
N.T.S. TD20.15

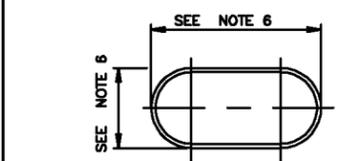


MOUNTING STRAP DETAIL

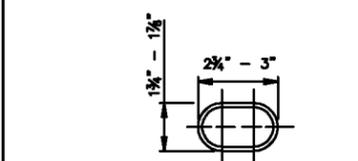
ALTERNATE MOUNTING STRAP

END DETAIL

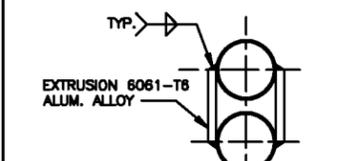
ALTERNATE END DETAIL



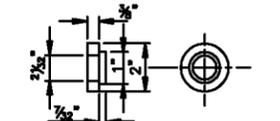
SECTION A-A  
(TYPICAL BOTH MEMBERS)



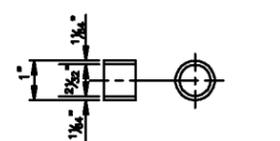
SECTION C-C  
(TYPICAL ALL STRUTS)



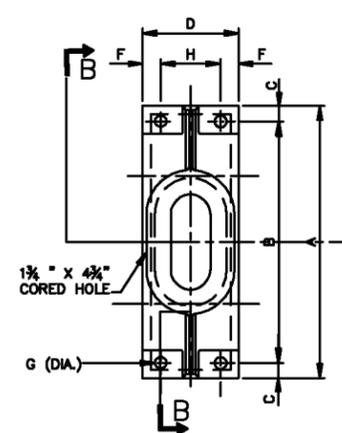
SECTION D-D



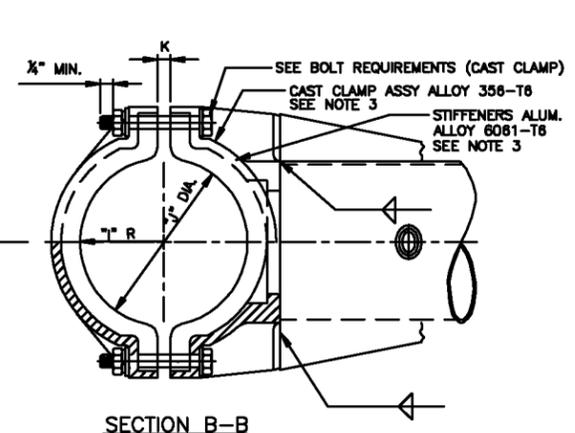
STN. STL. SPACER BUSHING



STN. STL. BUSHING FOR ALTERNATE MOUNTING STRAP



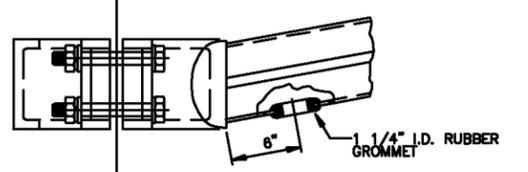
CAST CLAMP



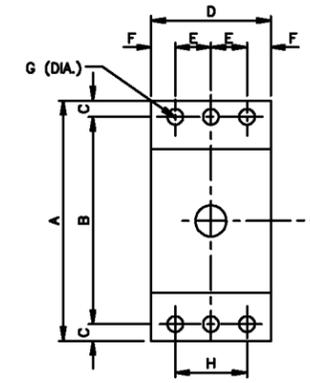
SECTION B-B

- BOLT REQUIREMENTS**
- 8 - 3/8" STN. STL. HEX HD. BOLTS
  - 16 - 3/8" STN. STL. FLAT WASHERS
  - 8 - 3/8" STN. STL. LOCK WASHERS
  - 8 - 3/8" STN. STL. HEX NUTS

**NOTE:**  
ALUM. ALLOY 356-T6 MIN. DRAFT WHERE REQUIRED



BOTTOM CLAMP DETAIL

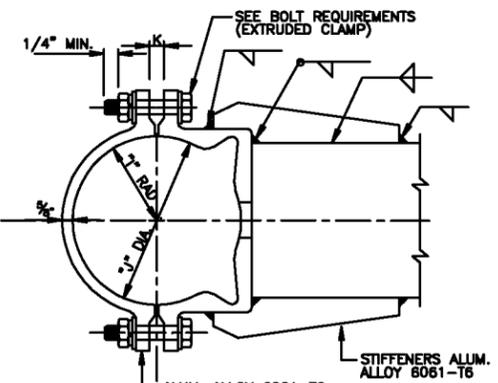


ALTERNATE EXTRUDED CLAMP

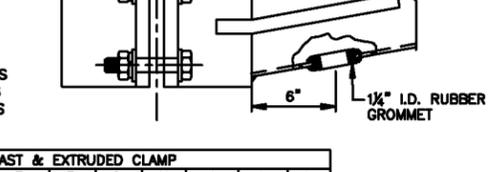
**BOLT REQUIREMENTS**

- 12 - 3/8" STN. STL. HEX HD. BOLTS
- 24 - 3/8" STN. STL. FLAT WASHERS
- 12 - 3/8" STN. STL. LOCK WASHERS
- 12 - 3/8" STN. STL. HEX NUTS

DIMENSION CHART - CAST & EXTRUDED CLAMP											
LETTER	A	B	C	D	E	F	G	H	I	J	K
MIN.	12 3/8"	10 3/8"	1 1/8"	5"	1 1/2"	1 1/8"	1 1/8"	3"	4 1/2"	9"	1/2"
MAX.	14 3/8"	12 3/8"	1"	7"	1 1/8"	1 1/2"	2 3/8"	3 3/8"	4 1/2"	9 1/8"	2 1/4"



ALTERNATE EXTRUDED CLAMP



ALTERNATE EXTRUDED CLAMP

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PANYNJ			
Traffic Standard			
Details			

**TRAFFIC**  
Title

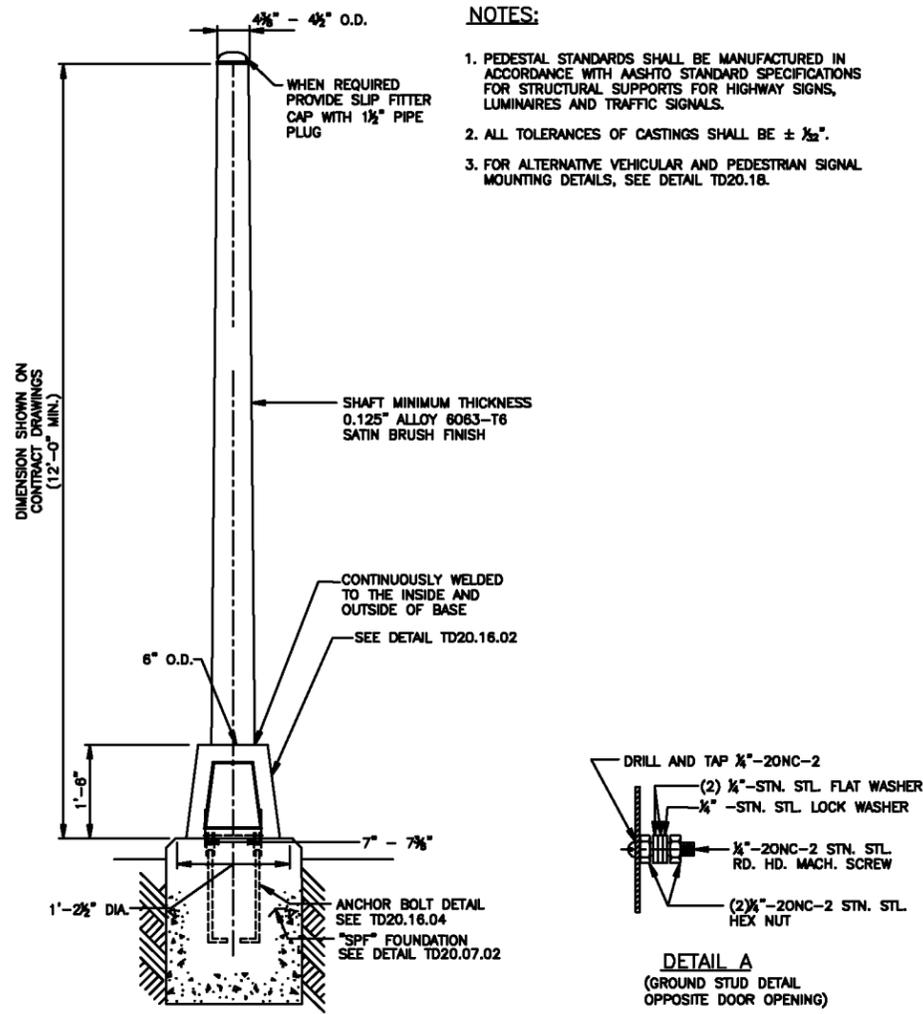
TRAFFIC SIGNALS

**"K" POLE TRUSS TYPE MAST ARM, CLAMP AND END**

This drawing subject to conditions in contract. All dimensions, sizes, design and methods herein are approved by Port Authority and may not be used for any other project without the written consent of the Port Authority. The Port Authority is not responsible for any errors or omissions in this drawing. The user of this drawing is advised to verify all dimensions and specifications with the manufacturer of the equipment to be used. The Port Authority is not responsible for any damage or injury resulting from the use of this drawing.

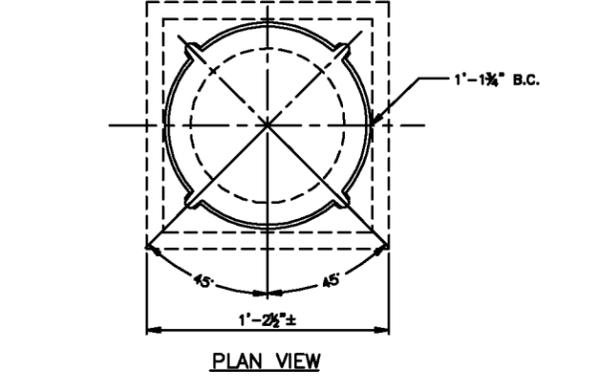
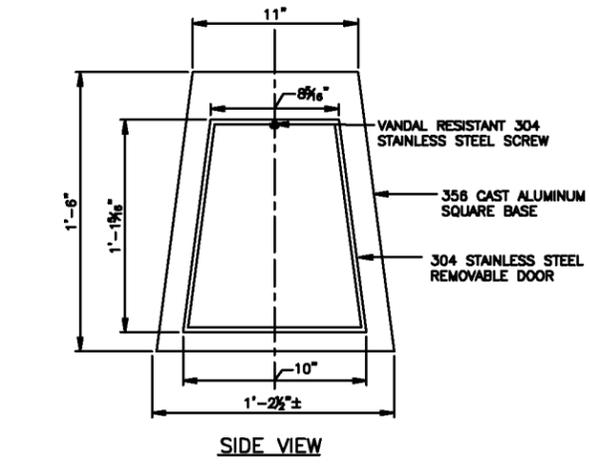
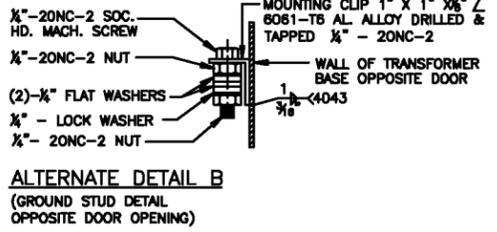
Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_  
Date \_\_\_\_\_ SEPTEMBER 2005

Contract Number \_\_\_\_\_  
Drawing Number **TD20.15**  
PID# \_\_\_\_\_

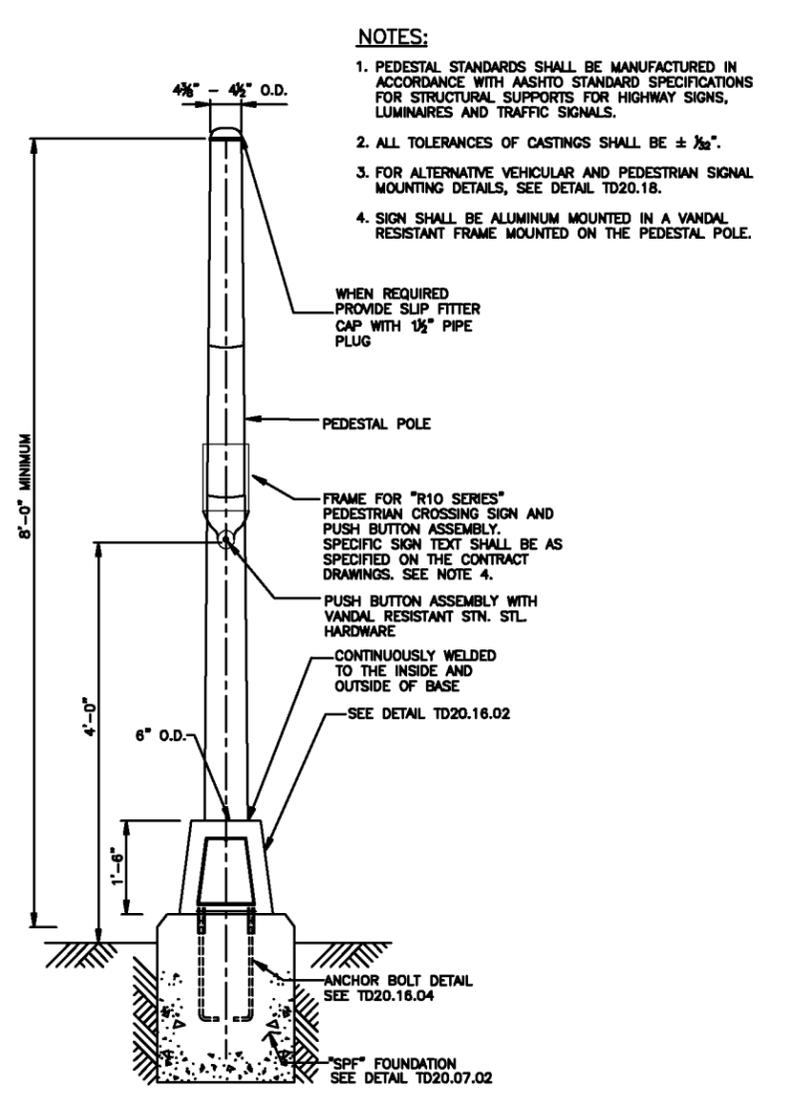


- NOTES:**
1. PEDESTAL STANDARDS SHALL BE MANUFACTURED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
  2. ALL TOLERANCES OF CASTINGS SHALL BE  $\pm \frac{1}{32}$ ".
  3. FOR ALTERNATIVE VEHICULAR AND PEDESTRIAN SIGNAL MOUNTING DETAILS, SEE DETAIL TD20.18.

**VEHICULAR SIGNAL PEDESTAL**  
N.T.S. [TD20.16.01]

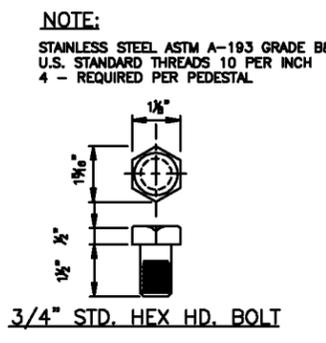
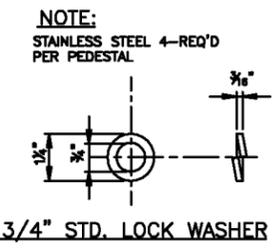
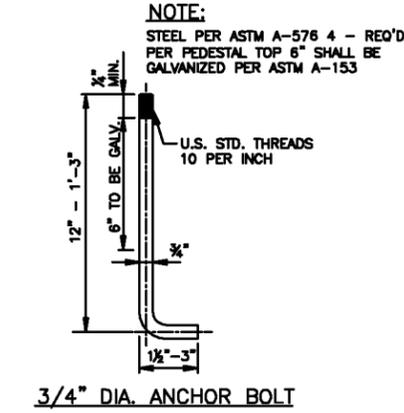


**RECTANGULAR TRANSFORMER BASE**  
N.T.S. [TD20.16.02]

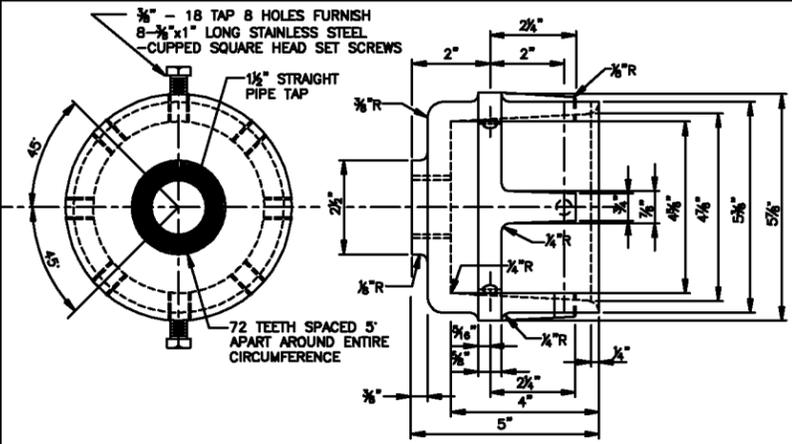
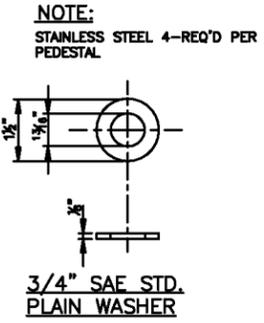
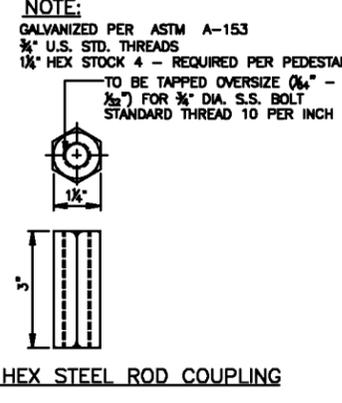


- NOTES:**
1. PEDESTAL STANDARDS SHALL BE MANUFACTURED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
  2. ALL TOLERANCES OF CASTINGS SHALL BE  $\pm \frac{1}{32}$ ".
  3. FOR ALTERNATIVE VEHICULAR AND PEDESTRIAN SIGNAL MOUNTING DETAILS, SEE DETAIL TD20.18.
  4. SIGN SHALL BE ALUMINUM MOUNTED IN A VANDAL RESISTANT FRAME MOUNTED ON THE PEDESTAL POLE.

**PEDESTRIAN SIGNAL PEDESTAL WITH PUSH BUTTON ASSEMBLY INSTALLED**  
N.T.S. [TD20.16.03]



**ANCHOR BOLT DETAILS**  
N.T.S. [TD20.16.04]



**SLIP FITTER CAP DETAIL**  
N.T.S. (MATERIAL: ALUMINUM ALLOY 356) [TD20.16.05]

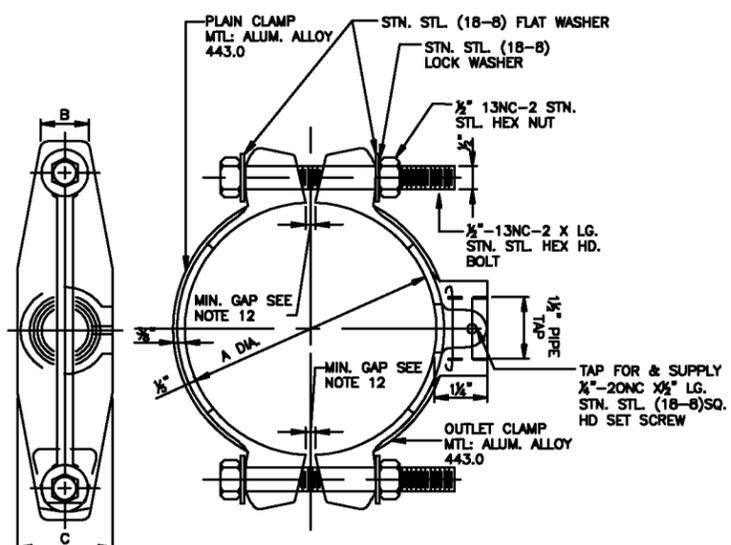
No.	Date	Revision	Approved
<b>ENGINEERING DEPARTMENT</b>			
<b>PANYNJ</b>			
<b>Traffic Standard</b>			
<b>Details</b>			

**TRAFFIC**  
Title  
**TRAFFIC SIGNALS**

**TRAFFIC SIGNAL PEDESTAL ASSEMBLY**

This drawing subject to conditions in contract. All dimensions, sizes, design and material shall be approved by Port Authority and may not be modified without the written consent of the Contract Administrator. The contractor shall be responsible for providing all materials and labor necessary to complete the work. The contractor shall be responsible for providing all materials and labor necessary to complete the work. The contractor shall be responsible for providing all materials and labor necessary to complete the work.

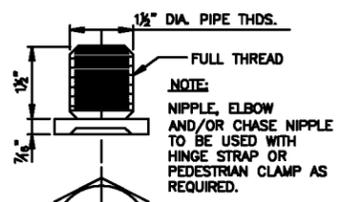
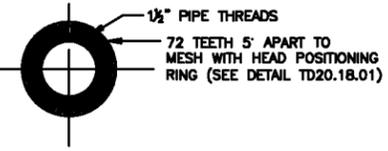
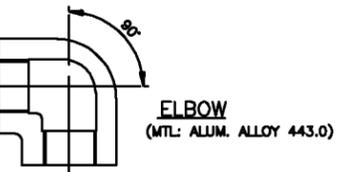
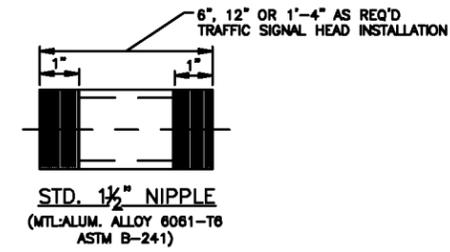
Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_  
Date \_\_\_\_\_ **SEPTEMBER 2005**  
Contract Number \_\_\_\_\_  
Drawing Number **TD20.16**  
PID# \_\_\_\_\_



**CLAMP TYPE POLE CLAMP ASSEMBLY**  
N.T.S. TD20.17.01

CLAMP LIST OF MATERIALS		
DESCRIPTION	MATERIAL	NO. REQ'D
PLAIN CLAMP	ALUM. ALLOY 443.0	2
OUTLET CLAMP	ALUM. ALLOY 443.0	2
BOLT, HEX HD. 1/2"-13NC-2	STN. STL.	4
LOCK WASHER 1/2"	STN. STL.	4
FLAT WASHER 1/2"	STN. STL.	8
HEX NUT 1/2" - 13NC-2	STN. STL.	4
SET SCREW, SO. HD. 1/4"-20 x 1/2" LG.	STN. STL.	2
1 1/2" CHASE NIPPLE	BRZ. 85-5-5-5	2
90° SERRATED ELBOW	ALUM. ALLOY 443.0	2
STD. 1 1/2" NIPPLE X 6", 12" OR 18" LG.	ALUM. 6061-T6	2

CLAMP DIMENSIONS			
A	B	C	BOLT LENGTH
6"-8"	1 1/2"	2 1/2"	6"
8"-10"	1 1/2"	2 1/2"	7 1/2"
10"-12"	1 1/2"	2 1/2"	9"



**NOTES:**

- CLAMP TYPE POLE ASSEMBLY (CAST ALUMINUM) SHOWN MUST MEET THE FOLLOWING TEST: 6" DIA. CLAMP TEST.  
COMPLETE CLAMP SHALL BE SET ON 6" DIA. POLE. COMPLETE CLAMP WITH 6.5" DIA. SET SHALL BE SET ON 8" DIA. POLE. COMPLETE CLAMP AFTER BEING SET FROM 8" DIA. POLE SHALL BE RESET ON 6" DIA. POLE.  
CLAMPS SHALL NOT SHOW ANY FRACTURES AFTER THE SETTING AND RESETTING PROCEDURE.  
THIS TEST TO BE CONDUCTED IN THE PRESENCE OF A REPRESENTATIVE OF THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY.  
MANUFACTURER SHALL ALSO SUBMIT DRAWING OF CLAMP TO BE FURNISHED FOR APPROVAL BY THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY-DEPT. OF ELECTRICAL ENGINEERING.
- CAST ALUM. CLAMPS OF LARGER DIA. WILL BE TESTED IN A SIMILAR MANNER.
- PROVIDE SLOTS OR SERRATIONS IN FACE OF ELBOW OR SLOTS & SERRATED POSITIONING RING. SLOTS TO BE 1/2" DP X 1/8" W. SERRATIONS TO MATCH HOUSING AND ALLOW 5' ADJUSTMENT.
- UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGH-WAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
- INSTALL 1 1/2" I.D. RUBBER GROMMET IN TRAFFIC SIGNAL STANDARD.
- ALL STN. STL. BOLTS PER ASTM A-193 GRADE B8 OR ASTM F593 ALLOY 304.
- ALL ALUM. SAND CASTINGS SHALL BE ASTM B26 ALLOY.
- ALL ALUM. NIPPLES SHALL BE 6061-T6, ASTM B-241 ALLOY; MIL. SPEC. QQA 200/80.
- HINGE STRAP IS ADAPTABLE TO ANY POLE DIA. BY ADDING OR REMOVING INNER LINKS.
- HINGE STRAP CAN BE INSTALLED ON ROUND, SQUARE, OCTAGONAL OR ANY SHAPE POLE DESIRED.
- ALL TOLERANCES OF CASTINGS SHALL BE ±.005".
- WHEN PEDESTRIAN CLAMP IS INSTALLED ON A 6" DIA. POLE, CLAMP SHALL BE DESIGNED TO PROVIDE A MINIMUM GAP OF 1/4".

**NOTE:**

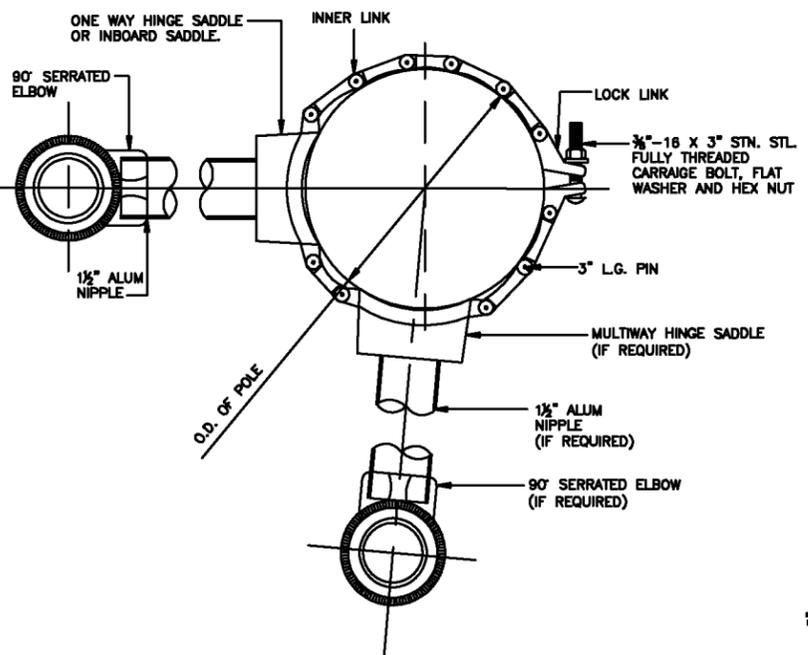
(FOR HINGE STRAP TYPE ONLY)  
ALL HINGE STRAPS INNER LINK AND LOCK LINK PARTS SHALL BE TUMBLED FOR 18 HOURS MINIMUM USING 1/2" CERAMIC MEDIA TO PROVIDE A UNIFORM AND SMOOTH SURFACE.

HINGE STRAP LIST OF MATERIALS		
DESCRIPTION	MATERIAL	NO. REQ'D
HINGE SADDLE	B26-B2 CAST ALUM.	2
INNER LINK	B26-B2 CAST ALUM.	23*(32)
LOCK LINK	B26-B2 CAST ALUM.	4
STD. 1 1/2" NIPPLE	ALUM. ALLOY	2
90° SERRATED ELBOW	ALUM. ALLOY 443.0	2
3" ALUMINUM PIN	ALUM. ALLOY 443.0	30*(38)
BOLT 3/8" - 16 X 3"	STN. STL.	4
FLAT WASHER	STN. STL.	4
LOCK WASHER	STN. STL.	4
NUT, HEX 3/16" - 16	STN. STL.	4
MULTI-WAY HINGE SADDLE	CAST ALUM.	AS REQ'D
INBOARD SADDLE	CAST ALUM.	AS REQ'D
1 1/2" CHASE NIPPLE	BRZ. 85-5-5-5	2

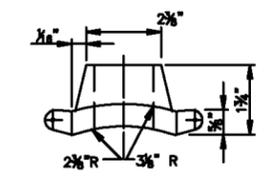
( ) NUMBER REQUIRED WHEN INSTALLED ON "K" POLE (NUMBER REQUIRED MAY VARY ON STEEL POLES)

HINGE STRAP LIST OF MATERIALS		
DESCRIPTION	MATERIAL	NO. REQ'D
HINGE SADDLE	B26-B2 CAST ALUM.	2
INNER LINK	B26-B2 CAST ALUM.	23*(32)
LOCK LINK	B26-B2 CAST ALUM.	4
STD. 1 1/2" NIPPLE	ALUM. ALLOY	2
90° SERRATED ELBOW	ALUM. ALLOY 443.0	2
3" ALUMINUM PIN	ALUM. ALLOY 443.0	30*(38)
BOLT 3/8" - 16 X 3"	STN. STL.	4
FLAT WASHER	STN. STL.	4
LOCK WASHER	STN. STL.	4
NUT, HEX 3/16" - 16	STN. STL.	4
MULTI-WAY HINGE SADDLE	CAST ALUM.	AS REQ'D
INBOARD SADDLE	CAST ALUM.	AS REQ'D
1 1/2" CHASE NIPPLE	BRZ. 85-5-5-5	2

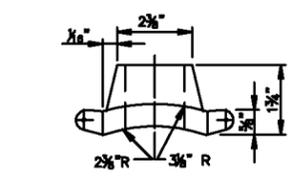
ON "K" POLE ( ) NUMBER REQUIRED WHEN INSTALLED



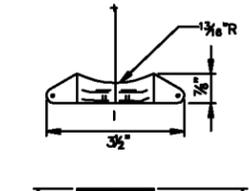
**HINGE STRAP TYPE POLE CLAMP ASSEMBLY**  
N.T.S. TD20.17.02



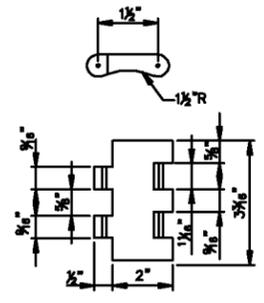
**ONE-WAY HINGE SADDLE**  
(MTL: ALUM. CASTING)



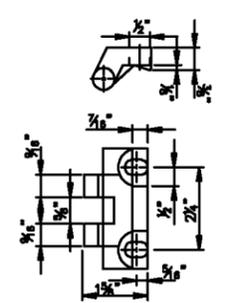
**MULTI-WAY HINGE SADDLE**  
(MTL: ALUM. CASTING)



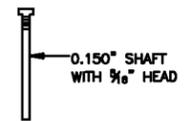
**INBOARD SADDLE**  
(MTL: ALUM. CASTING)



**INNER LINK**  
(MTL: ALUM. CASTING)



**LOCK LINK**  
(MTL: ALUM. CASTING)



**3" ALUM. ALLOY PIN**  
(PROVIDED WITH SADDLES AND LINKS)



**3/8" - 16 X 3" STN. STL. FULLY THREADED CARRIAGE BOLT WITH HEX NUT AND FLAT WASHER.**

No.	Date	Revision	Approved
<b>ENGINEERING DEPARTMENT</b>			
<b>PANYNJ</b>			
<b>Traffic Standard</b>			
<b>Details</b>			

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Title

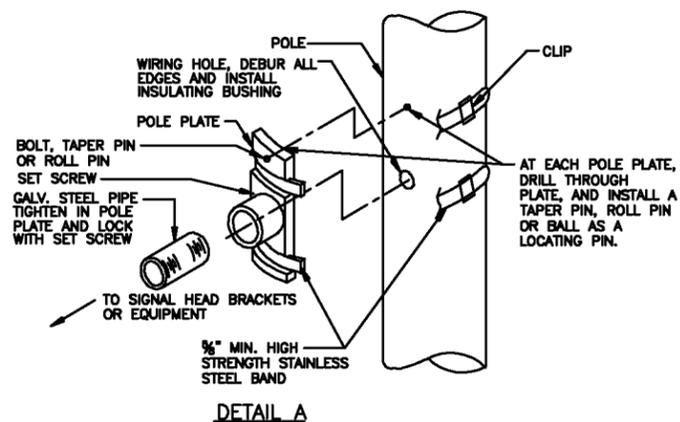
**TRAFFIC SIGNALS**

**POLE CLAMP MOUNTING ASSEMBLIES**

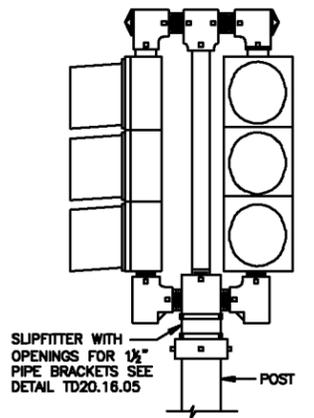
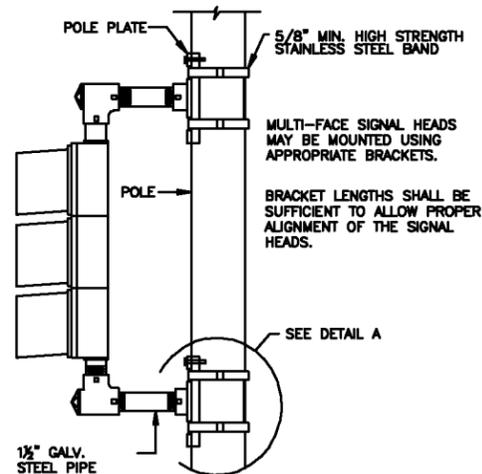
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Date \_\_\_\_\_ SEPTEMBER 2005

Contract Number \_\_\_\_\_  
Drawing Number **TD20.17**  
PID# \_\_\_\_\_



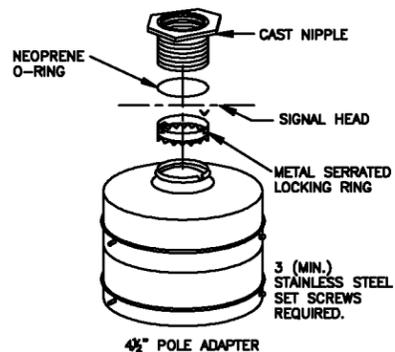
**POLE CLAMP ASSEMBLY BAND TYPE**  
N.T.S. TD20.18.01



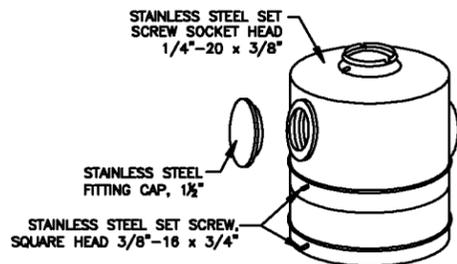
**POST TOP MOUNT**  
N.T.S. TD20.18.02

**NOTES:**

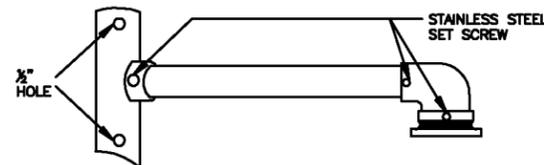
1. IF PEDESTRIAN SIGNALS ARE BEING INSTALLED, THE MOUNTING ATTACHMENTS SHALL BE A TYPE SPECIFICALLY MANUFACTURED FOR THAT PURPOSE.
2. MOUNTING DETAILS SHOWN ARE TYPICAL FOR ONE WAY AND TWO WAY SIGNAL DISPLAY. MULTI-WAY ASSEMBLIES, WHEN REQUIRED, SHALL BE OF SIMILAR APPROPRIATE DESIGN.
3. SEE DETAIL TD20.16 FOR TRAFFIC SIGNAL PEDESTAL STANDARD DETAILS.
4. POLE AND HARDWARE COLOR SHALL MATCH.



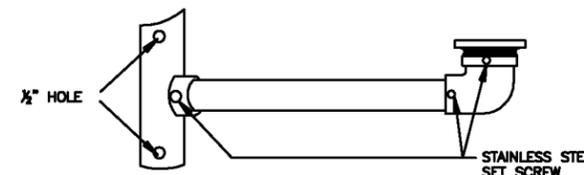
**SLIP FITTER FOR ONE WAY SIGNAL**  
(POLE TOP CAST ALUMINUM SIGNAL HEADS ONLY) N.T.S. TD20.18.03



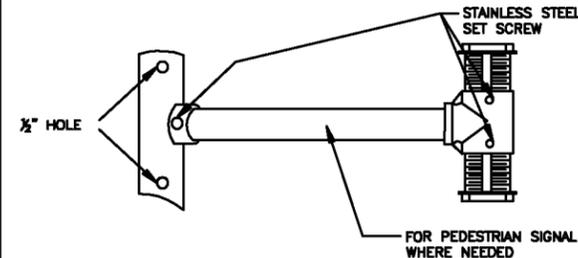
**SLIP FITTER FOR TWO WAY SIGNAL**  
(POLE TOP CAST ALUMINUM SIGNAL HEADS ONLY) N.T.S. TD20.18.04



IF MOUNTED ON WOOD POLE A CONDUIT BODY SHALL BE INSTALLED IN BRACKET ARM TO CONNECT SIGNAL HEAD CABLE CONDUIT.



STEEL POLE SHALL BE DRILLED AND TAPPED AND MOUNTING ACCOMPLISHED UTILIZING 1/2\"/>



**POLE BRACKET MOUNTING SIGNAL HEADS AND PEDESTRIAN SIGNAL BRACKETS**  
N.T.S. TD20.18.05

No.	Date	Revision	Approved
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Title  
TRAFFIC SIGNALS

**SIGNAL HEAD POLE TOP AND BRACKET MOUNTING**

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Date SEPTEMBER 2005

Contract Number

Drawing Number **TD20.18**

PID#

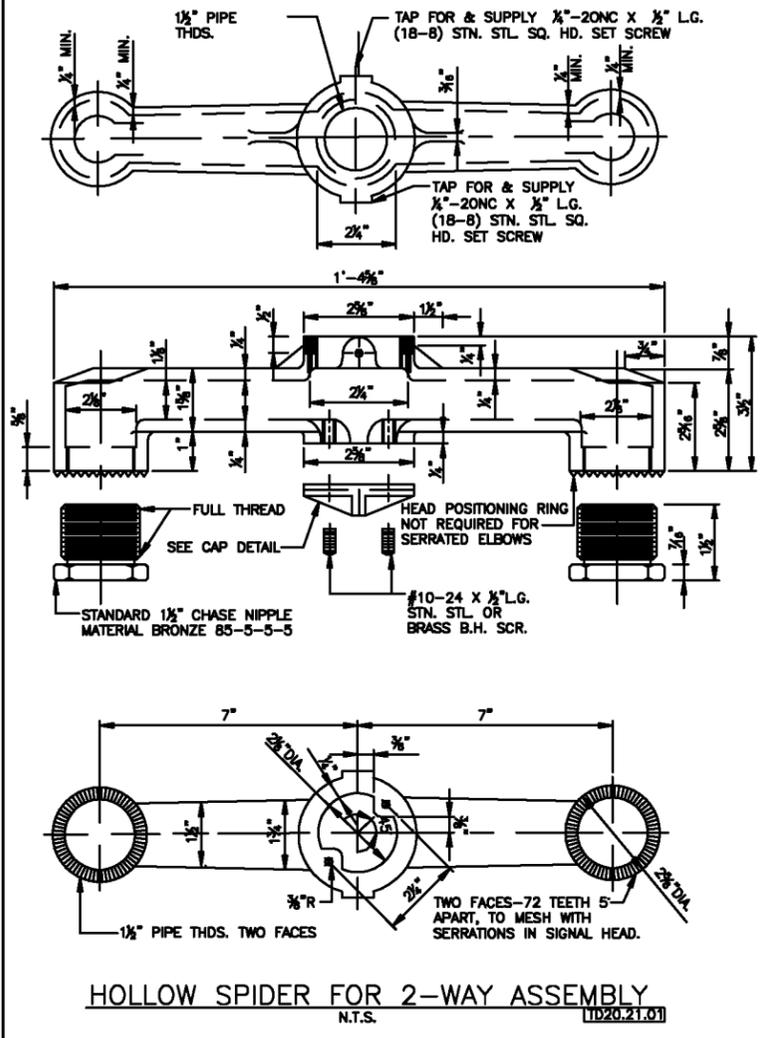






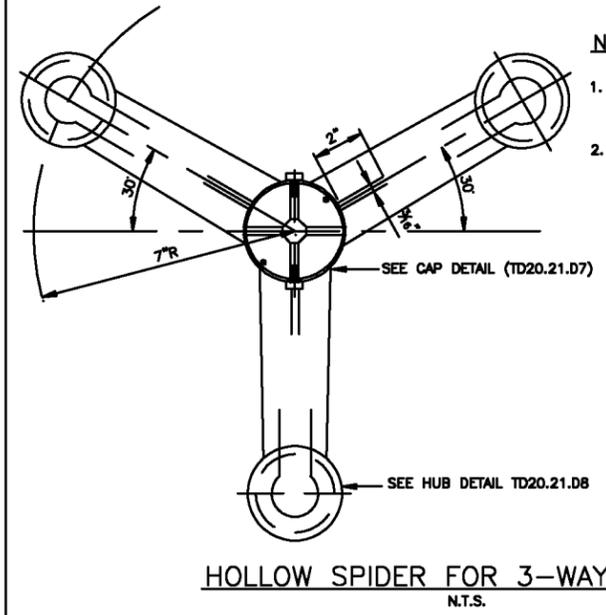
**NOTE:**

- EACH HOLLOW SPIDER FOR 2-WAY ASSEMBLY SHALL CONSIST OF:  
 (1)-2-WAY SPIDER  
 (2)-STANDARD 1 1/2" CHASE NIPPLE, BRONZE 85-5-5-5  
 (1)-CAP  
 (2)-10-24 X 1/2" LG. STN. STL. OR BRASS BH. SCREWS  
 (2)-HEAD POSITIONING RINGS, IF NON SERRATED HUBS  
 (1)-T-BAR ASSEMBLY (SEE T-BAR NOTE 2)



**NOTES:**

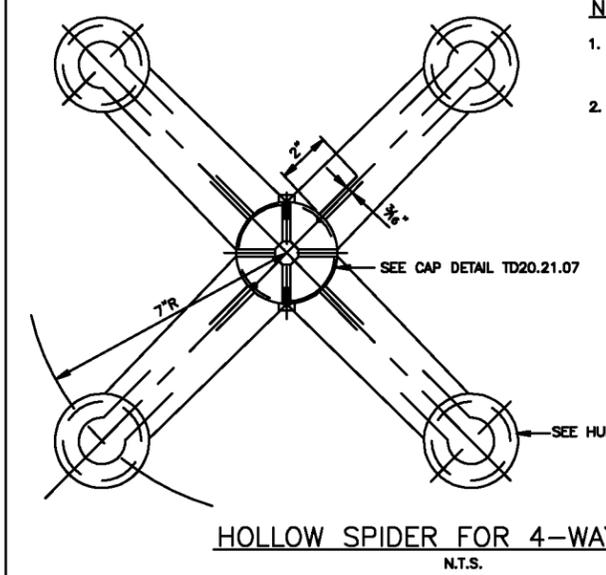
1. FOR DETAILED DIMENSIONS OF 3-WAY SPIDER SEE DETAILED VIEWS OF 2-WAY ASSEMBLY (TD20.21.01).  
 2. EACH HOLLOW SPIDER FOR 3-WAY ASSEMBLY SHALL CONSIST OF:  
 (2)-3-WAY SPIDERS  
 (6)-STANDARD 1 1/2" CHASE NIPPLES, BRONZE 85-5-5-5  
 (3)-CAPS  
 (6)-10-24 X 1/2" LG. STN. STL. OR BRASS BH. SCREWS  
 (6)-HEAD POSITIONING RINGS, IF NON-SERRATED HUBS.



**HOLLOW SPIDER FOR 3-WAY ASSEMBLY**  
 N.T.S. ID20.21.02

**NOTES:**

1. FOR DETAILED DIMENSIONS OF 4-WAY SPIDER SEE DETAILED VIEWS OF 2-WAY ASSEMBLY (TD20.21.01).  
 2. EACH HOLLOW SPIDER FOR 4-WAY ASSEMBLY SHALL CONSIST OF:  
 (2)-4-WAY SPIDERS  
 (6)-STANDARD 1 1/2" CHASE NIPPLES, BRONZE 85-5-5-5  
 (3)-CAPS  
 (6)-10-24 X 1/2" LG. STN. STL. OR BRASS BH. SCREWS  
 (6)-HEAD POSITIONING RINGS, IF NON-SERRATED HUBS.



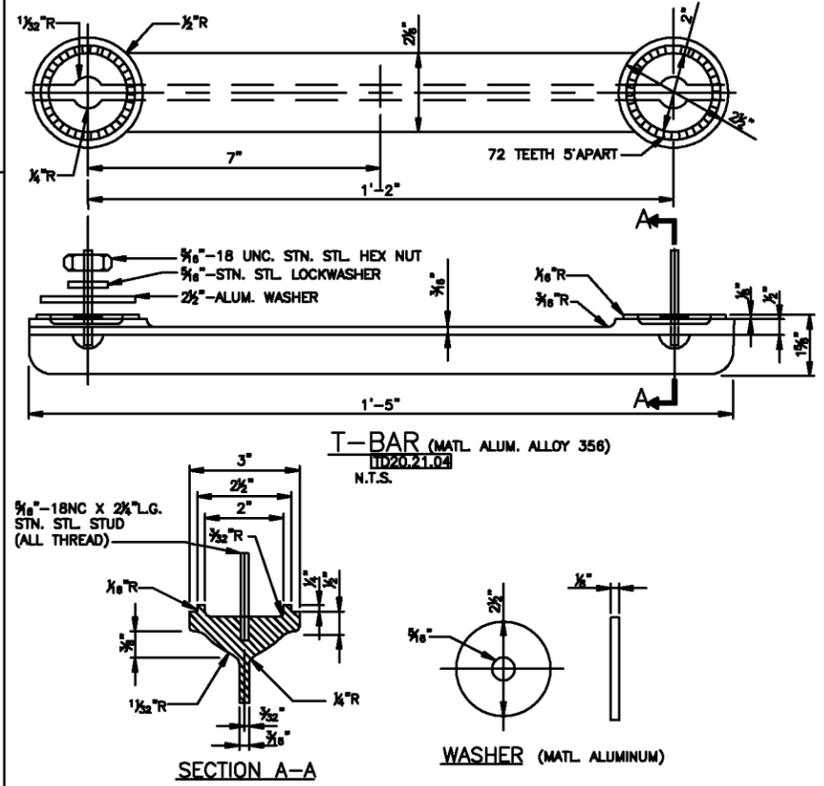
**HOLLOW SPIDER FOR 4-WAY ASSEMBLY**  
 N.T.S. ID20.21.03

**NOTES:**

- (APPLIES TO TD20.21.01 THROUGH TD20.21.09.)  
 1. UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.  
 2. ALL TOLERANCES OF CASTINGS SHALL BE ±.002".  
 3. ALL STAINLESS STEEL ITEMS ON THIS SHEET PER ASTM A193 GRADE B8.  
 4. PAINT: THE SURFACE OF THE ALUMINUM CASTING MUST BE CLEANED, DEGREASED AND SHOP PAINTED WITH ONE COAT OF ZINC CHROMATE-IRON-OXIDE PAINT CONFORMING TO THE CURRENT REQUIREMENTS OF SPECIFICATION M-142 OF AASHTO. WHEN THIS PAINT HAS THOROUGHLY DRIED, IT SHALL THEN BE SHOP PAINTED WITH A COAT OF YELLOW ENAMEL PAINT READY MIXED CONFORMING TO THE REQUIREMENTS OF FEDERAL SPECIFICATIONS 595G FOR ENAMEL; GLOSS, SYNTHETIC (FOR EXTERIOR AND INTERIOR SURFACES) CLASS A, AIR DRYING THE TINT OF WHICH SHALL MATCH GLOSS-YELLOW STANDARD COLOR NO.13538, AS SHOWN IN THE FEDERAL SPECIFICATION 595G COLOR; (FOR READY MIXED PAINT).

**NOTES:**

1. EACH T-BAR ASSEMBLY SHALL CONSIST OF: (1)-T-BAR, (2)-WASHERS, (2)-3/16" DIA. STN. STL. LOCKWASHERS, AND (2)-3/16" -18NC STN. STL. HEX NUTS.  
 2. FOR USE WITH 2-WAY HOLLOW SPIDER ASSEMBLIES WHERE SIGNAL FACES ARE SAME SIZE AND CONFIGURATION.

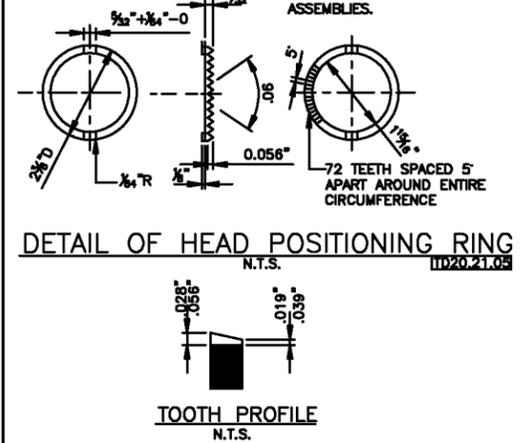


**T-BAR (MATL. ALUM. ALLOY 356)**  
 N.T.S. ID20.21.04

No.	Date	Revision	Approved
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TRAFFIC SIGNALS			

**NOTES:**

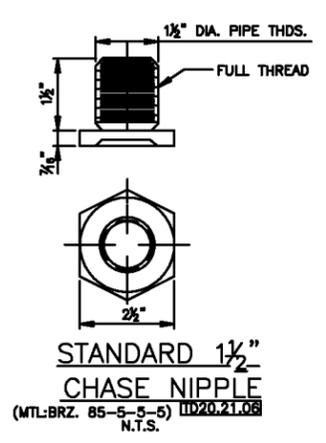
1. RING SHALL BE MADE OF DELRIN  
 2. TWO (2) RINGS TO BE SUPPLIED WITH NON-SERRATED ELBOWS OF SPIDER ASSEMBLIES.



**DETAIL OF HEAD POSITIONING RING**  
 N.T.S. ID20.21.05

**NOTE:**

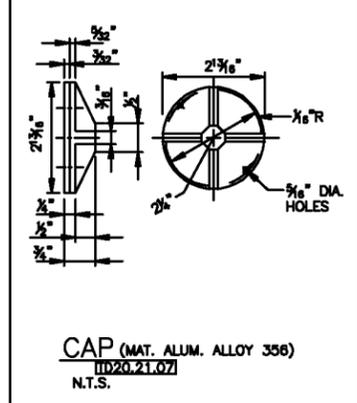
NIPPLE, ELBOW AND/OR CHASE NIPPLE TO BE USED WITH HINGE STRAP OR PEDESTRIAN CLAMP AS REQUIRED.



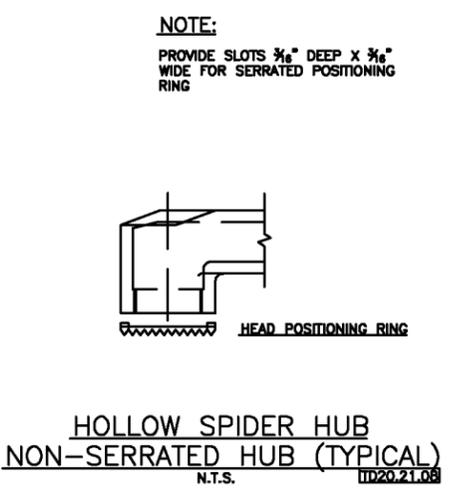
**STANDARD 1 1/2" CHASE NIPPLE**  
 (MTL:BRZ. 85-5-5-5) ID20.21.06  
 N.T.S.

**NOTE:**

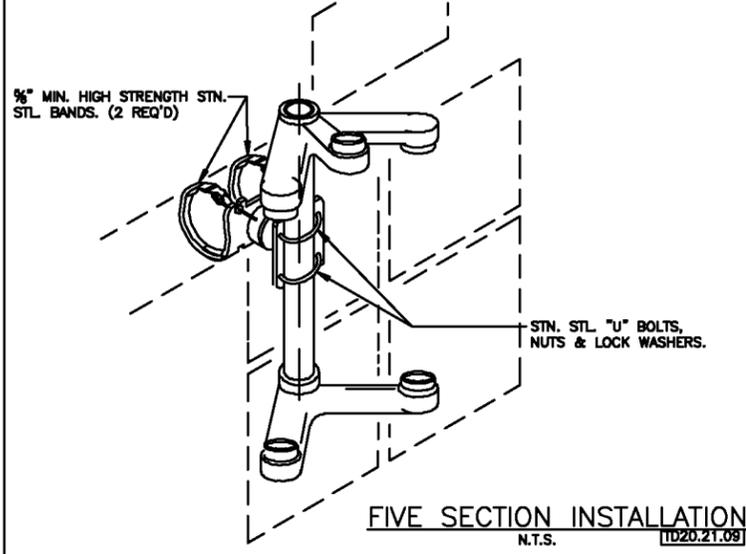
PROVIDE SLOTS 3/16" DEEP X 3/16" WIDE FOR SERRATED POSITIONING RING



**CAP (MAT. ALUM. ALLOY 356)**  
 N.T.S. ID20.21.07



**HOLLOW SPIDER HUB NON-SERRATED HUB (TYPICAL)**  
 N.T.S. ID20.21.08



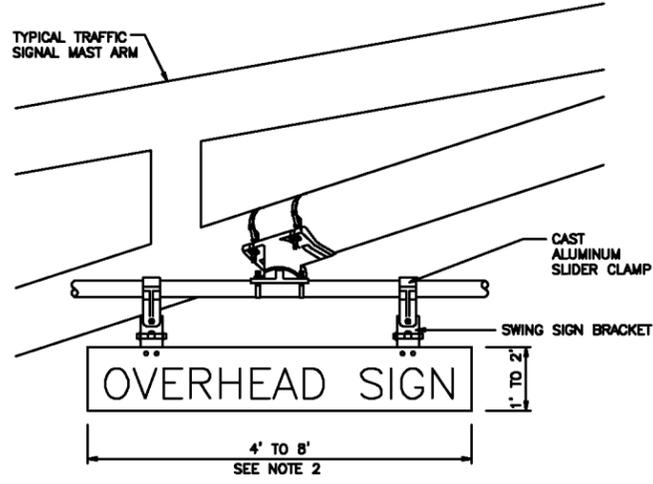
**FIVE SECTION INSTALLATION**  
 N.T.S. ID20.21.09

**HOLLOW SPIDER ASSEMBLY**

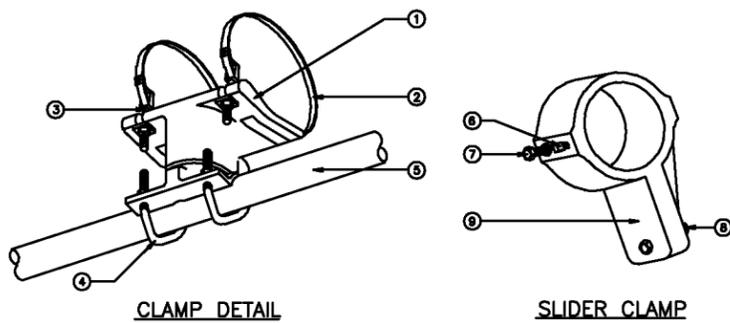
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Date	SEPTEMBER 2005	
Contract Number		
Drawing Number	<b>TD20.21</b>	
	PID#	





**MAST ARM ASSEMBLY BRACKET**  
N.T.S. TD20.23.01

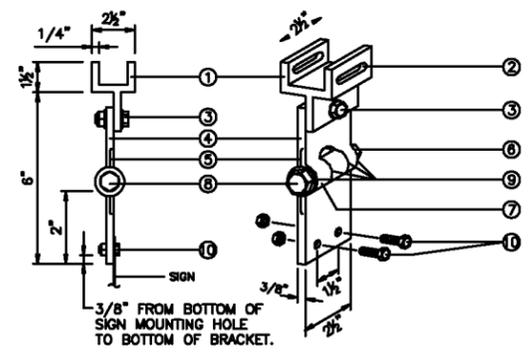


**NOTES:**

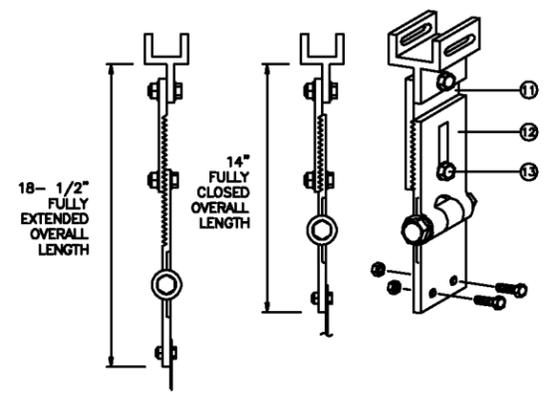
- INSTALLATION OF SLIDER: DRILL 3/8" HOLE THRU ONE WALL OF PIPE. TIGHTEN 5/16" x 1 1/4" HEX BOLT WITH LOCKWASHER INTO SLIDER THRU HOLE IN PIPE. ATTACH 3/8" SQUARE HEAD SET SCREW.
- MAST-ARM SIGNS EXCEEDING 60 INCHES IN WIDTH SHALL BE FITTED WITH ALUMINUM EDGING RIVETED TO THE SIGN PANEL BETWEEN THE SWING BRACKETS. THE EDGING SHALL HAVE A 1/2" FLANGE PERPENDICULAR TO THE SIGN FACE AND SHALL BE RIVETED AT THE TOP EDGE OF THE SIGN PANEL AS FOLLOWS:  
**SINGLE-FACED SIGN PANELS:**  
ALUMINUM EDGING SHALL BE MOUNTED TO THE FACE OF THE SIGN PANEL NOT CARRYING THE LEGEND.  
**DUAL-FACED SIGN PANELS:**  
ALUMINUM EDGING SHALL BE MOUNTED TO THE FACE OF THE SIGN PANEL OPPOSING THE FLOW OF TRAFFIC IN THE TRAVEL LANES BELOW. THE PORTION OF THE FLANGE COVERING THE SIGN LEGEND SHALL BE COVERED WITH THE REFLECTIVE SHEETING IN KIND WITH THE SIGN BORDER, OR IN CASE WHERE A BORDER IS NOT USED, IN KIND WITH THE SIGN BACKGROUND. THE REFLECTIVE SHEETING SHALL BE APPLIED TO THE EDGING PRIOR TO INSTALLING THE EDGING ON THE SIGN PANEL.

**PARTS:**

- CLAMP ALUMINUM ALLOY (356-T6)
- 5/8" STAINLESS STEEL STRAP (2) WITH 5/8" BANDCLAMP.
- STAINLESS STEEL CLAMP SCREW WITH BEARING WASHER, 7/16" FLATWASHER & 7/16" - 14 HEX NUT. CLAMP SCREW SHALL BE INSTALLED WITH MAINTAINING A MINIMUM OF 1/4" CLEARANCE TO THE MAST ARM CLAMP.
- 5/16" - 18 x 1 1/4" x 2 3/8" x 7/8" U-BOLT WITH 5/16" SPLIT LOCKWASHER & 5/16" - 18 HEX NUT.
- 1/2" ALUMINUM TUBE
- 3/8" SQUARE HEAD SET SCREW
- 5/16" x 1 1/2" HEX BOLT WITH LOCKWASHER
- 3/8" x 1 1/2" STAINLESS STEEL HEX HEAD BOLT WITH STAINLESS STEEL HEX LOCK NUT AND 1/16" STAINLESS STEEL WASHER (BOTH SIDES). A BRONZE REDUCER BUSHING (1/2" TO 3/8") SHALL BE USED INSIDE THE SLIDER CLAMP.
- CAST ALUMINUM SLIDER CLAMP



**FIXED LENGTH NON-ADJUSTABLE SWING SIGN BRACKET**



**ADJUSTABLE LENGTH SWING SIGN BRACKET**

**PARTS:**

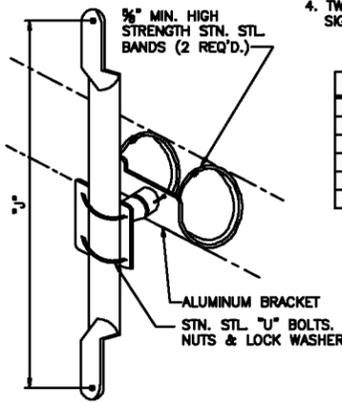
- PIVOTAL UPPER BRACKET.
- 1 3/8" x 1/4" SLOT FOR DOUBLE STRAPPING TO MAST ARM. (M2G-34S(HD) 0.030 x 3/4" HEAVY DUTY STAINLESS STEEL STRAP WITH M2G-34B(HD) BUCKLE RECOMMENDED.)
- 1/2" - 13 x 1 1/2" STAINLESS STEEL HEX HEAD BOLT WITH STAINLESS STEEL HEX LOCK NUT AND 1/16" STAINLESS STEEL WASHER (BOTH SIDES). ALLOWS UPPER BRACKET TO PIVOT AND ALIGN WITH MAST ARM.
- 6" OVERALL DROP WITH FIXED LENGTH SIGN BRACKET.
- STAINLESS STEEL DAMPENER SPRING (REMOVABLE).
- STAINLESS STEEL HEX LOCK NUT WITH 1/16" STAINLESS STEEL WASHER.
- 1" O.D. AXLE HOUSING.
- 1/2" - 13 x 4" STAINLESS STEEL HEX HEAD BOLT WITH 1/16" STAINLESS WASHER.
- OILITE BUSHING.
- SIGN MOUNTING SETS, CONSISTING OF TWO EACH 5/16" - 18 x 1" STAINLESS STEEL HEX HEAD BOLT WITH STAINLESS STEEL HEX LOCK NUT. TWO HOLES ON 1 1/2" CENTERS PROVIDE POSITIVE LOCK SIGN MOUNTING TO BRACKET.
- 8 1/2" OVERALL LENGTH UPPER ADJUSTABLE SIGN BRACKET SECTION.
- 9" OVERALL LENGTH LOWER ADJUSTABLE SIGN BRACKET SECTION, INCLUDING AXLE HOUSING (6" OVERALL LENGTH TO TDP OF AXLE HOUSING).
- 1/2" - 13 x 1 1/2" STAINLESS STEEL HEX BOLT WITH STAINLESS STEEL HEX LOCK NUT AND 1/16" STAINLESS STEEL WASHERS (BOTH SIDES). LOOSEN LOCK NUT, ADJUST BRACKET TEETH TO LEVEL SIGN.

**NOTES:**

- EXTENDER ADAPTERS ARE ALL ALUMINUM 6061T6 ALLOY. 3/8" THICK x 2 1/2" WIDE BAR x VARIABLE LENGTH COMPLETE WITH ONE HOLE EACH END FOR 1/2" BOLT. EACH EXTENDER BAR INCLUDES ONE PIVOT POINT 1/2" - 13 x 1 1/2" STAINLESS STEEL HEX HEAD BOLT WITH HEX LOCK NUT AND 2 WASHERS. (EXTENDER ADAPTERS ARE AVAILABLE IN VARIABLE LENGTHS ON REQUEST.)
- MAST-ARM SIGNS EXCEEDING 60 INCHES IN WIDTH SHALL BE FITTED WITH ALUMINUM EDGING RIVETED TO THE SIGN PANEL BETWEEN THE SWING BRACKETS. THE EDGING SHALL HAVE A 1-1/2" FLANGE PERPENDICULAR TO THE SIGN FACE AND SHALL BE RIVETED AT THE TOP EDGE OF THE SIGN PANEL AS FOLLOWS:  
**SINGLE-FACED SIGN PANELS:**  
ALUMINUM EDGING SHALL BE MOUNTED TO THE FACE OF THE SIGN PANEL NOT CARRYING THE LEGEND.  
**DUAL-FACED SIGN PANELS:**  
ALUMINUM EDGING SHALL BE MOUNTED TO THE FACE OF THE SIGN PANEL OPPOSING THE FLOW OF TRAFFIC IN THE TRAVEL LANES BELOW. THE PORTION OF THE FLANGE COVERING THE SIGN LEGEND SHALL BE COVERED WITH THE REFLECTIVE SHEETING IN KIND WITH THE SIGN BORDER, OR IN CASE WHERE A BORDER IS NOT USED, IN KIND WITH THE SIGN BACKGROUND. THE REFLECTIVE SHEETING SHALL BE APPLIED TO THE EDGING PRIOR TO INSTALLING THE EDGING ON THE SIGN PANEL.

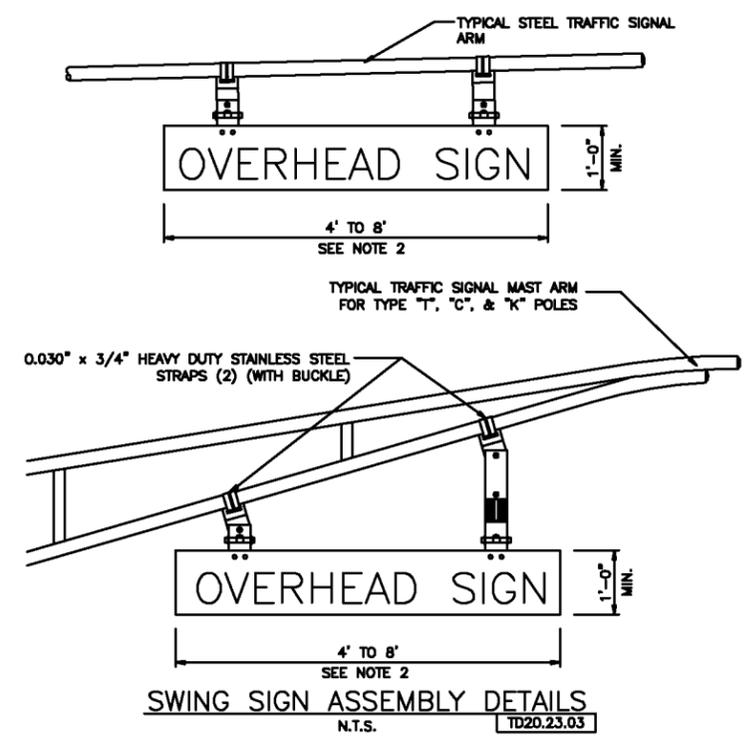
**NOTES:**

- SIGN BRACKET SHALL PERMIT ROTATIONAL ADJUSTMENT ABOUT BRACKET AXIS, VERTICAL AND ROTATIONAL ADJUSTMENT ABOUT MAST ARM, AND ROTATIONAL ADJUSTMENT RIGHT & LEFT IN VERTICAL PLANE.
- THE SIGN BRACKET SHALL BE DESIGNED TO SUPPORT A 35 LB. SIGN WITH A PROJECTED AREA OF 19 SQ. FT.
- ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.
- TWO BRACKETS SHALL BE FURNISHED FOR EACH SIGN.

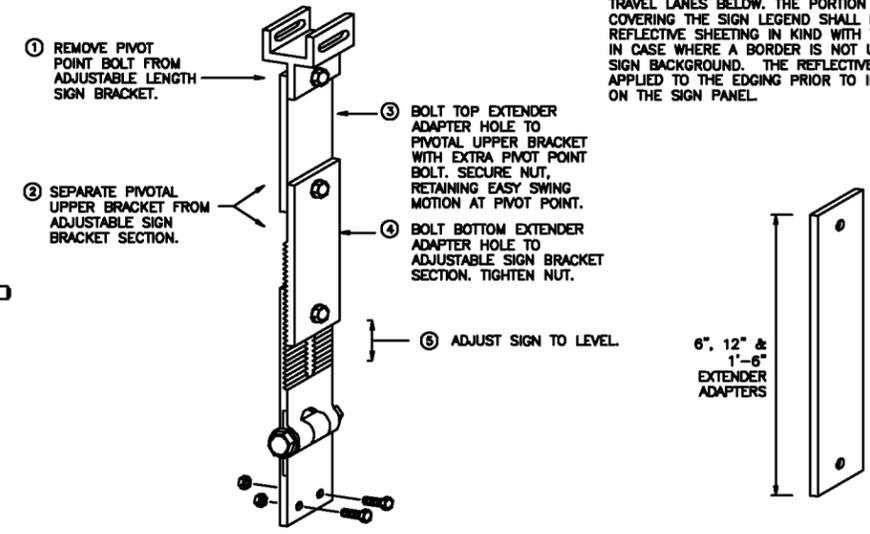


**ALUMINUM SIGN BRACKET DETAIL**  
N.T.S. TD20.23.02

SIGN SIZE	DIM. "J"
12'-0" X 5'-0"	10"
2'-0" X 2'-6"	1'-6"
2'-0" X 2'-0"	1'-6"
2'-6" X 2'-6"	2'-0"
3'-0" X 3'-0"	2'-6"
4'-0" X 4'-0"	3'-6"



**SWING SIGN ASSEMBLY DETAILS**  
N.T.S. TD20.23.03



**EXTENDER ADAPTERS**  
FOR ADJUSTABLE LENGTH SWING SIGN BRACKET. EXTENDS BRACKET TO LEVEL SIGN. FITS ANY DEGREE OF MAST ARM RISE.

No.	Date	Revision	Approved
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Traffic Standard			
Details			

**TRAFFIC**  
Title

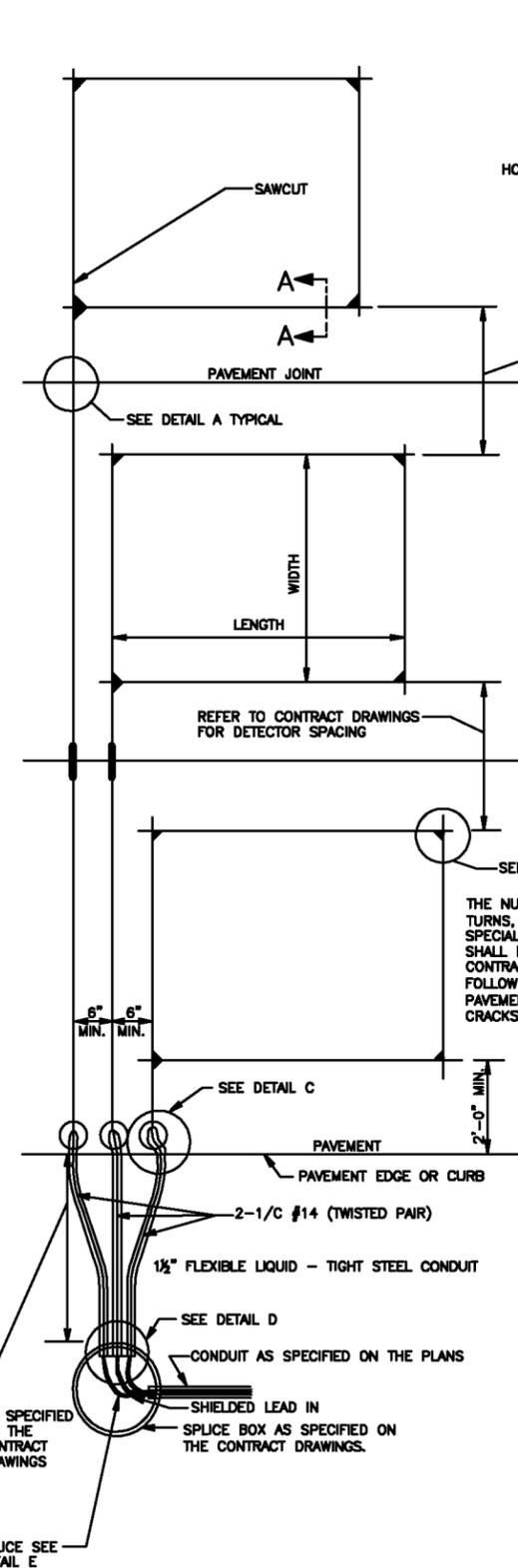
**OVERHEAD MAST ARM SWING SIGN BRACKET**

This drawing subject to conditions in contract. All dimensions, tolerances and materials shall be as specified in the contract documents. The contractor shall be responsible for obtaining all necessary permits and approvals for the work shown on this drawing. The contractor shall be responsible for obtaining all necessary permits and approvals for the work shown on this drawing. The contractor shall be responsible for obtaining all necessary permits and approvals for the work shown on this drawing.

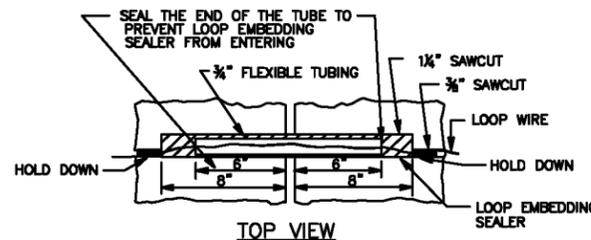
Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_  
Date \_\_\_\_\_ SEPTEMBER 2005  
Contract Number \_\_\_\_\_  
Drawing Number **TD20.23**  
PID# \_\_\_\_\_





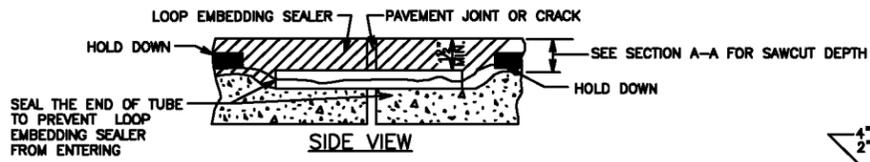


**LOOP INSTALLATION DETAILS**  
N.T.S. TD20.26

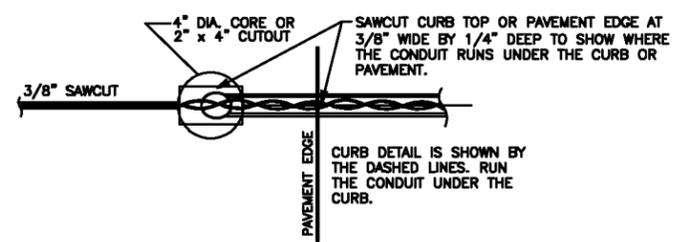


TOP VIEW

**DETAIL A - CROSSING PAVEMENT JOINTS OR CRACKS**

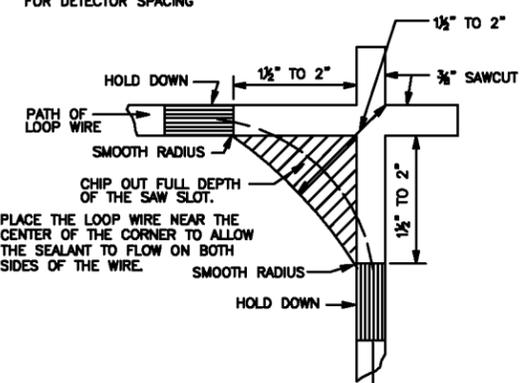


SIDE VIEW

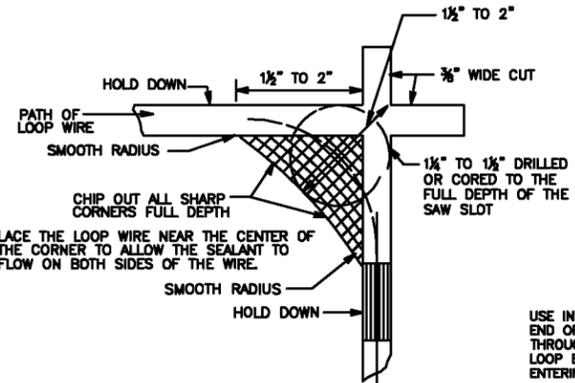


TOP VIEW

**DETAIL C - LOOP LEAD IN AT PAVEMENT EDGE**

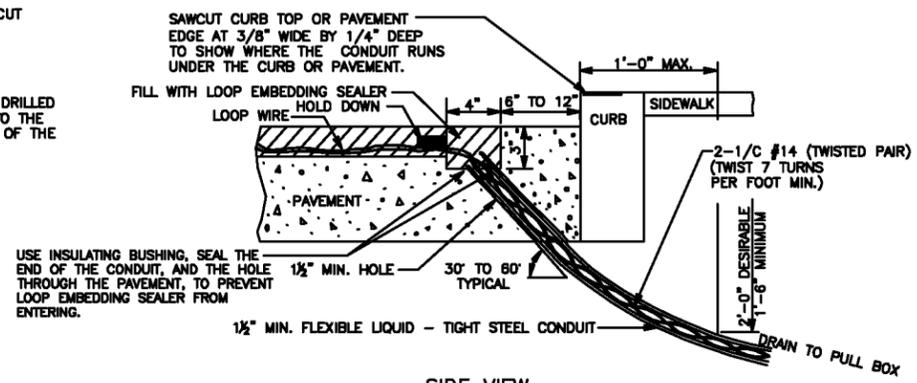


CHIPPED OUT CORNER

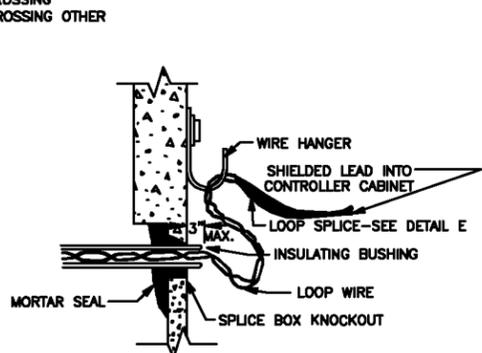


CORE CORNER

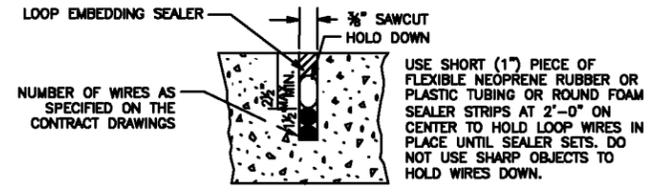
**DETAIL B - CORNER DETAILS**



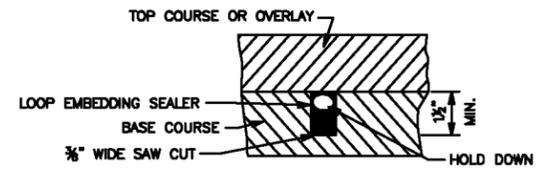
SIDE VIEW



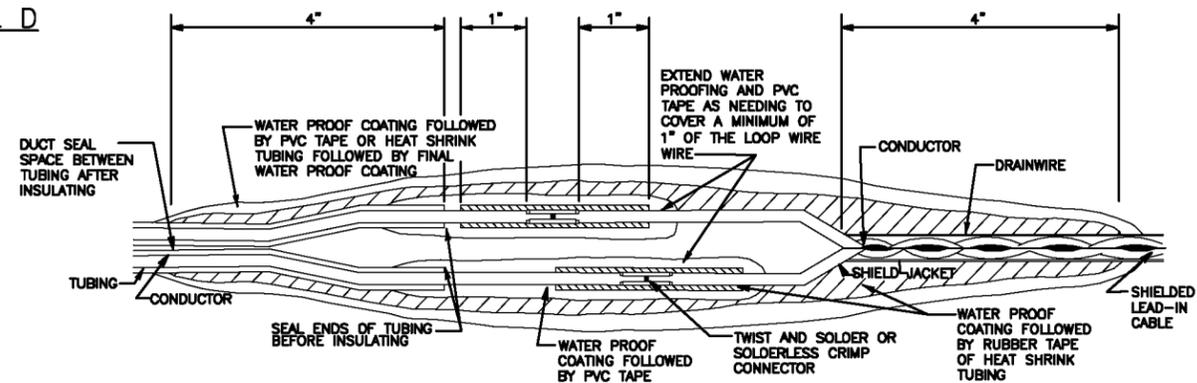
DETAIL D



SECTION A-A



SAWCUT CROSS SECTION IN ASPHALT WHERE AN OVERLAY IS BEING PLACED



DETAIL E - LOOP SPlice

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PANYNJ			
Traffic Standard			
Details			

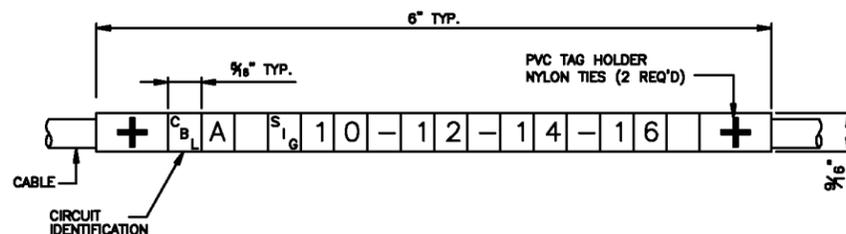
TRAFFIC
Title
TRAFFIC SIGNALS

**LOOP DETECTOR INSTALLATION**

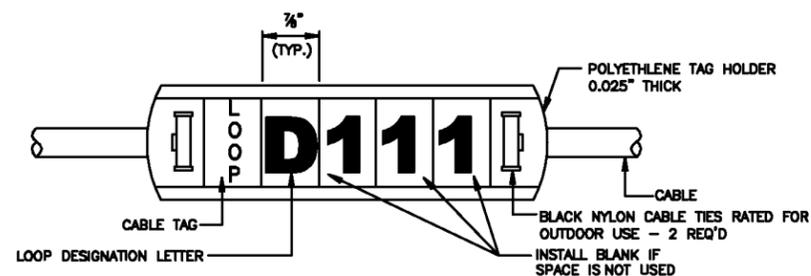
This drawing subject to conditions in standard. All dimensions, sizes, changes and methods herein are approved by Port Authority and may not be applicable to other projects. Contractors, including fabricators and those who do not bid and their professional consultants and agencies who rely on this drawing as a part of the Contract documents or for any other purpose, shall make every effort to ensure the secure and appropriate deposit of the Contract documents to prevent further amendments or alterations to the Contract documents. Success and appropriate disposal includes methods of document distribution such as printing or reprints with release legends that ensure that third persons will not have access to the document's contents either before, during, or after the project. Documents may also be released by other parties to the Contract such as the Chief, Chief Engineer, Chief of Staff, or the Chief of the Office of Procurement, One World Trade Center, 7th Floor, New York NY 10015.

Designed by	Drawn by	Checked by
Date	SEPTEMBER 2005	
Contract Number		
Drawing Number	<b>TD20.26</b>	
	PID#	

**CIRCUIT IDENTIFICATION:**  
 CBL = CABLE  
 PED = PEDESTRIAN  
 PB = PUSH BUTTON  
 (TAG LETTERS SHALL BE BLACK ON YELLOW)



**TRAFFIC SIGNAL  
 CABLE IDENTIFICATION TAG DETAIL**  
 N.T.S. TD20.27.01



**LOOP DETECTOR  
 CABLE IDENTIFICATION TAG DETAIL**  
 (TAG LETTERS SHALL BE BLACK ON YELLOW)  
 N.T.S. TD20.27.02

**LOOP DESIGNATION LETTERING**  
 1st COLUMN: DETECTOR TYPE  
 2nd COLUMN: PHASE  
 3rd COLUMN: DETECTOR UNIT NUMBER  
 4th COLUMN: CHANNEL

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PANYNJ			
Traffic Standard			
Details			

**TRAFFIC**  
 Title

TRAFFIC SIGNALS

**CABLE  
 IDENTIFICATION  
 TAG**

This drawing subject to conditions in contract. All dimensions, sizes, design and methods herein are approved by Port Authority and may not be used for other projects without the written consent of the Port Authority. The Port Authority is not responsible for any errors or omissions in this drawing. The Port Authority is not responsible for any damage or injury to persons or property caused by the use of this drawing. The Port Authority is not responsible for any damage or injury to persons or property caused by the use of this drawing. The Port Authority is not responsible for any damage or injury to persons or property caused by the use of this drawing.

Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_

Date **SEPTEMBER 2005**

Contract Number

Drawing Number **TD20.27**

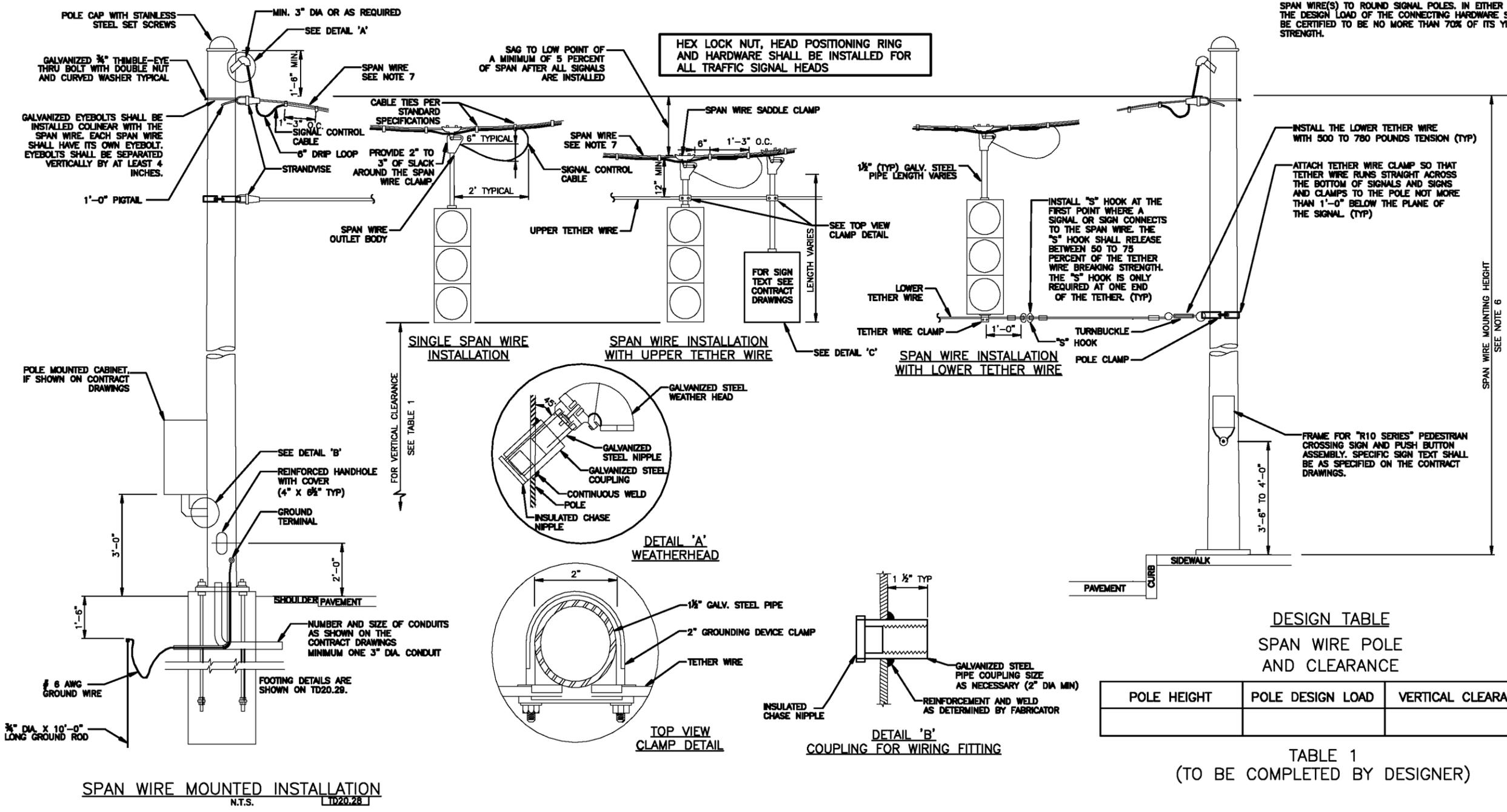
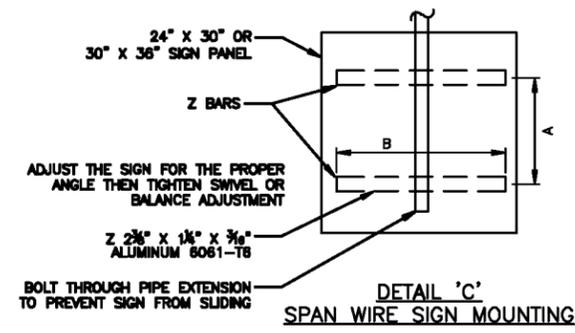
PID#

**NOTES:**

1. THE BOTTOM OF THE SIGNAL HEADS ON EACH APPROACH SHALL BE ALIGNED.
2. POLES SHALL BE ADJUSTED BY USE OF THE NUTS ON THE ANCHOR BOLTS SO THAT THEY ARE VERTICAL WHEN ALL SIGNAL HEADS & SIGNS HAVE BEEN INSTALLED. A POLE RAKE OF ONE HALF OF DESIGN LOAD DEFLECTION, SET WHEN THE POLE IS FIRST ERECTED, MAY PROVIDE A CLOSE INITIAL SETTING.
3. ALL SIGNAL HEADS SHALL BE TETHERED WHEN DUAL SPAN WIRES ARE USED.
4. SIGNED AND SEALED SHOP DRAWINGS, PREPARED BY A PROFESSIONAL ENGINEER, SHALL BE SUBMITTED FOR APPROVAL FOR ALL SPAN POLES INSTALLED AT PANYNJ FACILITIES.
5. ALL FITTINGS USED WITH SPAN AND TETHER WIRES SHALL DEVELOP THE FULL BREAKING STRENGTH OF THE WIRE, EXCEPT "S" HOOK" INSTALLED ON TETHER WIRES. SPAN WIRE DIAMETER SHALL BE SELECTED FROM THE FOLLOWING TABLE BASED ON THE POLE DESIGN LOAD SHOWN IN TABLE 1 OR CALCULATED BY THE POLE FABRICATOR.
6. SPAN WIRE MOUNTING HEIGHT MAY BE ADJUSTED IN THE FIELD TO THE ALLOWABLE CLEARANCE A FIVE PERCENT MINIMUM SAG SHALL BE PROVIDED. THE SPAN WIRE ATTACHMENT DISTANCE TO THE TOP OF THE POLE SHALL NOT BE LESS THAN 18".
7. CIRCUMFERENTIAL POLE CLAMPS, AS AN ALTERNATE TO GALVANIZED THIMBLE EYE BOLTS, MAY BE USED TO CONNECT SPAN WIRE(S) TO THE TOPS OF POLYGONAL SHAPED SIGNAL POLES. HOWEVER, ONLY GALVANIZED THIMBLE EYE BOLTS SHALL BE USED FOR CONNECTING SPAN WIRE(S) TO ROUND SIGNAL POLES. IN EITHER CASE, THE DESIGN LOAD OF THE CONNECTING HARDWARE SHALL BE CERTIFIED TO BE NO MORE THAN 70% OF ITS YIELD STRENGTH.

POLE DESIGN LOAD LBS	SPAN WIRE DIA.	SPAN WIRE BREAKING STRENGTH LBS	TETHER WIRE DIA.	TETHER WIRE BREAKING STRENGTH LBS
11,300	7/16	16,890	5/16	9,196
13,700	1/2	20,480	5/16	9,196
16,500	9/16	24,850	3/8	13,690
19,750	5/8	29,430	3/8	13,690

SIGN SIZE	DIMENSION	
	A	B
24 X 30	24"	18"
30 X 36	30"	24"



POLE HEIGHT	POLE DESIGN LOAD	VERTICAL CLEARANCE

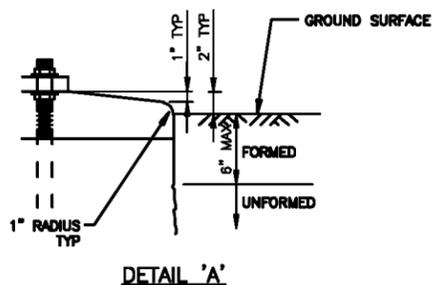
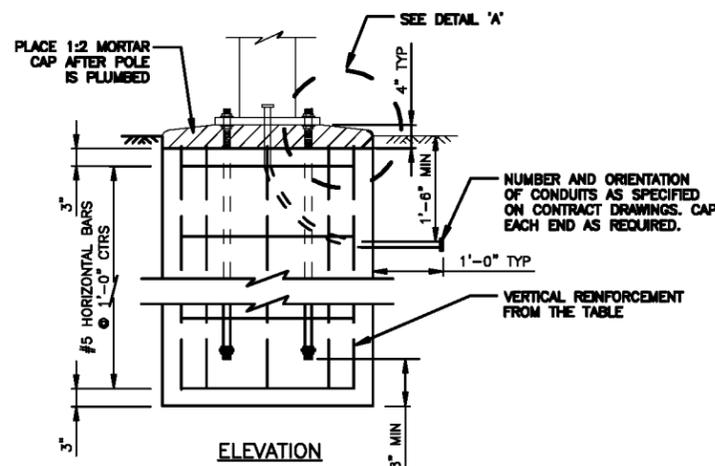
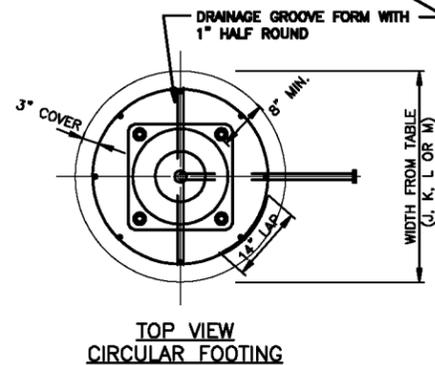
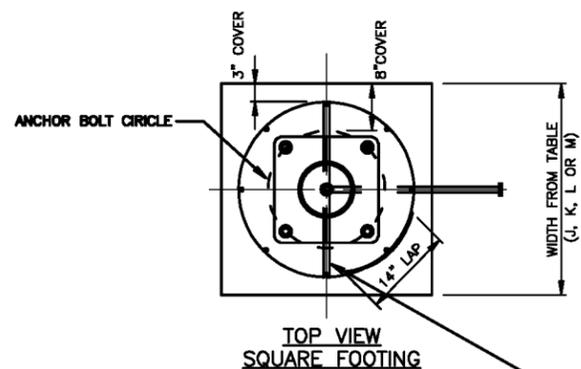
TABLE 1  
(TO BE COMPLETED BY DESIGNER)

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PANYNJ			
Traffic Standard			
Details			

TRAFFIC	
Title	
TRAFFIC SIGNALS	
<b>SPAN WIRE MOUNTED INSTALLATION</b>	

This drawing subject to conditions in contract. All dimensions, sizes, design and methods herein are approved in Port Authority and may not be used for any other project without the express written consent of the Port Authority. The Port Authority is not responsible for any errors or omissions in this drawing. The contractor shall be responsible for the accuracy of the information contained in the drawings. Success and completion of the project is dependent on the contractor's compliance with the drawings and specifications. The contractor shall be responsible for the accuracy of the information contained in the drawings. Success and completion of the project is dependent on the contractor's compliance with the drawings and specifications. The contractor shall be responsible for the accuracy of the information contained in the drawings. Success and completion of the project is dependent on the contractor's compliance with the drawings and specifications.

Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_  
Date \_\_\_\_\_ SEPTEMBER 2005  
Contract Number \_\_\_\_\_  
Drawing Number **TD20.28**  
PID# \_\_\_\_\_



CODE NO.	FOOTING CAPACITY MOMENT IN FT - KIP AT TOP OF EARTH	J (2'-6" FOOTING)				K (3'-0" FOOTING)				L (3'-6" FOOTING)				M (4'-0" FOOTING)			
		CU YDS	MINIMUM EMBEDMENT IN EARTH	VERTICAL REINFORCEMENT BARS		CU YDS	MINIMUM EMBEDMENT IN EARTH	VERTICAL REINFORCEMENT BARS		CU YDS	MINIMUM EMBEDMENT IN EARTH	VERTICAL REINFORCEMENT BARS		CU YDS	MINIMUM EMBEDMENT IN EARTH	VERTICAL REINFORCEMENT BARS	
				NO.	TYPE												
1	40 & UNDER	1.1	6'-0"	8	# 5	1.4	5'-3"	8	# 5	-	-	-	-	-	-	-	
2	50	1.2	6'-6"	8	# 5	1.6	5'-9"	8	# 5	1.9	5'-4"	8	# 5	2.4	5'-0"	8	# 5
3	60	1.3	7'-0"	14	# 5	1.8	6'-6"	12	# 5	2.1	5'-10"	12	# 5	2.8	5'-6"	8	# 5
4	70	1.4	7'-6"	14	# 5	1.8	6'-9"	12	# 5	2.4	6'-6"	12	# 5	2.8	6'-0"	12	# 5
5	80	1.5	8'-0"	14	# 5	1.9	7'-3"	16	# 5	2.5	6'-9"	12	# 5	3.1	6'-6"	12	# 5
6	90	1.6	8'-6"	14	# 6	2.1	7'-9"	16	# 5	2.6	7'-3"	16	# 5	3.2	6'-9"	12	# 5
7	100	1.7	9'-0"	14	# 6	2.2	8'-3"	16	# 5	2.7	7'-6"	16	# 5	3.3	7'-0"	16	# 5
8	120	1.9	10'-0"	14	# 6	2.5	9'-3"	16	# 5	3.0	8'-3"	16	# 5	3.7	7'-9"	16	# 5
9	140	2.0	11'-0"	14	# 7	2.7	10'-0"	16	# 6	3.3	9'-3"	16	# 5	4.0	8'-6"	16	# 5
10	160					2.9	10'-9"	16	# 6	3.5	9'-9"	16	# 6	4.2	9'-0"	16	# 5
11	180					3.1	11'-6"	16	# 7	3.8	10'-6"	16	# 6	4.6	9'-9"	16	# 5
12	200					3.3	12'-3"	16	# 7	4.1	11'-3"	16	# 6	4.8	10'-3"	16	# 6
13	220					3.4	12'-9"	16	# 7	4.2	11'-9"	16	# 7	5.1	10'-9"	16	# 6
14	250					3.6	13'-9"	16	# 8	4.6	12'-10"	16	# 7	5.5	11'-9"	16	# 7
15	275					3.9	14'-9"	16	# 8	4.9	13'-6"	16	# 8	5.9	12'-6"	16	# 7
16	300													6.1	13'-0"	16	# 8
17	350													6.7	14'-4"	16	# 8
18	400													7.2	15'-6"	16	# 10
19	450													7.8	16'-9"	19	# 10
20	500													8.4	18'-0"	21	# 10

TABLE 2

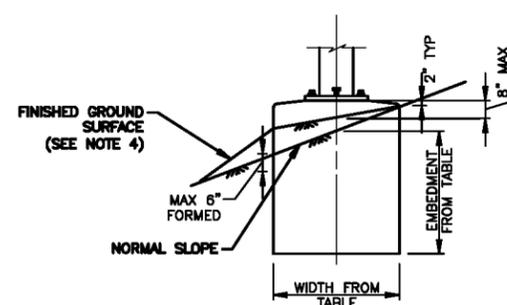
DESIGN TABLE  
SPAN WIRE POLE FOUNDATIONS

LOCATION	FOOTING CAPACITY (FT-KIPS)	WIDTH

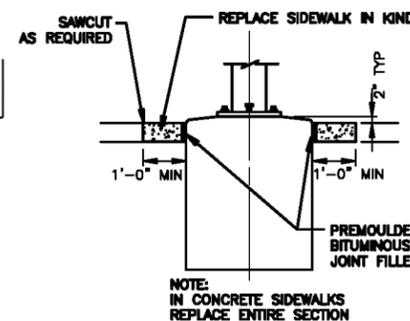
TABLE 1  
(TO BE COMPLETED BY DESIGNER)

NOTES:

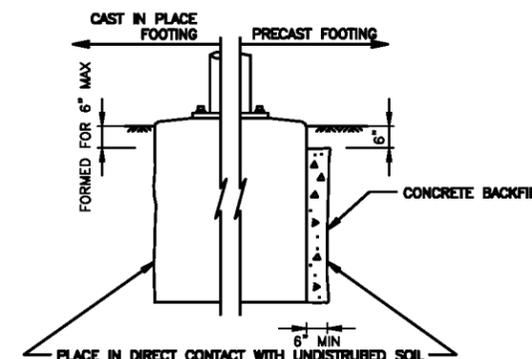
- FOOTING CAPACITY AND WIDTH ARE SPECIFIED IN TABLE 1. FOOTING EMBEDMENT SHALL BE DETERMINED FROM TABLE 2 BY THE CONTRACTOR AND APPROVED BY THE ENGINEER BEFORE INSTALLATION.
- FOOTINGS FOR SPAN WIRE POLES MAY BE EITHER CIRCULAR OR SQUARE.
- ADJUST THE FINISHED GROUND SURFACE IN THE VICINITY OF THE FOOTING AS NECESSARY SO THAT NO FILL SPILLS ON THE TOP OF THE FOOTING AND SO THAT THE MAXIMUM DISTANCE FROM THE TOP OF FOOTING TO THE FINISHED GROUND AT THE C DOES NOT EXCEED 8 INCHES.
- THE PANYNJ GEOTECHNICAL GROUP SHALL BE CONSULTED IF THE FOOTING WILL BE PLACED ON SOFT CLAY, ORGANIC DEPOSITS OR ANY OTHER UNSUITABLE MATERIALS.



FOOTINGS IN EMBANKMENTS



FOOTINGS IN SIDEWALKS



AUGERED OR DUG FOOTING

METHODS FOR PLACING FOOTINGS

SPAN WIRE TRAFFIC SIGNAL  
POLE FOUNDATION  
N.T.S. TD20.29

No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

PANYNJ  
Traffic Standard  
Details

TRAFFIC

Title  
TRAFFIC SIGNALS

SPAN WIRE  
TRAFFIC SIGNAL POLE  
FOUNDATION

This drawing subject to conditions in contract. All dimensions, sizes, design and methods herein are approved by Port Authority and may not be modified without the written consent of the Contract Administrator. All work shall conform to the Contract documents and specifications and shall be done in accordance with the Contract documents and specifications. The Contractor shall be responsible for ensuring that the work is done in accordance with the Contract documents and specifications. The Contractor shall be responsible for ensuring that the work is done in accordance with the Contract documents and specifications. The Contractor shall be responsible for ensuring that the work is done in accordance with the Contract documents and specifications.

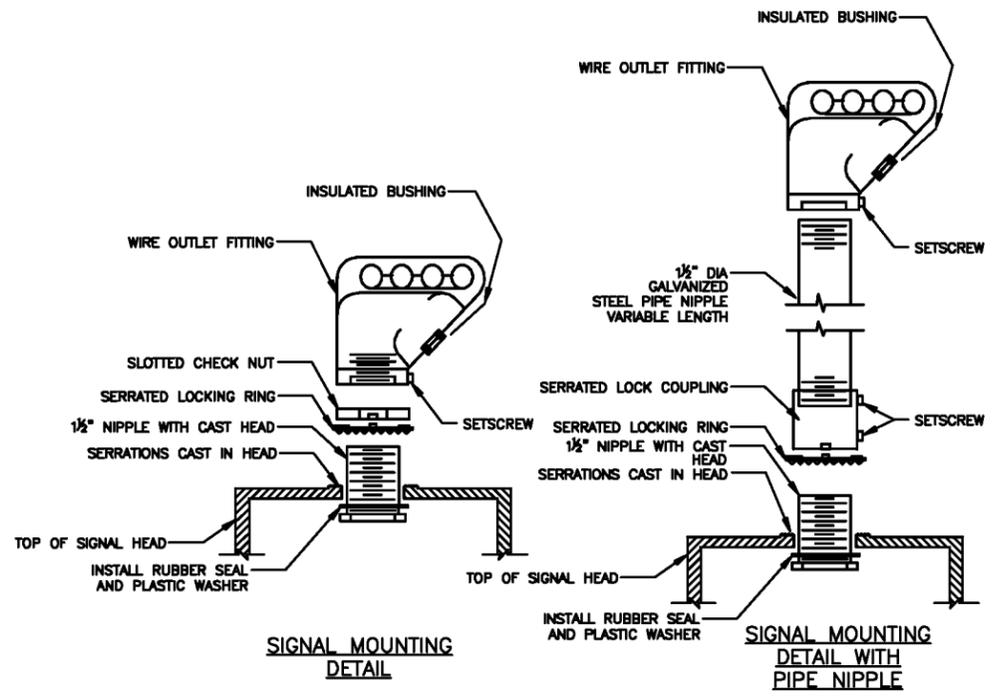
Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_

Date SEPTEMBER 2005

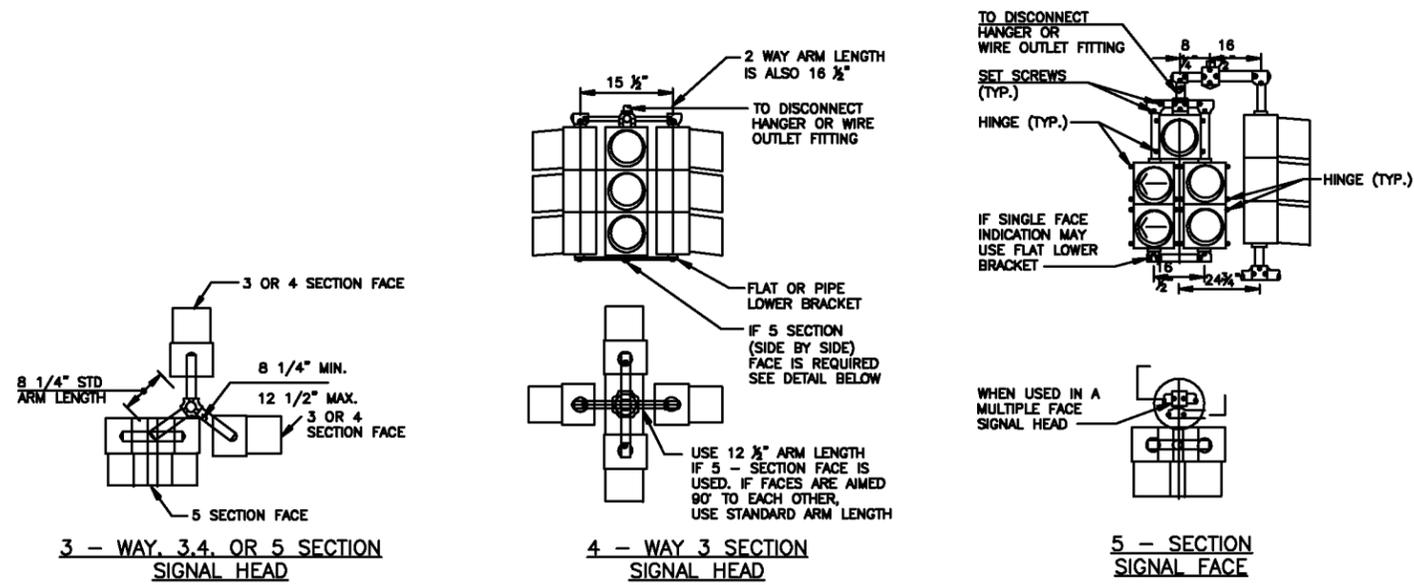
Contract Number \_\_\_\_\_

Drawing Number TD20.29

PID#



**TYPICAL SPAN WIRE TRAFFIC  
SIGNAL MOUNTING DETAILS**  
N.T.S. TD20.30.01



**TRAFFIC SIGNAL ASSEMBLIES**  
N.T.S. TD20.30.02

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PANYNJ			
Traffic Standard			
Details			

**TRAFFIC**  
Title

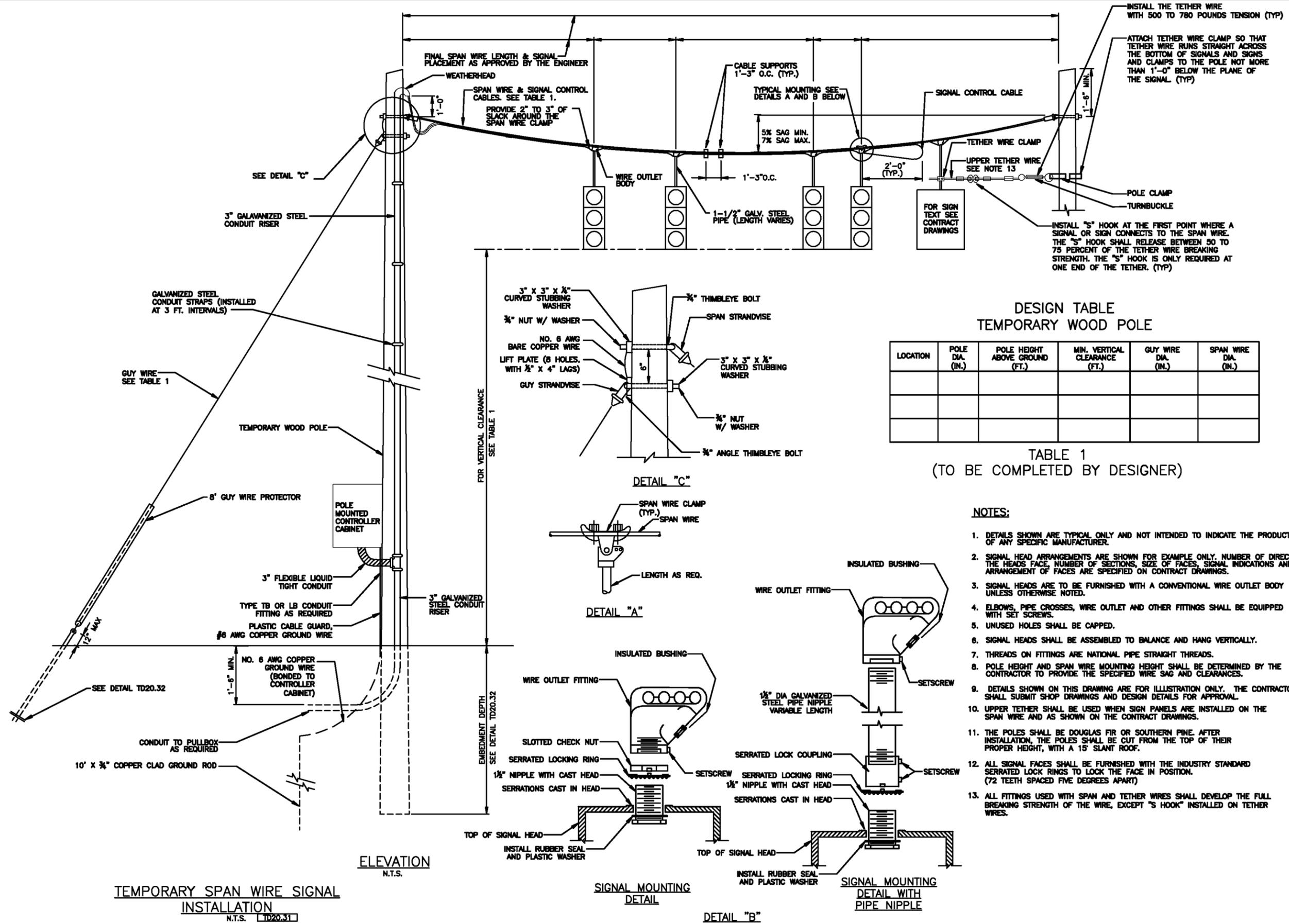
**TRAFFIC SIGNALS**

**TRAFFIC SIGNAL  
ASSEMBLY**

This drawing subject to conditions in contract. All dimensions, sizes, design and materials herein are required in Port Authority and may not be used for other purposes. All dimensions, including Millers and those who do not fall into the previous categories and anyone who may be affected by a part of the Contract documents or its amendments, shall make every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further circulation of the documents contained in the documents. Secure and appropriate disposal includes methods of document destruction such as shredding or incineration with refuse handlers that ensure that these papers will not have access to the documents' contents either before, during, or after disposal. Documents may not be released by other parties to the Contract until on the 5th Floor, 3 Gateway Center, Newark, NJ 07102 or the office of the Director of Procurement, One Madison Avenue, 7th Floor, New York, NY 10017.

Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_  
Date **SEPTEMBER 2005**

Contract Number \_\_\_\_\_  
Drawing Number **TD20.30**  
PID# \_\_\_\_\_



DESIGN TABLE  
TEMPORARY WOOD POLE

LOCATION	POLE DIA. (IN.)	POLE HEIGHT ABOVE GROUND (FT.)	MIN. VERTICAL CLEARANCE (FT.)	GUY WIRE DIA. (IN.)	SPAN WIRE DIA. (IN.)

TABLE 1  
(TO BE COMPLETED BY DESIGNER)

NOTES:

1. DETAILS SHOWN ARE TYPICAL ONLY AND NOT INTENDED TO INDICATE THE PRODUCTS OF ANY SPECIFIC MANUFACTURER.
2. SIGNAL HEAD ARRANGEMENTS ARE SHOWN FOR EXAMPLE ONLY. NUMBER OF DIRECTIONS THE HEADS FACE, NUMBER OF SECTIONS, SIZE OF FACES, SIGNAL INDICATIONS AND ARRANGEMENT OF FACES ARE SPECIFIED ON CONTRACT DRAWINGS.
3. SIGNAL HEADS ARE TO BE FURNISHED WITH A CONVENTIONAL WIRE OUTLET BODY UNLESS OTHERWISE NOTED.
4. ELBOWS, PIPE CROSSES, WIRE OUTLET AND OTHER FITTINGS SHALL BE EQUIPPED WITH SET SCREWS.
5. UNUSED HOLES SHALL BE CAPPED.
6. SIGNAL HEADS SHALL BE ASSEMBLED TO BALANCE AND HANG VERTICALLY.
7. THREADS ON FITTINGS ARE NATIONAL PIPE STRAIGHT THREADS.
8. POLE HEIGHT AND SPAN WIRE MOUNTING HEIGHT SHALL BE DETERMINED BY THE CONTRACTOR TO PROVIDE THE SPECIFIED WIRE SAG AND CLEARANCES.
9. DETAILS SHOWN ON THIS DRAWING ARE FOR ILLUSTRATION ONLY. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND DESIGN DETAILS FOR APPROVAL.
10. UPPER TETHER SHALL BE USED WHEN SIGN PANELS ARE INSTALLED ON THE SPAN WIRE AND AS SHOWN ON THE CONTRACT DRAWINGS.
11. THE POLES SHALL BE DOUGLAS FIR OR SOUTHERN PINE. AFTER INSTALLATION, THE POLES SHALL BE CUT FROM THE TOP OF THEIR PROPER HEIGHT, WITH A 15° SLANT ROOF.
12. ALL SIGNAL FACES SHALL BE FURNISHED WITH THE INDUSTRY STANDARD SERRATED LOCK RINGS TO LOCK THE FACE IN POSITION. (72 TEETH SPACED FIVE DEGREES APART)
13. ALL FITTINGS USED WITH SPAN AND TETHER WIRES SHALL DEVELOP THE FULL BREAKING STRENGTH OF THE WIRE, EXCEPT "S HOOK" INSTALLED ON TETHER WIRES.

No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PANYNJ			
Traffic Standard			
Details			

TRAFFIC  
Title

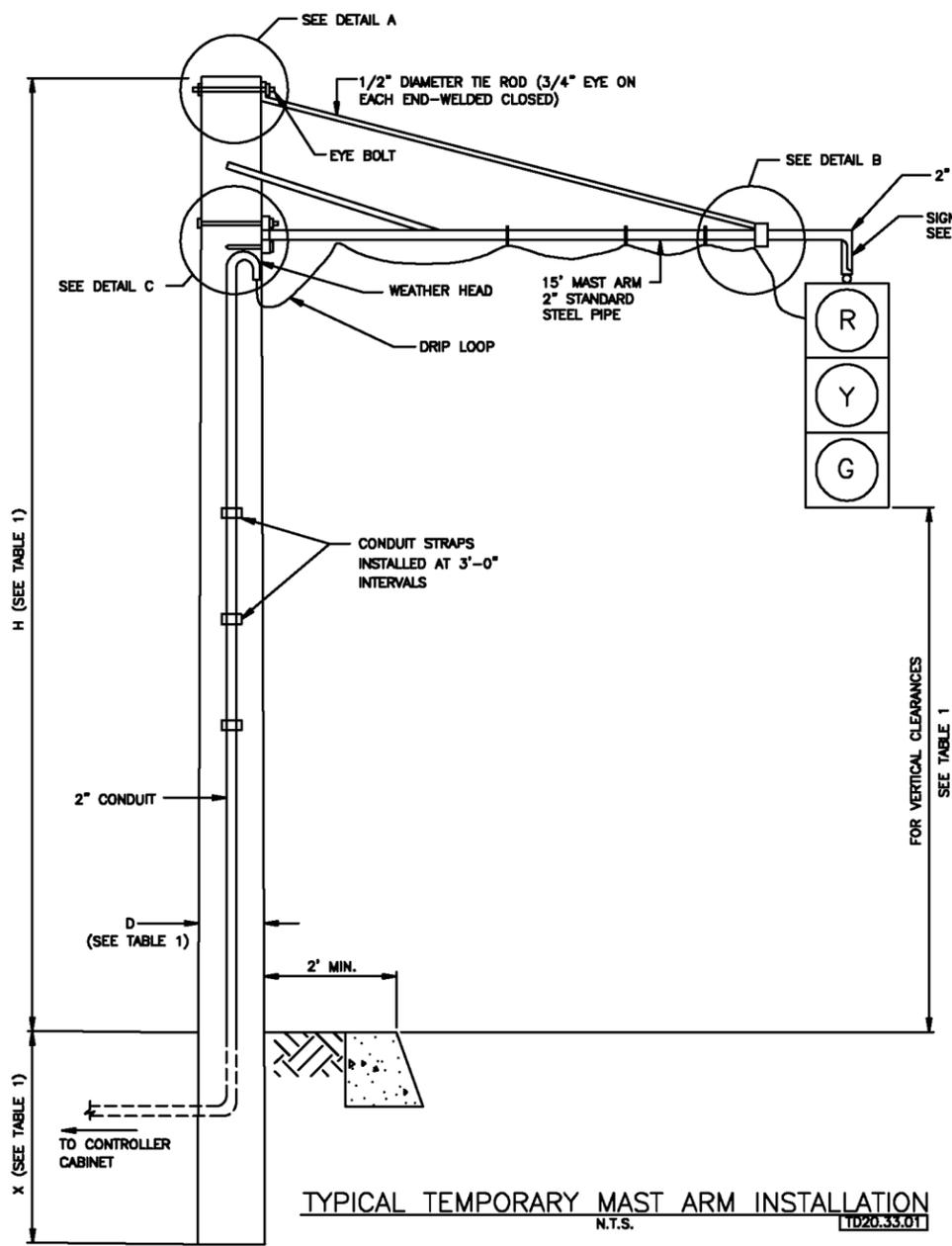
TRAFFIC SIGNALS

TEMPORARY SPAN WIRE SIGNAL INSTALLATION  
- 1 -

This drawing subject to conditions in standard. All dimensions, sizes, design and methods herein are approved in Port Authority and may not be used for any other project without the written consent of the Port Authority. The contractor shall be responsible for obtaining all necessary permits and approvals for the work shown on this drawing. The contractor shall be responsible for obtaining all necessary permits and approvals for the work shown on this drawing. The contractor shall be responsible for obtaining all necessary permits and approvals for the work shown on this drawing.

Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_  
Date \_\_\_\_\_ SEPTEMBER 2005  
Contract Number \_\_\_\_\_  
Drawing Number **TD20.31**  
PID# \_\_\_\_\_



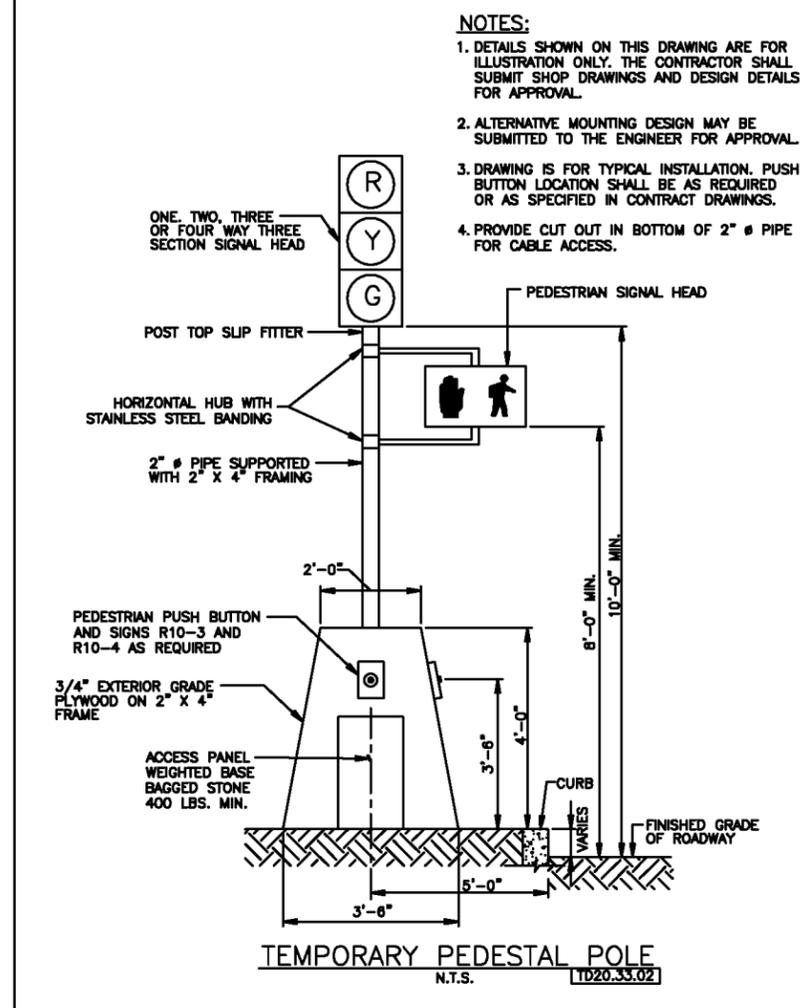


- NOTE:**
1. DETAILS SHOWN ON THIS DRAWING ARE FOR ILLUSTRATION ONLY. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND DESIGN DETAILS FOR APPROVAL.
  2. ALTERNATIVE MOUNTING DESIGN MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

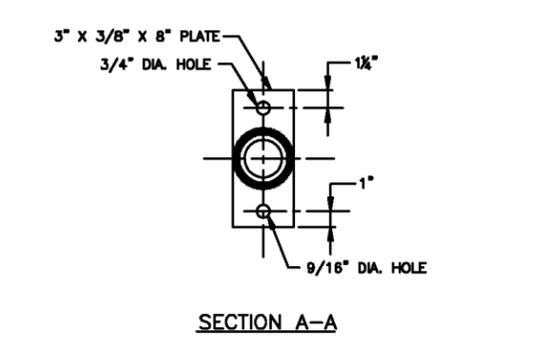
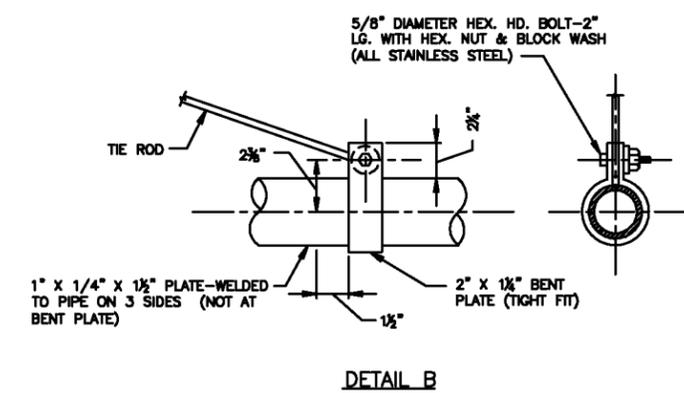
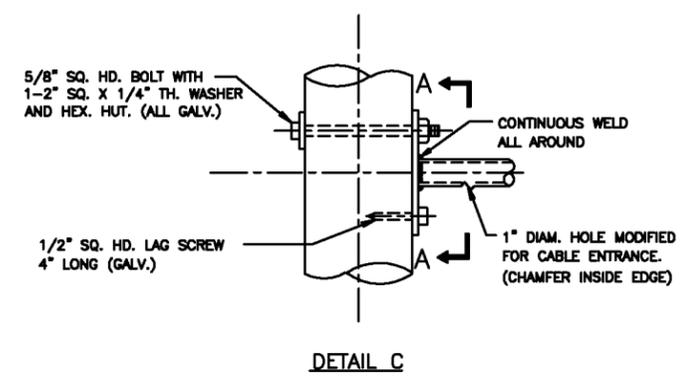
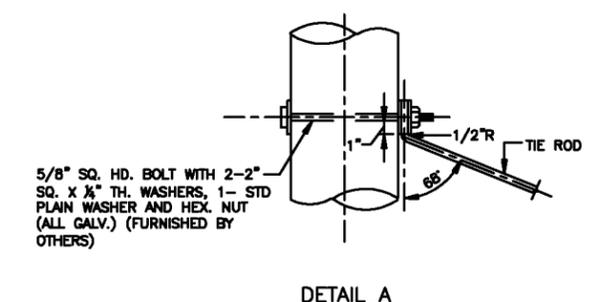
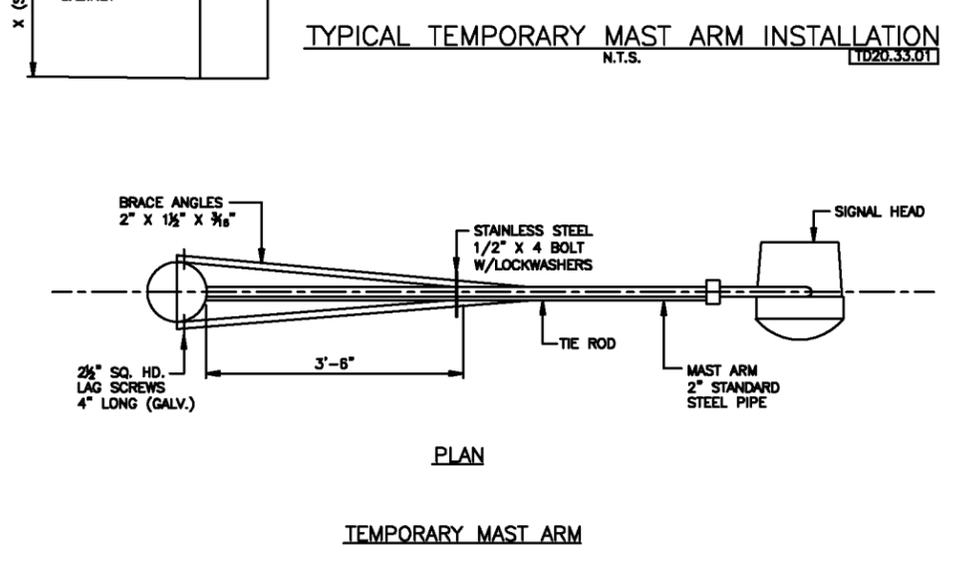
**DESIGN TABLE**  
**TEMPORARY WOOD POLE**

LOCATION	D POLE DIAMETER	H POLE HEIGHT ABOVE GROUND	X DEPTH OF EMBEDMENT

TABLE 1  
(TO BE COMPLETED BY DESIGNER)



- NOTES:**
1. DETAILS SHOWN ON THIS DRAWING ARE FOR ILLUSTRATION ONLY. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND DESIGN DETAILS FOR APPROVAL.
  2. ALTERNATIVE MOUNTING DESIGN MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
  3. DRAWING IS FOR TYPICAL INSTALLATION. PUSH BUTTON LOCATION SHALL BE AS REQUIRED OR AS SPECIFIED IN CONTRACT DRAWINGS.
  4. PROVIDE CUT OUT IN BOTTOM OF 2\"/>



No.	Date	Revision	Approved
ENGINEERING DEPARTMENT			
PANYNJ			
Traffic Standard			
Details			

**TRAFFIC**  
Title  
**TRAFFIC SIGNALS**

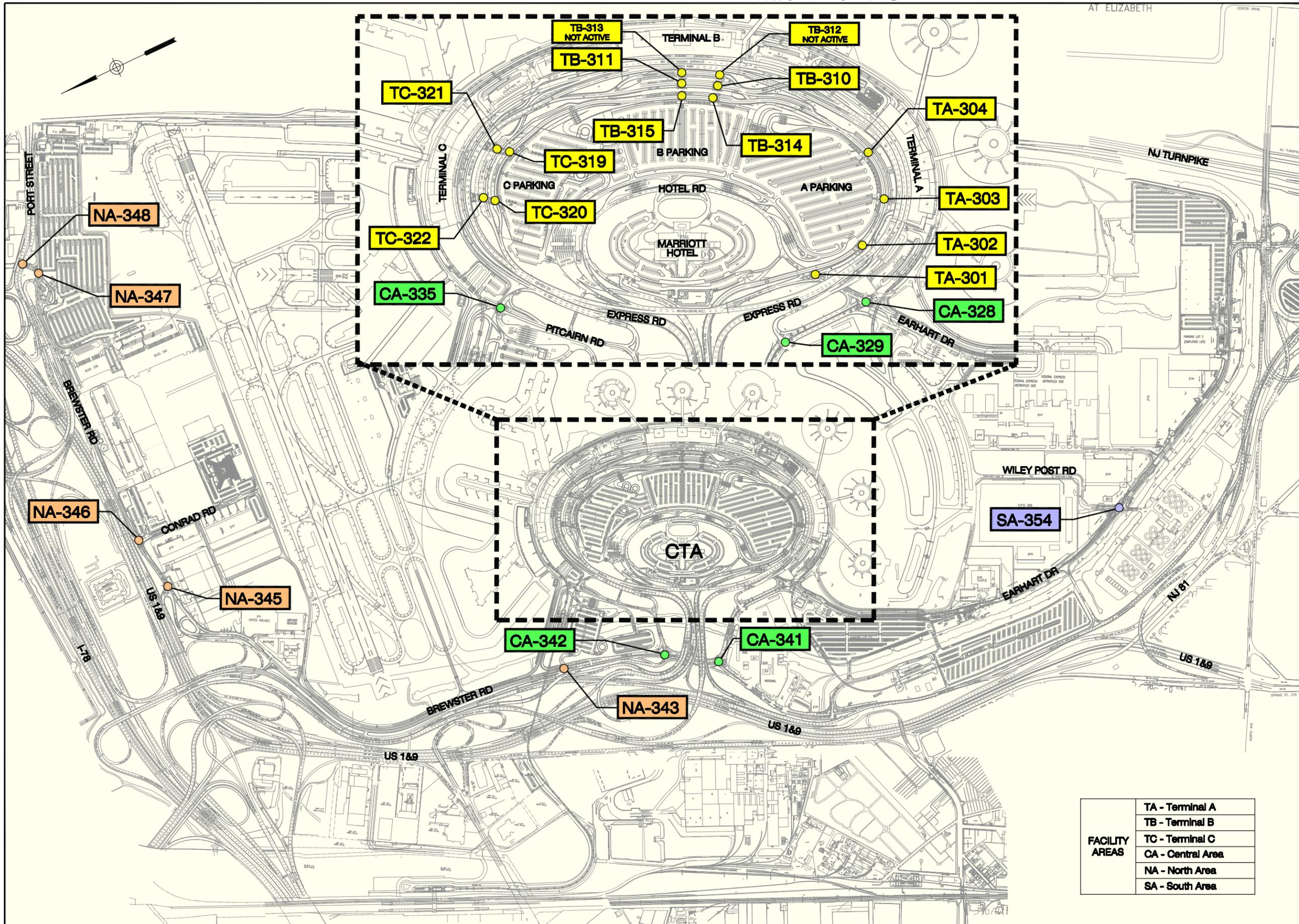
**TEMPORARY MAST ARM AND PEDESTAL**

This drawing subject to conditions in contract. All dimensions, sizes, design and methods herein are approved by Port Authority and may not be modified for similar drawings, including Addenda and those who do not bid and their professional representatives and agencies who may be used as a part of the Contract documents or the drawings, and shall make every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further disclosure of the information contained in the drawings. Secure and appropriate disposal includes methods of document destruction such as shredding or incineration with refuse handlers that ensure that their process will not have access to the drawings' contents either before, during, or after disposal. Contractors may use the material in this drawing for their Contract work on the Port Authority's Contract, however, it is not to be used in the office of the Contractor or elsewhere, 7th Floor, New York NY 10013.

Designed by \_\_\_\_\_ Drawn by \_\_\_\_\_ Checked by \_\_\_\_\_  
Date \_\_\_\_\_ SEPTEMBER 2005  
Contract Number \_\_\_\_\_  
Drawing Number **TD20.33**  
PID# \_\_\_\_\_



# Attachment G



CHIEF TRAFFIC ENGINEER

No.	Date	Revision	Approved

**ENGINEERING DEPARTMENT**

**NEWARK LIBERTY INTERNATIONAL AIRPORT**

**TRAFFIC**

Title  
**TRAFFIC SIGNAL TIMING DIRECTIVE**

**INTERSECTIONS ID KEY PLAN**

The drawing subject to conditions in contract. All inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without its written consent. All recipients of Contract documents, including bidders and those who do not bid and their prospective subcontractors and suppliers who may receive all or a part of the Contract documents or copies thereof, shall make every effort to ensure the secure and appropriate disposal of the Contract documents to prevent further disclosure of information contained in the documents. Secure and appropriate disposal includes methods of document destruction such as shredding or arrangements with refuse handlers that ensure that third persons will not have access to the documents' contents either before, during, or after disposal. Documents may also be returned for disposal purposes to the Contract Desk on the 3rd Floor, 3 Gateway Center, Newark NJ 07102 or the office of the Director of Procurement, One Madison Avenue, 7th Floor, New York NY 10010.

It is a violation of law for any person to alter a document in any way, unless acting under the direction of a licensed professional engineer or registered architect. If this document bearing the seal of an engineer/architect is altered, the altering engineer/architect shall affix to the document their seal and the notation "altered" followed by their signature and the date of such alteration, and a specific description of the alteration.

<b>FACILITY AREAS</b>	<b>TA - Terminal A</b>
	<b>TB - Terminal B</b>
	<b>TC - Terminal C</b>
	<b>CA - Central Area</b>
	<b>NA - North Area</b>
	<b>SA - South Area</b>

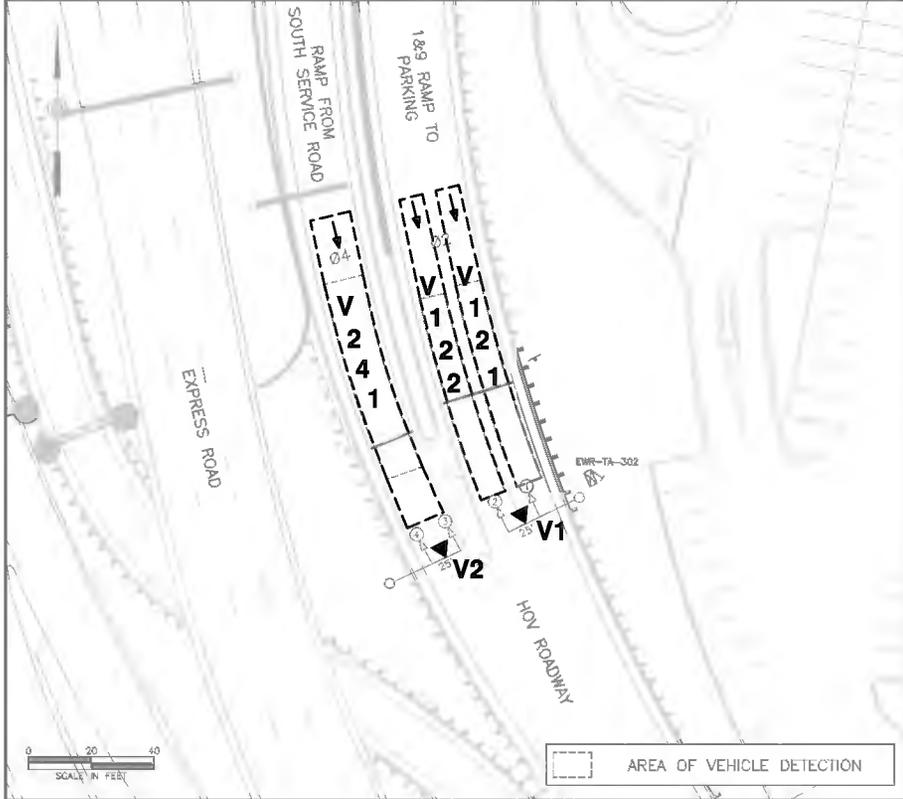
UP	MP	AL
Designed by	Drawn by	Checked by
Date	06/08/2010	
Contract Number	09-151	
Drawing Number	TSO	

## Attachment H

Drawings SK-1, SK-2, and SK-3

# NOT APPROVED FOR CONSTRUCTION

# SK1 | Intersection TA-302

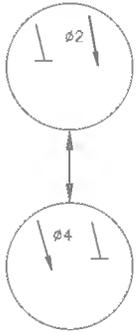


**TRAFFIC SIGNAL VIDEO DETECTION ZONE NUMBERING CONVENTION:**

1st Digit: (V) For Video Detection  
 2nd Digit: (N) For Camera #  
 3rd Digit: (X) For NEMA Phase  
 4th Digit: (Y) For Detection Zone

→ Direction Of Detection  
 ◀ Video Camera  
 □ Detection Zone

PHASING DIAGRAM



SYMBOL LEGEND

- △ x ○ TRAFFIC SIGNAL STANDARD WITH MAST ARM LENGTH
- ⊗ ◀ VEHICULAR SIGNAL HEAD WITH IDENTIFIER
- ⊞ SIGNAL CONTROLLER AND CABINET GROUND MOUNTED

TRAFFIC SIGNAL LEGEND



**NOTE:**  
 SIGNAL POLE AND SIGN LOCATIONS ARE APPROXIMATE.

Sheet \_\_\_\_\_ of \_\_\_\_\_

**THE PORT AUTHORITY OF NY & NJ**

CHIEF TRAFFIC ENGINEER \_\_\_\_\_

No.	Date	Revision	Approved
1	08/09/2010		

ENGINEERING DEPARTMENT

**NEWARK LIBERTY INTERNATIONAL AIRPORT**

TRAFFIC

Title: **TRAFFIC SIGNAL PLAN**

**ROUTE 1&2 RAMP TO PARKING AND RAMP FROM SOUTH SERVICE ROAD**

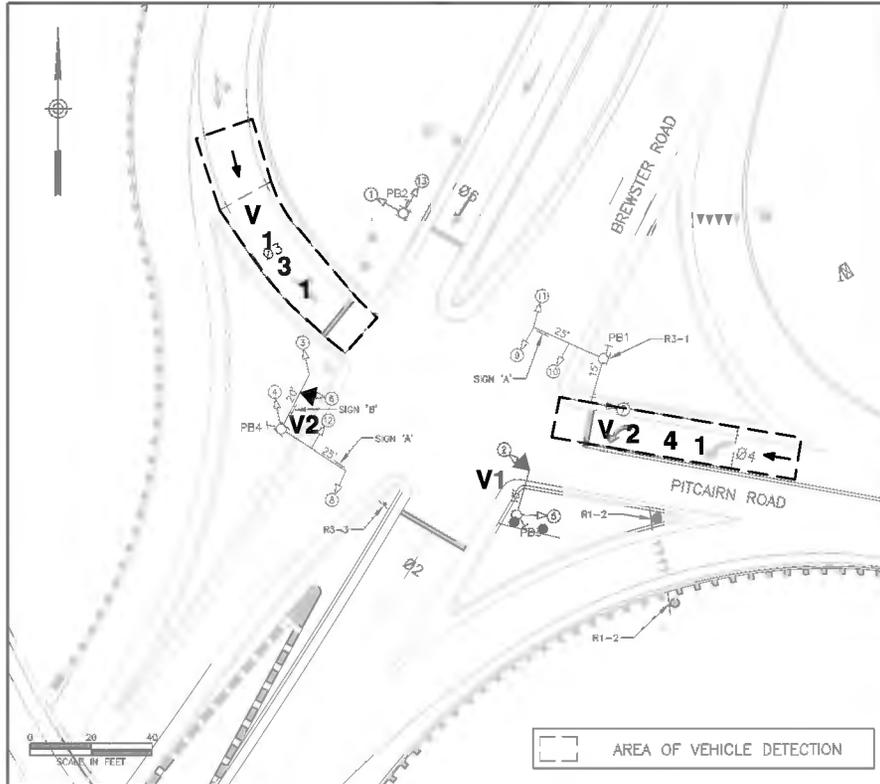
U. PATEL    L. FRANCO    A. LEPORE  
 Prepared by    Reviewed by    Checked by

Date: **08/09/2010**

Intersection Number: **TA-302**

# NOT APPROVED FOR CONSTRUCTION

# SK2 | Intersection CA-342



**TRAFFIC SIGNAL VIDEO DETECTION ZONE NUMBERING CONVENTION:**

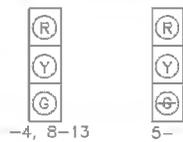
1st Digit: (V) For Video Detection  
 2nd Digit: (N) For Camera #  
 3rd Digit: (X) For NEMA Phase  
 4th Digit: (Y) For Detection Zone

→ Direction Of Detection  
 ◀ Video Camera  
 □ Detection Zone

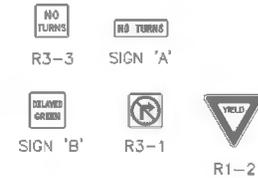
**SYMBOL LEGEND**

- SIGNAL MAST ARM MOUNTED SIGN WITH FIXED MESSAGE PANEL
- POST MOUNTED SIGN WITH FIXED MESSAGE PANEL
- SIGNAL POLE MOUNTED SIGN WITH FIXED MESSAGE PANEL
- △ X — TRAFFIC SIGNAL STANDARD WITH MAST ARM LENGTH
- ◁ ○ — TRAFFIC POST-TOP/SIDE-OF-POLE MOUNTED SIGNAL
- ⊗ — VEHICULAR SIGNAL HEAD WITH IDENTIFIER
- PBX — PEDESTRIAN PUSH BUTTON WITH IDENTIFIER
- SIGNAL CONTROLLER AND CABINET GROUND MOUNTED

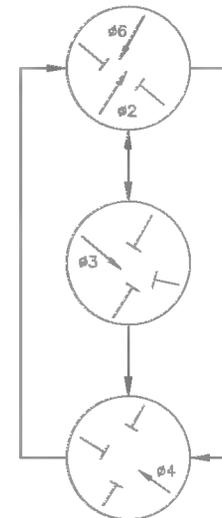
**TRAFFIC SIGNAL LEGEND**



**SIGNAL RELATED SIGNS**



**PHASING DIAGRAM**



**NOTE:**  
 SIGNAL POLE AND SIGN LOCATIONS ARE APPROXIMATE.

Sheet \_\_\_\_\_ of \_\_\_\_\_

**THE PORT AUTHORITY OF NY & NJ**

DESIGN ENGINEER

No.	Date	Revision	Approved
1	10/20/11	XXX	XXX

ENGINEERING DEPARTMENT

**NEWARK LIBERTY INTERNATIONAL AIRPORT**

TRAFFIC

Title: **TRAFFIC SIGNAL PLAN**

**BREWSTER ROAD AND PITCAIRN DRIVE**

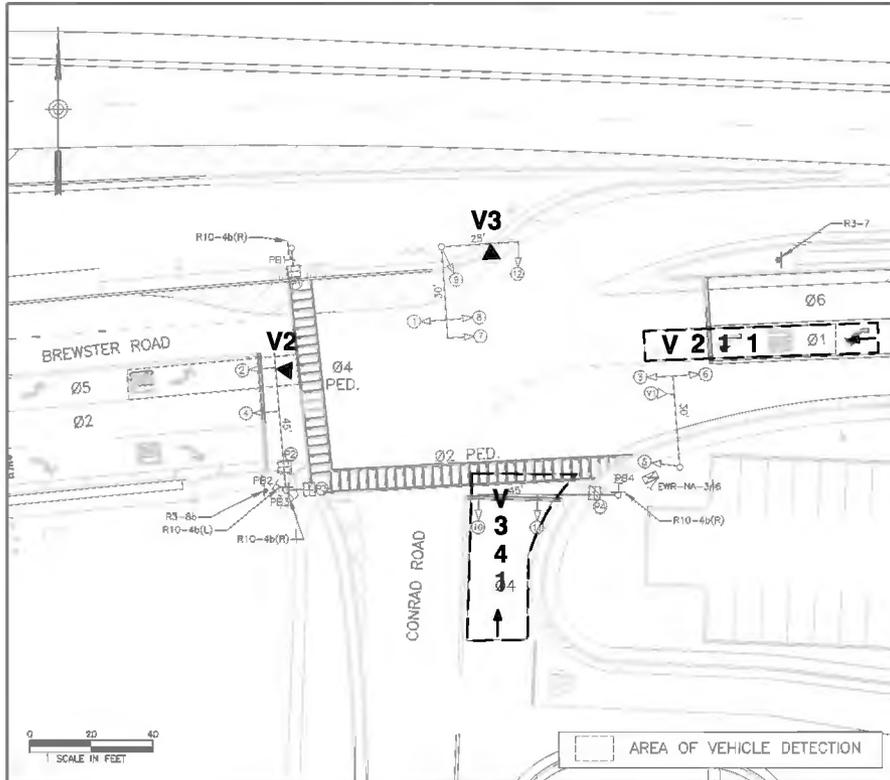
U. PATEL    L. FRANCO    A. LEPORE  
 Prepared by    Reviewed by    Checked by

Date: **12/20/2011**

Intersection Number: **CA-342**

# NOT APPROVED FOR CONSTRUCTION

# SK3 | Intersection NA-346

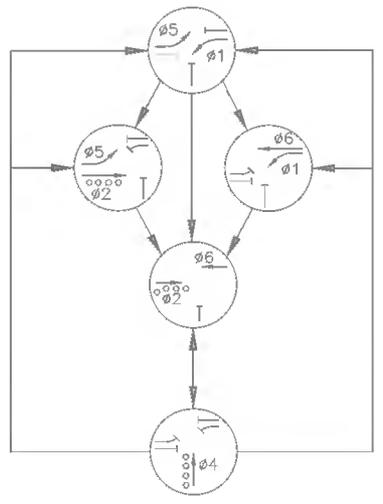


**TRAFFIC SIGNAL VIDEO DETECTION ZONE NUMBERING CONVENTION:**

1st Digit: (V) For Video Detection  
 2nd Digit: (N) For Camera #  
 3rd Digit: (X) For NEMA Phase  
 4th Digit: (Y) For Detection Zone

→ Direction Of Detection  
 ◀ Video Camera  
 □ Detection Zone

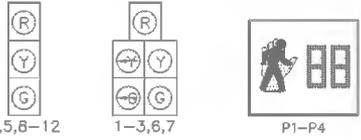
PHASING DIAGRAM



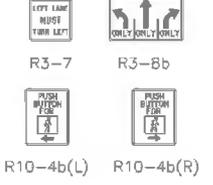
**SYMBOL LEGEND**

- POST MOUNTED SIGN WITH FIXED MESSAGE PANEL
- SIGNAL POLE MOUNTED SIGN WITH FIXED MESSAGE PANEL
- TRAFFIC SIGNAL STANDARD WITH MAST ARM LENGTH
- TRAFFIC POST-TOP/SIDE-OF-POLE MOUNTED SIGNAL
- VEHICULAR SIGNAL HEAD WITH IDENTIFIER
- PEDESTRIAN SIGNAL HEAD WITH IDENTIFIER
- PEDESTRIAN PUSH BUTTON WITH IDENTIFIER
- SIGNAL CONTROLLER AND CABINET GROUND MOUNTED
- VIDEO DETECTOR

**TRAFFIC SIGNAL LEGEND**



**SIGNS**



**NOTE:**  
 SIGNAL POLE AND SIGN LOCATIONS ARE APPROXIMATE.

Sheet \_\_\_\_\_ of \_\_\_\_\_

**THE PORT AUTHORITY OF NY & NJ**

CHIEF TRAFFIC ENGINEER \_\_\_\_\_

1. REVIEWED BY \_\_\_\_\_  
 2. DATE \_\_\_\_\_

ENGINEERING DEPARTMENT \_\_\_\_\_

**NEWARK LIBERTY INTERNATIONAL AIRPORT**

TRAFFIC

Title: **TRAFFIC SIGNAL PLAN**

**BREWSTER ROAD AND CONRAD ROAD**

U. PATEL L. FRANCO A. LEPORE  
 Prepared by Reviewed by Checked by

Date: **12/20/2011**

Intersection Number: **NA-346**

**STANDARD CONTRACT TERMS AND CONDITIONS**

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## **STANDARD CONTRACT TERMS AND CONDITIONS**

### **PART I GENERAL DEFINITIONS**

To avoid undue repetition, the following terms, as used in this Agreement, shall be construed as follows:

Authority or Port Authority - shall mean the Port Authority of New York and New Jersey.

Contract, Document or Agreement - shall mean the writings setting forth the scope, terms, conditions and Specifications for the procurement of Goods and/or Services, as defined hereunder and shall include, but not be limited to: Invitation for Bid (IFB), Request for Quotation (RFQ), Request for Proposal (RFP), Purchase Order (PO), Cover Sheet, executed Signature Sheet, AND PRICING SHEETS with Contract prices inserted," "STANDARD CONTRACT TERMS AND CONDITIONS," and, if included, attachments, endorsements, schedules, exhibits, or drawings, the Authority's acceptance and any written addenda issued over the name of the Assistant Director, Commodities and Services Division, Procurement Department..

Days or Calendar Days - shall mean consecutive calendar days, Saturdays, Sundays, and holidays, included.

Week - unless otherwise specified, shall mean seven (7) consecutive calendar days, Saturdays, Sundays, and holidays.

Month - unless otherwise specified, shall mean a calendar month.

Director - shall mean the Director of the Department which operates the facility of the Port Authority at which the services hereunder are to be performed, for the time being, or his/her successor in duties for the purpose of this Contract, or one of his/her authorized representatives for the purpose of this Contract.

Manager - shall mean the Manager of the Facility for the time being, or his successor in duties for the purpose of this Contract, or his duly authorized representative for the purpose of this Contract.

No person shall be deemed a representative of the Director or Manager except to the extent specifically authorized in an express written notice to the Contractor signed by the Director or Manager, as the case may be. Further, no person shall be deemed a successor in duties of the Director unless the Contractor is so notified in writing signed by the Assistant Director, Commodities & Services Division, Procurement Department. No person shall be deemed a successor in duties of the Manager unless the Contractor is so notified in a writing signed by the Director.

Minority Business Enterprise (MBE) - shall mean a business entity which is at least 51% owned and controlled by one or more members of one or more minority groups, or, in the case of a publicly held corporation, at least 51% of the stock of which is owned by one or more minority groups, and whose management and daily business operations are controlled by one or more such individuals who are citizens or permanent resident aliens.

"Minority Group" means any of the following racial or ethnic groups:

- (a) Black persons having origins in any of the Black African racial groups not of Hispanic origin;
- (b) Hispanic persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American culture or origin, regardless of race;
- (c) Asian and Pacific Islander persons having origins in any of the original peoples of the Far East, Southeast Asia, The Indian Subcontinent, or the Pacific Islands;

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

Site of the Work - or words of similar import shall mean the Facility and all buildings and properties associated therewith as described in this Contract.

Small Business Enterprise (SBE) - The criteria for a Small Business Enterprise are:

- o The principal place of business must be located in New York or New Jersey;
- o The firm must have been in business for at least three years with activity;
- o Average gross income limitations by industry as established by the Port Authority.

Subcontractor - shall mean anyone who performs work (other than or in addition to the furnishing of materials, plant or equipment) in connection with the services to be provided hereunder, directly or indirectly for or on behalf of the Contractor (and whether or not in privity of contract with the Contractor), but shall not include any person who furnished merely his own personal labor or his own personal services. "Subcontractor", however, shall exclude the Contractor or any subsidiary or parent of the Contractor or any person, firm or corporation which has a substantial interest in the Contractor or in which the Contractor or the parent or the subsidiary of the Contractor, or an officer or principal of the Contractor or of the parent of the subsidiary of the Contractor has a substantial interest, provided, however, that for the purpose of the clause hereof entitled "Assignments and Subcontracts" the exclusion in this paragraph shall not apply to anyone but the Contractor itself.

Women-Owned Business Enterprise (WBE) - shall mean a business enterprise which is at least 51% owned by one or more women, or, in the case of a publicly held corporation, at least 51% of the stock of which is owned by one or more women and whose management and daily business operations are controlled by one or more women who are citizens or permanent or resident aliens.

Work - shall mean all services, equipment and materials (including materials and equipment, if any, furnished by the Authority) and other facilities and all other things necessary or proper for, or incidental to the services to be performed or goods to be furnished in connection with the service to be provided hereunder.

## **PART II GENERAL PROVISIONS**

### **1. Facility Rules and Regulations of The Port Authority**

- a. The Contractor shall observe and obey (and compel its officers, employees, guests, invitees, and those doing business with it, to observe and obey) the facility Rules and Regulations of the Port Authority now in effect, and such further reasonable Rules and Regulations which may from time to time during the term of this Agreement be promulgated by the Port Authority for reasons of safety, health, preservation of property or maintenance of a good and orderly appearance and efficient operation of the Facility. The Port Authority agrees that, except in case of emergency, it shall give notice to the Contractor of every Rule and Regulation hereafter adopted by it at least five days before the Contractor shall be required to comply therewith.
- b. A copy of the facility Rules and Regulations of the Port Authority shall be available for review by the Contractor at the Office of the Secretary of the Port Authority.

### **2. Contractor Not An Agent**

This Agreement does not constitute the Contractor the agent or representative of the Port Authority for any purpose whatsoever except as may be specifically provided in this Agreement. It is hereby specifically acknowledged and understood that the Contractor, in performing its services hereunder, is and shall be at all

times an independent Contractor and the officers, agents and employees of the Contractor shall not be or be deemed to be agents, servants or employees of the Port Authority.

### 3. Contractor's Warranties

The Contractor represents and warrants:

- a. That it is financially solvent, that it is experienced in and competent to perform the requirements of this Contract, that the facts stated or shown in any papers submitted or referred to in connection with the solicitation are true, and, if the Contractor be a corporation, that it is authorized to perform this Contract;
- b. That it has carefully examined and analyzed the provisions and requirements of this Contract, and that from its own investigations it has satisfied itself as to the nature of all things needed for the performance of this Contract, the general and local conditions and all other matters which in any way affect this Contract or its performance, and that the time available to it for such examination, analysis, inspection and investigation was adequate;
- c. That the Contract is feasible of performance in accordance with all its provisions and requirements and that it can and will perform it in strict accordance with such provisions and requirements;
- d. That no Commissioner, officer, agent or employee of the Port Authority is personally interested directly or indirectly in this Contract or the compensation to be paid hereunder;
- e. That, except only for those representations, statements or promises expressly contained in this Contract, no representation, statement or promise, oral or in writing, of any kind whatsoever by the Port Authority, its Commissioners, officers, agents, employees or consultants has induced the Contractor to enter into this Contract or has been relied upon by the Contractor, including any with reference to: (1) the meaning, correctness, suitability, or completeness of any provisions or requirements of this Contract; (2) the nature, quantity, quality or size of the materials, equipment, labor and other facilities needed for the performance of this Contract; (3) the general or local conditions which may in any way affect this Contract or its performance; (4) the price of the Contract; or (5) any other matters, whether similar to or different from those referred to in (1) through (4) immediately above, affecting or having any connection with this Contract, the bidding thereon, any discussions thereof, the performance thereof or those employed therein or connected or concerned therewith.

Moreover, the Contractor accepts the conditions at the Site of the Work as they may eventually be found to exist and warrants and represents that it can and will perform the Contract under such conditions and that all materials, equipment, labor and other facilities required because of any unforeseen conditions (physical or otherwise) shall be wholly at its own cost and expense, anything in this Contract to the contrary notwithstanding.

Nothing in the Specifications or any other part of the Contract is intended as or shall constitute a representation by the Port Authority as to the feasibility of performance of this Contract or any part thereof.

The Contractor further represents and warrants that it was given ample opportunity and time and by means of this paragraph was requested by the Port Authority to review thoroughly all documents forming this Contract prior to opening of Bids on this Contract in order that it might request inclusion in this Contract of any statement, representation, promise or provision which it desired or on which it wished to place reliance; that it did so review said documents, that either every such statement, representation, promise or provision has been included in this Contract or else, if omitted, that it expressly relinquishes the benefit of any such omitted statement, representation, promise or provision and is willing to perform this Contract without claiming reliance thereon or making any other claim on account of such omission.

The Contractor further recognizes that the provisions of this numbered clause (though not only such provisions) are essential to the Port Authority's consent to enter into this Contract and that without such provisions, the Authority would not have entered into this Contract.

#### **4. Personal Non-Liability**

Neither the Commissioners of the Port Authority nor any of them, nor any officer, agent or employee thereof, shall be charged personally by the Contractor with any liability, or held personally liable to the Contractor under any term or provision of this Agreement, or because of its execution or attempted execution, or because of any breach, or attempted or alleged breach, thereof.

#### **5. Equal Employment Opportunity, Affirmative Action, Non-Discrimination**

- a. The Contractor is advised to ascertain and comply with all applicable federal, State and local statutes, ordinances, rules and regulations and, federal Executive Orders, pertaining to equal employment opportunity, affirmative action, and non-discrimination in employment.
- b. Without limiting the generality of any other term or provision of this Contract, in the event of the Contractor's non-compliance with the equal opportunity and non-discrimination clause of this Contract, or with any of such statutes, ordinances, rules, regulations or Orders, this Contract may be cancelled, terminated or suspended in whole or in part.

#### **6. Rights and Remedies of the Port Authority**

The Port Authority shall have the following rights in the event the Contractor is deemed guilty of a breach of any term whatsoever of this Contract:

- a. The right to take over and complete the Work or any part thereof as agent for and at the expense of the Contractor, either directly or through others.
- b. The right to cancel this Contract as to any or all of the Work yet to be performed.
- c. The right to specific performance, an injunction or any appropriate equitable remedy.
- d. The right to money damages.

For the purpose of this Contract, breach shall include but not be limited to the following, whether or not the time has yet arrived for performance of an obligation under this Contract: a statement by the Contractor to any representative of the Port Authority indicating that the Contractor cannot or will not perform any one or more of its obligations under this Contract; any act or omission of the Contractor or any other occurrence which makes it improbable at the time that it will be able to perform any one or more of its obligations under this Contract; any suspension of or failure to proceed with any part of the Work by the Contractor which makes it improbable at the time that it will be able to perform any one or more of its obligations under this Contract.

The enumeration in this numbered clause or elsewhere in this Contract of specific rights and remedies of the Port Authority shall not be deemed to limit any other rights or remedies which the Authority would have in the absence of such enumeration; and no exercise by the Authority of any right or remedy shall operate as a waiver of any other of its rights or remedies not inconsistent therewith or to estop it from exercising such other rights or remedies.

#### **7. Rights and Remedies of the Contractor**

Inasmuch as the Contractor can be adequately compensated by money damages for any breach of this Contract which may be committed by the Port Authority, the Contractor expressly agrees that no default, act or omission of the Port Authority shall constitute a material breach of this Contract, entitling the Contractor to cancel or rescind this Contract or to suspend or abandon performance.

#### **8. Submission To Jurisdiction**

The Contractor hereby irrevocably submits itself to the jurisdiction of the Courts of the State of New York and New Jersey, in regard to any controversy arising out of, connected with, or in any way concerning this Contract.

The Contractor agrees that the service of process on the Contractor in relation to such jurisdiction may be made, at the option of the Port Authority, either by registered or certified mail addressed to it at the address

of the Contractor indicated on the signature sheet, or by actual personal delivery to the Contractor, if the Contractor is an individual, to any partner if the Contractor be a partnership or to any officer, director or managing or general agent if the Contractor be a corporation.

Such service shall be deemed to be sufficient when jurisdiction would not lie because of the lack of basis to serve process in the manner otherwise provided by law. In any case, however, process may be served as stated above whether or not it might otherwise have been served in a different manner.

## **9. Harmony**

- a. The Contractor shall not employ any persons or use any labor, or use or have any equipment, or permit any condition to exist which shall or may cause or be conducive to any labor complaints, troubles, disputes or controversies at the Facility which interfere or are likely to interfere with the operation of the Port Authority or with the operations of lessees, licensees or other users of the Facility or with the operations of the Contractor under this Contract.

The Contractor shall immediately give notice to the Port Authority (to be followed by written notices and reports) of any and all impending or existing labor complaints, troubles, disputes or controversies and the progress thereof. The Contractor shall use its best efforts to resolve any such complaint, trouble, dispute or controversy. If any type of strike, boycott, picketing, work stoppage, slowdown or other labor activity is directed against the Contractor at the Facility or against any operations of the Contractor under this Contract, whether or not caused by the employees of the Contractor, and if any of the foregoing, in the opinion of the Port Authority, results or is likely to result in any curtailment or diminution of the services to be performed hereunder or to interfere with or affect the operations of the Port Authority, or to interfere with or affect the operations of lessees, licensees, or other users of the Facility or in the event of any other cessation or stoppage of operations by the Contractor hereunder for any reason whatsoever, the Port Authority shall have the right at any time during the continuance thereof to suspend the operations of the Contractor under this Contract, and during the period of the suspension the Contractor shall not perform its services hereunder and the Port Authority shall have the right during said period to itself or by any third person or persons selected by it to perform said services of the Contractor using the equipment which is used by the Contractor in its operations hereunder as the Port Authority deems necessary and without cost to the Port Authority. During such time of suspension, the Contractor shall not be entitled to any compensation. Any flat fees, including management fees, shall be prorated. Prior to the exercise of such right by the Port Authority, it shall give the Contractor notice thereof, which notice may be oral. No exercise by the Port Authority of the rights granted to it in the above subparagraph shall be or be deemed to be a waiver of any rights of termination or revocation contained in this Contract or a waiver of any rights or remedies which may be available to the Port Authority under this Contract or otherwise.

- b. During the time that the Contractor is performing the Contract, other persons may be engaged in other operations on or about the worksite including Facility operations, pedestrian, bus and vehicular traffic and other Contractors performing at the worksite, all of which shall remain uninterrupted.

The Contractor shall so plan and conduct its operations as to work in harmony with others engaged at the site and not to delay, endanger or interfere with the operation of others (whether or not specifically mentioned above), all to the best interests of the Port Authority and the public as may be directed by the Port Authority.

## **10. Claims of Third Persons**

The Contractor undertakes to pay all claims lawfully made against it by subcontractors, suppliers and workers, and all claims lawfully made against it by other third persons arising out of or in connection with or because of the performance of this Contract and to cause all subcontractors to pay all such claims

lawfully made against them.

### **11. No Third Party Rights**

Nothing contained in this Contract is intended for the benefit of third persons, except to the extent that the Contract specifically provides otherwise by use of the words "benefit" or "direct right of action."

### **12. Provisions of Law Deemed Inserted**

Each and every provision of law and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included therein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

### **13. Costs Assumed By The Contractor**

It is expressly understood and agreed that all costs of the Contractor of whatever kind or nature and whether imposed directly upon the Contractor under the terms and provisions hereof or in any other manner whatsoever because of the requirements of the operation of the service or otherwise under this Agreement shall be borne by the Contractor or without compensation or reimbursement from the Port Authority, except as specifically set forth in this Agreement. The entire and complete cost and expense of the Contractor's services and operations hereunder shall be borne solely by the Contractor and under no circumstances shall the Port Authority be liable to any third party (including the Contractor's employees) for any such costs and expenses incurred by the Contractor and under no circumstances shall the Port Authority be liable to the Contractor for the same, except as specifically set forth in this Section.

### **14. Default, Revocation or Suspension of Contract**

a. If one or more of the following events shall occur:

1. If fire or other cause shall destroy all or a substantial part of the Facility.
2. If any governmental agency shall condemn or take a temporary or permanent interest in all or a substantial part of the Facility, or all of a part of the Port Authority's interest herein;

then upon the occurrence of such event or at any time thereafter during the continuance thereof, the Port Authority shall have the right on twenty-four (24) hours written notice to the Contractor to revoke this Contract, such revocation to be effective upon the date and time specified in such notice.

In such event this Contract shall cease and expire on the effective date of revocation as if said date were the date of the expiration of this Contract. Such revocation shall not, however, relieve the Contractor of any liabilities or obligations hereunder which shall have accrued on or prior to the effective date of revocation.

b. If one or more of the following events shall occur:

1. The Contractor shall become insolvent, or shall take the benefit of any present or future insolvency statute, or shall make a general assignment for the benefit of creditors, or file a voluntary petition in bankruptcy or a petition or answer seeking an arrangement or its reorganization or the readjustment of its indebtedness under the federal bankruptcy laws or under any other law or statute of the United States or of any State thereof, or consent to the appointment of a receiver, trustee, or liquidator of all or substantially all its property; or
2. By order or decree of a court the Contractor shall be adjudged bankrupt or an order shall be made approving a petition filed by any of the creditors, or, if the Contractor is a corporation, by any of the stockholders of the Contractor, seeking its reorganization or the readjustment of

its indebtedness under the federal bankruptcy laws or under any law or statute of the United States or of any State thereof; or

3. A petition under any part of the federal bankruptcy laws or an action under any present or future insolvency law or statute shall be filed against the Contractor and shall not be dismissed within thirty (30) days after the filing thereof; or
4. The interest of the Contractor under this Contract shall be transferred to, passed to or devolve upon, by operation of law or otherwise, any other person, firm or corporation, or
5. The Contractor, if a corporation, shall, without the prior written approval of the Port Authority, become a surviving or merged corporation in a merger, a constituent corporation in a consolidation, or a corporation in dissolution; or
6. If the Contractor is a partnership, and the said partnership shall be dissolved as the result of any act or omission of its copartners or any of them, or by operation of law or the order or decree of any court having jurisdiction, or for any other reason whatsoever; or
7. By or pursuant to, or under authority of any legislative act, resolution or rule, or any order or decree of any court or governmental board, agency or officer having jurisdiction, a receiver, trustee, or liquidator shall take possession or control of all or substantially all of the property of the Contractor and such possession or control of all or substantially all of the property of the Contractor and shall continue in effect for a period of fifteen (15) days;

then upon the occurrence of any such event or at any time thereafter during the continuance thereof, the Port Authority shall have the right upon five (5) days notice to the Contractor to terminate this Contract and the rights of the Contractor hereunder; termination to be effective upon the date and time specified in such notice as if said date were the date of the expiration of this Contract. Termination shall not relieve the Contractor of any liabilities or obligations hereunder which have accrued on or prior to the effective date of termination.

c. If any of the following shall occur:

1. The Contractor shall cease, abandon any part of the service, desert, stop or discontinue its services in the premises for any reason whatsoever and regardless of the fault of the Contractor; or
2. The Contractor shall fail to keep, perform and observe each and every other promise, covenant and agreement set forth in this Contract on its part to be kept, performed or observed, within five (5) days after receipt of notice of default thereunder from the Port Authority (except where fulfillment of its obligations requires activity over a greater period of time, and the Contractor shall have commenced to perform whatever may be required for fulfillment within five (5) days after receipt of notice and continues such performance without interruption except for causes beyond its control);

then upon the occurrence of any such event or during the continuance thereof, the Port Authority shall have the right on twenty four (24) hours notice to the Contractor to terminate this Contract and the rights of the Contractor hereunder, termination to be effective upon the date and time specified in such notice. Termination shall not relieve the Contractor of any liabilities which shall have accrued on or prior to the effective date of termination.

d. If any of the events enumerated in this Section shall occur prior to commencement date of this Contract the Port Authority upon the occurrence of any such event or any time thereafter during the continuance thereof by twenty-four (24) hours notice may terminate or suspend this Contract and the rights of the Contractor hereunder, such termination or suspension to be effective upon the date specified in such notice.

e. No payment by the Port Authority of any monies to the Contractor for any period or periods after

default of any of the terms, covenants or conditions hereof to be performed, kept and observed by the Contractor and no act or thing done or omitted to be done by the Port Authority shall be deemed to be a waiver of the right of the Port Authority to terminate this Contract or of any other right or remedies to which the Port Authority may be entitled because of any breach thereof. No waiver by the Port Authority of any default on the part of the Contractor in the performance of any of the terms, covenants and conditions hereof to be performed, kept or observed by the Contractor shall be or be construed to be a waiver by the Port Authority of any other subsequent default in the performance of any of the said terms, covenants and conditions.

- f. In addition to all other rights of revocation or termination hereunder and notwithstanding any other provision of this Contract the Port Authority may terminate this Contract and the rights of the Contractor hereunder without cause at any time upon five (5) days written notice to the Contractor and in such event this Contract shall cease and expire on the date set forth in the notice of termination as fully and completely as though such dates were the original expiration date hereof and if such effective date of termination is other than the last day of the month, the amount of the compensation due to the Contractor from the Port Authority shall be prorated when applicable on a daily basis. Such cancellation shall be without prejudice to the rights and obligations of the parties arising out of portions already performed but no allowance shall be made for anticipated profits.
- g. Any right of termination contained in this paragraph, shall be in addition to and not in lieu of any and all rights and remedies that the Port Authority shall have at law or in equity consequent upon the Contractor's breach of this Contract and shall be without prejudice to any and all such other rights and remedies. It is hereby specifically agreed and understood that the exercise by the Port Authority of any right of termination set forth in this paragraph shall not be or be deemed to be an exercise by the Port Authority of an election of remedies so as to preclude the Port Authority from any right to money damages it may have for the period prior to the effective date of termination to the original expiration date of the Contract, and this provision shall be deemed to survive the termination of this Contract as aforesaid.
- h. If (1) the Contractor fails to perform any of its obligations under this Contract or any other agreement between the Port Authority and the Contractor (including its obligation to the Port Authority to pay any claim lawfully made against it by any supplier, subcontractor or worker or other person which arises out of or in connection with the performance of this Contract or any other agreement with the Port Authority) or (2) any claim (just or unjust) which arises out of or in connection with this Contract or any other agreement between the Port Authority and the Contractor is made against the Port Authority or (3) any subcontractor under this Contract or any other agreement between the Port Authority and the Contractor fails to pay any claims lawfully made against it by any supplier, subcontractor, worker or other third person which arises out of or in connection with this Contract or any other agreement between the Port Authority and the Contractor or if in the opinion of the Port Authority any of the aforesaid contingencies is likely to arise, then the Port Authority shall have the right, in its discretion, to withhold out of any payment (final or otherwise) such sums as the Port Authority may deem ample to protect it against delay or loss or to assure the payment of just claims of third persons, and to apply such sums in such manner as the Port Authority may deem proper to secure such protection or satisfy such claims. All sums so applied shall be deducted from the Contractor's compensation. Omission by the Port Authority to withhold out of any payment, final or otherwise, a sum for any of the above contingencies, even though such contingency has occurred at the time of such payment, shall not be deemed to indicate that the Port Authority does not intend to exercise its right with respect to such contingency. Neither the above provisions for rights of the Port Authority to withhold and apply monies nor any exercise or attempted exercise of, or omission to exercise, such rights by the Port Authority shall create any obligation of any kind to such supplier, subcontractors, worker or other third persons. If, however, the payment of any amount due the Contractor shall be improperly delayed, the Port Authority shall pay the Contractor interest thereon at the rate of 6% per annum for the period of the

delay, it being agreed that such interest shall be in lieu of and in liquidation of any damages to the Contractor because of such delay.

- i. If the Port Authority has paid any sum or has incurred any obligation or expense which the Contractor has agreed to pay or reimburse the Port Authority, or if the Port Authority is required or elects to pay any sum or sums or incurs any obligations or expense by reason of the failure, neglect or refusal of the Contractor to perform or fulfill any one or more of the conditions, covenants, or agreements contained in this Contract, or as a result of an act of omission of the Contractor contrary to the said conditions, covenants and agreements, the Contractor shall pay to the Port Authority the sum or sums so paid or expense so incurred, including all interests, costs and damages, promptly upon the receipt of the Port Authority's statement therefore. The Port Authority may, however, in its discretion, elect to deduct said sum or sums from any payment payable by it to the Contractor.
- j. If the Port Authority pays any installment to the Contractor without reducing said installment as provided in this Contract, it may reduce any succeeding installment by the proper amount, or it may bill the Contractor for the amount by which the installment paid should have been reduced and the Contractor shall pay to the Port Authority any such amount promptly upon receipt of the Port Authority's statement therefore.
- k. The Port Authority shall also have the rights set forth above in the event the Contractor shall become insolvent or bankrupt or if his affairs are placed in the hands of a receiver, trustee or assignee for the benefit of creditors.

#### **15. Sales or Compensating Use Taxes**

Purchases of services and tangible personal property by the Port Authority in the States of New York and New Jersey are generally exempt from state and local sales and compensating use taxes, and from most federal excises (Taxes). Therefore, the Port Authority's purchase of the Contractor's services under this Contract is exempt from Taxes. Accordingly, the Contractor must not include Taxes in the price charged to the Port Authority for the Contractor's services under this Contract. The Contractor certifies that there are no such taxes included in the prices for this Contract. The Contractor shall retain a copy of this Contract to substantiate the exempt sale.

The compensation set forth in this Agreement is the complete compensation to the Contractor, and the Port Authority will not separately reimburse the Contractor for any taxes unless specifically set forth in this Agreement.

#### **16. No Estoppel or Waiver**

The Port Authority shall not be precluded or estopped by any payment, final or otherwise, issued or made under this Contract, from showing at any time the true amount and character of the services performed, or from showing that any such payment is incorrect or was improperly issued or made; and the Port Authority shall not be precluded or estopped, notwithstanding any such payment, from recovering from the Contractor any damages which it may sustain by reason of any failure on its part to comply strictly with this Contract, and any moneys which may be paid to it or for its account in excess of those to which it is lawfully entitled.

No cancellation, rescission or annulment hereof, in whole or as to any part of the services to be provided hereunder, or because of any breach hereof, shall be deemed a waiver of any money damages to which the Port Authority may be entitled because of such breach. Moreover, no waiver by the Authority of any breach of this Contract shall be deemed to be a waiver of any other or any subsequent breach.

#### **17. Records and Reports**

The Contractor shall set up, keep and maintain (and shall cause its subcontractors to set up, keep and maintain) in accordance with generally accepted accounting practice during the term of this Agreement and

any extensions thereof and for three years after the expiration, termination or revocation thereof, records, payroll records and books of account (including, but not limited to, records of original entry and daily forms, payroll runs, cancelled checks, time records, union agreements, contracts with health, pension and other third party benefit providers) recording all transactions of the Contractor (and its subcontractors), at, through or in any way connected with or related to the operations of the Contractor (and its subcontractors) hereunder, including but not limited to all matters relating to the charges payable to the Contractor hereunder, all wages and supplemental benefits paid or provided to or for its employees (and its subcontractors' employees) and such additional information as the Port Authority may from time to time and at any time require, and also including, if appropriate, recording the actual number of hours of service provided under the Contract, and keeping separate records thereof which records and books of account shall be kept at all times within the Port District. The Contractor shall permit (and cause its subcontractors to permit) in ordinary business hours during the term of this Agreement including any extensions thereof and for three years thereafter the examination and audit by the officers, employees and representatives of the Port Authority of such records and books of account and also any records and books of account of any company which is owned or controlled by the Contractor, or which owns or controls the Contractor if said company performs services similar to those performed by the Contractor anywhere in the Port District. However, if within the aforesaid three year period the Port Authority has notified the Contractor in writing of a pending claim by the Port Authority under or in connection with this Contract to which any of the aforesaid records and documents of the Contractor or of its subcontractors relate either directly or indirectly, then the period of such right of access shall be extended to the expiration of six years from the date of final payment with respect to the records and documents involved.

Upon request of the Port Authority, the Contractor shall furnish or provide access to the federal Form I-9 (Employment Eligibility Verification) for each individual performing work under this Contract. This includes citizens and noncitizens.

The Contractor (and its subcontractors) shall, at its own expense, install, maintain and use such equipment and devices for recording the labor hours of the service as shall be appropriate to its business and necessary or desirable to keep accurate records of the same and as the general manager or the Facility Manager may from time to time require, and the Contractor (and its subcontractors) shall at all reasonable times allow inspection by the agents and employees of the Port Authority of all such equipment or devices.

- a. The Contractor hereby further agrees to furnish to the Port Authority from time to time such written reports in connection with its operations hereunder as the Port Authority may deem necessary or desirable. The format of all forms, schedules and reports furnished by the Contractor to the Port Authority shall be subject to the continuing approval of the Port Authority.
- b. No provision in this Contract giving the Port Authority a right of access to records and documents is intended to impair or affect any right of access to records and documents which they would have in the absence of such provision. Additional record keeping may be required under other sections of this Contract.

## **18. General Obligations**

- a. Except where expressly required or permitted herein to be oral, all notices, requests, consents and approvals required to be given to or by either party shall be in writing and all such notices, requests, consents and approvals shall be personally delivered to the other party during regular business hours or forwarded to such party by United States certified mail, return receipt requested, addressed to the other party at its address hereinbefore or hereafter provided. Until further notice the Contractor hereby designates the address shown on the bottom of the Contractors Signature Sheet as their address to which such notices, requests, consents, or approvals may be forwarded. All notices, requests, consents, or approvals of the Contractor shall be forwarded to the Manager at the Facility.
- b. The Contractor shall comply with the provisions of all present and future federal, state and municipal laws, rules, regulations, requirements, ordinances, orders and directions which pertain to its operations

under this Contract and which affect the Contract or the performance thereof and those engaged therein as if the said Contract were being performed for a private corporation, except where stricter requirements are contained in the Contract in which case the Contract shall control. The Contractor shall procure for itself all licenses, certificates, permits or other authorization from all governmental authorities, if any, having jurisdiction over the Contractor's operations hereunder which may be necessary for the Contractor's operations. The Contractor's obligation to comply with governmental requirements are not to be construed as a submission by the Port Authority to the application to itself of such requirements.

- c. The Contractor shall pay all taxes, license, certification, permit and examination fees and excises which may be assessed on its property or operations hereunder or income therefrom, and shall make all applications, reports and returns required in connection therewith.
- d. The Contractor shall, in conducting its operations hereunder, take all necessary precautions to protect the general environment and to prevent environmental pollution, contamination, damage to property and personal injury. In the event the Contractor encounters material reasonably believed to be asbestos, polychlorinated biphenyl (PCB) or any other hazardous material, in conducting its operations hereunder, the Contractor shall immediately stop Work in the area affected and report the condition in writing to the Manager. Work in the affected area shall not thereafter be resumed by the Contractor except upon the issuance of a written order to that effect from the Manager.
- e. The Contractor shall promptly observe, comply with and execute the provisions of any and all present and future rules and regulations, requirements, standard orders and directions of the American Insurance Association, the Insurance Services Office, National Fire Protection Association, and any other body or organization exercising similar functions which may pertain or apply to the Contractor's operations hereunder.

The Contractor shall not do or permit to be done any act which:

- 1. will invalidate or be in conflict with any fire insurance policies covering the Facility or any part thereof or upon the contents of any building thereon; or
  - 2. will increase the rate of any fire insurance, extended coverage or rental insurance on the Facility or any part thereof or upon the contents of any building thereon; or
  - 3. in the opinion of the Port Authority will constitute a hazardous condition, so as to increase the risk normally attendant upon the operations contemplated by this Contract; or
  - 4. may cause or produce in the premises, or upon the Facility any unusual, noxious or objectionable smoke, gases, vapors, odors; or
  - 5. may interfere with the effectiveness or accessibility of the drainage and sewerage system, fire protection system, sprinkler system, alarm system, fire hydrants and hoses, if any, installed or located or to be installed or located in or on the Facility; or
  - 6. shall constitute a nuisance in or on the Facility or which may result in the creation, commission or maintenance of a nuisance in or on the Facility.
- f. If by reason of the Contractor's failure to comply with the provisions of this Section and provided the Port Authority has given the Contractor five (5) days written notice of its failure and the Contractor shall not have cured said failure within said five (5) days, any fire insurance, extended coverage or rental insurance rate on the Facility or any part thereof or upon the contents of any building thereon shall at any time be higher than it otherwise would be, then the Contractor shall on demand pay the Port Authority that part of all fire insurance, extended coverage or rental insurance premiums paid or payable by the Port Authority which shall have been charged because of such violations by the Contractor.
  - g. The Contractor shall conduct its operations hereunder so as not to endanger, unreasonably interfere with, or delay the operations or activities of any tenants or occupants on the premises or the Facility and, moreover, shall use the same degree of care in performance on the premises as would be required by law of the Port Authority and shall conduct operations hereunder in a courteous, efficient and safe manner.
  - h. The Contractor shall provide such equipment and medical facilities as may be necessary to supply first

aid service in case of accidents to its personnel who may be injured in the furnishing of service hereunder. The Contractor shall maintain standing arrangements for the removal and hospital treatment of any of its personnel who may be injured.

## **19. Assignments and Subcontracting**

- a. The Contractor shall not sell, transfer, mortgage, pledge, subcontract or assign this Contract or any part thereof or any of the rights granted hereunder or any moneys due or to become due to it hereunder or enter into any contract requiring or permitting the doing of anything hereunder by an independent Contractor, without the prior written approval of the Port Authority, and any such sale, transfer, mortgage, pledge, subcontract, assignment or contract without such prior written approval shall be void as to the Port Authority.
- b. All subcontractors who provide permanent personnel to the Contractor for work under this Contract shall be given written notice to comply with all requirements of the Contract. The Contractor shall be responsible and liable for the performance and acts of each subcontractor.
- c. All persons to whom the Contractor sublets services shall be deemed to be its agents and no subletting or approval thereof shall be deemed to release this Contractor from its obligations under this Contract or to impose any obligations on the Port Authority to such subcontractor or to give the subcontractor any rights against the Port Authority.

## **20. Indemnification and Risks Assumed By The Contractor**

To the extent permitted by law, the Contractor shall indemnify and hold harmless the Port Authority, its Commissioners, officers, representatives and employees from and against all claims and demands, just or unjust, of third persons (including Contractor's employees, employees, officers, and agents of the Port Authority) arising out of or in any way connected or alleged to arise out of or alleged to be in any way connected with the Contract and all other services and activities of the Contractor under this Contract and for all expenses incurred by it and by them in the defense, settlement or satisfaction thereof, including without limitation thereto, claims and demands for death, for personal injury or for property damage, direct or consequential, whether they arise from the acts or omissions of the Contractor, the Port Authority, third persons (including Contractor's employees, employees, officers, and agents of the Port Authority), or from the acts of God or the public enemy, or otherwise, including claims and demands of any local jurisdiction against the Port Authority in connection with this Contract.

The Contractor assumes the following risks, whether such risks arise from acts or omissions (negligent or not) of the Contractor, the Port Authority or third persons (including Contractor's employees, employees, officers, and agents of the Port Authority) or from any other cause, excepting only risks occasioned solely by affirmative willful acts of the Port Authority done subsequent to the opening of proposals on this Contract, and shall to the extent permitted by law indemnify the Port Authority for all loss or damage incurred in connection with such risks:

- a. The risk of any and all loss or damage to Port Authority property, equipment (including but not limited to automotive and/or mobile equipment), materials and possessions, on or off the premises, the loss or damage of which shall arise out of the Contractor's operations hereunder. The Contractor shall if so directed by the Port Authority, repair, replace or rebuild to the satisfaction of the Port Authority, any and all parts of the premises or the Facility which may be damaged or destroyed by the acts or omissions of the Contractor, its officers, agents, or employees and if the Contractor shall fail so to repair, replace, or rebuild with due diligence the Port Authority may, at its option, perform any of the foregoing work and the Contractor shall pay to the Port Authority the cost thereof.
- b. The risk of any and all loss or damage of the Contractor's property, equipment (including but not limited to automotive and/or mobile equipment) materials and possessions on the Facility.
- c. The risk of claim, whether made against the Contractor or the Port Authority, for any and all loss or damages occurring to any property, equipment (including but not limited to automotive and/or mobile

equipment), materials and possessions of the Contractor's agents, employees, materialmen and others performing work hereunder.

- d. The risk of claims for injuries, damage or loss of any kind just or unjust of third persons arising or alleged to arise out of the performance of work hereunder, whether such claims are made against the Contractor or the Port Authority.

If so directed, the Contractor shall at its own expense defend any suit based upon any such claim or demand, even if such suit, claim or demand is groundless, false or fraudulent, and in handling such shall not, without obtaining express advance permission from the General Counsel of the Port Authority, raise any defense involving in any way the jurisdiction of the tribunal over the person of the Port Authority, the immunity of the Port Authority, its Commissioners, officers, agents or employees, the governmental nature of the Port Authority or the provision of any statutes respecting suits against the Port Authority.

Neither the requirements of the Port Authority under this Contract, nor of the Port Authority of the methods of performance hereunder nor the failure of the Port Authority to call attention to improper or inadequate methods or to require a change in the method of performance hereunder nor the failure of the Port Authority to direct the Contractor to take any particular precaution or other action or to refrain from doing any particular thing shall relieve the Contractor of its liability for injuries to persons or damage to property or environmental impairment arising out of its operations.

## **21. Approval of Methods**

Neither the approval of the Port Authority of the methods of furnishing services hereunder nor the failure of the Port Authority to call attention to improper or inadequate methods or to require a change in the method of furnishing services hereunder, nor the failure of the Port Authority to direct the Contractor to take any particular precautions or to refrain from doing any particular thing shall relieve the Contractor of its liability for injuries to persons or damage to property or environmental impairment arising out of its operations.

## **22. Safety and Cleanliness**

- a. The Contractor shall, in the furnishing of services hereunder, exercise every precaution to prevent injury to person or damage to property or environmental impairment and avoid inconvenience to the occupants of or any visitors to the Facility. The Contractor shall, without limiting the generality hereof, place such personnel, erect such barricades and railings, give such warnings, display such lights, signals or signs, place such cones and exercise precautions as may be necessary, proper or desirable.
- b. The Contractor shall in case of unsafe floor conditions due to construction, wetness, spillage, sickness and all other types of hazardous conditions proceed to rope off the unsafe area and place appropriate warnings signs to prevent accidents from occurring. The Contractor shall clean said area to the satisfaction of the Manager.
- c. The Contractor shall at all times maintain in a clean and orderly condition and appearance any and all facilities provided by the Port Authority for the Contractor's operations, and all fixtures, sink closets, equipment, and other personal property of the Port Authority which are located in said facilities.

## **23. Accident Reports**

The Contractor shall promptly report in writing to the Manager of the Facility and to the Deputy Chief, Litigation Management of the Port Authority all accidents whatsoever arising out of or in connection with its operations hereunder and which result in death or injury to persons or damage to property, setting forth such details thereof as the Port Authority may desire. In addition, if death or serious injury or serious damage is caused, such accidents shall be immediately reported by telephone to the aforesaid representatives of the Port Authority.

## **24. Trash Removal**

The Contractor shall remove daily from the Facility by means provided by the Contractor all garbage, debris and other waste material (solid or liquid) arising out of or in connection with its operations hereunder, and any such garbage, debris and other waste material not immediately removed shall be temporarily stored in a clear and sanitary condition, approved by the Facility Manager and shall be kept covered except when filling or emptying them. The Contractor shall exercise care in removing such garbage, debris and other waste materials from the Facility. The manner of such storage and removal shall always be subject in all respects to the continual approval of the Port Authority. No equipment or facilities of the Port Authority shall be used in such removal unless with its prior consent in writing. No such garbage, debris or other waste materials shall be or be permitted to be thrown, discharged or disposed into or upon the waters at or bounding the Facility.

## **25. Lost and Found Property**

The Contractor shall instruct its personnel that all items of personal property found by the Contractor's employees at the Site must be turned in to the Port Authority and a receipt will be issued therefor.

## **26. Property of the Contractor**

- a. All property of the Contractor at the Site by virtue of this Contract shall be removed on or before the expiration or sooner termination or revocation of this Contract.
- b. If the Contractor shall fail to remove its property upon the expiration, termination or revocation of this Contract the Port Authority may, at its option, dispose of such property as waste or as agent for the Contractor and at the risk and expense of the Contractor, remove such property to a public warehouse, or may retain the same in its own possession, and in either event after the expiration of thirty (30) days may sell the same in accordance with any method deemed appropriate; the proceeds of any such sale shall be applied first, to the expenses of sale and second, to any sums owed by the Contractor to the Port Authority; any balance remaining shall be paid to the Contractor. Any excess of the total cost of removal, storage and sale and other costs incurred by the Port Authority as a result of such failure of performance by the Contractor over the proceeds of sale shall be paid by the Contractor to the Port Authority upon demand.

## **27. Modification of Contract**

This Contract may not be changed except in writing signed by the Port Authority and the Contractor. The Contractor agrees that no representation or warranties shall be binding upon the Port Authority unless expressed in writing in this Contract.

## **28. Invalid Clauses**

If any provision of this Contract shall be such as to destroy its mutuality or to render it invalid or illegal, then, if it shall not appear to have been so material that without it the Contract would not have been made by the parties, it shall not be deemed to form part thereof but the balance of the Contract shall remain in full force and effect.

## **29. Approval of Materials, Supplies and Equipment**

Only Port Authority approved materials, supplies, and equipment are to be used by the Contractor in performing the Work hereunder. Inclusion of chemical containing materials or supplies on the Port Authority Approved Products List – Environmental Protection Supplies constitutes approval. The list may be revised from time to time and at any time by the Port Authority and it shall be incumbent upon the Contractor to obtain the most current list from the Manager of the Facility.

At anytime during the Solicitation, pre-performance or performance periods, the Contractor may propose the use of an alternate product or products to those on the Approved Products List – Environmental Protection Supplies, which product(s) shall be subject to review and approval by the Port Authority. Any alternate

product so approved by the Port Authority may be used by the Contractor in performing the Services hereunder. Until such approval is given, only products on the Approved Products List – Environmental Protection Supplies may be used.

### **30. Intellectual Property**

The right to use all patented materials, appliances, processes of manufacture or types of construction, trade and service marks, copyrights and trade secrets, collectively hereinafter referred to as “Intellectual Property Rights”, in the performance of the work, shall be obtained by the Contractor without separate or additional compensation. Where the services under this Agreement require the Contractor to provide materials, equipment or software for the use of the Port Authority or its employees or agents, the Port Authority shall be provided with the Intellectual Property Rights required for such use without further compensation than is provided for under this Agreement.

The Contractor shall indemnify the Port Authority against and save it harmless from all loss and expense incurred as a result of any claims in the nature of Intellectual Property Rights infringement arising out of the Contractor’s or Port Authority’s use, in accordance with the above immediately preceding paragraph, of any Intellectual Property. The Contractor, if requested, shall conduct all negotiations with respect to and defend such claims. If the Contractor or the Port Authority, its employees or agents be enjoined either temporarily or permanently from the use of any subject matter as to which the Contractor is to indemnify the Port Authority against infringement, then the Port Authority may, without limiting any other rights it may have, require the Contractor to supply temporary or permanent replacement facilities approved by the Manager, and if the Contractor fails to do so the Contractor shall, at its expense, remove all such enjoined facilities and refund the cost thereof to the Port Authority or take such steps as may be necessary to insure compliance by the Contractor and the Port Authority with said injunction, to the satisfaction of the Port Authority.

In addition, the Contractor shall promptly and fully inform the Director in writing of any intellectual property rights disputes, whether existing or potential, of which it has knowledge, relating to any idea, design, method, material, equipment or any other matter related to the subject matter of this Agreement or coming to its attention in connection with this Agreement.

### **31. Contract Records and Documents – Passwords and Codes**

When the performance of the contract services requires the Contractor to produce, compile or maintain records, data, drawings, or documents of any kind, regardless of the media utilized, then all such records, drawings, data and documents which are produced, prepared or compiled in connection with this contract, shall become the property of the Port Authority, and the Port Authority shall have the right to use or permit the use of them and any ideas or methods represented by them for any purpose and at any time without other compensation than that specifically provided herein.

When in the performance of the contract services the Contractor utilizes passwords or codes for any purpose, at any time during or after the performance of such services, upon written request by the Authority, the Contractor shall make available to the designated Authority representative all such passwords and codes.

### **32. Designated Secure Areas**

Services under the Contract may be required in designated secure areas, as the same may be designated by the Manager from time to time (“Secure Areas”). The Port Authority shall require the observance of certain security procedures with respect to Secure Areas, which may include the escort to, at, and/or from said high security areas by security personnel designated by the Contractor or any subcontractor’s personnel required to

work therein. All personnel that require access to designated secure areas who are not under positive escort by an authorized individual will be required to undergo background screening and personal identity verification.

Forty-eight (48) hours prior to the proposed performance of any work in a Secure Area, the Contractor shall notify the Manager. The Contractor shall conform to the procedures as may be established by the Manager from time to time and at any time for access to Secure Areas and the escorting of personnel hereunder. Prior to the start of work, the Contractor shall request a description from the Manager of the Secure Areas which will be in effect on the commencement date. The description of Secure Areas may be changed from time to time and at any time by the Manager during the term of the Contract.

### **33. Notification of Security Requirements**

The Authority has the responsibility of ensuring safe, reliable and secure transportation facilities, systems, and projects to maintain the well-being and economic competitiveness of the region. Therefore, the Authority reserves the right to deny access to certain documents, sensitive security construction sites and facilities (including rental spaces) to any person that declines to abide by Port Authority security procedures and protocols, any person with a criminal record with respect to certain crimes or who may otherwise poses a threat to the construction site or facility security. The Authority reserves the right to impose multiple layers of security requirements on the Contractor, its staff and subcontractors and their staffs depending upon the level of security required, or may make any amendments with respect to such requirements as determined by the Authority.

These security requirements may include but are not limited to the following:

- Execution of Port Authority Approved Non-disclosure Agreements

At the direction of the Port Authority, the Contractor shall be required to have its principals, staff and/or subcontractor(s) and their staff, execute Port Authority approved non-disclosure agreements.

- Contractor/ Subcontractor identity checks and background screening

The Port Authority's designated background screening provider may require inspection of not less than two forms of valid/current government issued identification (at least one having an official photograph) to verify staff's name and residence; screening federal, state, and/or local criminal justice agency information databases and files; screening of any terrorist identification files; access identification to include some form of biometric security methodology such as fingerprint, facial or iris scanning, or the like.

The Contractor may be required to have its staff, and any subcontractor's staff, material-men, visitors or others over whom the Contractor/subcontractor has control, authorize the Authority or its designee to perform background checks, and a personal identity verification check. Such authorization shall be in a form acceptable to the Authority. The Contractor and subcontractors may also be required to use an organization designated by the Authority to perform the background checks.

As of January 29, 2007, the Secure Worker Access Consortium (S.W.A.C.) is the only Port Authority approved provider to be used to conduct background screening and personal identity verification, except as otherwise required by federal law and/or regulation (such as the Transportation Worker Identification Credential for personnel performing in secure areas at Maritime facilities). Information about S.W.A.C., instructions, corporate enrollment, online applications, and location of processing centers can be found at <http://www.secureworker.com>, or S.W.A.C. may be contacted directly at (877) 522-7922 for more information and the latest pricing. The cost for said background checks for staff that pass and are granted a credential shall be reimbursable to the Contractor (and its subcontractors) as an out-of-pocket expense as provided herein. Staff that are rejected for a credential for any reason are not reimbursable.

- Issuance of Photo Identification Credential

No person will be permitted on or about the Authority construction site or facility (including rental spaces) without a facility-specific photo identification credential approved by the Authority. If the authority requires facility-specific identification credential for the Contractor's and the subcontractor's

staff, the Authority will supply such identification at no cost to the Contractor or its subcontractors. Such facility-specific identification credential shall remain the property of the Authority and shall be returned to the Authority at the completion or upon request prior to completion of the individual's assignment at the specific facility. It is the responsibility of the appropriate Contractor or subcontractor to immediately report to the Authority the loss of any staff member's individual facility-specific identification credential. The Contractor or subcontractor shall be billed for the cost of the replacement identification credential. Contractor's and subcontractor's staff shall display Identification badges in a conspicuous and clearly visible manner, when entering, working or leaving an Authority construction site or facility.

Employees may be required to produce not less than two forms of valid/current government issued identification having an official photograph and an original, unlaminated social security card for identify and SSN verification. Where applicable, for sensitive security construction sites or facilities, successful completion of the application, screening and identify verification for all employees of the Contractor and subcontractors shall be completed prior to being provided a S.W.A.C. ID Photo Identification credential.

- Access control, inspection, and monitoring by security guards

The Authority may provide for Authority construction site or facility (including rental spaces) access control, inspection and monitoring by Port Authority Police or Authority retained contractor security guards. However, this provision shall not relieve the Contractor of its responsibility to secure its equipment and work and that of its subconsultant/subcontractor's and service suppliers at the Authority construction site or facility (including rental spaces). In addition, the Contractor, subcontractor or service provider is not permitted to take photographs, digital images, electronic copying and/or electronic transmission or video recordings or make sketches on any other medium at the Authority construction sites or facilities (including rental spaces), except when necessary to perform the Work under this Contract, without prior written permission from the Authority. Upon request, any photograph, digital images, video recording or sketches made of the Authority construction site or facility shall be submitted to the Authority to determine compliance with this paragraph, which submission shall be conclusive and binding on the submitting entity.

- Compliance with the Port Authority Information Security Handbook

The Contract may require access to Port Authority information considered Protected Information ("PI") as defined in the Port Authority Information Security Handbook ("Handbook"), dated October, 2008, corrected as of November 14, 2013, and as may be further amended. The Handbook and its requirements are hereby incorporated into this agreement and will govern the possession, distribution and use of PI if at any point during the lifecycle of the project or solicitation it becomes necessary for the Contractor to have access to PI. Protecting sensitive information requires the application of uniform safeguarding measures to prevent unauthorized disclosure and to control any authorized disclosure of this information within the Port Authority or when released by the Port Authority to outside entities. The following is an outline of some of the procedures, obligations and directives contained in the Handbook:

- (1) require that the Contractor and subcontractors, when appropriate, sign Non-Disclosure Agreements (NDAs), or an Acknowledgment of an existing NDA, provided by the Authority as a condition of being granted access to Protected Information categorized and protected as per the Handbook;
- (2) require that individuals needing access to PI be required to undergo a background check, pursuant to the process and requirements noted in § 3.2 of the Information Security Handbook.
- (3) require Contractors and commercial enterprises to attend training to ensure security awareness regarding Port Authority information;
- (4) specific guidelines and requirements for the handling of PI to ensure that the storage and protection of PI;
- (5) restrictions on the transfer, shipping, and mailing of PI;
- (6) prohibitions on the publication, posting, modifying, copying, reproducing, republishing, uploading, transmitting, or distributing PI on websites or web pages. This may also include

- restricting persons, who either have not passed a pre-screening background check, or who have not been granted access to PI, from viewing such information;
- (7) require that PI be destroyed using certain methods, measures or technology pursuant to the requirements set forth in the Handbook;
  - (8) require the Contractor to mandate that each of its subcontractors maintain the same levels of security required of the Contractor under any Port Authority awarded contract.
  - (9) prohibit the publication, exchange or dissemination of PI developed from the project or contained in reports, except between Contractors and subcontractors, without prior approval of the Port Authority;
  - (10) require that PI only be reproduced or copied pursuant to the requirements set forth in the Handbook.

- **Audits for Compliance with Security Requirements**

The Port Authority may conduct random or scheduled examinations of business practices under this section entitled "NOTIFICATION OF SECURITY REQUIREMENTS" and the Handbook in order to assess the extent of compliance with security requirements, Protected Information procedures, protocols and practices, which may include, but not be limited to, verification of background check status, confirmation of completion of specified training, and/or a site visit to view material storage locations and protocols.

### **34. Construction In Progress**

The Contractor recognizes that construction may be in progress at the Facility and may continue throughout the term of this Contract. Notwithstanding, the Contractor shall at all times during the term hereof maintain the same standards of performance and cleanliness as prevails in non-affected areas as required by the standards hereunder.

### **35. Permit-Required Confined Space Work**

Prior to commencement of any work, the Contractor shall request and obtain from the Port Authority a description of all spaces at the facility which are permit-required confined spaces requiring issuance of an OSHA permit.

Prior to the commencement of any work in a permit-required confined space at a Port Authority facility requiring issuance of an OSHA permit, the Contractor shall contact the Manager to obtain an Authority Contractor Permit-Required Confined Space Notification form. The notification form must be filled out and submitted prior to commencing permit-required confined space work. All confined space work shall be performed in accordance with all applicable OSHA requirements. The Contractor shall provide its employees with a copy of its own company permit and shall furnish the Port Authority with a copy of the permit upon completion of the work. The Contractor must supply all equipment required for working in a confined space.

### **36. Signs**

Except with the prior written approval of the Port Authority, the Contractor shall not erect, maintain or display any signs or posters or any advertising on or about the Facility.

### **37. Vending Machines, Food Preparation**

The Contractor shall not install, maintain or operate on the Facility, or on any other Port Authority property, any vending machines without the prior written approval of the Port Authority. No foods or beverages shall be prepared or consumed at the Facility by any of the Contractor's employees except in areas as may be specifically designated by the Port Authority for such purpose.

### **38. Confidential Information/Non-Publication**

a. As used herein, confidential information shall mean all information disclosed to the Contractor or the personnel provided by the Contractor hereunder which relates to the Authority's and/or PATH's past, present, and future research, development and business activities including, but not limited to, software and documentation licensed to the Authority or proprietary to the Authority and/or PATH and all associated software, source code procedures and documentation. Confidential information shall also mean any other tangible or intangible information or materials including but not limited to computer identification numbers, access codes, passwords, and reports obtained and/or used during the performance of the Contractor's Services under this Contract.

b. Confidential information shall also mean and include collectively, as per *The Port Authority of New York & New Jersey Information Security Handbook (October 15, 2008, corrected as of November 14, 2013)*, Protected Information, Confidential Proprietary Information, Confidential Privileged Information and information that is labeled, marked or otherwise identified by or on behalf of the Authority so as to reasonably connote that such information is confidential, privileged, sensitive or proprietary in nature. Confidential Information shall also include all work product that contains or is derived from any of the foregoing, whether in whole or in part, regardless of whether prepared by the Authority or a third-party or when the Authority receives such information from others and agrees to treat such information as Confidential.

c. The Contractor shall hold all such confidential information in trust and confidence for the Authority, and agrees that the Contractor and the personnel provided by the Contractor hereunder shall not, during or after the termination or expiration of this Contract, disclose to any person, firm or corporation, nor use for its own business or benefit, any information obtained by it under or in connection with the supplying of services contemplated by this Contract. The Contractor and the personnel provided by the Contractor hereunder shall not violate in any manner any patent, copyright, trade secret or other proprietary right of the Authority or third persons in connection with their services hereunder, either before or after termination or expiration of this Contract. The Contractor and the personnel provided by the Contractor hereunder shall not willfully or otherwise perform any dishonest or fraudulent acts, breach any security procedures, or damage or destroy any hardware, software or documentation, proprietary or otherwise, in connection with their services hereunder. The Contractor shall promptly and fully inform the Director in writing of any patent, copyright, trade secret or other intellectual property rights or disputes, whether existing or potential, of which the Contractor has knowledge, relating to any idea, design, method, material, equipment or other matter related to this Contract or coming to the Contractor's attention in connection with this Contract.

d. The Contractor shall not issue nor permit to be issued any press release, advertisement, or literature of any kind, which refers to the Port Authority or to the fact that goods have been, are being or will be provided to it and/or that services have been, are being or will be performed for it in connection with this Agreement, unless the vendor first obtains the written approval of the Port Authority. Such approval may be withheld if for any reason the Port Authority believes that the publication of such information would be harmful to the public interest or is in any way undesirable.

### **39. Time is of the Essence**

Time is of the essence in the Contractor's performance of this Contract inasmuch as the Work to be performed will affect the operation of public facilities.

### **40. Holidays**

The following holidays will be observed at the Site:

New Year's Day	Labor Day
Martin Luther King Jr. Day	Columbus Day
Presidents Day	Veterans Day
Memorial Day	Thanksgiving Day
Independence Day	Day After Thanksgiving
Christmas Day	

This list is subject to periodic revision and the Contractor shall be responsible for obtaining all updated lists from the office of the Manager. If any such holiday falls on a Sunday then the next day shall be considered the holiday and/or if any such holiday falls on a Saturday then the preceding day shall be considered the holiday.

**41. Personnel Standards**

In addition to any specific personnel requirements that may be required under the clause entitled “Personnel Requirements” in the Specifications, the Contractor (and any Subcontractor) shall furnish competent and adequately trained personnel to perform the Work hereunder. If, in the opinion of the Manager, any employee so assigned is performing their functions unsatisfactorily, they shall be replaced by the Contractor within twenty-four (24) hours following the Contractor’s receipt of the Manager’s request for such replacement.

All Contractor's employees performing Work hereunder shall have the ability to communicate in the English language to the extent necessary to comprehend directions given by either the Contractor's supervisory staff or by the Manager's staff. Any employee operating a motor vehicle must have a valid driver's license.

The Contractor shall verify that employees working under this Contract in the United States are legally present in the United States and authorized to work by means of the federally required I-9 program

**42. General Uniform Requirements for Contractor’s Personnel**

In addition to any specific uniform requirements that may be required by the Specifications, uniforms must be worn at all times during which the Services are being performed hereunder. The Contractor agrees that his/her employees will present a neat, clean and orderly appearance at all times. Uniforms shall include the Contractor’s identification badge with picture ID bearing the employee’s name. All uniforms, colors, types and styles shall be subject to the prior approval of the Manager. The Contractor will also be responsible for ensuring that its employees are wearing shoes appropriate for the tasks performed. The Manager shall have the right to require removal of any employee who shall fail to wear the proper uniform and shoes, and the exercise of this right shall not limit the obligation of the Contractor to perform the Services or to furnish any required number of employees at a specific location at the Site as specified.

**43. Labor, Equipment and Materials Supplied by the Contractor**

The Contractor shall, at all times during the performance of this Contract, furnish all necessary labor, supervision, equipment and materials necessary for the prompt and efficient performance of the Work, whether such materials and equipment are actually employed in the furnishing of the Work or whether incidental thereto.

All materials used by the Contractor in furnishing Work hereunder shall be of such quality as to accomplish the purposes of this Contract and the Services to be furnished hereunder in such manner so as not to damage any part of the Site.

The Port Authority by its officers, employees and representatives shall have the right at all times to examine the supplies, materials and equipment used by the Contractor, to observe the operations of the Contractor, its

agents, servants and employees and to do any act or thing which the Port Authority may be obligated or have the right to do under this Contract or otherwise.

All equipment, materials and supplies used in the performance of this Contract required hereunder shall be used in accordance with their manufacturer's instructions.

Materials and supplies to be provided by the Contractor hereunder shall comply with OSHA and all applicable regulations.

#### **44. Contractor's Vehicles – Parking - Licenses**

At the discretion of the Manager, the Port Authority may permit the Contractor during the effective period of this Contract to park vehicle(s) used by it in its operations hereunder in such location as may from time to time or at any time be designated by the Manager. The Contractor shall comply with such existing rules, regulations and procedures as are now in force and such reasonable future rules, regulations and procedures as may hereafter be adopted by the Port Authority for the safety and convenience of persons who park automotive vehicles in any parking area at the Site or for the safety and proper persons who park automotive vehicles in any parking area at the Site or for the safety and proper identification of such vehicles, and the Contractor shall also comply with any and all directions pertaining to such parking which may be given from time to time and at any time by the Manager. Any vehicle used by the Contractor hereunder shall be marked or placarded, identifying it as the Contractor's vehicle.

#### **45. Manager's Authority**

In the performance of the Work hereunder, the Contractor shall conform to all orders, directions and requirements of the Manager and shall perform the Work hereunder to the satisfaction of the Manager at such times and places, by such methods and in such manner and sequence as he/she may require, and the Contract shall at all stages be subject to his/her inspection. The Manager shall determine the amount, quality, acceptability and fitness of all parts of the Work and shall interpret the Specifications and any orders for Extra Work. The Contractor shall employ no equipment, materials, methods or staff or personnel to which the Manager objects. Upon request, the Manager shall confirm in writing any oral order, direction, requirement or determination.

The Manager shall have the authority to decide all questions in connection with the Services to be performed hereunder. The exercise by the Manager of the powers and authorities vested in him/her by this section shall be binding and final upon the Port Authority and the Contractor.

#### **46. Price Preference**

If this solicitation has not been set aside for the purposes of making an award based on bids solicited from Port Authority certified Minority Business, Women Business or Small Business Enterprises as indicated by the bidder pre-requisites in Part II hereof, for awards of contracts, not exceeding \$1,000,000, for:

- (a) Services, a price preference of 5% is available for New York or New Jersey Small Business Enterprises (SBE); or
- (b) Services (excluding Janitorial/Cleaning Services), a price preference of 10% is available for New York or New Jersey Minority or Women Business Enterprises (M/WBE),

certified by the Port Authority by the day before the bid opening.

If the Bidder is a Port Authority certified MBE, WBE or SBE, enter the applicable date(s) certification was obtained in the space provided on the Signature Sheet attached hereto.

#### **47. M/WBE Good Faith Participation**

If specified as applicable to this Contract, the Contractor shall use every good-faith effort to provide for participation by certified Minority Business Enterprises (MBEs) and certified Women-owned Business Enterprises (WBEs) as herein defined, in all purchasing and subcontracting opportunities associated with this Contract, including purchase of equipment, supplies and labor services.

Good Faith efforts to include participation by MBEs/WBEs shall include the following:

- a. Dividing the services and materials to be procured into small portions, where feasible.
- b. Giving reasonable advance notice of specific contracting, subcontracting and purchasing opportunities to such MBEs/WBEs as may be appropriate.
- c. Soliciting services and materials from a Port Authority certified MBE/WBE or seeking MBEs/WBEs from other sources. To access the Port Authority's Directory of MBE/WBE Certified Firms go to [www.panynj.gov/supplierdiversty](http://www.panynj.gov/supplierdiversty)
- d. Ensuring that provision is made to provide progress payments to MBEs/WBEs on a timely basis.
- e. Observance of reasonable commercial standards of fair dealing in the respective trade or business.

Subsequent to Contract award, all changes to the M/WBE Participation Plan must be submitted via a modified M/WBE Participation Plan to the Manager for review and approval by the Authority's Office of Business Diversity and Civil Rights. For submittal of modifications to the M/WBE Plan, Contractors are directed to use form PA3749C, which may be downloaded at <http://www.panynj.gov/business-opportunities/become-vendor.html>. The Contractor shall not make changes to its approved M/WBE Participation Plan or substitute M/WBE subcontractors or suppliers for those named in their approved plan without the Manager's prior written approval. Unauthorized changes or substitutions, including performing the work designated for a subcontractor with the Contractor's own forces, shall be a violation of this section. Progress toward attainment of M/WBE participation goals set forth herein will be monitored throughout the duration of this Contract.

The Contractor shall also submit to the Manager, along with invoices, the Statement of Subcontractor Payments as the M/WBE Participation Report, which may be downloaded at <http://www.panynj.gov/business-opportunities/become-vendor.html>. The Statement must include the name and business address of each M/WBE subcontractor and supplier actually involved in the Contract, a description of the work performed and/or product or service supplied by each such subcontractor or supplier, the date and amount of each expenditure, and such other information that may assist the Manager in determining the Contractor's compliance with the foregoing provisions.

If, during the performance of this Contract, the Contractor fails to demonstrate good faith efforts in carrying out its M/WBE Participation Plan and the Contractor has not requested and been granted a full or partial waiver of the M/WBE participation goals set forth in this Contract, the Authority will take into consideration the Contractor's failure to carry out its M/WBE Participation Plan in its evaluation for award of future Authority contracts.

### **PART III CONTRACTOR'S INTEGRITY PROVISIONS**

#### **1. Certification of No Investigation (criminal or civil anti-trust), Indictment, Conviction, Debarment, Suspension, Disqualification and Disclosure of Other Information**

By bidding on this Contract, each Bidder and each person signing on behalf of any Bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, that the Bidder and each parent and/or affiliate of the Bidder has not

- a. been indicted or convicted in any jurisdiction;
- b. been suspended, debarred, found not responsible or otherwise disqualified from entering into any contract with any governmental agency or been denied a government contract for failure to meet standards related to the integrity of the Bidder;
- c. had a contract terminated by any governmental agency for breach of contract or for any cause

- based in whole or in part on an indictment or conviction;
- d. ever used a name, trade name or abbreviated name, or an Employer Identification Number different from those inserted in the Bid;
- e. had any business or professional license suspended or revoked or, within the five years prior to bid opening, had any sanction imposed in excess of fifty thousand dollars (\$50,000) as a result of any judicial or administrative proceeding with respect to any license held or with respect to any violation of a federal, state or local environmental law, rule or regulation;
- f. had any sanction imposed as a result of a judicial or administrative proceeding related to fraud, extortion, bribery, bid rigging, embezzlement, misrepresentation or anti-trust regardless of the dollar amount of the sanctions or the date of their imposition; and
- g. been, and is not currently, the subject of a criminal investigation by any federal, state or local prosecuting or investigative agency and/or a civil anti-trust investigation by any federal, state or local prosecuting or investigative agency, including an inspector general of a governmental agency or public authority.

**2. Non-Collusive Bidding, and Code of Ethics Certification, Certification of No Solicitation Based On Commission, Percentage, Brokerage, Contingent or Other Fees**

By bidding on this Contract, each Bidder and each person signing on behalf of any Bidder certifies, and in the case of a joint bid, each party thereto certifies as to its own organization, that

- a. the prices in its bid have been arrived at independently without collusion, consultation, communication or agreement for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
- b. the prices quoted in its bid have not been and will not be knowingly disclosed directly or indirectly by the Bidder prior to the official opening of such bid to any other bidder or to any competitor;
- c. no attempt has been made and none will be made by the Bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition;
- d. this organization has not made any offers or agreements or taken any other action with respect to any Authority employee or former employee or immediate family member of either which would constitute a breach of ethical standards under the Code of Ethics dated March 11, 2014, or as may be revised, (a copy of which is available upon request) nor does this organization have any knowledge of any act on the part of an Authority employee or former Authority employee relating either directly or indirectly to this organization which constitutes a breach of the ethical standards set forth in said Code;
- e. no person or selling agency other than a bona fide employee or bona fide established commercial or selling agency maintained by the Bidder for the purpose of securing business, has been employed or retained by the Bidder to solicit or secure this Contract on the understanding that a commission, percentage, brokerage, contingent, or other fee would be paid to such person or selling agency; and
- f. the Bidder has not offered, promised or given, demanded or accepted, any undue advantage, directly or indirectly, to or from a public official or employee, political candidate, party or party official, or any private sector employee (including a person who directs or works for a private sector enterprise in any capacity), in order to obtain, retain, or direct business or to secure any other improper advantage in connection with this Contract.
- g. no person or organization has been retained, employed or designated on behalf of the Bidder to impact any Port Authority determination with respect to (i) the solicitation, evaluation or award of this Contract, or (ii) the preparation of specifications or request for submissions in connection with this Contract.

The foregoing certifications in this Part III, Sections 1 and 2, shall be deemed to have been made by the Bidder as follows:

- \* if the Bidder is a corporation, such certification shall be deemed to have been made not only with respect to the Bidder itself, but also with respect to each parent, affiliate, director, and officer of the Bidder, as well as, to the best of the certifier's knowledge and belief, each stockholder of the Bidder with an ownership interest in excess of 10%;
- \* if the Bidder is a partnership, such certification shall be deemed to have been made not only with respect to the Bidder itself, but also with respect to each partner.

Moreover, the foregoing certifications, if made by a corporate Bidder, shall be deemed to have been authorized by the Board of Directors of the Bidder, and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of such certification as the act and deed of the corporation.

In any case where the Bidder cannot make the foregoing certifications, the Bidder shall so state and shall furnish with the signed bid a signed statement which sets forth in detail the reasons therefor. If the Bidder is uncertain as to whether it can make the foregoing certifications, it shall so indicate in a signed statement furnished with its bid, setting forth in such statement the reasons for its uncertainty. With respect to the foregoing certification in paragraph "2g", if the Bidder cannot make the certification, it shall provide, in writing, with the signed bid: (i) a list of the name(s), address(es), telephone number(s), and place(s) of principal employment of each such individual or organization; and (ii) a statement as to whether such individual or organization has a "financial interest" in this Contract, as described in the Procurement Disclosure Policy of the Authority (a copy of which is available upon request to the Chief Procurement Officer of the Procurement Department of the Authority). Such disclosure is to be updated, as necessary, up to the time of award of this Contract. As a result of such disclosure, the Port Authority shall take appropriate action up to and including a finding of non-responsibility.

Failure to make the required disclosures shall lead to administrative actions up to and including a finding of non-responsiveness or non-responsibility.

Notwithstanding that the Bidder may be able to make the foregoing certifications at the time the bid is submitted, the Bidder shall immediately notify the Authority in writing during the period of irrevocability of bids and the term of the Contract, if Bidder is awarded the Contract, of any change of circumstances which might under this clause make it unable to make the foregoing certifications, might render any portion of the certifications previously made invalid, or require disclosure. The foregoing certifications or signed statement shall be deemed to have been made by the Bidder with full knowledge that they would become a part of the records of the Authority and that the Authority will rely on their truth and accuracy in awarding and continuing this Contract. In the event that the Authority should determine at any time prior or subsequent to the award of this Contract that the Bidder has falsely certified as to any material item in the foregoing certifications, has failed to immediately notify the Port Authority of any change in circumstances which might make it unable to make the foregoing certifications, might render any portion of the certifications previously made invalid, or require disclosure, or has willfully or fraudulently furnished a signed statement which is false in any material respect, or has not fully and accurately represented any circumstance with respect to any item in the foregoing certifications required to be disclosed, the Authority may determine that the Bidder is not a responsible Bidder with respect to its bid on the Contract or with respect to future bids on Authority contracts and may exercise such other remedies as are provided to it by the Contract with respect to these matters. In addition, Bidders are advised that knowingly providing a false certification or statement pursuant hereto may be the basis for prosecution for offering a false instrument for filing (see e.g. New York Penal Law, Section 175.30 et seq.). Bidders are also advised that the inability to make such certification will not in and of itself disqualify a Bidder, and that in each instance the Authority will evaluate the reasons therefor provided by the Bidder. Under certain circumstances the Bidder may be required as a condition of Contract award to enter into a Monitoring Agreement under which it will be required to take certain specified actions, including compensating an independent Monitor to be selected by the Port Authority, said Monitor to be charged with, among other things, auditing the actions of the Bidder to determine whether its business practices and

relationships indicate a level of integrity sufficient to permit it to continue business with the Port Authority.

### **3. Bidder Eligibility for Award of Contracts - Determination by an Agency of the State of New York or New Jersey Concerning Eligibility to Receive Public Contracts**

Bidders are advised that the Authority has adopted a policy to the effect that in awarding its contracts it will honor any determination by an agency of the State of New York or New Jersey that a Bidder is not eligible to bid on or be awarded public contracts because the Bidder has been determined to have engaged in illegal or dishonest conduct or to have violated prevailing rate of wage legislation.

The policy permits a Bidder whose ineligibility has been so determined by an agency of the State of New York or New Jersey to submit a bid on a Port Authority contract and then to establish that it is eligible to be awarded a contract on which it has bid because (i) the state agency determination relied upon does not apply to the Bidder, or (ii) the state agency determination relied upon was made without affording the Bidder the notice and hearing to which the Bidder was entitled by the requirements of due process of law, or (iii) the state agency determination was clearly erroneous or (iv) the state determination relied upon was not based on a finding of conduct demonstrating a lack of integrity or violation of a prevailing rate of wage law.

The full text of the resolution adopting the policy may be found in the Minutes of the Authority's Board of Commissioners meeting of September 9, 1993.

### **4. Contractor Responsibility, Suspension of Work and Termination**

During the term of this Contract, the Contractor shall at all times during the Contract term remain responsible. The Contractor agrees, if requested by the Port Authority to present evidence of its continuing legal authority to do business in the States of New Jersey or New York, integrity, experience, ability, prior performance, and organizational and financial capacity.

The Port Authority, in its sole discretion, reserves the right to suspend any or all activities under this Contract, at any time, when it discovers information that calls into question the responsibility of the Contractor. In the event of such suspension, the Contractor will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, the Contractor must comply with the terms of the suspension order. Contract activity may resume at such time as the Port Authority issues a written notice authorizing a resumption of performance under the Contract.

Upon written notice to the Contractor, and an opportunity to be heard with appropriate Port Authority officials or staff, the Contract may be terminated by Port Authority at the Contractor's expense where the Contractor is determined by the Port Authority to be non-responsible. In such event, the Port Authority or its designee may complete the contractual requirements in any manner he or she may deem advisable and pursue available legal or equitable remedies for breach, including recovery of costs from Contractor associated with such termination.

### **5. No Gifts, Gratuities, Offers of Employment, Etc.**

At all times, the Contractor shall not offer, give or agree to give anything of value either to a Port Authority employee, agent, job shopper, consultant, construction manager or other person or firm representing the Port Authority, or to a member of the immediate family (i.e., a spouse, child, parent, brother or sister) of any of the foregoing, in connection with the performance by such employee, agent, job shopper, consultant, construction manager or other person or firm representing the Port Authority of duties involving transactions with the Contractor on behalf of the Port Authority, whether or not such duties are related to this Contract or any other Port Authority contract or matter. Any such conduct shall be deemed a material breach of this Contract.

As used herein "anything of value" shall include but not be limited to any (a) favors, such as meals, entertainment, transportation (other than that contemplated by the Contract or any other Port Authority contract),

etc. which might tend to obligate the Port Authority employee to the Contractor, and (b) gift, gratuity, money, goods, equipment, services, lodging, discounts not available to the general public, offers or promises of employment, loans or the cancellation thereof, preferential treatment or business opportunity. Such term shall not include compensation contemplated by this Contract or any other Port Authority contract. Where used herein, the term "Port Authority" shall be deemed to include all subsidiaries of the Port Authority.

The Contractor shall insure that no gratuities of any kind or nature whatsoever shall be solicited or accepted by it and by its personnel for any reason whatsoever from the passengers, tenants, customers or other persons using the Facility and shall so instruct its personnel.

In the event that the Contractor becomes aware of the occurrence of any conduct that is prohibited by this section entitled "No Gifts, Gratuities, Offers of Employment, Etc.", it shall report such occurrence to the Port Authority's Office of Inspector General within three (3) business days of obtaining such knowledge. (See "<http://www.panynj.gov/inspector-general>" for information about to report information to the Office of Inspector General). Failing to report such conduct shall be grounds for a finding of non-responsibility.

In addition, during the term of this Contract, the Contractor shall not make an offer of employment or use confidential information in a manner proscribed by the Code of Ethics and Financial Disclosure dated March 11, 2014, or as may be revised (a copy of which is available upon request to the Office of the Secretary of the Port Authority).

The Contractor shall include the provisions of this clause in each subcontract entered into under this Contract.

## **6. Conflict of Interest**

During the term of this Contract, the Contractor shall not participate in any way in the preparation, negotiation or award of any contract (other than a contract for its own services to the Authority) to which it is contemplated the Port Authority may become a party, or participate in any way in the review or resolution of a claim in connection with such a contract if the Contractor has a substantial financial interest in the contractor or potential contractor of the Port Authority or if the Contractor has an arrangement for future employment or for any other business relationship with said contractor or potential contractor, nor shall the Contractor at any time take any other action which might be viewed as or give the appearance of conflict of interest on its part. If the possibility of such an arrangement for future employment or for another business arrangement has been or is the subject of a previous or current discussion, or if the Contractor has reason to believe such an arrangement may be the subject of future discussion, or if the Contractor has any financial interest, substantial or not, in a contractor or potential contractor of the Authority, and the Contractor's participation in the preparation, negotiation or award of any contract with such a contractor or the review or resolution of a claim in connection with such a contract is contemplated or if the Contractor has reason to believe that any other situation exists which might be viewed as or give the appearance of a conflict of interest, the Contractor shall immediately inform the Chief Procurement Officer in writing of such situation giving the full details thereof. Unless the Contractor receives the specific written approval of the Chief Procurement Officer, the Contractor shall not take the contemplated action which might be viewed as or give the appearance of a conflict of interest. The Chief Procurement Officer may require the Contractor to submit a mitigation plan addressing and mitigating any disclosed or undisclosed conflict, which is subject to the approval of the Chief Procurement Officer and shall become a requirement, as though fully set forth in this Contract. In the event the Chief Procurement Officer shall determine that the performance by the Contractor of a portion of its Services under this Agreement is precluded by the provisions of this numbered paragraph, or a portion of the Contractor's said Services is determined by the Chief Procurement Officer to be no longer appropriate because of such preclusion, then the Chief Procurement Officer shall have full authority on behalf of both parties to order that such portion of the Contractor's Services not be performed by the Contractor, reserving the right, however, to have the Services performed by others and any lump sum compensation payable hereunder which is applicable to the deleted work shall be equitably adjusted by the parties. The Contractor's execution of this document shall constitute a representation by the Contractor that at the time of such execution the Contractor knows of no circumstances, present or anticipated, which come within the provisions of this paragraph or which might otherwise be viewed as or give the appearance of a conflict of

interest on the Contractor's part. The Contractor acknowledges that the Authority may preclude it from involvement in certain disposition/privatization initiatives or transactions that result from the findings of its evaluations hereunder or from participation in any contract, which results, directly or indirectly, from the Services provided by the Contractor hereunder. The Port Authority's determination regarding any questions of conflict of interest shall be final.

## 7. Definitions

As used in this section, the following terms shall mean:

Affiliate - Two or more firms are affiliates if a parent owns more than fifty percent of the voting stock of each of the firms, or a common shareholder or group of shareholders owns more than fifty percent of the voting stock of each of the firms, or if the firms have a common proprietor or general partner.

Agency or Governmental Agency - Any federal, state, city or other local agency, including departments, offices, public authorities and corporations, boards of education and higher education, public development corporations, local development corporations and others.

Investigation - Any inquiries made by any federal, state or local criminal prosecuting and/or law enforcement agency and any inquiries concerning civil anti-trust investigations made by any federal, state or local governmental agency. Except for inquiries concerning civil anti-trust investigations, the term does not include inquiries made by any civil government agency concerning compliance with any regulation, the nature of which does not carry criminal penalties, nor does it include any background investigations for employment, or Federal, State, and local inquiries into tax returns.

Officer - Any individual who serves as chief executive officer, chief financial officer, or chief operating officer of the Bidder by whatever titles known.

Parent - An individual, partnership, joint venture or corporation which owns more than 50% of the voting stock of the Bidder.

If the solicitation is a Request for Proposal:

Bid - shall mean Proposal;  
Bidder - shall mean Proposer;  
Bidding - shall mean submitting a Proposal.

In a Contract resulting from the taking of bids:

Bid - shall mean bid;  
Bidder - shall mean Bidder; except and until the Contract has been awarded, then it shall mean Contractor  
Bidding - shall mean executing this Contract.

In a Contract resulting from the taking of Proposals:

Bid - shall mean Proposal;  
Bidder - shall mean Proposer;  
Bidding - shall mean executing this Contract.