

CITY OF SALEM, MASSACHUSETTS

**TRAFFIC SIGNAL IMPROVEMENTS
DERBY STREET/CONGRESS STREET**

Bid No. L-43

SPECIFICATIONS

Issue Date: June 25, 2010

BETA Group, Inc.

Engineers • Planners • Landscape Architects • Scientists

315 Norwood Park South, Norwood, MA 02062



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**CITY OF SALEM, MASSACHUSETTS
TRAFFIC SIGNAL IMPROVEMENTS
DERBY STREET/CONGRESS STREET
BID NO. L-43**

DIVISION 0
BID REQUIREMENTS, FORMS & CONDITIONS OF CONTRACT

**SECTION 00010
NOTICE TO BIDDERS**

The City of Salem, acting through its Purchasing Department, invites sealed bids for the "City of Salem, Massachusetts, Traffic Signal Improvements, Derby Street/Congress Street, Bid No. L-43", in accordance with the Contract Documents prepared by BETA Group Inc, Consulting Engineers, 315 Norwood Park South, Norwood, Massachusetts, 02062.

Bids will be received at the Purchasing Department, City Hall, 120 Washington Street, 3rd Floor, Salem, Massachusetts, 01970, until 2:00 P.M. local time on July 8, 2010, at which time and place, said Bids will be publicly opened and read aloud.

The location, general characteristics, and principal details of the Work are indicated in a set of drawings, entitled "City of Salem, Massachusetts, Traffic Signal Improvements, Derby Street / Congress Street, Bid No. L-43".

The work to be done under this contract consists of furnishing all necessary labor, materials and equipment required for the construction of traffic signals at one location and the modification of existing traffic signals at one location in Salem, Massachusetts. The two locations are:

- Location 1 - Derby Street at Congress Street/Hawthorne Boulevard
- Location 2 - Hawthorne Boulevard at Essex Street

The work includes new traffic signals at Location 1 with service connection; modification of the existing signal at Location 2; signing; pavement markings; and the provision of safety controls and signing for construction operations. Roadway improvements will consist of the removal of a traffic island and repair of the pavement area, installation of conduit, repair of pavement, and the reconstruction/restoration of brick sidewalks and cement concrete wheelchair ramps that are impacted by the installation of traffic signals and conduit, as well as other incidental items included in the contract documents.

Bid Security: Certified, treasurer's or cashier's check or bid bond in the sum of five (5) percent of the Total Bid is required.

Contract Documents may be examined and/or obtained at the Purchasing Department at Salem City Hall, 3rd Floor, 120 Washington Street, Salem, Massachusetts 01970. The contact number

is 978-475-9595 ext. 5696 and office hours are Monday, Tuesday, and Wednesday 8:00 AM to 4:00 PM, Thursday 8:00 AM to 7:00 PM, and Friday 8:00 AM to 12:00 PM excluding City holidays.

Contract Documents are available for examination, during regular business hours, at BETA Group Inc., 315 Norwood Park South, Norwood, Massachusetts 02062; the City of Salem website at http://www.salem.com/Pages/SalemMA_purchasing/bids/index; the Massachusetts Comm-PASS website at <http://www.comm-pass.com>; and at F.W. Dodge Division, McGraw-Hill Construction Dodge, 17 Everberg Road Unit C, Woburn, MA 01801.

A Certified Check, Treasurer's or Cashier's check or Postal Money Order in the amount of Fifty Dollars (\$50.00), payable to the City of Salem, will be required for each set of Contract Documents. Refunds will not be provided for returned plans.

Documents will not be mailed to Bidders.

Direct inquiries are to be directed to Thomas P. Watkins, Acting Purchasing Agent, twatkins@salem.com, Phone: 978-619-5695, Fax: .978-745-7461.

All Bids for this project are subject to applicable bidding laws of Massachusetts, including General Laws Chapter 30, Section 39M as amended.

Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under this Contract as determined by the Department of Labor and Industries under provisions of the Massachusetts General Laws Chapter 149, Section 26-27D, inclusive, as amended.

No Bidder may withdraw his bid within Forty-Five (45) days after the actual date of the opening thereof.

The successful Bidder must furnish 100 percent Performance and Labor and Materials Bonds.

The Owner and Engineer, being considered the sole and only judge, reserves the right to waive any informalities in, or to reject, any or all bids, should the Owner deem it to be in the Owner's best interest to do so.

Thomas P. Watkins
Acting Purchasing Agent
City of Salem, Massachusetts

SECTION 00200**INFORMATION FOR BIDDERS**

- 1.01 Receipt and Opening of Bids
- 1.02 Location and Work to be Done
- 1.03 Contract Documents
- 1.04 Payments for Drawings and Documents
- 1.05 Questions Regarding Drawings and Documents
- 1.06 Pre-Bid Conference
- 1.07 Bidders to Investigate
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1.01 RECEIPT AND OPENING OF BIDS

- A. The City of Salem, Massachusetts, herein called the Owner, acting through its Purchasing Department invites sealed bids for "City of Salem, Massachusetts, Traffic Signal Improvements, Derby Street / Congress Street, Bid No. L-43", in accordance with the Contract Documents prepared by BETA Group, Inc., Consulting Engineers, 315 Norwood Park South, Norwood, Massachusetts, 02062.

- B. Such Bids, submitted in sealed envelopes plainly marked in the upper left hand corner with the Bidder's name and address, plainly marked in the lower left hand corner with the date and time of opening, are to be addressed to:

City of Salem (Purchasing Department)
City Hall, 3rd Floor
120 Washington Street
Salem, MA 01970

Attention: Thomas P. Watkins, Acting Purchasing Agent

Endorsed: "City of Salem, Massachusetts, Traffic Signal Improvements, Derby Street/Congress Street, Bid No. L-43".

Delivered by: 2:00 P.M. local time on July 8, 2010 at which time and place, said Bids will be publicly opened and read aloud.

- C. The Owner may consider informal, any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities in or reject any and all bids. Conditional or qualified Bids will not be accepted. Any Bid received after the time and date specified shall not be considered. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the Owner and the Bidder.

1.02 LOCATION AND WORK TO BE DONE

- A. The location, general characteristics, and principal details of the Work are indicated in a set of drawings, entitled "City of Salem, Massachusetts, Traffic Signal Improvements, Derby Street/Congress Street, Bid No. L-43"
- B. Details and the Drawings listed above are the Contract Drawings, sometimes referred to herein as the "Drawings".
- C. Additional drawings showing details in accordance with which the Work is to be done will be furnished from time to time by the Engineer, if found necessary, and shall then become part of the Drawings.
- D. The Contractor shall furnish all labor, services, materials, equipment, plant machinery, apparatus, appliances, tools, supplies and all other things necessary to perform all work required for the completion of each item of the Work and as herein specified.
- E. The Work to be done and paid for under any item shall not be limited to the exact extent mentioned or described, but shall include all incidental work necessary or customarily done for the completion of that item.

1.03 CONTRACT DOCUMENTS

- A. The Contract Documents, INFORMATION FOR BIDDERS, SPECIFICATIONS, and forms for BID, AGREEMENT, and BONDS, may be examined and obtained at the offices of the Salem Purchasing Department, 120 Washington Street, Salem, Massachusetts 01970.
- B. The Contract Documents may also be examined, but not obtained, during regular business hours, at BETA Group Inc., 315 Norwood Park South, Norwood, Massachusetts 02062; the City of Salem website at http://www.salem.com/Pages/SalemMA_purchasing/bids/index; the Massachusetts Comm-PASS website at <http://www.comm-pass.com>; and at F.W. Dodge Division, McGraw-Hill Construction Dodge, 17 Everberg Road Unit C, Woburn, MA 01801, 781-430-2008.

1.04 PAYMENT FOR DRAWINGS AND DOCUMENTS

- A. Contract Documents may be examined and obtained at the offices of the Salem Purchasing Department, 120 Washington Street, Salem, Massachusetts 01970, upon payment in the amount of Fifty Dollars (\$50.00) for each set. Payment shall be by Certified Check, Treasurer's or Cashier's Check, or Postal Money Order payable to The City of Salem.
- B. Refunds will not be provided for returned plans.

1.05 QUESTIONS REGARDING DRAWINGS AND DOCUMENTS

- C. In general, no answer will be given to prospective bidders in reply to an oral question of the intent or meaning of the Drawings or other Contract Documents, or the equality or use of products or methods other than those designated or described on the Drawings or in the Specifications. Any information given to bidders, other than by means of the Drawings and other Contract Documents, including Addenda, as described below, is given informally, for information and the convenience of the bidder only and is not guaranteed. The bidder agrees that such information shall not be used as the basis of, nor shall the giving of any such information entitle the bidder to assert any claim or demand against the Owner or the Engineer on account thereof.
- D. To receive consideration, such questions shall be submitted in writing or faxed to the Acting Purchasing Agent, at least seven calendar days before the established date for receipt of Bids. If the question involves the equality or use of products or methods, it must be accompanied by drawings, specifications or other data in sufficient detail to enable the Engineer to determine the equality or suitability of the product or method. In general, the Engineer will neither approve nor disapprove particular products prior to the opening of Bids; such products will be considered when offered by the Contractor for incorporation into the Work.

- E. The Engineer will set forth as Addenda, which shall become a part of the Contract Documents, such questions received as above provided as in his sole judgment are appropriate or necessary and his decision regarding each. At least five days prior to the receipt of Bids, he will send a copy of these Addenda to those prospective bidders known to have taken out sets of the Drawings and other Contract Documents.
- F. The Contractor agrees to use the products and methods designated or described in the Specifications, as maybe amended by Addenda.

1.07 BIDDERS TO INVESTIGATE

- A. Bidders are required to submit their Bids upon the following express conditions, which shall apply to and be deemed a part of every Bid received, viz.: Bidders must satisfy themselves by personal examination of the Work and by such other means as they may wish, as to the actual conditions there existing, the character and requirements of the Work and difficulties attendant upon its execution, and the accuracy of all estimated quantities stated in the Bid.

1.08 INFORMATION NOT GUARANTEED

- A. All information given on the Drawings or in the other Contract Drawings relating to subsurface and other conditions, natural phenomena, existing pipes and other structures is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of bidders and is not guaranteed.
- B. It is agreed and understood that the Owner does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes or other structures encountered during construction will be the same as those indicated on the Drawings or in the other Contract Documents.
- C. It is agreed further and understood that no bidder or Contractor shall use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the Owner or the Engineer, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other conditions, natural phenomena, existing pipes or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

1.09 CONDITIONS OF WORK

- A. Each bidder must inform himself fully of the conditions relating to the construction and labor under which the work is now or will be performed; failure to do so will not relieve the successful bidder of his obligation to furnish all materials and all labor necessary to carry out the provisions of the Contract Documents and to complete the contemplated Work for the consideration set forth

in his bid. Insofar as possible, the Contractor, in the carrying out of his work, shall employ such methods or means as will not cause any interruption of or interference with: the operation of the existing sewer; traffic; use of existing facilities and utilities; locations of existing utilities and structures affecting the work or other similar conditions at the site; character of equipment and facilities needed preliminary to and during prosecution of the work; requirements of owners and controlling authorities, having jurisdiction over the various lands, existing structures, facilities, and utilities; and all other conditions affecting the work to be done, and the labor and materials needed; and he shall make his bid in sole reliance thereon; and shall not, at any time after submission of a bid, assert that there was any misunderstanding in regard to the nature or amount of the work to be done.

1.10 BLANK FORM FOR BID

- A. Each bid must be submitted on the prescribed form, accompanied by the Bid Security and any other requested information. All blank spaces for bid prices must be filled in, in ink or typewritten, both in words and numerical figures, and be signed by the bidder with his business address and place of residence. Where both written words and numerical figures are given, the written words shall apply in the event of conflict. All bids shall be prepared in conformity with, and based upon and submitted subject to, all requirements of the Specifications and Drawings, together with all addenda thereto.
- B. Bidders shall not remove and submit the Bid pages separate from the volume of Contract Documents, but shall submit their Bids bound with the complete volume of attached Contract Documents, including all pages correctly assembled. All erasures or other changes in the Bid must be properly initialed by an authorized representative of the Bidder.

1.11 WITHDRAWAL OF BIDS

- A. Except as hereinafter in this subsection otherwise expressly provided, once his Bid is submitted and received by the Owner for consideration and comparison with other bids similarly submitted, the bidder agrees that he may not and will not withdraw it within Forty-Five (45) consecutive calendar days after the actual date of the opening of Bids.
- B. Upon proper written request and identification, Bids may be withdrawn only as follows:
 - At any time prior to the designated time for the opening of Bids.
 - Provided the Bid has not theretofore been accepted by the Owner, at any time subsequent to the expiration of the period during, which the bidder has agreed not to withdraw his Bid.

- C. Unless a Bid is withdrawn as provided above, the bidder agrees that it shall be deemed open for acceptance until the AGREEMENT has been executed by both parties thereto or until the Owner notifies a bidder in writing that his Bid is rejected or that the Owner does not intend to accept it, or returns his Bid deposit. Notice of acceptance of a Bid shall not constitute rejection of any other Bid.

1.12 BID SECURITY

- A. Each bid must be accompanied by a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company and payable to the order of the Owner, or by a bid bond prepared on the form of BID BOND attached hereto duly executed and acknowledged by the bidder, as Principal, and by a surety company qualified to do business in the State of Massachusetts and satisfactory to the Owner, as Surety. The check or bid bond shall be in the sum of five (5) percent of the total bid and shall be enclosed in the sealed envelope containing the Bid.
- B. Each such check or bid bond may be held by the Owner as security for the fulfillment of the bidder's agreements as hereinabove set forth and as set forth in the BID. Should the bidder fail to fulfill such agreements, his bid check shall become the property of the Owner or if a bid bond was furnished, the bid bond shall become payable to the Owner, as liquidated damages; otherwise, the bid check shall be returned to the bidder as hereinafter provided, or if the security is a bid bond, the bid bond shall become null and void.
- C. Bid checks will be returned to all except the three lowest bidders within five (5) days, Sundays and legal holidays excluded, after the opening of Bids, and to the three lowest bidders within five (5) days, Sunday and legal holidays excluded, after the Owner and the accepted bidder have executed the AGREEMENT. In the event that the AGREEMENT has not been executed by both the accepted bidder and the Owner within 90 consecutive calendar days after the opening of Bids, the bid check will be returned promptly upon demand of any bidder who has not been notified of the acceptance of his Bid.
- D. Bid checks accompanying Bids, which are rejected, will be returned within five (5) days, Sundays and legal holidays excluded, after rejection.
- E. None of the three lowest Bids shall be deemed rejected, notwithstanding acceptance of any Bid, until the AGREEMENT has been executed by both the Owner and the accepted bidder.

1.13 INTERESTED PARTIES TO CONTRACT

- A. The undersigned declares; that the only person interested this Bid as principals are named herein as such; that no official of the Owner and no person acting for or employed by the Owner is interested directly or indirectly in this Bid, or in any contract which may be made under it, or in any expected profits to arise

therefrom; that this Bid is made in good faith, without fraud, collusion or connection with any other person bidding or refraining from bidding for the same work; that he has examined carefully the said instructions and all other documents bound herewith and the Contract Drawings relating to the Contract covered by this Bid and hereby makes them part of this Bid; that he has informed himself fully in regard to all conditions pertaining to the work and place where it is to be done; and that he has made his own examination and carefully checked his estimates for cost and from them makes this Bid.

1.14 ABILITY AND EXPERIENCE OF BIDDER

- A. No award will be made to any bidder who cannot satisfy the Owner that he has sufficient ability and experience in this class of work and sufficient capital and plant to enable him to prosecute and complete the Work successfully within the time named. The Owner may make such investigations as it deems necessary to determine the ability of the bidder to perform the work; and the bidder shall furnish to the Engineer and the Owner all such information and data for this purpose as the Engineer and the Owner may request.
- B. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein within the time stated. The Owner's decision or judgment on these matters shall be final, conclusive, and binding for all parties involved.

1.15 BIDS

- A. The Owner reserves the right to waive any informalities in, or to reject any or all Bids which in its sole judgment are either incomplete, conditional, obscure, or not responsive or which contain additions not called for, erasures not properly initialed, alternative, or similar irregularities, or the Owner may waive such omissions, conditions, or irregularities as he may feel appropriate.
- B. Conditional bids will not be accepted. Bidder(s) will be disqualified if more than one proposal is received from an individual, firm, partnership, corporation or association, under the same or different names and such proposals will not be considered.
- C. The Owner reserves the right to reject any or all Bids, should the Owner deem it to be in the public interest to do so.

1.16 COMPARISON OF BIDS

- A. Bids will be compared on the basis of the experience and competence of the bidders and on the basis of the totals of the quantities listed in the proposal under the enumerated items at the unit prices or lump sums bid for these items. The Contract will be awarded to the lowest responsive, responsible and eligible bidder as determined by the Owner and/or its authorized representatives or agents.

However, the Owner may reject any and all bids, if it is in the public interest to do so.

- B. The term, "Lowest responsive, responsible and eligible bidder," shall mean the bidder whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the Work; who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work.
- C. Bids should be made on each separate item of work shown in the bid (proposal) with reasonable relation to the probable cost of doing the work included in such items. The Owner reserves the right to reject, wholly, any bid on which an item or items thereof are obviously unbalanced or appear to the Owner to be so unbalanced as to affect or to be liable to affect adversely any interests of the Owner. The attention of the bidder is called to the fact that unbalancing of bids may adversely affect the Contractor if certain portions for the Work are increased or decreased as provided in the Contract Documents.
- D. A bidder shall state the proposed price for the work by which the bids will be compared. This price is to cover all expenses incidental to the completion of the work in full conformity with the Contract, Specifications, and Drawings. In the event that there is a discrepancy between the unit prices and the extended totals, the unit prices shall govern. In the event that there is a discrepancy between the lump-sum or unit prices written in words and numerical figures, the prices written in words shall govern. No bid will be accepted which does not contain a unit price or lump sum as indicated for each of the applicable items enumerated in the proposal form.

1.17 ITEMS AND INDETERMINATE ITEMS

- A. The Work to be done under this Contract has been divided into parts or items to enable each bidder to bid on different portions of the work in accordance with his estimate of their cost and so that the actual quantity of work executed under each item may be paid for at the price bid for that particular item, even though such quantity may be greater or less than the estimated quantity stated in the BID.
- B. The quantities listed in the bid (proposal) are approximate. The Owner does not expressly or by implication represent that the actual amounts of work will even approximately correspond therewith, but does call particular attention to the uncertainty in the quantities of the work involved which can not be predicted in advance. The work under certain items may be materially greater or less than those given in the Bid as may be necessary in the judgment of the Owner complete the work contemplated in the Contract. Attention is particularly called to the fact that the quantity of work to be done under some bid items may be largely dependent on subsurface ground conditions encountered and, therefore, the quantities of work to be done under the various items may vary substantially from the estimated quantities or may even be omitted.

- C. Certain items in the Bid cover classes of work of possible necessity or work for which it is impractical to estimate approximate quantities. Such items have been marked "Indeterminate". Prices for certain such items have been stipulated in advance by the Owner as stated in the Bid Proposal Form.
- D. Only such quantities of the respective items of work actually performed and accepted will be paid for. An increase or decrease in quantity for any item shall not be regarded as grounds for an increase or decrease in the bid prices.

1.18 REDUCTION IN SCOPE OF WORK

- A. The Owner reserves the right to decrease the scope of the work to be done under this Contract and to omit any work in order to bring the cost within available funds. To this end, the Owner reserves the right to reduce the quantity of any items or omit all of any as set forth in the BID, either prior to executing the Contract or at any time during the progress of the Work. The Owner further reserves the right, at any time during the progress of the Work, to restore all or part of any items previously omitted or reduced. Exercise by the Owner of the above rights shall not constitute any grounds or basis of claim for damages or for anticipated profits on the work omitted.

1.19 CONTRACT BONDS

- A. The Bidder whose Bid is accepted agrees to furnish the Contract Bonds in the forms which follow in Section 00600, titled CONTRACT BONDS, each in the sum of the full amount of the Bid and/or Contract Price as determined by the Engineer, and duly executed and acknowledged by the said bidder as Principal and by a surety company qualified to do business under the laws of Massachusetts and satisfactory to the Owner, as Surety, for the faithful performance of the contract and payment for labor and materials. The premiums for such Bonds shall be paid by the Contractor.
- B. Surety Companies executing the Contract Bonds must also appear on the U.S. Treasury Department's most current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (Amended) by the Audit Staff Bureau of Accounts.

1.20 POWER OF ATTORNEY

- A. Attorneys-in-fact, who sign Bid Bonds or Contract Bonds, must file with each Bond a certified and effectively dated copy of their power of attorney.

1.21 EXECUTION OF AGREEMENT

- A. The Bidder whose Bid is accepted will be required and agrees to duly execute the AGREEMENT and furnish the required CONTRACT BONDS within the time

limit stated in the Bid after notification that the AGREEMENT is ready for signature.

- B. The Bidder whose Bid is accepted upon his failure or refusal to duly execute the AGREEMENT and furnish the required CONTRACT BONDS within the time limit stated in the BID, shall forfeit to the Owner as liquidated damages for such failure or refusal, the surety deposited with his BID.

1.22 INSURANCE CERTIFICATES

- A. The Contractor will not be permitted to start any construction work until he has submitted certificates covering all insurances called for under that subsection of the AGREEMENT, titled "Insurance." The Contractor shall submit said certificates using the forms supplied by the Engineer under said subsection.

1.23 TIME FOR COMPLETION AND LIQUIDATED DAMAGES

- A. The bidder must agree to commence work on or before the date specified in the written "NOTICE TO PROCEED" issued by the Owner, and/or Engineer acting on behalf of the Owner, and to fully complete the project within the time specified in **Table A** of the Agreement, after the date specified in the written "NOTICE TO PROCEED" as stipulated in **Table A** of the AGREEMENT. The bidder must further agree to pay as liquidated damages to the Owner, the sum as specified in **Table A** of the Agreement for each consecutive calendar day thereafter as hereafter provided in the AGREEMENT.

1.24 LAWS AND REGULATIONS

- A. The bidder's attention is directed to the fact that all applicable Federal and State laws, municipal ordinances, and rules and regulations or authorities having jurisdiction over construction of the project, shall apply to the Contract throughout, and shall be deemed to be included in the Contract the same as though herein written out in full.

1.25 WORK ON STATE, MUNICIPAL AND PRIVATE PROPERTY

- A. Particular attention is hereby directed to the fact that portions of the Work included under this Contract maybe be done within the limits of properties that are State-owned, municipal-owned, or privately owned. The Contractor shall be responsible for coordinating the prosecution of the Work of this Contract with the property owner and for providing work in accordance with any additional requirements as specified herein.

1.26 STATE SALES AND USE TAX

- A. Materials and equipment purchased for installation under this Contract are exempt from the Massachusetts Sales Tax. The Contractor shall file for exemption on behalf of the Owner with the State of Massachusetts Department of Taxation as

required by law. The exemption from the Sales Tax shall be taken into account by the Contractor during bidding.

1.27 MANUFACTURER'S EXPERIENCE

- A. Wherever it may be written that an equipment manufacturer must have a specified period of experience with his product, equipment which does not meet the specified experience period may be considered by the Owner and/or Engineer if the equipment supplier or manufacturer is willing to provide a sufficient bond or cash deposit as determined by the Owner and/or Engineer for the duration of the specified time period which will guarantee full replacement of that equipment in the event of failure at no additional cost to the Owner.

1.28 PROTECTION OF LIVES AND HEALTH

- A. The project is subject to all of the Safety and Health Regulations as promulgated by the United States Department of Labor (Title 29, Part 1926/1910 CFR, 1985 revisions); the Contract Work Hours and Safety Standards Act (40 U.S.C. 327 et seq.) as supplemented by the Department of Labor Regulations (Title 29 CFR Part 5); and OSHA 2207, 1983 revisions; and all subsequent amendments thereto. Contractors are urged to make themselves familiar with the requirements of these regulations.

1.29 NONDISCRIMINATION IN EMPLOYMENT

- A. Contracts for work under this bid (proposal) will obligate the Contractors and subcontractors not to discriminate in employment practices.
- B. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, handicap, or national origin. The Contractor shall take affirmative action to ensure that applicants are employed and the employees are treated during employment without regard to their race, color, religion, sex, age, handicap, or national origin. Such actions shall include, but not be limited to, the following: employment, upgrading; demotions, or transfers; recruitment or recruitment advertising, layoffs, or terminations; rates of pay or other forms of compensation; selection for training including apprenticeship; and participation in recreational and education activities. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notice to be provided setting forth the provisions of this non-discrimination clause. The Contractor will in all solicitations or advertisements for employees placed by or on behalf of the Contractor state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age, handicap or national origin. The Contractor will cause the foregoing provisions to be inserted in all sub-contracts for any work covered by this Contract so that such provisions will be binding upon each sub-contractor and upon sub-contracts for standard commercial supplies or raw materials.

- C. The Contractor shall keep such records and submit such reports concerning the racial and ethnic origin of applicants for employment and employees as the Owner may require as consistent with Federal and State law. The Contractor agrees to comply with such rules, regulations, or guidelines as the State of Massachusetts may implement these requirements. The Contractor further warrants that he will comply with the President's Executive Order No. 11246 or any preceding similar Executive Order relating thereto.
- D. Bidders and Contractors must, if required, submit a compliance report (EPA Form 5720-4) concerning their employment practices and policies in order to maintain their eligibility to receive award of the Contract.
- E. Bidders and Contractors must, if required, submit a list of all Subcontractors who will perform work on the project, and written signed statements from authorized agents of labor pools with which they will or may deal with for employees on the work, together with any information to the effect that such labor pools' practices or policies are in conformity with said Executive Order that they will affirmatively cooperate in or offer no hindrance to the recruitment, employment, and equal treatment of employees seeking employment and performing work under this Contract; or a certification as to when such agents or labor pools have failed or refused to furnish them, prior to award of the Contract.
- F. The successful bidder will be required to comply with Equal Opportunity Requirements and to abide by the prevailing wage rates for Public Work Projects for all employees on the job. It is the responsibility of Bidders to inform themselves as to the local labor conditions, overtime compensation, health and welfare contributions, labor supply and prospective changes or adjustment of wage rates. Information is available at the Department of Labor.

1.30 SEQUENCE OF OPERATIONS

- A. The Contractor must submit to the Engineer within fourteen (14) calendar days after execution of the Contractor Documents, a sequence of operations, giving detailed plans and schedules of his operation. Said sequence of operations shall be reviewed and must be approved by the Owner and Engineer prior to the start of the Work. The Owner reserves the right to limit or, if found necessary and/or required, delay construction, or certain activities thereof, in certain areas of the Contract should the Owner deem it to be in the public's best interest to do so.
- B. The Contractor shall have no claim for additional compensation or damage on account of any such delays and/or required sequence of operations.
- C. The Contractor shall maintain uninterrupted utility services at all times, and plan his work accordingly.
- D. The Contractor shall coordinate his activities with any other contract and/or contractor to complete the Work as detailed on the Plans and Specifications.

1.31 WETLANDS AND WATERWAYS

- A. The Contractor's attention is directed to the fact that a portion of the work may be located within and/or immediately adjacent to wetlands and waterways. Work within these areas is subject to the jurisdiction of the Massachusetts Department of Environmental Protection. All requirements and/or control measures deemed necessary by the Department shall be strictly adhered to throughout the duration of this Contract.

- B. The Contractor shall not have or assert any claim for nor shall he be entitled to any additional compensation or damages on account of requirements set forth by the Department of Environmental Management and Coastal Resource Management Council regarding the wetlands and waterways encountered during construction.

1.32 MASSACHUSETTS WAGE RATES

- A. Minimum Wage Rates as determined by the Commissioner of Department of Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Sections 26 to 27D, as amended, apply to this project. It is the responsibility of the contractor, before bid opening, to request if necessary, any additional information on Minimum Wage Rates for those trades people who may be employed for the proposed work under this contract. See the APPENDIX for Prevailing Wage Rates.

1.33 MASSACHUSETTS DIESEL RETROFIT PROGRAM

- A. This project is subject to the requirements of the Massachusetts Diesel Retrofit Program (MDRP). Bidders must submit a signed and dated Statement of Intent to Comply form, as part of their bid proposal documents.

END OF SECTION

SECTION 00300**BID PROPSAL**

To the City of Salem, Massachusetts, herein called the "Owner", for:

**"City of Salem, Massachusetts, Traffic Signal Improvements,
Derby Street/Congress Street, Bid No. L-43".**

The Undersigned, as a bidder herein referred to as singular and masculine, declares as follows:

1. The only parties interested in this BID as Principals are named herein;
2. This BID is made without collusion with any other person, firm, or corporation;
3. No officer, agent, or employee of the Owner is directly or indirectly interested in this BID;
4. He has carefully examined the site of the proposed Work and fully Informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed Work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this BID, and he has carefully read and examined the Drawings, the annexed proposed AGREEMENT and the Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;
5. He understands that information relative to subsurface and other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) has been furnished only for his information and conference without any warranty or guarantee, expressed or implied, that the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered will be the same as those shown on the Drawings or in any of the other Contract Documents and he agrees that he shall not use or be entitled to use any such information made available to him through the Contract Documents or otherwise or obtained by him in his own examination of the site, as a basis of or ground for any claim against the Owner or the Engineer arising from or by reason of any variance which may exist between the aforesaid information made available to or acquired by him and the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered during the construction work, and he has made due allowance therefore in this BID;
6. And he understands that the quantities of work tabulated in this BID or indicated on the Drawings or in the Specifications or other Contract Documents are only approximate and are subject to increase or decrease as deemed necessary by the Engineer; and he agrees that, if this BID is accepted he will contract with the Owner, as provided in the copy of the Contract Documents deposited in the office of the Engineer, this BID form being part of said Contract Documents, and that he will perform all the work and furnish all the materials and

equipment, and provide all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other things required by the Contract Documents in the manner and within the time therein prescribed and according to the requirements of the Engineer as therein set forth, and that he will take in full payment therefore the lump sum or unit price acceptable to each item of the work as stated in the schedule below. (Note: Bidders must bid on each item. All entries in the entire BID must be made clearly and in ink; prices bid must be written in both words and figures.)

In case of discrepancy, the amount shown in words will govern.

(Bidders should insert extended item prices obtained from quantities and unit prices.)

Each bid must be accompanied by a certified treasurer's or cashier's check issued by, a responsible bank or trust company and payable to the order of the **City of Salem, Massachusetts** or by a bid bond prepared on the form of BID BOND attached hereto duly executed and acknowledged by the bidder, as Principal, and by a surety company qualified to do business in the Commonwealth of Massachusetts and satisfactory to the Owner, as Surety. The check or bid bond shall be in the sum of five percent of the bid and shall be enclosed in the sealed envelope containing the Bid.

The Bidder whose Bid is accepted agrees to furnish the Contract Bonds in the forms which follow in Section 00600, titled CONTRACT BONDS, each in the sum of the full amount of the Bid and/or Contract Price as determined by the Engineer, and duly executed and acknowledged by the said bidder as Principal and by a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and satisfactory to the Owner, as Surety, for the faithful performance of the Contract and payment for labor and materials. The premiums for such Bonds shall be paid by the Contractor.

The Bidder to be considered responsive shall complete and submit the BID as listed in the bid form.

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the annexed form of AGREEMENT, s/he will accept compensation as stipulated therein in full payment for such extra work.

If this BID is accepted by the Owner, the undersigned agrees to complete the entire work provided to be done under the Contract within the time stipulated in the AGREEMENT.

Should the bidder fail to fulfill any of his/her agreements as herein above set forth, the Owner shall have the right to retain as liquidated damages the amount of the bid check or cash which shall become the Owner's property. If a bid bond was given, it is agreed that the amount thereof shall be paid as liquidated damages to the Owner by the Surety.

BASE BID Derby Street/Congress Street, Page 1 of 4

Item No.	Approx Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
120.1	5	Unclassified Excavation*	50	00	250	00
		At				
		Fifty Dollars				
		And				
		Zero Cents				
		Per Cubic Yard				
151.	5	Gravel Borrow*	25	00	125	00
		At				
		Twenty-five Dollars				
		And				
		Zero Cents				
		Per Cubic Yard				
153.	8	Controlled Density Fill - Excavatable				
		At				
		Dollars				
		And				
		Cents				
		Per Cubic Yard				
170.	12	Fine Grading And Compacting	5	00	60	00
		At				
		Five Dollars				
		And				
		Zero Cents				
		Per Square Yard				
431.1	5	High Early Strength Cement Concrete Base Course				
		At				
		Dollars				
		And				
		Cents				
		Per Cubic Yard				
472.	4	Hot Mix Asphalt For Miscellaneous Work				
		At				
		Dollars				
		And				
		Cents				
		Per Ton				

* Denotes INDETERMINATE ITEM

BASE BID Derby Street/Congress Street, Page 2 of 4

Item No.	Approx Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
464.5	50	Hot Poured Rubberized Asphalt Sealer*	3	00	150	00
		At				
		Dollars				
		And				
		Cents				
		Per Foot				
482.3	300	Saw Cutting				
		At				
		Dollars				
		And				
		Cents				
		Per Foot				
590.	45	Curb Removed And Stacked*	10	00	450	00
		At				
		Ten Dollars				
		And				
		Zero Cents				
		Per Foot				
701.2	20	Cement Concrete Wheelchair Ramp*				
		At				
		Dollars				
		And				
		Cents				
		Per Square Yard				
706.1	23	Brick Walk Removed And Relaid				
		At				
		Dollars				
		And				
		Cents				
		Per Square Yard				
748.	1	Mobilization				
		At				
		Dollars				
		And				
		Cents				
		Per Lump Sum				
804.3	115	3 Inch Electrical Conduit Type NM - Plastic - (UL)				
		At				
		Dollars				
		And				
		Cents				
		Per Foot				

* Denotes INDETERMINATE ITEM

BASE BID Derby Street/Congress Street, Page 3 of 4

Item No.	Approx Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
811.31	1	Pull Box 12 X 12 Inches - SD2.031* At	500	00	500	00
		Five Hundred Dollars				
		And Zero Cents Per Each				
815.1	1	Traffic Control Signal - Location No. 1 At				
		Dollars				
		And Cents Per Lump Sum				
815.98	15	Footing Cost Adjustment At				
		Dollars				
		And Cents Per Foot				
816.01	1	Traffic Signal Adjustment - Location No. 2 At				
		Dollars				
		And Cents Per Lump Sum				
832.1	115	Warning-Regulatory And Route Marker - Alum. Panel (Type A) At				
		Dollars				
		And Cents Per Square Foot				
847.1	8	Sign Sup (N/Guide)+Rte Mkr W/1 Brkway Post Assembly – Steel At				
		Dollars				
		And Cents Per Each				
851.	40	Safety Controls For Construction Operations At				
		Dollars				
		And Cents Per Unit Day				

* Denotes INDETERMINATE ITEM

BASE BID Derby Street/Congress Street, Page 4 of 4

Item No.	Approx Qty.	Item Description	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
852.	360	Safety Signing For Construction Operations At				
		Dollars				
		And Cents				
		Per Square Foot				
853.1	2	Portable Breakaway Barricade Type III At				
		Dollars				
		And Cents				
		Per Each				
854.2	50	Pavement Marking Removal - Thermoplastic At				
		Dollars				
		And Cents				
		Per Square Foot				
859.	800	Reflectorized Drum At				
		Dollars				
		And Cents				
		Per Drum Day				
864.04	190	Pavement Arrows And Legends Refl. White (Thermoplastic) At				
		Dollars				
		And Cents				
		Per Square Foot				
866.04	60	4 Inch Reflectorized Line (Thermoplastic) At				
		Dollars				
		And Cents				
		Per Foot				
874.5	1	Miscellaneous Signs Removed And Stacked At				
		Dollars				
		And Cents				
		Per Lump Sum				
TOTAL BASE BID			Dollars			
	And		Cents			

The Bidder to be considered responsive shall submit bids on the Base Bid and Alternate A listed in the bid form. **Award of the contract is determined by the Base Bid adjusted for Alternate A if selected by the Owner.**

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the annexed form of AGREEMENT, he will accept compensation as stipulated therein as full payment for such extra work.

If the Bid is accepted by the OWNER, the undersigned agrees to commence work under this Contract on a date to be specified in a written "Notice to Proceed" by the Owner and complete the entire work provided to be done under this Contract within the time stipulated in Table "A" of the AGREEMENT. If this bid is accepted by the Owner, the undersigned, also agrees to comply with the provisions of Section 1.14 "Liquidated Damages" and Table A of the AGREEMENT.

As provided in the INFORMATION FOR BIDDERS, the bidder hereby agrees that he will not withdraw this BID, within 90 consecutive calendar days after the actual date of the opening of Bids, and that, if the Owner shall accept this BID, the bidder will duly execute and acknowledge the AGREEMENT and furnish, duly executed and acknowledged, the required CONTRACT BONDS within fourteen (14) consecutive calendar days after notification that the AGREEMENT and other Contract Documents are ready for signature.

Should the bidder fail to execute any of his agreements as hereinabove set forth, the Owner shall have the right to retain as liquidated damages, the Bid Security attached in the sum of (5 percent of Total Bid) _____

_____ Dollars,
(\$ _____) which shall become the Owner's property for the delay and additional expense to the Owner caused thereby. If a bid bond was given, it is agreed that the amount thereof shall be paid as liquidated damages to the Owner by the Surety. (Bidder must fill in this blank.)

The bidder hereby acknowledges the receipt of, and has included in this BID, the following Addenda:

(To be filled in by Bidder, if Addendums are issues.)

Addendum No. _____, dated _____

Addendum No. _____, dated _____

Addendum No. _____, dated _____

The bidder, by submittal of this BID, agrees with the Owner that the amount of the bid security deposited with this BID fairly and reasonably represents the amount of damages the Owner will suffer due to the failure of the bidder to fulfill his agreements as above provided.

(SEAL)

(Name of Bidder)

By

(Signature and title of authorized representative)

(Business address)

(City and State)

Date _____

The bidder is a corporation incorporated in the State (or Commonwealth) of _____ - a partnership - an individual. (Bidder must add and delete as necessary to make this sentence read correctly.)

(Note: If the bidder is a corporation, affix corporate seal and give below the names of its president treasurer, and general manager, if any; if a partnership, give full names and residential addresses of all partners; and if an individual, give residential address, if different from business address.)

The required names and addresses of all persons interested in the foregoing Bid, as Principals, are as follows:

(Add supplementary page if necessary)

**CERTIFICATE OF AUTHORIZATION
FOR
BIDDING REPRESENTATIVE**

(Note: Bidder must complete for certification of authorized representative signing Bid.)

At a duly authorized meeting of the Board of Directors of the

_____ held on _____,
(Name of Corporation) (Date)

at which all the Directors were present or waived notice, it was voted that

_____ (Name of Authorized Representative) _____ (Title)

of this company shall be, and hereby is, authorized to execute bidding documents, contracts and bonds in the name and on behalf of said company, and to affix the corporate seal thereto, and such execution of any contract obligation in this company's name on its behalf of such

_____ under seal of the company shall be valid and binding upon this company.
(Title)

A true copy

ATTEST _____
(Clerk)

Place of Business _____

I hereby certify that I am the clerk of the _____
(Name of Corporation)

_____, that _____
(Name of Authorized Representative)

is the duly elected _____ of said company, and that the
(Title)

above vote has not been amended or rescinded and remains in full force and effect as of the date of this contract.

Corporate Seal
(Clerk)

**STATEMENT
OF BIDDERS' QUALIFICATIONS**

The following shall accompany the bid and is required as evidence of the bidder's qualifications to perform the work, as bid upon, in accordance with the contract drawings and specifications. This statement must be notarized. All questions must be answered. Additional data may be submitted on separate attached sheets.

1. Name of Bidder _____
2. Permanent Main Office Address _____
3. Official Mailing Address for This Contract _____
4. When Organized? _____
5. Where Incorporated, If a Corporation _____
6. Years Contracting under Present Name _____
7. List contracts on hand, and those completed similar in nature to this kind of project.

Owner	Engineer	Contract	Description	Contract Amount	Completion Date

8. List any work the firm has failed to complete, state where and why.

9. If you have ever defaulted on any contract, state where and why.

10. List full names and residences of all principals (i.e. Officers, Directors, Partners, Owners) interested in this bid.

Name	Residence	Title	Firm
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

11. State name(s) and qualifications of resident supervisor(s) for this project.
- _____
- _____
- _____

12. List major equipment available for this project and identify ownership or rental.
- _____
- _____
- _____
- _____

13. Will you furnish a detailed financial statement and other information, requested by the Owner?

14. List bank references for verifying financial ability of your company.

Name	Address
_____	_____
_____	_____

15. The undersigned hereby authorized and requests any person, firm or corporation, to furnish all information requested by the Owner and/or its designated agents relative to the recitals comprising this Statement of the Bidder's Qualifications.

Dated at _____ this _____ day of _____ 20__.

(Name of Bidder)

By: _____

(Title)

State of _____

County of _____

_____ being duly sworn in person, deposes and says
that he is _____ of _____,
(Title) (Name of Bidder)

that he is the firm's duly authorized agent to execute these contract documents, and that the answers to the foregoing questions and all statements therein contained are correct and true.

Subscribed and sworn to before me this _____ day of _____ 20__.

(SEAL)

(Notary Public)

(My Commission Expires)

**STATEMENT
OF PROPOSED SUBCONTRACTORS**

The following shall accompany the bid and is required as evidence of the bidder's qualifications to perform the work as bid upon, in accordance with the contract drawings and specifications. The Bidder must state the names and appurtenant information of all major subcontractors he proposed to use to complete the work as bid upon. Additional data may be submitted on separate attached sheets.

If subcontractors are not to be used to complete the Work and/or any portion thereof, as herein bid upon, the Bidder must acknowledge by writing "NONE" _____.

Description of Work _____

Approximate percentage of Total Bid _____

Proposed Subcontractor, Name _____

Address _____

Description of Work _____

Approximate percentage of Total Bid _____

Proposed Subcontractor, Name _____

Address _____

Description of Work _____

Approximate percentage of Total Bid _____

Proposed Subcontractor, Name _____

Address _____

Bidder to insert description of work, percentage of Total BID, and subcontractors' names as may be required.

This is to certify that all names of the above-mentioned subcontractors are submitted with full knowledge and consent of the respective parties.

The Bidder warrants that none of the proposed subcontractors have any conflict of interest as respects this contract.

Date _____

Bidder

(Name of Bidder)

By

(Signature)

(Title)

(Business Address)

(City and State)

SECTION 00400**BID BOND**

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned (Insert Name of Bidder) _____, as Principal, and (Insert Name of Surety) _____, as Surety, are hereby held and firmly bound and obligated unto the City of Salem, Massachusetts, as Owner, in the sum of _____ Dollars (\$ _____), as liquidated damages for payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of the above obligation is such that whereas the Principal has submitted to the City Salem, Massachusetts a certain Bid attached hereto and hereby made a part hereof, to enter into a contract in writing, hereinafter referred to as the "AGREEMENT" and/or "Contract", for "City of Salem, Massachusetts, Traffic Signal Improvements, Derby Street/Congress Street, Bid No. L-43".

NOW THEREFORE,

- (a) If said BID shall be rejected or withdrawn as provided in the INFORMATION FOR BIDDERS attached hereto or, in the alternative,
- (b) If said BID shall be accepted and the Principal shall duly execute and deliver the form of AGREEMENT attached hereto and shall furnish the specified bonds for the faithful performance of the AGREEMENT and/or Contract and for the payment for labor and materials furnished for the performance of the AGREEMENT and/or Contract,

then this obligation shall be void, otherwise it shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder in no event shall exceed the amount of this obligation.

The Surety, for value received, hereby agrees that the obligations of said Surety and its bond shall in no way be impaired or affected by any extensions of the time with which such BID may be accepted, and said Surety does hereby waive notice of any such extensions.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, have duly executed this bond on the _____ day of _____, 20 _____.

(SEAL)

(Name of Principal) L.S.

BY: _____
(Signature)

(Title)

(Name of Surety (Seal)

BY: _____
(Signature and Title)

BY: _____
Attorney-In-Fact

Sealed and delivered in
the presence of:

IMPORTANT: Surety Companies executing BONDS must appear on the U.S. Treasury Department's most current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts and be authorized to transact business in the state where the PROJECT is located.

If the Bond is signed on behalf of the Surety by an Attorney-In-Fact, there should be attached, a duly certified copy of his power of attorney showing his authority to sign such Bond.

SECTION 00500

**CONTRACT AGREEMENT
CITY OF SALEM, MASSACHUSETTS
TRAFFIC SIGNAL IMPROVEMENTS , DERBY STREET/CONGRESS STREET
BID NO. L-43**

THIS AGREEMENT, is executed this _____ day of _____ in the year Two Thousand and Ten (herein referred to as the "AGREEMENT") by and between the City of Salem, Massachusetts, party of the first part, and _____ (Name of Contractor) party of the second part.

WITNESSETH, that the parties to these presents, each in consideration of the undertakings, promises, and agreements on the part of the other herein contained, have undertaken, promised, and agreed and do hereby undertake, promise, and agree, the party of the first part for itself, its successors and assigns, and the party of the second part for himself and his heirs, executors, administrators, successors and assigns, as follows:

- | | | | |
|------|---|------|--------------------------------------|
| 1.01 | Definitions | 1.27 | Changes Not to Affect Bonds |
| 1.02 | The Contract Documents | 1.28 | Claims for Damages |
| 1.03 | Obligations and Liability of Contractor | 1.29 | Abandonment of Work or Other Default |
| 1.04 | Authority of the Engineer | | |
| 1.05 | Supervision of Work | | |
| 1.06 | Insurance | 1.30 | Prices for Work |
| 1.07 | Patents | 1.31 | Moneys May Be Retained |
| 1.08 | Compliance with Laws | 1.32 | Formal Acceptance |
| 1.09 | Provisions Required by Law Deemed
Inserted | 1.33 | Progress Estimates |
| 1.10 | Permits | 1.34 | Partial Acceptance |
| 1.11 | Not to Sublet or Assign | 1.35 | Final Estimate and Payment |
| 1.12 | Delay by Owner | 1.36 | Liens |
| 1.13 | Time for Completion | 1.37 | Claims |
| 1.14 | Liquidated Damages | 1.38 | Application of Moneys Retained |
| 1.15 | Night, Saturday, Sunday and Holiday Work | 1.39 | No Waiver |
| 1.16 | Employ Competent Persons | 1.40 | Liability of Owner |
| 1.17 | Employ Sufficient Labor and Equipment | 1.41 | Guarantee |
| 1.18 | Intoxicating Liquors and/or Drugs | 1.42 | Retain Money for Repairs |
| 1.19 | Access to Work | 1.43 | Return of Drawings |
| 1.20 | Examination of Work | 1.44 | Cleaning Up |
| 1.21 | Defective Work, Etc. | 1.45 | Legal Address of Contractor |
| 1.22 | Protection Against Water and Storm | 1.46 | Headings |
| 1.23 | Right to Materials | 1.47 | Modification or Termination |
| 1.24 | Changes | 1.48 | Direct Labor cost |
| 1.25 | Extra Work | 1.49 | Massachusetts Tax Laws |
| 1.26 | Extension of Time on Account of Extra Work | | |

1.01 DEFINITIONS

Wherever the words hereinafter defined or pronouns used in their stead occur in the Contract Documents, they shall have the following meaning indicated which shall be applicable to both the singular and plural thereof:

ADDENDA - Written or graphic instruments prior to the opening of Bids which Clarify, correct or change the Bidding Requirements or Contract Documents.

AGREEMENT - the written contract between Owner and Contractor covering the Work to be performed.

"AS DIRECTED," "AS ORDERED," "AS REQUESTED," "AS REQUIRED", "AS PERMITTED," or words of like import are used, it shall be understood that the direction, order, request, requirement, or permission of the Engineer is intended.

"APPROVED," "ACCEPTABLE," "SUITABLE," "SATISFACTORY," and words of like import shall mean approved by, acceptable to, suitable to, or satisfactory to the Engineer.

APPLICATION FOR PAYMENT - Form used by Contractor in requesting progress or final payments, format to be acceptable to the Engineer.

bid - The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

Bidder - Any person, firm or corporation submitting a bid for the work.

CHANGE ORDER - A document recommended by the Engineer, which is signed by the Contractor and Owner authorizing the addition, deletion or revision in the Work, or adjustment in the Contract Price or Contract Time, issued on or after the effective date of the Agreement.

CONTRACTOR - The person, firm or corporation with whom the Owner has entered into the Agreement.

Contract Bonds - Bid, Performance, and Labor and Materials Bonds and other instruments of security furnished by the Contractor and his surety in accordance with the Contract Documents.

CONTRACT DOCUMENTS - The Agreement, Addenda, Bid, Post Bid documentation submitted prior to the Notice Award, The Notice to Proceed, Bonds, General Conditions, Supplementary Conditions, The Specifications, the Drawings, all written Amendments, Change Orders, Field Orders, and Engineers written interpretations and clarifications.

Contract Price - The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

Contract Time - The number of calendar days stated in the Contract Documents for the completion of the Work.

Construction superintendent - That person designated by the Contractor to carry out the provisions of the Contract.

Datum or levels - The figures given in the Contract and Specifications or upon the Drawings after the word elevation or abbreviation of it, shall mean the distance in feet above mean sea level, the base of the State in which the Work is located and the United States Geodetic Survey (U.S.G.S.).

Drawings - The part of the Contract Drawings which show the characteristics and Scope of the Work to be

performed and which have been prepared or approved by the Engineer.

EARTH - Wherever used as the name of an excavated material or material to be excavated, shall mean all kinds of material other than rock as defined in this section.

Elevation - The figures given on the Drawings or in the other Contract Documents after the word "elevation" or abbreviation of it shall mean the distance in feet above the datum adopted by the Engineer.

Engineer - The person, firm or corporation duly appointed by the Owner to undertake the duties and powers herein assigned to the Engineer, acting either directly or through duly authorized representatives. (For this Contract, BETA Group, Inc.)

FIELD ORDER - A written order issued by the Engineer which orders minor changes in the Work which do not involve a change in the Contract Price or an extension of the Contract time.

GENERAL REQUIREMENTS - Sections of Division 1 of the Specifications.

"HEREIN," "HEREINAFTER," "HEREUNDER," and words of like import shall be deemed to refer to the Contract Documents.

Notice of award - The written notice of the acceptance of the Bid from the Owner to the successful Bidder.
notice to proceed - Written communication issued by the Owner to the Contractor authorizing him to proceed with the Work and establishing the date of commencement of the Work.

OWNER - The public body or authority, corporation, association, firm or person with whom the Contractor has entered into the Agreement and for whom the Work is to be provided.

project or contract - The undertaking to be performed in the Contract Documents.

project representative - The authorized representative of the owner who is assigned to the project site or any part thereof.

ROCK - wherever used as the name of an excavated material to be excavated, shall mean only boulders and pieces of concrete and masonry exceeding 1 cu. yd. in volume, or igneous, sedimentary, metamorphic, and conglomerate rock which, in the opinion of the Engineer, requires, for its removal, drilling and

blasting, wedging, sledging, barring, or breaking up with a power-operated tool. No soft or disintegrated rock which can be removed with a hand pick or power-operated excavator or shovel, no loose, shaken, or previously blasted rock or broken stone in rock fillings, or elsewhere, and no rock exterior to the maximum limits of measurement allowed, which may fall into the excavation, will be measured or allowed as "rock."

SHOP DRAWINGS - All drawings, diagrams, schedules and other data or information prepared for and submitted by the Contractor, to illustrate portions of the Work.

SPECIFICATIONS - The portions of the Contract documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.
subcontractor - An individual, firm or corporation, approved by the Owner and Engineer having a direct contract with the Contractor or with any other Sub-Contractor for the performance of a part of the Work on the Project.

SUBSTANTIAL COMPLETION - Date certified by the Engineer when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for which it was intended, as expressed in the Contract documents.

SUPPLEMENTARY CONDITIONS - The part of the Contract Documents which amends or supplements the General Conditions.

supplier - Any person or organization who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.

written notice - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed when posted by certified or registered mail to the said party at his last given address or delivered in person to said party or his authorized representative on the Work.

WORK - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

1.02 THE CONTRACT DOCUMENTS

A. The Contract Documents, as defined above, are sometimes herein referred to as the "Contract".

The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. In the event of any conflict or inconsistency between the provisions of the AGREEMENT and the provisions of any of the other Contract Documents, the provisions of the AGREEMENT shall prevail.

A. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the edition of the standard specification, manual, code or laws or regulations identified in the reference. In the event a particular edition is not identified, the reference shall mean the latest amended edition in effect at the time of receipt of the Bid. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of the Owner, the Contractor or the Designer, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to the Engineer, or any of the Engineer's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the provisions of the AGREEMENT.

1.03 OBLIGATIONS AND LIABILITY OF CONTRACTOR

A. The Contractor shall do all the work and perform and furnish all the labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies and all other things (except as otherwise expressly provided herein) necessary and as herein specified for the proper performance and completion of the Work in the manner and within the time hereinafter specified, in strict accordance with the Drawings, Specifications and other Contract Documents, in conformity with the directions and to the satisfaction of the Engineer, and at the prices herein agreed upon therefor.

B. All parts of the Work and all fixtures, equipment, apparatus and other items indicated on the Drawings and not mentioned in the Specifications, or vice versa,

and all work and material usual and necessary to make the work complete in all its parts, including all incidental work necessary to make it complete and satisfactory and ready for use and operation, whether or not they are indicated on the Drawings or mentioned in the Specifications, shall be furnished and executed the same as if they were called for both by the Drawings and by the Specifications.

C. The Contractor shall coordinate his operations with those of any other contractors who may be employed on other work of the Owner, shall avoid interference therewith, and shall cooperate in the arrangements for storage of materials and equipment.

D. The Contractor shall conduct his work so as to interfere as little as possible with private business and public travel. Wherever and whenever necessary or required, he shall maintain fences, furnish watchmen, maintain lights, and take such other precaution as may be necessary to protect life and property.

E. The Contractor shall indemnify and save harmless the Owner and the Engineer and their officers, agents, servants and employees, from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, on account of bodily injury, sickness, disease or death sustained by any person or persons or injury or damage to or destruction of any property, directly or indirectly arising out of, relating to or in connection with the Work, whether or not due or claimed to be due in whole or in part to the active, passive or concurrent negligence or fault of the Contractor, his officers, agents, servants or employees, any of his subcontractors, or any of their respective officers, agents, servants or employees and/or any other person or persons, and whether or not such claims, demands, suits or proceedings are just, unjust, groundless, false or fraudulent; and the Contractor shall and does hereby assume and agrees to pay for the defense of all such claims, demands, suits and proceedings, provided, however, that the Contractor shall not be required to indemnify the Engineer, his officers, agents, servants or employees, against any such damages occasioned solely by defects in maps, plans, drawings, designs or specifications prepared, acquired or used by the Engineer and/or solely by the negligence or fault of the Engineer; and provided further, that the Contractor shall not be required to indemnify the Owner, his officers, agents, servants or employees, against any such damages occasioned solely by acts or omissions

of the Owner other than supervisory acts or omissions of the Owner in the Work.

F. The Contractor shall have complete responsibility for the Work and the protection thereof, and for preventing injuries to persons and damage to the Work and property and utilities on or about the Work, until final completion and final acceptance thereof. He shall in no way be relieved of his responsibility by and right of the Engineer to give permission or directions relating to any part of the Work, by any such permission or directions given, or by failure of the Engineer to give such permission or directions. The Contractor shall bear all costs, expenses, losses and damages on account of the quantity or character of the Work or the nature of the land (including but not limited to subsurface conditions) in or under or on which the Work is done being different from that indicated or shown in the Contract Documents or from what was estimated or expected, or on account of the weather, elements, or other causes.

G. The Contractor shall conduct his operations so as not to damage existing structures or work installed either by him or by other contractors. In case of any such damage resulting from his operations, he shall repair and make good as new the damaged portions at his own expense with the consent of the damaged party. In the event that consent is not given, the Contractor shall continue liable for the damage caused.

H. The Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractors, their officers, agents, servants and employees as he is for his own acts and omissions and those of his own officers, agents, servants and employees.

I. Should the Contractor sustain any loss, damage or delay through any act or omission of any other contractor or any subcontractor of any such other contractor, the Contractor shall have no claim against the Owner therefor, other than for an extension of time, but shall have recourse solely to such other contractor or subcontractor.

J. If any other contractor or any subcontractor of any such other contractor shall suffer or claim to have suffered loss, damage or delay by reason of the acts or omissions of the contractor or of any of his subcontractors, the Contractor agrees to assume the defense against any such claim and to reimburse such other contractor or subcontractor for such loss or damage.

K. The Contractor agrees to and does hereby indemnify and save harmless the Owner from and against any and all claims by such other contractors or subcontractors alleging such loss, damage or delay from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, arising out of, relating to or resulting from such claims.

L. The Contractor shall promptly pay all federal, state and local taxes which may be assessed against him in connection with the Work or his operations under the AGREEMENT and/or the other Contract Documents, including, but not limited to, taxes attributable to the purchase of material and equipment, to the performance of services, and the employment of persons in the prosecution of the Work.

M. Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material

1. The Owner shall be responsible for any Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site which was not shown or indicated in Drawings or Specification or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work at the site. The Owner shall not be responsible for any such materials brought to the site by the Contractor, Subcontractors, Suppliers or anyone else for whom the Contractor is responsible.

2. To the fullest extent permitted by Laws and Regulations, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Engineer, Engineer's Consultants and the officers, directors, employees, agents other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages arising out of or resulting from such hazardous condition, provided that: (i) any such claim, cost, loss or damage is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, and (ii) nothing in this subparagraph shall obligate the Owner to indemnify any person or entity from and against the consequences of that person's or entity's own negligence.

1.04 AUTHORITY OF THE ENGINEER

A. The Engineer shall be the sole judge of the intent and meaning of the Drawings and Specifications and

his decisions thereon and his interpretation thereof shall be final, conclusive and binding on all parties.

B. The Engineer shall be the Owner's representative during the life of the Contract and he shall observe the Work in progress on behalf of the Owner. He shall have authority (1) to act on behalf of the Owner to the extent expressly provided in the Contract or otherwise in writing; (2) to determine the amount, quality, acceptability and fitness of all work, materials and equipment required by the Contract; and (3) to decide all questions which arise in relation to the Work, the execution thereof, and the fulfillment of the Contract.

C. The Contractor shall proceed without delay to perform the work as directed, instructed, determined or decided by the Engineer and shall comply promptly with such directions, instructions, determinations or decisions. If the Contractor has any objection thereto he may, within ten (10) days of having received any such direction, instruction, determination or decision, require that any such direction, instruction, determination or decision be put in writing and within ten (10) days after receipt of any such writing he may file a written protest with the Owner stating clearly and in detail his objections, the reasons therefor, and the nature and amount of additional compensation, if any, to which he claims he will be entitled thereby. A copy of such protest shall be filed with the Engineer at the same time it is filed with the Owner. Unless the Contractor requires that any such direction, instruction, determination or decision be put in writing within ten (10) days of having received such direction, instruction, determination or decision and unless the Contractor files such written protest with the Owner and Engineer within such ten (10) day period, he shall be deemed to have waived all grounds for protest of such direction, instruction, determination, or decision and all claims for additional compensation or damages occasioned thereby, and shall further be deemed to have accepted such direction, instruction, determination, or decision as being fair, reasonable, and finally determinative of his obligations and rights under the Contract.

1.05 SUPERVISION OF WORK

A. The Contractor shall be solely responsible for supervision of the Work, shall give the work the constant attention necessary to ensure the expeditious and orderly progress thereof, and shall cooperate with the Engineer in every possible way.

B. At all times, the Contractor shall have his agent on the Work a competent superintendent capable of reading and thoroughly understanding the Drawings and Specifications, with full authority to execute the directions of the Engineer without delay and to supply promptly such labor, services, materials, equipment, plant, apparatus, appliances, tools, supplies and other items as may be required. Such superintendent shall not be removed from the Work without the prior written consent of the Engineer. If, in the opinion of the Engineer, the superintendent or any successor proves incompetent, the Contractor shall replace him with another person approved by the Engineer; such approval, however, shall in no way relieve or diminish the Contractor's responsibility for supervision of the Work.

C. Whenever the Contractor or his agent or superintendent is not present on any part of the Work where it may be necessary to give directions or instructions with respect to such work, such directions or instructions may be given by the Engineer to and shall be received and obeyed by the designated foreman or any other person in charge of the particular work involved.

1.06 INSURANCE

A. Before starting and until final completion and acceptance of the Work and expiration of the guarantee period provided for in the AGREEMENT the Contractor shall procure and maintain insurance of the types specified in paragraphs (1) to (15), inclusive, below, and to the limits for this insurance specified in Table A at the end of this section. All insurance shall be obtained from companies satisfactory to the Owner and Engineer.

B. Insurance shall be in such forms as will protect the Contractor from all claims and liability for damages for bodily and personal injury, including accidental death, and for property damage, which may arise from operations under the Contract, whether such operations be by himself, his subcontractors, or by anyone directly or indirectly employed or engaged by him.

C. The City of Salem, Massachusetts and BETA Group shall be named as an "additionally insured".

D. The following types of insurance shall be provided on all policies:

1. Workmen's Compensation and Employer's Liability Insurance.

2. Bodily Injury Insurance for operations and completed operations and Contractor's Protective Bodily Injury Insurance.

3. Property Damage Insurance for operations and completed operations and Contractor's Protective Property Damage Insurance, each including coverage for injury to or destruction of wires or pipes and similar property and appurtenant apparatus and the collapse of or structural injury to any building or structure except those on which work under the Contract is being done. Blasting and explosion coverage shall be obtained if there is a need for blasting under the Contract, and no blasting shall be performed until such insurance has been secured.

4. Bodily Injury Insurance covering the operation of all motor vehicles owned by the Contractor.

5. Personal Injury Insurance to cover claims for personal injury and including claims brought by employees.

6. Property Damage Insurance covering the operation of all motor vehicles owned by the Contractor.

7. Insurance to cover bodily injuries and property damage resulting from the use of motor vehicles not owned by the Contractor, while such vehicles are being operated in connection with the prosecution of the Work.

8. Contractual Liability Insurance covering the liability assumed by the Contractor under the fifth paragraph of that subsection titled "Obligations and Liability of Contractor" of this AGREEMENT.

9. Owner's Protective Liability and Property Damage Insurance to protect the Owner and the Engineer against claims for Property damage and for bodily injuries, including accidental death, caused by the operations of the Contractor or his subcontractors on the Work. The policy shall indicate the Owner and the Engineer as the named insured. A copy of the policy shall be furnished to the Owner and a Certificate of Insurance shall be furnished to the Engineer.

10. Builders' Risk Insurance with an "All Risk" Installation Floater covering loss by fire and extended coverage in the completed value form in the amount of the total insurable value of all structures, materials, and equipment to be built and installed. The insurance shall be obtained from a company satisfactory to the Owner. The policy shall indicate Owner, the Contractor, all subcontractors, and the Engineer as the named insured with loss payable to the Owner as Trustee. The policy shall provide for a 30-day notice

to the Owner of cancellation or restrictive amendment. A copy of the policy shall be furnished to the Owner and a Certificate of Insurance shall be furnished to the Engineer. The insurance shall be obtained before the work is started and shall be maintained until the date of completion of the work as stated in the final estimate, or until the Owner occupies or otherwise take possession of the structure, whichever occurs first.

E. All policies shall be so written that the Owner will be notified in writing of cancellation or restrictive amendment at least 30 days prior to the effective date of such cancellation or amendment.

F. Certificates from the Contractor's insurance carriers stating the coverage provided, the limits of liability, and expiration dates shall be filed in triplicate with the Owner before operations are begun. Such certificates shall be on the form furnished by the Owner.

G. Certificates from the contractor naming the City of Salem, Massachusetts and BETA Group as additionally insured must be received by the Owner prior to initiating the work.

H. Renewal certificates must be furnished by the Contractor prior to the expiration date of any of the initial insurances.

I. No insurance required or furnished hereunder shall in any way relieve the Contractor of or diminish any of his responsibilities, obligations and liabilities under the Contract.

1.07 PATENTS

A. The Contractor's attention is directed to the following "Patent Indemnity Clause" illustrating the format and/or required wording therefore which shall be used by all manufacturers and/or suppliers, as deemed necessary by the Owner and Engineer, as an Indemnification and Hold Harmless Agreement.

B. This Agreement shall be accepted and approved in form by the Owner and Engineer prior to the approval and/or installation of the product.

PATENT INDEMNIFICATION

"In consideration for their purchase and use of the (Name of product and/or equipment) manufactured by

(name of Manufacturer) and for other good and valuable consideration, (Name of Manufacturer) agrees to defend and hold harmless (Name of Contractor), BETA Group, Inc., and the (Name of Owner), and their employees and agents, from and against any liability, loss, cost, expense or damage including reasonable attorneys' and accountants' fees incurred by these entities in defending or prosecuting any claim for such liability, loss, cost, expense or damage resulting or arising out of a claim that the use of the above mentioned product and/or equipment delivered hereunder directly infringes any United States Patent, provided that (Name of Manufacturer) is given authority, information, and assistance for the defense of such suit, and (Name of Manufacturer) shall pay all damages and costs assessed against the above named entities for the use of such produce and/or equipment provided, however, that this indemnification shall not apply to equipment of (Name of Contractor) design, and provided further that if the use of such product and/or equipment is enjoined in any suit, (Name of Manufacturer) shall at its own expense and its option either procure for (name of Contractor) the right to continue the normal use of such produce and/or equipment, replace said product and/or equipment, modify said equipment or refund the purchase price thereof; and provided further that (Name of Manufacturer) indemnity as to use shall not apply to infringement resulting from the use of the produce and/or equipment delivered hereunder in combination with other items where use of the product and/or equipment per se does not constitute infringement."

1.08 COMPLIANCE WITH LAWS

A. The Contractor shall keep himself fully informed of all existing and future federal, state, and local laws, ordinances, rules, and regulations affecting those engaged or employed on the Work, the materials and equipment used in the Work or the conduct of the Work, and of all orders, decrees and other requirements of bodies of tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the Drawings, Specifications or other Contract Documents in relation to any such law, ordinance, rule, regulation, order, decree or other requirement, the Contractor shall forthwith report the same to the Engineer in writing. The Contractor shall at all times observe and comply with, and cause all his agents, with all such existing and future laws, ordinances, rules, regulations, orders, decrees and other requirements, and he shall protect, indemnify and save harmless the Owner, its officers, agents, servants and employees, from and against any and all claims, demands, suits, proceedings, liabilities,

judgements, penalties, losses, damages, costs and expenses, including attorneys' fees, arising from or based upon any violation or claimed violation of any such law, ordinance, rule, regulation, order, decree or other requirement, whether committed by the Contractor or any of his agents, servants, employees or subcontractors.

1.09 PROVISIONS REQUIRED BY LAW DEEMED INSERTED

A. Each and every provision of law and clause required by law to be inserted in the Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though they were included herein. 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.

1.10 PERMITS

A. The Contractor shall, at his own expense, take out and maintain all necessary permits from the county, municipal, or other public authorities; shall give the notices required by law; and shall post all bonds and pay all fees and charges incident to the due and lawful prosecution of the Work.

1.11 NOT TO SUBLET OR ASSIGN

A. The Contractor shall constantly give his personal attention to the faithful prosecution of the Work, shall keep the same under his personal control, shall not assign the Contract or sublet the Work or any part thereof without the previous written consent of the Owner, and shall not assign any of the moneys payable under the Contract, or his claim thereto, unless by and with the like written consent of the Owner and the Surety on the Contract Bonds. Any assignment or subletting in violation hereof shall be void and unenforceable.

B. The Contractor shall not sublet or assign work to a subcontractor(s), for a total in excess of fifty (50) percent of the Contract Price, without prior written approval of the Owner and Engineer.

C. The Contractor shall be fully responsible to the Owner for the acts and omissions of his subcontractors, suppliers, and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him.

D. The Contractor shall cause appropriate provisions, and applicable State or Federal regulations, to be inserted in all subcontractors relative to the work to bind subcontractors to the Contractor by the terms of the Contract Documents insofar as applicable to the work of subcontractors, and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.

E. The Contractor's attention is directed to the fact that nothing contained in this Contract shall create any contractual relation between any subcontractor and the Owner.

1.12 DELAY BY OWNER

A. The Owner may delay the beginning of the Work or any part thereof if the necessary lands or rights-of-way for such work shall not have been obtained. The Contractor shall have no claim for additional compensation or damages on account of such delay, but shall be entitled only to any extension of time as hereinafter provided.

1.13 TIME FOR COMPLETION

A. The rate of progress shall be such that the Work shall be performed and completed in accordance with the Contract before the expiration of the time limit stipulated in Table A at the end of this section, except as otherwise expressly provided herein.

B. It is agreed that the rate of progress herein required has been purposely made low enough to allow for the ordinary and foreseeable delays incident to construction work of this character. No extension of time will be given for ordinary or foreseeable delays, inclement weather, or accidents, and the occurrence of such will not relieve the Contractor from the necessity of maintaining this rate of progress and completing the Work within the stipulated time limit.

C. If delays are caused by acts of God, acts of Government, unavoidable strikes, extra work, or other cause or contingencies clearly beyond the control or responsibility of the Contractor, the Contractor may be entitled to additional time to perform and complete the Work, provided that the Contractor shall, within ten (10) days from the beginning of such delay notify the Owner in writing, with a copy to the Engineer, of the cause and particulars of the delay. Upon receipt of such notification, the Owner shall review and evaluate the cause and extent of the delay. If, under the terms of

the AGREEMENT, the delay is properly excusable, the Owner will, in writing, appropriately extend the time for completion of the Work. (This paragraph will be interpreted to include delays in receipt of equipment provided that the Contractor placed his order and submitted shop drawings for such equipment promptly after execution of the Contract, that he has shown due diligence in following the progress of the order, and that the time required for delivery is in accordance with conditions generally prevailing in the industry.) The Contractor agrees that he shall not have or assert any claim for nor shall he be entitled to any additional compensation or damages on account of such delays.

D. The time in which the Work is to be performed and completed is of the essence of this AGREEMENT.

1.14 LIQUIDATED DAMAGES

A. In case the Contractor fails to complete the Work satisfactorily on or before the date of completion fixed herein or as duly extended as hereinbefore provided, the Contractor agrees that the Owner shall deduct from the payments due the Contractor each month the sum set forth in Table A at the end of this section for each calendar day of delay, which sum is agreed upon not as a penalty, but as fixed and liquidated damages for each day of such delay. If the payments due the Contractor are less than the amount of such liquidated damages, said damages shall be deducted from any other moneys due or to become due the Contractor, and, in case such damages shall exceed the amount of all moneys due or to become due the Contractor, the Contractor or his Surety shall pay the balance to the Owner.

1.15 NIGHT, SATURDAY, SUNDAY AND HOLIDAY WORK

A. No work shall be done at night, on Saturday on Sunday or on a holiday except (1) usual protective work, such as pumping and the tending of lights, (2) work done in case of emergency threatening injury to persons or property, or (3) if all of the conditions set forth in the next paragraph below are met.

B. No work other than that included in (1) and (2) above shall be done at night except when (a) in the sole judgment of the Owner, the work will be of advantage to the Owner and can be performed satisfactorily at night, (b) the work will be done by a crew organized for regular and continuous night work, and (c) in the sole judgment of the Owner and Engineer, adequate noise prevention measures are incorporated into the Work by the Contractor to minimize any noise impact

within the work area and (d) the Owner has given written permission for such night work. The Contractor is responsible for obtaining all permits and approvals required.

1.16 EMPLOY COMPETENT PERSONS

A. The Contractor shall employ only competent persons on the Work and shall not employ persons or means which may cause strikes, work stoppages or any disturbances by persons employed by the Contractor, any subcontractor, the Owner, the Engineer or any other contractor. Whenever the Engineer notifies the Contractor in writing that in his opinion any person on the Work is incompetent, unfaithful, disorderly, or otherwise unsatisfactory, or not employed in accordance with the provisions of the Contract, such person shall be discharged from the Work and shall not again be employed on it, except with the written consent of the Engineer.

1.17 EMPLOY SUFFICIENT LABOR AND EQUIPMENT

A. If in the sole judgment of the Engineer the Contractor is not employing sufficient labor, plant, equipment or other means to complete the Work within the time specified, the Engineer may, after giving written notice, require the Contractor to employ such additional labor, plant, equipment and other means as the Engineer deems necessary to enable the Work to progress properly.

1.18 INTOXICATING LIQUORS AND/OR DRUGS

A. The Contractor shall not sell and shall neither permit nor suffer the introduction and/or use of intoxicating liquors and/or drugs upon or about the Work.

1.19 ACCESS TO WORK

A. The Owner, the Engineer, and their officers, agents, servants and employees may at any and all times and for any and all purposes, enter upon the Work and the site thereof and the premises used by the Contractor, and the Contractor shall at all times provide safe and proper facilities therefor.

1.20 EXAMINATION OF WORK

A. The Engineer shall be furnished by the Contractor with every reasonable facility for examining and

inspecting the Work and for ascertaining that the Work is being performed in accordance with the requirements and intent of the Contract, even to the extent of requiring the uncovering or taking down portions of furnished work by the Contractor.

B. Should the work thus uncovered or taken down prove satisfactory, the cost of uncovering or taking down and the replacement thereof shall be considered as extra work unless the original work was done in violation of the Contract in point of time or in the absence of the Engineer or his inspector and without his written authorization, which case said cost shall be borne by the Contractor. Should the work uncovered or taken down prove unsatisfactory, said cost shall likewise borne by the Contractor.

C. Examination of inspection of the Work shall not relieve the Contractor of any of his obligations to perform and complete the Work as required by the Contract.

1.21 DEFECTIVE WORK, ETC.

A. Until acceptance and during the applicable guarantee period thereafter, the Contractor shall promptly, without charge, repair, correct or replace work, equipment, materials, apparatus or parts thereof which are defective, damaged or unsuitable or which in any way fail to comply with or be in strict accordance with the provisions and requirements of the Contract or applicable guarantee and shall pay to the Owner all resulting costs, expenses, losses or damages suffered by the Owner.

B. If any material, equipment, apparatus or other items brought upon the site for use or incorporation in the Work, or selected for the same, is rejected by the Engineer as unsuitable or not in conformity with the Specifications or any of the other Contract Documents, the Contractor shall forthwith remove such materials, equipment, apparatus and other items from the site of the Work and shall at his own cost and expense make good and replace the same and any material furnished by the Owner which shall be damaged or rendered defective by the handling or improper installation by the Contractor, his agents, servants, employees or subcontractors.

1.22 PROTECTION AGAINST WATER AND STORM

A. The Contractor shall take all precautions necessary to prevent damage to the Work by storms or by water

entering the site of the Work directly or through the ground. In case of damage by storm or water, the Contractor shall at his own cost and expense make such repairs or replacements or rebuild such parts of the Work as the Engineer may require in order that the finished Work may be completed as required by the Contract.

1.23 RIGHT TO MATERIALS

A. Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the materials, equipment, apparatus and other items furnished after they have been installed or incorporated in or attached or affixed to the Work or the site, but all such materials, equipment, apparatus and other items shall, upon being so installed, incorporated, attached or affixed, become the property of the Owner. Nothing in this subsection shall relieve the Contractor of his duty to protect and maintain all such materials, equipment, apparatus and other items.

1.24 CHANGES

A. The Owner, through the Engineer, may make changes in the Work and in the Drawings and Specifications therefor by making alterations therein, additions thereto or omissions therefrom. All work resulting from such changes shall be performed and furnished under the pursuant to the terms and conditions of the Contract. If such changes result in an increase or decrease in the Work to be done hereunder, or increase or decrease the quantities thereof, adjustment in compensation shall be made therefor at the unit prices stipulated in the Contract for such work, except that if unit prices are not stipulated for such work, compensation for additional or increased work shall be made as provided hereinafter under the subsection titled "Extra Work"; and for eliminated or decreased work the Contractor shall allow the Owner a reasonable credit as determined by the Engineer.

B. Except in an emergency endangering life or property, no change shall be made unless in pursuance of a written order from the Engineer authorizing the change, and no claim for additional compensation shall be valid unless the change is so ordered.

C. The Contractor agrees that he shall neither have nor assert any claim for or be entitled to any additional compensation for damages or for loss of anticipated profits on work that is eliminated.

1.25 EXTRA WORK

A. The Contractor shall perform any extra work (work in connection with the Contract but not provided for herein) when and as ordered in writing by the Engineer, at the unit prices stipulated in the Contract for such work or, if none are so stipulated, whether (a) at the price agreed upon before such work is commenced and named in the written order for such work, or (b) if the Engineer so elects, for the reasonable cost of such work, as determined by the contractor and approved by the Engineer, plus a percentage of such cost, as set forth below. No extra work shall be paid for unless specifically ordered as such in writing by the Engineer.

B. The Contractor shall submit claim for any extra work within ten (14) calendar days of performing said extra work.

C. The cost of extra work done under (b) above shall include the reasonable cost to the Contractor of materials used and equipment installed, common and skilled labor, and foremen, and the fair rental of all machinery and equipment used on the extra work for the period of such use.

D. At the request of the Engineer, the Contractor shall furnish itemized statements for the cost of the extra work ordered as above and give the Engineer access to all records, accounts, bills and vouchers and correspondence relating thereto.

E. The Contractor may include in the cost of extra work the amounts of additional premiums, if any, (other than premiums on bonds) paid on the required insurance on account of such extra work, of Social Security or other direct assessments upon the Contractor's payroll by Federal or other properly authorized public agencies, and of other approved assessments when such assessments are not normally included in payments made by the Contractor directly to his employees, but in fact are, and are customarily recognized as, part of the cost of doing work.

F. The fair rental for all machinery and equipment shall be based upon the most recent edition of "Compilation of Rental Rates for Construction Equipment," published by the Associated Equipment Distributors, or a similar publication approved by the Engineer. Rental for machinery and equipment shall be based upon an appropriate fraction of the approved monthly rate schedule. If said extra work requires the use of machinery or equipment not already on the site

of the Work the cost of transportation, not exceeding a distance of 100 miles, of such machinery or equipment to and from the Work shall be added to the fair monthly rental; provided, however, that this shall not apply to machinery or equipment already required to be furnished under the terms of the Contract.

G. The Contractor shall not include in the cost of extra work any cost or rental of small tools, building, or any portion of the time of the Contractor, his superintendent, or his office and engineering staff.

H. To the cost of extra work done by the Contractor's own forces under (b) above (determined as stated above), the Contractor may add 20 percent to cover his overhead, use of capital, the premium on the Bonds as assessed upon the amount of this extra work, and profit.

I. In the case of extra work done under (b) by a subcontractor the subcontractor shall compute, as above, his cost for the extra work, to which he may add 20 percent as in the case of the Contractor. The Contractor shall be allowed an additional 5 percent of the subcontractor's initial cost for the extra work prior to the 20 percent adjustment, to cover the costs of the Contractor's overhead use of capital, the premium on the Bonds as assessed upon the amount of this work, and profit. Said subcontractor's cost must be reasonable and approved by the Engineer.

J. If extra work is done under (b) above, the Contractor and/or subcontractor shall keep daily records of such extra work. The daily record shall include the names of men employed, the nature of the work performed, and hours worked, materials and equipment incorporated, and machinery or equipment used, if any, in the prosecution of such extra work. This daily record, to constitute verification that the work was done, must be signed both by the Contractor's authorized representative and by the Engineer. A separate daily record shall be submitted for each Extra Work Order.

1.26 EXTENSION OF TIME ON ACCOUNT OF EXTRA WORK

A. When extra work is ordered near the completion of the Contract or at any time during the progress of the Work which unavoidably increases the time for the completion of the Work, and extension of time shall be granted as hereinbefore provided.

1.27 CHANGES NOT TO AFFECT BONDS

A. It is distinctly agreed and understood that any changes made in the Work or the Drawings or Specifications therefor (whether such changes increase or decrease the amount thereof or the time required for its performance) or any changes in the manner of time of payments made by the Owner to the Contractor, or any other modifications of the Contract, shall in no way annul, release, diminish or affect the liability of the Surety on the CONTRACT BONDS given by the Contractor, it being the intent hereof that notwithstanding such changes the liability of the Surety on said bonds continue and remain in full force and effect.

1.28 CLAIMS FOR DAMAGES

A. If the Contractor makes claim for any damages alleged to have been sustained by breach of contract or otherwise, he shall, within ten (10) days after occurrence of the alleged breach or within ten (10) days after such damages are alleged to have been sustained, whichever date is the earlier, file with the Engineer a written, itemized statement of the details of the alleged breach and the details and amount of the alleged damages. The Contractor agrees that unless such statement is made and filed as so required, his claim for damages shall be deemed waived, invalid and unenforceable, and that he shall not be entitled to any compensation for any such alleged damages. Within ten (10) days after the timely filing of such statement, the Engineer shall file with the Owner a copy of the statement, together with his recommendations for action by the Owner.

B. The Contractor shall not be entitled to claim any additional compensation for damages by reason of any direction instruction, determination or decision of the Engineer, nor shall any such claims be considered, unless the Contractor shall have complied in all respects with the Article titled "Authority of the Engineer", including, but not limited to the filing of a written protest in the manner and within the time therein provided.

1.29 ABANDONMENT OF WORK OR OTHER DEFAULT

A. If the Work shall be abandoned, or any part thereof shall be sublet without previous written consent of the Owner, or the Contract or any moneys payable hereunder shall be assigned otherwise than as herein specified, or if at any time the Engineer shall be of the opinion, and shall so certify in writing, that the

conditions herein specified as to rate of progress are not being complied with, or that the Work or any part thereof is being unnecessarily or unreasonably delayed, or that the Contractor has violated or is in default under any of the provisions of the Contract, or if the Contractor becomes bankrupt or insolvent or goes or is put into liquidation or dissolution, either voluntarily or involuntarily, or petitions for an arrangement or reorganization under the Bankruptcy Act, or makes a general assignment for the benefit of creditors or otherwise acknowledges insolvency, the happening of any of which shall be and constitute a default under the Contract, the Owner may notify the Contractor in writing, with a copy of such notice mailed to the Surety, to discontinue all Work or any part thereof; thereupon the Contractor shall discontinue such Work or such part thereof as the Owner may designate; and the Owner may, upon giving such notice, by contract or otherwise as it may determine, complete the Work or such part thereof and charge the entire cost and expense of so completing the Work or such part thereof to the Contractor. In addition to the said entire cost and expense of completing the Work, the Owner shall be entitled to reimbursement from the Contractor and the Contractor agrees to pay to the Owner any losses, damages, costs and expenses, including attorney's fees, sustained or incurred by the Owner by reason of any of the foregoing causes. For the purposes of such completion the Owner may for itself or for any Contractors employed by the Owner take possession of and use or cause to be used any and all materials, equipment, plant, machinery, appliances, tools, supplies and such other items of every description that may be found or located at the site of the Work.

B. All costs, expenses, losses, damages, attorney's fees and any and all other charges incurred by the Owner under this subsection shall be charged against the Contractor and deducted and/or paid by the Owner out of any moneys due of payable or to become due or payable under the Contract to the Contractor; in computing the amounts chargeable to the Contractor the Owner shall not be held to a basis of the lowest prices for which the completion of the Work or any part thereof might have been accomplished, but all sums actually paid or obligated therefor to effect its prompt completion shall be charged to and against the account of the Contractor. In case the costs, expenses, losses, damages, attorney's fees and other charges together with all payments theretofore made to or for the account of the Contractor are less than the sum which would have been payable under the Contract if the Work had been properly performed and completed by the Contractor, the Contractor shall be entitled to receive the difference, and, in case such costs,

expenses, losses, damages, attorneys' fees and other charges, together with all payments theretofore made to or for the account of the Contractor, shall exceed the said sum, the Contractor shall pay the amount of the excess to the Owner.

1.30 PRICES FOR WORK

A. The Owner shall pay and the Contractor shall receive the prices stipulated in the BID made a part hereof as full compensation for everything performed and furnished and for all risks and obligations undertaken by the Contractor under and as required by the Contract.

1.31 MONEYS MAY BE RETAINED

A. The Owner may at any time retain from any moneys which would otherwise be payable hereunder so much thereof as the Owner may deem necessary to complete the Work hereunder and to reimburse it for all costs, expenses, losses, damage and damages chargeable to the Contractor hereunder, in accordance with the States General Laws.

1.32 FORMAL ACCEPTANCE

A. This Agreement constitutes an entire contract for one whole and complete Work or result. Fixing of the date of completion and acceptance of the Work or a specified part thereof shall only be effective when accomplished by a writing specifically so stating and signed by the Owner.

1.33 PROGRESS ESTIMATES

A. Once a month, except as hereinafter provided, the Engineer shall make an estimate in writing of the total amount and value of the work done to the first of the month by the Contractor. The Owner shall retain a percentage of such estimated value, as set forth in Table A at the end of this section, as part security for fulfillment of the Contract by the Contractor and shall deduct from the balance all previous payments made to the Contractor, all sums chargeable against the Contractor and all sums to be retained under the provisions of the Contract.

B. Estimates of lump-sum items shall be based on a schedule dividing each such item into its appropriate component parts together with a quantity and a unit price for each part so that the sum of the products of prices and quantities will equal the Contract price for the item. This schedule must be submitted by the

Contractor for and must have the approval of the Engineer before the first estimate becomes due.

C. If the Engineer determines that the progress of the Work will be benefited by the delivery to the site of certain materials and equipment, when available, in advance of actual requirement therefor and if such materials and equipment are delivered and properly stored, protected and insured as determined by the Engineer, the cost to the Contractor or subcontractor as established by invoices or other suitable vouchers satisfactory to the Engineer, less the retained percentages as above provided, may be included in the progress estimates; provided always that there be duly executed and delivered by the Contractor to the Engineer at the same time a Bill of Sale in form satisfactory to the Owner, transferring and assigning to the Owner full ownership and title to such materials or equipment.

D. The Owner shall pay monthly to the Contractor in accordance with General Laws Chapter 30, Section 39, as amended:

1. Within fifteen (15) days (twenty-four (24) days in the case of the Commonwealth) after receipt from the Contractor, at the place designated by the Owner if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the Owner will make periodic payment to the Contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the Contractor has title or to which a subcontractor has title and has authorized the Contractor to transfer title to the Owner, less (1) a retention based on its estimate of the fair value of its claims against the Contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section 39F and less (3) a retention not exceeding five percent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within 65 days after (a) the Contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the awarding authority, less than one percent of original contract price, or (b) the Contractor substantially completes the work and the Owner takes possession for occupancy, whichever occurs first, the Owner shall pay the Contractor the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the Contractor and of the

cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section 39 F, or based on the record of payments by the Contractor to the subcontractors under this contract if such record of payment indicates that the Contractor has not paid subcontractors as provided in section 39 F. If the Owner fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate than charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until payment delivered or mailed to the Contractor; provided, that no interest shall be due, in any event, on the amount due on periodic estimate for final payment until 15 days (24 days in the case of the Commonwealth) after receipt of such a periodic estimate from the Contractor, at the place designated by the Owner if such a place is so designated. The Contractor agrees to pay to each subcontractor a portion of any such interest in accordance with the amount due each subcontractor.

2. Forthwith after the Contractor receives payment on account of a periodic estimate, the Contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the Contractor.

3. Not later than the 65th day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the Owner as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the Owner shall pay that amount to the Contractor. The Contractor shall forthwith pay to the subcontractor the full amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the Contractor.

4. Each payment made by the Owner to the Contractor pursuant to subparagraphs (2) and (3) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the Contractor for the account of that subcontractor; and the Owner shall take reasonable steps to compel the Contractor to make each such payment to each such subcontractor. If the Owner has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the Contractor or which is to be included in a payment to

the Contractor for payment to the subcontractor as provided in subparagraphs (2) and (3), the Owner shall act upon the demand as provided in this section.

5. If, within 70 days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the Contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount retained by the Owner as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the Owner. The demand shall be by a sworn statement delivered to or sent by certified mail to the Owner, and a copy shall be delivered to or sent by certified mail to the Contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the 70th day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the Owner and delivered or so mailed a copy to the Contractor, the Contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the Owner and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor and of the amount due for each claim made by the Contractor against the subcontractor.

6. Within 15 days after receipt of the demand by the Owner, but in no event prior to the 17th day after substantial completion of the subcontract work, the Owner shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount (i) retained by the Owner as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the Contractor in the sworn reply; provided, that the Owner shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (5). The Owner shall make further direct payments to the subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.

7. The Owner shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (6) in an interest-bearing joint account in the names of the Contractor and the subcontractor in a bank in Massachusetts selected by the Owner or agreed upon by the Contractor and the subcontractor and shall notify the Contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the Contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

8. All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (7) shall be made out of amounts payable to the Contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the Contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the Owner to the Contractor to the extent of such payment.

9. The Owner shall deduct from payments to a Contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (7), are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the Contractor.

10. If the subcontractor does not receive payment as provided in subparagraph (2) or if the Contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (2), the subcontractor may demand direct payment by following the procedure in subparagraph (5) and the Contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the Contractor. Thereafter the Owner shall proceed as provided in subparagraph (6), (7), (8), and (9).

11. "Subcontractor" as used in Section 1.34 shall mean a person who files a sub-bid and receives a subcontract as a result of that filed subbid or who is approved by the Owner in writing as a person performing labor or

both performing labor and furnishing materials pursuant to a contract with the Contractor.

1.34 PARTIAL ACCEPTANCE

A. The Owner may, at any time in a written order to the Contractor (1) declare that he intends to use a specified part of the Work which in his opinion is sufficiently complete, in accordance with the Contract Documents, to permit its use; (2) enclose a tentative list of items remaining to be completed or corrected, and (3) fix the date of acceptance of that specified part of the Work.

B. Within 45 days after acceptance under this subsection, the Engineer shall make an estimate in writing of the amount and value of the part of the Work so accepted. The Owner shall pay said amount to the Contractor after deducting therefrom all previous payments, all charges against the Contractor as provided for hereunder, and all amounts to be retained under the provisions of the Contract, said payment to be made at the time of the next monthly progress estimate.

C. Acceptance by the Owner under this subsection shall not relieve the Contractor of any obligations under the Contract Documents except to the extent agreed upon in writing between the Owner and the Contractor.

D. The Owner shall have the right to exclude the Contractor from any part of the Work which has been accepted, but the Owner will allow the Contractor reasonable access thereto to complete or correct items on the tentative list.

1.35 FINAL ESTIMATE AND PAYMENT

A. As soon as practicable (but not more than sixty-five (65) days after final completion of the Work), the Engineer shall make a final estimate in writing of the quantity of Work done under the Contract and the amount earned by the Contractor.

B. The Owner shall pay to the Contractor the entire amount found by the Engineer to be earned and due hereunder after deducting therefrom all previous payments, all charges against the Contractor as provided for hereunder, and all amounts to be retained under the provisions of the Contract. Except as in this subsection otherwise provided, such payment shall be made not later than fifteen (15) days after but in no event before, the expiration of the time within which

claims for labor performed or materials or equipment furnished must be filed under the applicable Lien Law, or, if such time is not specified by law, the expiration of thirty (30) days after the completion of the Engineer's final estimate.

C. All quantities shown on progress estimates and all prior payments shall be subject to correction in the final estimate and payment as determined by the Engineer.

D. The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor under or by virtue of this Agreement; and upon satisfactory completion of the work performed under this Agreement, as a condition before final payment under this Agreement or as a termination settlement under this Agreement the Contractor shall execute and deliver to the Owner a release of all claims against the Owner arising under or by virtue of, this Agreement, except claims which are specifically exempted by the Contractor to be set forth herein. Unless otherwise provided in this Agreement, by State law or otherwise expressly agreed to be the parties to this Agreement, any payment, including final payment under, this Agreement or settlement upon termination of this Agreement shall not constitute a waiver of the Owner's claims against the Contractor or his sureties under this Agreement or applicable Performance and Labor and Materials Bonds.

1.36 LIENS

A. If at any time any notices of lien are filed and labor performed or materials or equipment manufactured, furnished, or delivered to or for the Work, the Contractor shall, at its own cost and expense, promptly discharge, remove or otherwise dispose of the same, and until such discharge, removal or disposition, the Owner shall have the right to retain from any moneys payable hereunder an amount which, in its sole judgement, it deems necessary to satisfy such liens and pay the costs and expenses, including attorneys' fees, of defending any actions brought to enforce the same, or incurred in connection therewith or by reason thereof.

1.37 CLAIMS

A. If at any time there be any evidence of any claims for which the Contractor is or may be liable or responsible hereunder, the Contractor shall promptly settle or otherwise dispose of the same, and until such

claims are settled or disposed of, the Owner may retain from any moneys which would otherwise be payable hereunder so much thereof as, in its sole judgement, it may deem necessary to settle or otherwise dispose of such claims and to pay the costs and expenses, including attorney's fees, of defending any actions brought to enforce such claims, or incurred in connection therewith or by reason thereof.

1.38 APPLICATION OF MONEYS RETAINED

A. The Owner may apply any moneys retained hereunder to reimburse itself for any and all costs, expenses, losses, damage and damages, liabilities, suits, judgements and awards incurred, suffered or sustained by the Owner and chargeable to the Contractor hereunder or as determined hereunder.

1.39 NO WAIVER

A. Neither the inspection by the Owner or the Engineer, nor any order, measurement, approval, determination, decision or certificate by the Engineer, nor any order by the Owner for the payment of money, nor any payment for or use, occupancy, possession or acceptance of the whole or any part of the Work by the Owner, nor any extension of time, nor any other act or omission of the Owner or of the Engineer shall constitute or be deemed to be an acceptance of any defective or improper work, materials, or equipment nor operate as a waiver of any requirement or provision of the Contract, nor of any remedy, power or right of or herein reserved to the Owner, nor of any right to damages for breach of contract. Any and all rights and/or remedies provided for in the Contract are intended and shall be construed to be cumulative; and, in addition to each and every other right and remedy provided for herein or by law, the Owner shall be entitled as of right to a writ of injunction against any breach or threatened breach of the Contract by the Contractor, by his subcontractors or by any other person or persons.

1.40 LIABILITY OF OWNER

A. No person, firm or corporation, other than the Contractor who signed this Contract as such, shall have any interest herein or right hereunder. No claim shall be made or be valid either against the Owner or any agent of the Owner and neither the Owner nor any agent of the Owner shall be liable for or be held to pay any money, except as herein provided. The acceptance by the Contractor of the payment as fixed in the final estimate shall operate as and shall be a full and complete release of the Owner and of every agent of

the Owner of and from any and all claims, demands, damages and liabilities of, by or to the Contractor for anything done or furnished for or arising out of or relating to or by reason of the Work or for or on account of any act or neglect of the Owner or of an agent of the Owner or of any other person, arising out of, relating to or by reason of the Work, except the claim against the Owner for the unpaid balance, if any there be, of the amounts retained as herein provided.

1.41 GUARANTEE

A. The Contractor guarantees that the Work and services to be performed under the Contract, and all workmanship, materials and equipment performed, furnished, used or installed in the construction of the same, shall be free from defects and flaws, and shall be performed and furnished in strict accordance with the Drawings, Specifications, and other Contract Documents, that the strength of all parts of all manufactured equipment shall be adequate and as specified and that the performance test requirements of the Contract shall be fulfilled. This guarantee shall be for a period of one year from and after the date of completion and acceptance of the Work as stated in the final estimate. If part of the Work is accepted in accordance with that subsection of this AGREEMENT titled "Partial Acceptance", the guarantee for that part of the Work shall be for a period of one year from the date fixed for such acceptance.

B. If at any time within the said period of guarantee any part of the Work requires repairing, correction or replacement, the Owner may notify the Contractor in writing to make the required repairs, correction, or replacements. If the Contractor neglects to commence making such repairs, correction, or replacements to the satisfaction of the Owner within three (3) days from the date of receipt of such notice, or having commenced fails to prosecute such Work with diligence, the Owner may employ other persons to make the same, and all direct and indirect costs of making said repairs, correction or replacements, including compensation for additional professional services, shall be paid by the Contractor.

1.42 RETAIN MONEY FOR REPAIRS

A. The Owner may retain out of the moneys otherwise payable to the Contractor hereunder a percentage of the amount thereof as set forth in Table A at the end of this section, and may expend the same, in the manner hereinafter provided, in making such repairs, corrections and replacements in the Work as the Owner, in its sole judgement, may deem necessary.

B. If at any time within the said period of guarantee any part of the Work requires repairing, correction or replacement, the Owner may notify the Contractor in writing to make the required repairs, correction or replacements. If the Contractor neglects to commence making such repairs, correction, or replacements to the satisfaction of the Owner within three (3) days from the date of receipt of such notice, or having commenced fails to prosecute such work with diligence, the Owner may employ other persons to make the same. The Owner shall pay the cost and expense of the same out of the amounts retained for that purpose. Upon the expiration of the said period of guarantee, provided that the Work at that time is in good order, the Contractor will be entitled to receive the whole or such part of the sum last aforesaid, if any, as may remain after the cost and expense of making said repairs, correction or replacements, in the manner aforesaid, have been paid therefrom.

1.43 RETURN OF DRAWINGS

A. All Drawings furnished by the Owner or the Engineer to the Contractor may be used only in connection with the prosecution of the Work and shall be returned by the Contractor upon completion of the Work.

1.44 CLEANING UP

A. The Contractor at all times shall keep the site of the Work free from rubbish and debris caused by his operations under the Contract. When the Work has been completed, the Contractor shall remove from the site of the Work all of his plant, machinery, tools, construction equipment, temporary work, and surplus materials so as to leave the Work and the site clean and ready for use.

1.45 LEGAL ADDRESS OF CONTRACTOR

A. The Contractor's business address and his office at or near the site of the Work are both hereby designated as places to which communications shall be delivered. The depositing of any letter, notice, or other communication in a postpaid wrapper directed to the Contractor's business address in a post office box regularly maintained by the Post Office Department or the delivery at either designated address of any letter, notice, or other communication by mail or otherwise shall be deemed sufficient service thereof upon the Contractor, and the date of such service shall be the date of receipt. The first-named address may be charged at any time by an instrument in writing, executed and acknowledged by the Contractor

delivered to the Engineer. Service of any notice, letter, or other communication upon the Contractor personally shall likewise be deemed sufficient service.

1.46 HEADINGS

A. The headings or titles of any section, subsection, paragraph, provision, or part of the Contract Documents shall not be deemed to limit or restrict the content, meaning or effect of such section, subsection, paragraph, provision or part.

1.47 MODIFICATION OR TERMINATION

A. Except as otherwise expressly provided herein, the Contract may not be modified or terminated except in writing signed by the parties hereto.

1.48 DIRECT LABOR COST

A. Direct labor cost percentage for change orders in accordance with MGL C30 39G as amended shall be ____ percent. (Direct labor cost percent shall be established following award and prior to execution of the Contract).

1.49 MASSACHUSETTS TAX LAWS

A. The Contractor shall provide a statement that indicates compliance with all the requirements of Massachusetts General Law Chapter 233.

1.50 TERMINATION FOR CONVENIENCE

A. This Agreement may be terminated by the Owner upon not less than seven days' written notice for the Owner's convenience. In the case of termination for convenience, the Owner shall be responsible for amounts due the Contractor for work performed through the date of termination, provided that the Contractor shall submit a request for payment in accordance with the provisions hereof. The Contractor shall have no other claim for payments due with respect to such termination including any claim for lost profits with respect to the balance of the project.

1.51 EQUAL EMPLOYMENT OPPORTUNITY, ANTIDISCRIMINATION AND AFFIRMATIVE ACTION

A. The Contractor shall not discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age, or national

origin; and that it shall take affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, religion, color, sex, age, handicapped status, or national origin.

1.52 UNLAWFUL CONDUCT AND PARTICIPATION IN BOYCOTT

A. The Contractor shall not participate in or cooperate with an international boycott, as defined in Section 999 (b) (3) and (4) of the Internal Revenue Code of 1954, as amended, or engage in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws.

IN WITNESS WHEREOF, the parties to this AGREEMENT have hereunto set their hands and seals, and have executed, or caused to be executed by their duly authorized officials, the AGREEMENT in Four (4) copies, each of which shall be deemed an original, as of the day and year first above-written.

WITNESSES

City of Salem, Massachusetts
(Owner - party of the first part)

BY: _____

(SEAL)

ATTEST:

(Contractor - party of the second part)

BY: _____

(SEAL)

(Title)

ATTEST:

(Address)

Approved As To Form:

Legal Counsel for City of Salem, Massachusetts

CERTIFICATE OF OWNER'S LEGAL COUNSEL

I, the undersigned, _____ the duly authorized and acting legal representative of the _____, acting herein through its _____, do hereby certify as follows:

I have examined the foregoing contract and surety bonds and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

By: _____
(Signature)

Date: _____

(Name)

(Title)

(Address)

(City, State, Postal code)

TABLE A

Agreement subsection reference	Item	Minimum limits
1.06	Workman's Compensation and Employer's Liability Insurance	As required by the law of the State of Massachusetts
1.06	Public Liability including Contractor's Protective, Completed Operations and Contractual Liability	<p>Bodily Injury</p> <hr/> <p>\$1,000,000 each occurrence \$2,000,000 aggregate</p> <p>Property Damage Including C.U.* Coverage</p> <hr/> <p>\$1,000,000 each occurrence \$1,000,000 aggregate</p> <hr/> <p>Blasting and explosion coverage shall be obtained if there is a need for blasting under the contract.</p>
1.06	Personal Injury Insurance	\$2,000,000 aggregate
1.06	Automobile Liability including coverage for owned, hired or borrowed vehicles	<p>Bodily Injury</p> <hr/> <p>\$1,000,000 each person \$2,000,000 each occurrence</p> <p>Property Damage</p> <hr/> <p>\$1,000,000 each occurrence</p>

1.06	Owner's Protective Liability & Property Damage	Bodily Injury <hr/> \$1,000,000 each occurrence \$2,000,000 aggregate Property Damage <hr/> \$1,000,000 each occurrence \$1,000,000 aggregate
1.06	Builder's Risk Insurance	Total insurable value of all structures, materials, and equipment to be built and installed.
1.13	a) Time of Completion - Total Contract	Within 120 consecutive calendar days after the date specified in the Notice to Proceed
1.14	Liquidated Damages for each consecutive calendar day of delay in completion time	\$1,000
1.33	Percentage of Progress Estimates to be Retained The retainage to be paid the Contractor within Ninety (90) days of the date the work is accepted By the awarding authority unless a dispute exists With respect to the work.	5%
1.33	Amount of Minimum Progress Estimates	\$10,000

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INSURANCE CERTIFICATE
SHEET 1 OF 2
 Issued to
The City of Salem, Massachusetts

This is to certify that this Company, _____, (Name of Insurance Company) has enforced the following policies covering all work and operations of _____ (Name of Contractor), as the designate Contractor under a Contract with the **City of Salem, Massachusetts** as the designated Owner, dated _____ for "City of Salem, Massachusetts, Traffic Signal Improvements, Derby Street/Congress Street Project, Bid No. L-43".

POLICY NUMBER

EFFECTIVE AND

KINDS OF INSURANCE

LIMITS

EXPIRATION DATE

Workmen's Compensation
 and Employers Liability and
 Harbor Workers Coverage *

Number: _____
 Effective: _____
 Expires: _____

Public Liability including
 Contractor's Protective
 Personal Injury, Completed
 Operations, and Contractual
 Liability**

Bodily Injury \$_____ each occurrence
 \$_____ aggregate
 Property Damage including C.U. \$_____ each occurrence

Number: _____
 Effective: _____
 Expires: _____

***Note:
 Explosion Collapse
 and underground coverage
 is provided

Coverage***\$_____ aggregate
 Personal Injury \$_____ aggregate

- * Longshoremens and Harbor Workers' Coverage may be deleted if not required by contract.
- ** Contractual Liability covers the liability assumed by the Contractor under the subsection entitled "Obligations and Liability of Contractor" of the AGREEMENT, as required by subsection entitled "Insurance" of the agreement.
- *** Blasting coverage is not required.

INSURANCE CERTIFICATE

SHEET 2 OF 2

Issued to

The City of Salem Massachusetts

Contract Reference: City of Salem, Massachusetts
Traffic Signal Improvements, Derby Street/Congress Street Project,
Bid No. L-43.

POLICY NUMBER

EFFECTIVE AND

KINDS OF INSURANCE

LIMITS

EXPIRATION DATE

Automobile Liability including Coverage for hired or borrowed vehicles	Bodily	\$_____ each person	Number: _____
	Injury		Effective: _____
		\$_____ each occurrence	Expires: _____
	Property Damage	\$_____ each occurrence	

Owner's Protective Liability and Property Damage	Bodily	\$_____ each occurrence	Number: _____
	Injury		Effective: _____
		\$_____ aggregate	
	Property Damage	\$_____ each occurrence	
		\$_____ aggregate	

Note: A copy of the Owner's Protective Policy for the Owner is to be furnished with the completed certificates.

It is agreed that thirty (30) days notice of cancellation or restrictive amendment of said policies shall be mailed to Owner.

INSURANCE COMPANY

INSURANCE AGENCY

BY: _____
AUTHORIZED AGENT OR OFFICER

DATE: _____

SECTION 00600

CONTRACT BONDS

PERFORMANCE BOND

(NOTE: This Bond is issued simultaneously with the attached Labor and Materials Bond in favor of the Owner.)

KNOW ALL MEN BY THESE PRESENTS:

That we, _____
(an individual, a partnership, a corporation)

duly organized under the Laws of the State (or Commonwealth) of _____,

and having a usual place of business at _____,

as Principal, and _____, a corporation duly organized

under the Laws of the State (or Commonwealth) of _____,

and duly authorized to do business in the State (or Commonwealth) of Massachusetts,

and having a usual place of business at _____

as Surety, are holden and stand firmly bound and obligated unto City of Salem, Massachusetts, as obligee, in the sum of

_____ lawful money of the United States of America, to and for the true payment whereof we bind ourselves and, each of us, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal, be means of a written AGREEMENT (which together with the Contract Documents in said AGREEMENT referred to are collectively sometimes referred to as the "Contract") dated _____, has entered into a contract with the said obligee for Traffic Signal Improvements, Derby Street/Congress Street, Bid No. L-43, in the City of Salem, Massachusetts, a copy of which agreement is attached hereto and by references made a part hereof.

NOW THEREFORE, THE CONDITION of this obligation is such that if the Principal shall well and truly keep and fully and faithfully perform all of the terms and conditions of said AGREEMENT and of the "Contract Documents" referred to in said AGREEMENT (which collectively are hereinafter and in said AGREEMENT sometimes referred to as the "Contract") and all modifications thereof on the Principal's part to be performed, this obligation shall be void; otherwise it shall remain in full force and effect.

Whenever the said Principal shall be, and declared by the Owner to be, in default under the said Contract, the Owner having performed the Owner's obligations thereunder Surety, for value received, shall promptly remedy the default, or, at the option of the Owner, shall promptly.

- (a) Complete the said AGREEMENT and/or Contract in accordance with its terms and conditions, or
- (b) Obtain a bid or bids for submission to and the approval of the Owner for completing the said AGREEMENT and/or Contract and any modifications thereof in accordance with the terms and conditions thereof, and upon determination by the Owner and the Surety of the lowest responsible and acceptable bidder, arrange for a contract between such bidder and the Owner, and make available to the Owner as the work progresses (even though there should be default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less a sum that shall be equal to the difference between the Contract price as fixed and provided in said AGREEMENT and/or Contract or any modifications thereof to be paid thereunder to the Principal and the amount previously paid by the Owner to and/or for the account of and/or chargeable against the Principal, but not exceeding (including other costs and damages for which the Surety may be liable hereunder) the amount set forth in the first paragraph hereof.

The Surety, for value received, agrees further that no changes in, omissions from, or alterations, modifications or additions to the terms and provisions of said AGREEMENT and/or Contract or the Work to be performed thereunder, and that no extensions of time given or changes made in the manner or time of making payments thereunder, shall in any way effect the Surety's obligations on this bond, and the Surety hereby waives notice of any such changes, omissions, alterations, modifications, additions or extensions.

No right of action shall accrue on this Bond to or for the use of any persons other than the Owner named herein or the heirs, executors, administrators, successors and assigns of the Owner.

IN WITNESS WHEREOF, we have hereunto set our hands and seals to _____
_____ counterparts of this bond, this _____ day of _____,
in the year Two Thousand and _____.

Principal (SEAL)

Principal (SEAL)

Principal (SEAL)

Surety (SEAL)

Surety (SEAL)

NOTE:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized officer or officers.

If this Bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his power of attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the Bond corresponding to the number of counterparts of the AGREEMENT.

Date of Bond must not be prior to the date of Contract.

Important Requirement

Surety Companies executing BONDS must appear on the U.S. Treasury Department's most current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts and be authorized to transact business in the state where the PROJECT is located.

The attention of the Surety Companies and Principal executing this Performance Bond is Directed to the fact that said Bond shall remain in full effect throughout the life of any guaranty or warranty periods stipulated in the Contract Documents and/or Agreement.

LABOR AND MATERIALS BOND

(NOTE: This Bond is issued simultaneously with the attached Performance Bonds in favor of the Owner.)

KNOW ALL MEN BY THESE PRESENTS:

That we, _____
(an individual, a partnership, a corporation)

duly organized under the Laws of the State (or Commonwealth) of _____,

having a usual place of business at _____,

as Principal, and _____ a corporation duly organized

under the Laws of the State (or Commonwealth) of _____,

and duly authorized to do business in the State (or Commonwealth) of _____,

and having a usual place of business at _____,

as Surety, are holden and stand firmly bound and obligated unto the City of Salem, Massachusetts, as obligee, in the sum of

_____ lawful money of the United States of America, to and for the true payment whereof we bind ourselves and, each of us, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal, be means of a written AGREEMENT (which together with the Contract Documents in said AGREEMENT referred to are collectively sometimes referred to as the "Contract") dated _____, has entered into a contract with the said obligee for Traffic Signal Improvements, Derby Street/Congress Street, Bid No. L-43, in the City of Salem, Massachusetts, a copy of which agreement is attached hereto and by references made a part hereof.

NOW, THEREFORE, THE CONDITION of this obligation is such, that if the Principal shall promptly make payments to all claimants as hereinafter defined, for all labor performed or furnished and for all materials and equipment furnished for or used in or in connection with the Work called for by said AGREEMENT and/or Contract and any modifications thereof, including lumber used but not incorporated in said Work, and for the rental or hire of vehicles, tools and other appliances and equipment furnished for or used in connection with said Work, this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

- (a) A claimant is defined as one having a direct contract with the Principal or with a subcontractor of the Principal for labor, materials and/or equipment used or reasonably required for use in the performance of the said Work, labor and materials being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental or equipment directly applicable to the said AGREEMENT and/or Contract and any modifications thereof.
- (b) The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials or equipment were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.
- (c) No suit or action shall be commenced hereunder by any claimant.

Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: the Principal, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials or equipment for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials or equipment were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner or Surety at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the said Work is located, save that such service need not be made by a public officer;

After the expiration of one (1) year following the date on which the Principal ceased work on said AGREEMENT and/or Contract and any modifications thereof, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the State in which the said Work, or any part thereof, is situated, or in the United States District Court for the district in which the said Work, or any part thereof, is situated, and not elsewhere.

- (d) The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics liens which may be filed of record against said AGREEMENT and/Contract or said Work, whether or not claim for the amount of such lien be presented under and against this bond.

The surety, for value received, agrees further that no changes in, omissions from, or alterations, modifications or additions to the terms and provisions of said AGREEMENT and/or Contract or the Work to be performed thereunder, and that no extensions of time given or changes made in the manner or time of making payments thereunder, shall in any way affect the Surety's obligations on this Bond, and the Surety hereby waives notice of any such changes, omissions, alterations, modifications, additions or extensions.

IN WITNESS WHEREOF, we have hereunto set our hands and seals to _____
counterparts of this Bond, this _____ day of _____, in
the year Two Thousand and _____.

Principal (SEAL)

Principal (SEAL)

Principal (SEAL)

Surety (SEAL)

Surety (SEAL)

NOTE:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized officer or officers.

If this Bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his power of attorney showing his authority to sign such Bonds.

There should be executed an approximate number of counterparts of the Bond corresponding to the number of counterparts of the AGREEMENT.

Date of Bond must not be prior to the date of Contract.

Important Requirement

Surety Companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

The attention of the Surety Companies and Principal executing this Labor and Materials Bond is directed to the fact that said Bond shall remain in full effect throughout the life of any guaranty or warranty periods stipulated in the Contract Documents and/or Agreement.

**CERTIFICATE OF ACKNOWLEDGMENT OF CONTRACTOR IF A CORPORATION
For CONTRACT BONDS**

State of _____)

) ss:

County of _____)

On this _____ day of _____, 20_____, before
me personally came _____ to me known, who being by me duly
sworn, did depose and say as follows:

That he resides at _____

and is the _____

of _____

the corporation described in and which executed the foregoing instrument; that he knows the corporate seal of said corporation; that the seal affixed to the foregoing instrument is such corporate seal and it was so affixed by order of the Board of Directors of said corporation; and that by the like order he signed thereto his name and official designation.

Notary Public (Seal)

My commission expires _____

STATE TAX CERTIFICATE

Pursuant to M.G.L., Ch. 62C, sec. 49A, I certify under the penalties of perjury that I, to the best of my knowledge and belief, have filed all state tax returns and paid all state taxes required under law.

Social Security Number *
Or Federal Identification Number *

Signature of Individual or
Corporate Name

by: _____
Corporate Office (if applicable)

* Submission of a Social Security Number or a Federal Identification Number is voluntary.

SECTION 00700

GENERAL CONDITIONS

- 1.01 General Provisions
- 1.02 Definitions
- 1.03 Materials and Equipment
 - A. General
 - B. Handling
 - C. Storage of Excavated Material
 - D. Inspection
 - E. Inspection Away from Site
 - F. Samples
 - G. Shop testing
- 1.04 Contractor's Shop and Working Drawings
- 1.05 Occupying Private Land
- 1.06 Interference with and Protection of Streets
- 1.07 Safety
- 1.08 Existing Facilities
 - A. Dimensions of Existing Structures
 - B. Proposed Pipe Location
 - C. Interference with Existing Works
 - D. Existing Utilities or Connections
 - E. Failure to Repair
 - F. Disturbance of Bounds
- 1.09 Work to Conform
- 1.10 Planning and Progress Schedules
- 1.11 Precautions During Adverse Weather
- 1.12 Temporary Heat
- 1.13 Electrical Energy
- 1.14 Certificates of Conformance
- 1.15 Patents
- 1.16 "Or Equal" Clause
- 1.17 Additional or Substitute Bonds
- 1.18 Separate Contracts
- 1.19 Payrolls of Contractor and Subcontractors
- 1.20 Payments by Contractor
- 1.21 "Dig Safe" Law
- 1.22 Fire Prevention and Protection
- 1.23 Dust Control
- 1.24 Disposal of Debris
- 1.25 Night, Saturday, Sunday and Holiday Work
- 1.26 Length of Work Day
- 1.27 Hurricane Protection
- 1.28 Reduction in Scope of Work

1.01 GENERAL PROVISIONS

A. The duties and obligations imposed by these General Conditions will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.

B. Sections of Division 1, General Requirements govern the execution of the Work of all sections of the specifications.

C. The Specifications are written in imperative and streamlined form. This imperative language is directed to the Contractor, unless stated otherwise.

1.02 DEFINITIONS

A. Wherever the words as listed in subsection 1.01 of the AGREEMENT or pronouns used in their stead occur in the Contract Documents, they shall have the meanings as given in the AGREEMENT.

1.03 MATERIALS AND EQUIPMENT

A. General

1. Unless otherwise provided in the Contract Documents, only new materials and equipment shall be incorporated in the Work.

2. As soon as possible after execution of the AGREEMENT, submit to the Engineer the names and addresses of the manufacturers and suppliers of all materials and equipment proposed to be incorporated into the Work.

3. When shop and working drawings are required as specified below, submit, prior to the submission of such drawings, data in sufficient detail to enable the Engineer to determine whether the manufacturer and/or the supplier have the ability to furnish a product meeting the Specifications.

4. Submit data relating to the materials and equipment proposed to be incorporated into the Work in sufficient detail to enable the Engineer to identify and evaluate the particular product and to determine whether it conforms to the Contract requirements. Such data shall be submitted in a manner similar to that specified for submission of shop and working drawings.

B. Handling

1. Handle, haul, and distribute materials and all surplus materials on the different portions of the

Work, required to complete the Work in accordance with the Contract Documents.

2. Provide suitable storage room for materials and equipment during the progress of the Work, and be responsible for the protection, loss of, or damage to materials and equipment furnished under this Contract, until the final completion and acceptance of the Work.

3. Pay all storage and demurrage charges by transportation companies and vendors.

C. Storage of Excavated Material

1. Place excavated materials and equipment to be incorporated in the Work so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work.

2. Materials shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.

D. Inspection

1. All materials and equipment furnished by the Contractor to be incorporated in the Work shall be subject to the inspection of the Engineer.

2. No material shall be processed or fabricated for the Work or delivered to the work site without prior concurrence of the Engineer.

3. Facilities and labor for the storage, handling, and inspection of all materials and equipment shall be furnished by the Contractor.

4. Defective materials and equipment shall be removed immediately from the site of the Work.

E. Inspection away from Site

1. If work to be done, away from the construction site, is to be inspected on behalf of the Owner during its fabrication, manufacture, or testing, or before shipment, the Contractor shall give notice to the Engineer of the place and time where such fabrication, manufacture, testing, or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time, as determined solely by the Engineer, so that the necessary arrangements for the inspection can be made.

F. Samples

1. Submit samples of materials for tests, as the Engineer deems necessary to demonstrate conformance with the Specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, packed, and shipped by the Contractor as directed by the Engineer.

2. Furnish suitable molds for making concrete test cylinders. Except as otherwise expressly specified, the Owner shall make arrangements for, and pay for, the tests.

3. Pack samples so as to reach their destination in good condition, and label to indicate the material represented, the name of the building or work and location for which the material is intended, and the name of the Contractor submitting the sample. To ensure consideration of samples, notify the Engineer by letter that the samples have been shipped and properly describe the samples in the letter. Send letter of notification separate from the samples.

4. Submit data and samples, or place his orders, sufficiently early to permit consideration, inspection and testing before the materials and equipment are needed for incorporation in the Work. The consequences for failure to do so shall be the Contractor's sole responsibility.

5. In order to demonstrate the proficiency of workmen, or to facilitate the choice among several textures, types, finishes, surfaces, etc., provide such samples of workmanship of wall, floor, finish, etc., as may be required.

6. After review of the samples, data, etc. the materials and equipment used for the Work shall in all respects conform therewith.

G. Shop Testing

1. When required, furnish to the Engineer in triplicate, sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.

1.04 CONTRACTOR'S SHOP AND WORKING DRAWINGS

A. Submit shop drawings to the Engineer for review and approval.

B. All submittals will be identified as the Engineer may require and in the number of copies also as required by the Engineer.

C. The data shown on the Shop Drawings will be complete regarding quantities, dimensions, specified performance and design criteria, materials and other data as particular to the Work that the Contractor proposes to provide.

1.05 OCCUPYING PRIVATE LAND

A. Entering or occupying with men, tools, materials, or equipment, any land outside the rights-of-way or property of the Owner (except after written consent from the proper parties) will not be permitted. A copy of the written consent shall be given to the Engineer.

1.06 INTERFERENCE WITH AND PROTECTION OF STREETS

A. Obtain permits from the governing authorities prior to obstructing any portion of a street, road, or private way. If any street, road or private way is rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as ordered by the governing authorities.

B. Maintain streets, roads, private ways, and walks not closed in a passable and safe condition,

C. Provide at least 24 hours in advance, notice to the Owner, Police, Fire and School Departments in writing, with a copy to the Engineer, if the closure of a street or road is necessary. Cooperate with all Departments in the establishment of alternate routes and provide adequate detour signs, plainly marked and well lighted, in order to minimize confusion.

1.07 SAFETY

A. Take all precautions and provide safeguards to prevent personal injury and property damage. Provide protection for all persons including but not limited to employees and employees of other contractors and subcontractors; members of the public; and employees, agents and representatives of the Owner, the Engineer, and regulatory agencies that may be on or about the Work. Provide protection for all public and private property including but not limited to structures, pipes, and utilities, above and below ground.

B. Provide and maintain all safety equipment such as fences, barriers, signs, lights, walkways, guards and fire prevention and fire-fighting equipment.

C. Comply with all applicable Federal, State and local laws, ordinances, rules and regulations and lawful orders of all authorities having jurisdiction for the safety of persons and protection of property.

D. Designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This responsible person shall have the authority to take immediate action to correct unsafe or hazardous conditions and to enforce safety precautions and programs.

1.08 EXISTING FACILITIES

A. Dimensions of Existing Structures

1. Where the dimensions and locations of existing structures are of importance in the installation or connection of any part of the Work, verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.

B. Proposed Pipe Location

1. Exterior pipelines will be located substantially as indicated on the Drawings, but the right is reserved to the Owner, acting through the Engineer, to make such modifications in location as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings, etc., are noted on the Drawings, such notation is for the Contractor's convenience and does not relieve him for laying and jointing different or additional items where required.

2. Small interior piping is indicated diagrammatically on the Drawings, and the exact location is to be determined in the field. Piping shall be arranged in a neat, compact, and workmanlike manner, with a minimum of crossing and interlacing, so as not to interfere with equipment or access way, and, in general, without diagonal runs.

C. Interference with Existing Works

1. Conduct operations so as to interfere as little as possible with existing works. Develop a program, in cooperation with the Engineer and interested officials, which shall provide for the construction and putting into service of the new works in the most orderly manner possible. This program shall be adhered to except as deviations therefrom are expressly permitted. All work of connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to interfere with the

operation of the existing facilities for the shortest time when the demands on the facilities best permit such interference, even though it may be necessary to work outside of normal working hours to meet these requirements. Electrical connections should be coordinated with the Owner so as to minimize disruption of normal plant operations. Before starting work which will interfere with the operation of existing facilities, perform preparatory work and see that all tools, materials and equipment are made ready and at hand.

2. Repair utilities damaged by the Contractors operations during the progress of the work, and be responsible for correcting all damages to existing utilities and structures at no additional expense to the Owner. Contact the proper utility or authority to correct or make any changes due to utility or other obstructions during the work but the entire responsibility and expense shall be with the Contractor.

3. Make such minor modifications in the work relating to existing structures as may be necessary, without additional compensation.

4. Submit no claim for additional compensation by reason of delay or inconvenience in adapting his operations to the need for continuous flow of sewage.

D. Existing Utilities or Connections

1. The location of existing underground pipes, conduits, and structures, as shown, has been collected from the best available sources. The Owner, together with its agents, does not imply nor guarantee the data and information in connection with underground pipes, conduits, structures and such other parts as to their completeness, nor their locations as indicated. The Contractor shall assume that there are existing water, sewer, gas and other utility connections to each and every building enroute, whether they appear on the drawings or not. An expense and/or delay occasioned by utilities and structures, or damage thereof, including those not shown, shall be the responsibility of the Contractor, at no additional expense to the Owner.

2. Above ground utilities may be present in the areas of the proposed Work. Take all necessary actions and/or precautions, including, but not limited to, utility company notification and necessary relocations (both temporary and permanent), to insure proper protection of those aboveground utilities and appurtenances to be affected by his operations. All costs associated with the aboveground utilities shall be paid by the Contractor at no additional expense to the Owner.

3. If and when encountered, existing utilities shall be properly supported and protected during the construction work and the Engineer shall be notified accordingly. The operation of existing utilities shall not be interrupted except with written permission of the operator and owner of such utilities. Allow ample time for all measures as may be required for the continuance of existing utility operations. Take extreme precautions to minimize disruption of utilities. Make prompt and full restitution for repairs by others for all disruptions caused by operations required to perform the Work.

4. Comply with all requirements of utility organizations involved.

E. Failure to Repair

1. Any emergency arising from the interruption of electric, telephone, gas, water, or sewer service due to the activities of the Contractor, shall be repaired by the Contractor as quickly as is possible.

2. If and when, in the opinion of the Owner, the Contractor is not initiating repair work as expeditiously as possible upon notification to do so, the Owner, may at his own option, make the necessary repairs using his own forces or those of others. The cost of such repairs shall be subtracted from the payments due to the Contractor.

F. Disturbance of Bounds

1. Replace all bounds disturbed during the construction operation, at no additional cost to the Owner. The bounds shall be relocated by a land surveyor approved by the Engineer and registered in the State that the Work is to be done.

1.09 WORK TO CONFORM

A. During its progress and on its completion, the Work shall conform to the lines, levels, and grades indicated on the Drawings or given by the Engineer and shall be built in strict accordance with the Contract Documents and the directions given from time to time by the Engineer.

B. All work done without instructions having been given therefore by the Engineer, without proper lines or levels, or performed during the absence of the Engineer, will not be estimated or paid for except when such work is authorized by the Engineer in writing. Work so done may be ordered uncovered or taken down, removed, and replaced at the Contractor's expense.

1.10 PLANNING AND PROGRESS SCHEDULES

A. Before starting the Work and from time to time during its progress, as the Engineer may request, the Contractor shall submit to the Engineer a written description of the methods he plans to use in doing the Work and the various steps he intends to take.

B. Within 14 calendar days after the date of formal execution of the AGREEMENT, the Contractor shall prepare and submit to the Engineer (a) a written schedule fixing the dates on which additional drawings, if any, will be needed by the Contractor and (b) a written schedule fixing the respective dates for the start and completion of various parts of the Work. Each such schedule shall be subject to review from time to time during the progress of the Work.

1.11 PRECAUTIONS DURING ADVERSE WEATHER

A. During adverse weather and against the possibility thereof, take all necessary precautions so that the Work may be properly done and satisfactory in all respects. When required by the manufacturer of the material or equipment to be installed, protection shall be provided by use of tarpaulins, wood and building-paper shelters, or other suitable means.

B. During cold weather, materials shall be preheated, if required, and the materials and adjacent structure into which they are to be incorporated shall be made and kept sufficiently warm so that a proper bond will take place and a proper curing, aging, or drying will result. Protected spaces shall be artificially heated by suitable means that will result in a moist or dry atmosphere according to the particular requirements of the work being protected. Ingredients for concrete and mortar shall be sufficiently heated so that the mixture will be warm throughout when used.

1.12 TEMPORARY HEAT

A. If temporary heat is required for the protection of the Work, provide and install suitable heating apparatus, provide adequate and proper fuel, and shall maintain heat as required.

B. Temporary heating apparatus shall be installed and operated in such manner that finished work will not be damaged.

1.13 ELECTRICAL ENERGY

A. Make all necessary applications and arrangements and pay all fees and charges for electrical energy for power and light necessary for the proper completion of the Work and during its entire progress. Provide and pay for all temporary wiring, switches, connections, and meters.

B. Provide sufficient electric lighting so that all work may be done in a workmanlike manner when there is not sufficient daylight.

1.14 CERTIFICATES OF CONFORMANCE

A. Furnish to the Engineer, in the manner as directed and prior to actual installation, notarized certificates of conformance for all materials to be furnished under this Contract. The notarized certificates of conformance shall state that the material to be furnished meets or exceeds all requirements specified under the Contract Documents. When so directed, the manufacturer's notarized certificates of conformance, certifying that the materials meet the requirements specified shall accompany each shipment of material. Unless otherwise specifically specified and/or directed by the Engineer, all testing of materials required under this Contract shall be provided by the Contractor at no additional expense to the Owner.

1.15 PATENTS

A. Pay, at no additional expense to the Owner, all applicable royalties and license fees associated with the materials and construction methods to be used under this Contract. Defend all suits or claims for infringements of any patent rights, and save the Owner and Engineer harmless from loss on account thereof, except that the Owner shall be responsible for any such loss when a particular process, design, or product of a particular manufacturer (s) is specifically specified with no option to the Contractor. However, if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Owner.

B. Refer to Specification Section 1.07, Patents, regarding the Contractor's responsibilities for any patent rights associated with the materials and construction methods to be used under this Contract.

1.16 "OR EQUAL" CLAUSE

A. Whenever a material or article required is specified or shown on the drawings by using the name of the proprietary product of a particular manufacturer or vendor, any material or article which will perform adequately, in the Engineer's sole judgment and/or opinion, the duties imposed by the general design may be considered equal and satisfactory providing the material or article so proposed is of equal substance. It shall not be purchased or installed without his written approval. In all cases new material shall be used in the project.

B. If more than one brand, name of material, device, or piece of equipment is shown or specified, each should be regarded as the equal of the other. Any other brand, make of material, device or equipment, which in the opinion of the OWNER and/or ENGINEER, is the recognized equal of that specified (considering quality, workmanship, and economy of operation), and is suitable for the purpose intended, may be accepted.

C. ENGINEER will be allowed a reasonable time within which to evaluate submittals for Substitute Items. ENGINEER will be the sole judge of acceptability. No "Or Equal" or Substitute Item will be ordered, installed or utilized without ENGINEER's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any "or equal" or substitute. ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitutes proposed or submitted by CONTRACTOR and in making changes to the Contract Documents. Whether or not ENGINEER accepts a Substitute Item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed Substitute Item.

1.17 ADDITIONAL OR SUBSTITUTE BONDS

A. If at any time the Owner, for justifiable cause, shall be or become dissatisfied with any Surety or Sureties than upon the performance or payment bonds, the Contractor shall, within five (5) calendar days after notice from the Owner so to do, substitute an acceptable bond (or bonds) in such form and sum and signed by such other Surety or Sureties as may

be acceptable to the Owner. The Contractor shall pay the premiums on such bonds with no additional expense to the Owner. No further payments shall be deemed due nor will be made until the new Surety or Sureties shall have furnished such as acceptable bond to the Owner.

1.18 SEPARATE CONTRACTS

A. The Owner reserves the right to let other contracts in connection with the construction of the contemplated work of this project or contiguous projects of the Owner. The Contractor, therefore, will afford any such other contractors reasonable opportunity for the introductions and storage of their materials and the execution of their work, will properly connect and coordinate his work with theirs, and will not commit or permit any act which will interfere with the performance of their work.

B. Coordinate operations with those of other contractors. Cooperation will be required in the arrangement for the storage of materials and in the detailed execution of the work.

C. It is essential that all parties interested in the project cooperate to the end that the entire project will be brought to a successful conclusion as rapidly as possible, but the Owner cannot guarantee that no interference or delay will be caused thereby. Interference and delay resulting from such cooperation shall not be basis of claims against the Owner.

1.19 PAYROLLS OF CONTRACTOR AND SUBCONTRACTORS

A. The Contractor and each of his Subcontractors shall prepare his payrolls on forms prescribed and in accordance with instructions to be furnished by the Owner. Within seven (7) days after the regular payment date of the payroll, the Contractor shall deliver to the Owner, with copies to the Engineer, a certified legible copy or copies of each such payroll. Each such payroll shall contain the statement required by the Federal Regulations issued pursuant to the "Anti-Kickback Statute", (48 Stat. 948; 18 U.S.C. 874; 40 U.S.C. 276C).

B. Carrying any person on his payrolls not employed by him will not be permitted. Carrying employees of a subcontractor on his payrolls will not be permitted, but such employees must be carried on the payrolls of the employing subcontractor.

C. Each Contractor or Subcontractor shall preserve his weekly payroll records for a period of three (3) years from the date of completion of the Contract. The payroll records shall set out accurately and completely the name, occupational classification, and hourly wage rate of each employee, hours worked by him during the payroll period and full weekly wages earned by him, and deductions made from such weekly wages and the actual weekly wages paid to him. Such payroll records shall be made available at all times for inspection by the Owner or his authorized representatives, the Engineer or by agents of the United States Department of Labor.

1.20 PAYMENTS BY CONTRACTOR

A. Pay for all traffic control, safety, transportation and utility services not later than the 20th day of the calendar month following that in which services are rendered. Reimbursable costs for services rendered, as specified in the Contract Documents, shall not be incorporated into partial payment estimates until such time that the Contractor submits to the Engineer actual paid invoices from those in which services were rendered.

1.21 "DIG SAFE" LAW

A. Before proceeding with construction operations, the Contractor shall notify the State of Massachusetts Underground Plant Damage Prevention Systems (DIG SAFE at 1-888-344-7233), and shall make such supplemental investigations, including exploratory excavations, by hand digging, as he deems necessary to uncover and determine the exact locations of utilities and structures, and shall have no claims for damages due to encountering subsurface structures or utilities in locations other than that shown on the drawings, or which were made known to the Contractor prior to construction operations. The Contractor shall be responsible and liable for all damages to the existing utilities and structures.

1.22 FIRE PREVENTION AND PROTECTION

A. State and municipal rules and regulations with respect to fire prevention, fire-resistant construction and fire protection shall be strictly adhered to and all work and facilities necessary therefore shall be provided and maintained by the Contractor in an approved manner.

B. Provide fire protection equipment such as water tanks, hoses, pumps, extinguishers, and other

materials, and apparatus, for the protection of the contract work, and adjacent property. Trained personnel experienced in the operation of all fire protection equipment and apparatus shall be available on the site whenever work is in progress, and at such other times as may be necessary for the safety of the public and the work.

1.23 DUST CONTROL

A. Exercise every precaution and means to prevent and control dust arising out of all construction operations from becoming a nuisance to abutting property owners or surrounding neighborhoods. Pavements adjoining pipe trench shall be kept clean of excess materials wherever and whenever directed by the Engineer. Repeated daily dust control treatment shall be provided to satisfactorily prevent the spread of dust until permanent pavement repairs are made and until earth stockpiles have been removed, and all construction operations that might cause dust have been completed. No extra payment will be made for dust control measures, compensation shall be considered to be included in the prices stipulated for the appropriate items as listed in the Bid.

1.24 DISPOSAL OF DEBRIS

A. The materials from the demolition, and those used in the construction of the Work throughout the project, shall be deposited in such a manner so as to not endanger persons or the Work, and so that free access may be had at any time to all hydrants, gates and existing equipment in the vicinity of the work. The materials shall be kept trimmed-up so as to be of as little inconvenience as possible to the public travel and plant operations. All excavated materials not approved for backfill and fill, all surplus material, and all rock and boulders resulting from the excavations, shall be removed and satisfactorily disposed of off the site by the Contractor, at no additional expense to the Owner.

B. The materials being removed from the pipelines and manholes during the cleaning process shall be deposited in such a manner as to not endanger the public, plant personnel or persons performing the work. Such debris deposits may be of such nature, high in biological organic contents, or chemically aggressive that they will require proper disposal in a safe, health risk free, environment. Contact the Owner and Engineer and all agencies having jurisdiction thereof, for approval of debris disposal methods and locations of disposal, prior to disposing

of any or all debris removed from pipe cleaning methods. All debris shall be removed and satisfactorily disposed of off the work site, at no additional expense to the Owner.

1.25 NIGHT, SATURDAY, SUNDAY AND HOLIDAY WORK

A. No work shall be done at night or on Saturdays, or Sundays or holidays without the prior written approval of the Owner and Engineer.

1.26 LENGTH OF WORK DAY

A. The Owner retains the right to restrict the Contractor to an eight-hour workday. Such restrictions shall not be the basis for damages or claims against the Owner.

B. The Contractor's attention is also directed to the fact that should it be deemed necessary to perform various items of work during off-peak flow or traffic hours, early morning or late night hours, then he shall notify the Engineer a minimum of 24 hours in advance as to his intentions and reasons for the change in work hours. The Contractor shall be responsible for properly contacting and informing all involved parties of such a change in work hours. The Contractor shall not be entitled to any additional compensation from the Owner for any expenses that may be incurred by change of working hours and/or scheduling.

END OF SECTION

1.27 HURRICANE PROTECTION

A. Should hurricane warnings be issued, the Contractor shall take every practicable precaution to minimize danger to persons, to the work and to adjacent property. These precautions shall include closing all openings; removing all loose materials, tools and/or equipment from exposed locations; and removing or securing scaffolding and other temporary work.

1.28 REDUCTION IN SCOPE OF WORK

A. The Owner reserves the right to decrease the scope of the work to be done under this Contract and to omit any work should the Owner deem it to be in the public interest to do so. To this end, the Owner reserves the right to reduce the quantity of any items or omit all of any as set forth in the BID, either prior to executing the contract or at any time during the progress of the work. The Owner further reserves the right, at anytime during the progress of the work, to restore all or part of any items previously omitted or reduced. Exercise by the Owner of the above rights shall not constitute any ground or basis of claim for damages or for anticipated profits on the work omitted.

SECTION 00800**SUPPLEMENTARY CONDITIONS**

- 1.01 General
- 1.02 Limits of Normal Excavation
- 1.03 Covering Excavated Trench
- 1.04 Maintaining Trench Excavations
- 1.05 Disruption of Storm Drains
- 1.06 Land, Easements and Rights-of-Way
- 1.07 Cleaning Finished Work
- 1.08 Uniformed Police Details

1.01 GENERAL

- A. These Supplementary Conditions are requirements which amend or supplement the General Conditions specified elsewhere.
- B. The duties and obligations imposed by these Supplementary Conditions will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.
- C. Assertion of any claim for any additional compensation or damages on account of and/or the fulfillment of these Supplementary Conditions will not be allowed.

1.02 LIMITS OF NORMAL EXCAVATION

- A. In determining the quantities of excavation to which unit prices shall apply, the limits of normal width and depth of excavation shall be as described below, unless other limits are indicated in the Contract Documents.
- B. For pipes in trench, the normal width of the trench shall be measured between vertical planes which are a distance apart equal to the sum of 18 inches plus 1-1/3 times the nominal inside diameter of the pipe. If the width so computed is less than 3.0 feet, a width of 3.0 feet shall be taken as the normal width for payment. The normal depth shall be measured to a distance of 0.5 feet below the bottom of the pipe in earth and 0.5 feet in rock, unless there be a cradle underneath the pipe, in which case the normal depth shall be measured to the underside of the cradle. The trench width for the cradle shall be assumed to be that specified above for pipes in the trench.
- C. For concrete placed directly against undisturbed earth, the normal width and depth of the excavation for such concrete shall be measured to the neat lines of the concrete as indicated on the Drawings or as ordered.

- D. For concrete placed against rock surfaces resulting from rock excavation, the normal width and depth of the excavation shall be measured to 4 inches outside the neat lines of the concrete as indicated on the Drawings or as ordered.
- E. For other structures, except manholes as noted below, the normal width shall be measured between vertical planes 1.0 feet outside the neat lines of the several parts of the structure, except that the width at any elevation shall be measured as not less than the width at a lower elevation. The normal depth shall be measured to the underside of that part of the structure for which the excavation is made.
- F. No additional width or depth of trenches excavated in earth or rock shall be allowed at standard circular manholes. The pay limit for rock removed outside proposed manholes shall commence one foot (1.0) outside the widest dimension of the structure or shall be the maximum connecting trench width, whichever is greater.
- G. Wherever bell holes are required for jointing pipe, they shall be provided without additional compensation over and above that resulting from measurements as above described.

1.03 COVERING EXCAVATED TRENCH

- A. In addition to the requirements in Section 00700 titled Interference with and Protection of Streets. Cover all open excavations when construction operations are suspended at the end of the day, or in excavated trenches where work is not actually in progress. Cover shall be capable of withstanding AASHTO H20-S16 loading. This cover shall consist of steel plates or some other satisfactory cover of adequate size and strength suitably held in place to keep all traffic out of excavations, all as verified in writing by the Contractor. The cover shall be laid over the excavation until it is backfilled.

1.04 MAINTAINING TRENCH EXCAVATIONS

- A. The length of trench opened at any time, from point where ground is being broken to completed backfill, and also the amount of space in streets or public and private lands occupied by equipment, trench, and supplies, shall not exceed the length of space considered reasonably necessary and expedient by the Engineer. In determining the length of open trench or spaces for equipment, materials, supplies and other necessities, the Engineer will consider: the nature of the lands or streets where work is being done; types and methods of construction and equipment being used; inconvenience to the public or to private parties; possible dangers; and other proper matters. All work must be constructed with a minimum inconvenience and danger to the public and all other parties concerned.
- B. Whenever any trench obstructs pedestrian and vehicular traffic in or to any public street, private driveway or property entrance, or on private property, the Contractor take such means as may be necessary to maintain pedestrian and vehicular traffic

and access. Until such time as the work may have attained sufficient strength to support backfill, or if for any other reason it is not expedient to backfill the trench immediately, construct and maintain suitable plank crossing and bridges to carry essential traffic in or to the street, driveway or property in question, as specified or directed.

- C. Suitable signs, lights, and such items required by Police Authorities to direct traffic, shall be furnished and maintained by the Contractor at his own expense, unless pay items are provided for in this specification.
- D. Keep streets and premises free from unnecessary obstructions, debris and all other materials. The Engineer may, at any time, order all equipment, materials, surplus from excavations, debris and all other materials lying outside that length of working space, promptly removed. Should the Contractor fail to remove such material within 24 hours after notice to remove the same, the Owner may cause any part or all of such materials to be removed by such persons as he may employ, at the Contractor's expense; and may deduct the costs thereof from payments which may be or may become, due to the Contractor under the Contract. In special cases, where public safety urgently demands it, the Owner may cause such materials to be removed at the Contractor's expense without prior notice.

1.05 DISRUPTION OF STORM DRAINS

- A. Portions of the Work may be located in areas that are serviced by storm drains. Take extreme precaution to minimize disruption of the drains, and repair and/or make restitution for repairs by others for all disruptions caused by the construction operations.

1.06 LAND, EASEMENTS, AND RIGHTS-OF-WAY

- A. A portion of the work may be located within easements and/or rights-of-way, obtained or which will be obtained by the Owner, through private property. On all other lands, the Contractor has no rights unless he obtains them from the proper parties.
- B. Prior to issuance of the Notice to Proceed, the Owner shall obtain all land, easements and rights-of-way necessary for carrying out and for the completion of the work to be performed pursuant to the Contract Documents, unless otherwise mutually agreed.
- C. The Owner shall provide to the Contractor information, which delineates and describes the lands owned and rights-of-way acquired.
- D. The Contractor shall provide at his own expense and without liability to the Owner any additional land and access thereto that the Contractor may desire for temporary construction facilities or for storage of materials.

- E. If however, lands, easements or rights-of-way cannot be obtained before work on the project begins, the Contractor shall begin his work upon such land, easements or rights-of-way as have been previously acquired by the Owner, and no claims for damages whatsoever will be allowed by reason of its inability to procure the lands, easements, or rights-of-way for the said work, the Contractor shall not be entitled to make or assert a claim for damages by reason of the said delay, or to withdraw from the Contract except by consent of the Owner. Time for completion of work will be extended to such time as the Owner determines will compensate for the time lost by such delay, such determination to set forth in writing.

1.07 CLEANING FINISHED WORK

- A. After the work is completed, the pipes, manholes and structures shall be carefully cleaned free of debris and dirt, broken masonry, and mortar, and left in first class condition, ready to use. All temporary or excess materials shall be disposed of off-site and the work left broom clean, to the satisfaction of the Engineer.

1.08 UNIFORMED POLICE DETAILS

- A. When so directed, the Contractor shall make all arrangements with the Salem Police Department to obtain any necessary police details. Contact the Salem Police Department at 978-744-1212 to schedule any uniformed police officers. All invoices for policing will be made to the owner and the owner shall pay the Police Department Directly. If the Contractor fails to notify police of detail cancelation, the Contractor is responsible for payment of all cancelation fees or penalties and the Owner shall not reimburse the Contractor for such.

END OF SECTION

DIVISION 1
GENERAL REQUIREMENTS

SECTION 01010
SUMMARY OF WORK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Work covered by the Contract, listing of Owner, Project location, Engineer. Sequence requirements, the Contractor's use of the premises and Owner's occupancy requirements.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work to be done under this contract consists of furnishing all necessary labor, materials and equipment required for the construction of traffic signals at one location and reconstruction of traffic signals at one location in Salem, Massachusetts. The two locations included in the project are as follows:

- Location 1 - Derby Street at Congress Street/Hawthorne Boulevard
- Location 2 - Hawthorne Boulevard at Essex Street

The work includes new and reconstructed traffic signals; signing; pavement markings; and the provision of safety controls and signing for construction operations. Roadway improvements will consist of a removal of a traffic island and repair of the pavement area, installation of conduit, repair of pavement and the reconstruction/restoration of brick sidewalks and cement concrete wheelchair ramps that are impacted by the installation of traffic signals and conduit, as well as other and other incidental items included in the contract documents.

- B. All work is more particularly indicated, shown or described in the Drawings, Specifications, and other Contract Documents.

1.03 OWNER

- A. City of Salem (Purchasing Department)
City Hall, 3rd Floor
120 Washington Street
Salem, Massachusetts, 01970
Telephone: (978) 619-5695
Contact: Thomas P. Watkins, Acting Purchasing Agent

1.04 PROJECT LOCATION

- A. Two Locations, Hawthorne Boulevard, Salem, MA

1.05 ENGINEER

- A. BETA Group, Inc.
315 Norwood Park South
Norwood, Massachusetts 02062
Telephone: 781-255-1982
Fax: 781-255-1974
Contact: Kenneth Petraglia, P. E., Vice President

1.06 WORK SEQUENCE

- A. In order that Work may be conducted with minimum inconvenience to the public and work under this Contract may be coordinated with other work which may be under construction or contemplated, and that work under the Contract may conform to conditions which it has been undertaken or conditions attached to a right-of-way or particular location for this work, the Engineer may determine the point or points and time or times when portions of work will commence or be carried on and may issue orders pertaining to the work sequence, relative to the rate of progress on several portions of the work.

1.07 CONTRACTOR USE OF PREMISES

- A. The Contractor's use of premises shall be within the limits shown on the Drawings and as defined in Section 00500 – Contract Agreement, for the performance of the Work.
- B. The Contractor shall assume full responsibility for security of all materials and equipment on the site, including those of his subcontractor's.
- C. If directed by the Owner, the Contractor shall move any stored items that interfere with operations of the Owner.
- D. Obtain and pay for use of additional storage or work areas if needed to perform the Work.

1.08 OWNER OCCUPANCY REQUIREMENTS

- A. The roadways within the project area must remain in full service at all times, throughout the duration of the project.

PART 2 PRODUCTS
NOT USED

PART 3 EXECUTION
NOT USED

END OF SECTION

SECTION 01025**MEASUREMENT AND PAYMENT****PART 1 GENERAL****1.01 SCOPE**

- A. The purpose of this section is to define the basis of measurement and payment for the unit price or lump sum items listed in SECTION 00300, BID PROPOSAL.
- B. Section 9.00 of the Commonwealth of Massachusetts Highway Department (MHD) Standard Specifications for Highways and Bridges 1988 and the English Supplemental Specifications, dated February 25, 2010 are hereby included in its entirety.

1.02 PAYMENT ITEMS

- A. Work Items of this Project are referenced with Items Numbers and Item Descriptions similar to those currently in use by the MassDOT, Highway Division.

1.03 BASIS OF MEASUREMENT AND PAYMENT

- A. Method of Measurement and Basis of Payment for Work Items shall be as called for under the appropriate section of the MHD Standard Specifications, unless modified in Sections 02500, Special Provisions and 02550, Construction Specifications.

END OF SECTION

SECTION 01050**FIELD ENGINEERING****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Survey work and other field engineering responsibilities of the Contractor.

1.02 REQUIREMENTS

- A. The Contractor shall be responsible for layout of the work and the establishing of lines and grades. **Prior to commencing any excavation for traffic signal posts, mast arms and the control box, the Contractor shall meet with the Engineer in the field to confirm their physical location.**
- B. Establish elevations, lines, levels, reference marks, batter boards, etc., required during the progress of the Work. Verify such marks by instrument to confirm accuracy.
- C. Locate and protect established survey control and reference points.
- D. Make, check, and be responsible for all measurements and dimensions necessary for the proper construction of the Work.
- E. The Engineer will be permitted to check the lines, elevations, reference marks, batter boards, etc., set by the Contractor. The Contractor shall correct any errors found in lines, elevations, reference marks, batter boards, etc.. Such a check shall not be construed as approval of the Contractor's work and shall not relieve or diminish the responsibility of the Contractor for the accurate construction and completion of the Work.
- F. Control datum for survey shall be as shown on Drawings or referenced herein.

1.03 QUALITY ASSURANCE

- A. The Contractor shall employ a Civil Engineer or Land Surveyor registered in the State of Massachusetts, acceptable to the Owner.
- B. The Contractor shall submit a certificate signed by the Contractor's Engineer or Land Surveyor stating elevations and locations of the Work are in conformance with the Contract Documents.

**PART 2 PRODUCTS
NOT USED****PART 3 EXECUTION
NOT USED****END OF SECTION**

SECTION 01200**PROJECT MEETINGS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Administrative and procedural requirements for project meetings.

1.02 PRECONSTRUCTION CONFERENCE

- A. The Owner and Engineer will schedule and administer a pre-construction conference.
- B. The pre-construction conference will be scheduled and administered within fourteen (14) calendar days after the dated "Notice to Proceed". The Contractor shall be prepared to address such topics as projected construction schedules, major personnel, critical work areas, construction facilities and shop drawing submittals.

1.03 PROGRESS MEETINGS

- A. The Engineer will schedule and administer progress meetings and specially called meetings throughout the duration of the Work at minimum monthly intervals.
- B. The time and location of such meetings shall be designated by the Engineer and shall be convenient for all parties involved.
- C. Engineer will, prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01300**SUBMITTALS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Requirements for submission of schedules and shop drawings.

1.02 PROGRESS SCHEDULE

- A. Within fourteen (14) calendar days after execution of the Contract Documents, the Contractor shall submit to the Engineer for review a construction progress schedule conforming to requirements specified. This schedule should show the proposed dates of commencement and completion of each of the various subdivisions of work required under this Contract and the anticipated monthly percentage of completion based on the total contract price. The Contractor shall be responsible for updating and/or revising this schedule whenever directed by the Engineer throughout the duration of the Contract.
- B. Special attention is directed to the requirement that the Contractor shall start the Work, as specified under this Contract, no later than thirty (30) calendar days after the execution of the Contract Documents, unless otherwise authorized by the Owner. The Contractor shall comply with all pre-construction requirements as specified. The Owner reserves the right to delay the commencement of the Work or any part thereof, if the specified requirements as determined by the Engineer have not been satisfied. The Owner further reserves the right to limit or, delay construction, or certain activities thereof, in certain areas of the Contract should the Owner deem it to be in the public's best interest and/or safety to do so.
- C. The Contractor shall contact the appropriate town or city authorities concerning any public or semi-public events that may occur during the construction period that may affect construction. The Contractor alone shall be responsible for arranging his construction sequence to conform to any restrictions these events may impose. No claims for extras will be allowed because of any delay, extra materials handling, extra excavation, etc. caused by the imposed restrictions. However, additional time may be granted for completion of the work to compensate for delays caused by said restrictions.

1.03 SHOP DRAWINGS

- A. Submit six (6) copies of shop and working drawings of concrete reinforcement, structural details, piping layout, wiring, materials fabricated especially for the Contract, and materials and equipment for which such drawings are specifically requested.

- B. A maximum of two (2) submittals of each shop drawing will be reviewed by the Engineer. If more submittals are required due to the Contractor's neglect or failure to fulfill the requirements of the Contract plans and/or specifications, or to make corrections or modifications required by the Engineer in the review of the first two submittals, the Engineer will review the submittal and the Contractor will be responsible for the cost of the review, as determined by the Owner based on the Engineer's documentation of time and rates for additional services established in the Engineering Agreement between the Owner and the Engineer.
- C. If re-submittals on shop and working drawings are required, the Engineer will retain three (3) copies and three (3) copies will be returned to the Contractor. When re-submittals are returned to the Engineer, six copies of the complete submittal shall again be required.
- D. Such drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When the dimensions are of particular importance, or when specified, the drawings shall be certified by the manufacturer or fabricator as correct for the Contract. The Contractor shall also be required to certify on the submitted drawings or catalog cuts that the equipment or the assembly are accepted by him and in conformance with the Plans and Specifications.
- E. When so specified or if considered by the Engineer to be acceptable, manufacturer's specifications, catalog data, descriptive matter, illustrations, etc., may be submitted in place of shop and working drawings.
- F. The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings to eliminate delay to the Work due to the absence of such drawings. All shop and working drawings must be submitted to the Engineer within thirty (30) calendar days prior to incorporation into the Work, unless otherwise permitted by the Engineer. Prior to the submittal of any shop drawings, the Contractor shall submit a schedule of proposed shop drawing transmittals. The schedule shall identify the subject matter of each transmittal, the corresponding specification section number and the proposed date of submission. Prior to and during the progress of the Work the schedule shall be revised and resubmitted as requested by the Engineer.
- G. No material or equipment shall be purchased or fabricated for the Contract until the required shop and working drawings have been submitted as hereinabove provided and reviewed for conformance to the Contract requirements. All such materials and equipment and the work involved in their installation or incorporation into the Work shall then be as shown in and represented by said drawings.
- H. Until the necessary review has been made, the Contractor shall not proceed with any portion of the Work (such as the construction of foundations) for which review is required.

- I. All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning reviewed drawings to them. All shop and working drawings shall be prepared on standard size, 24 inch by 36 inch sheets, except those which are made by changing existing standard shop and working drawings. All drawings shall be clearly marked with the names of the Owner, Contractor, and building, equipment, or structure to which the drawing applies, and shall be suitable numbered. Submitted shop drawings shall be accompanied by a multi-part letter of transmittal provided by the Engineer, and completed by the Contractor as directed by the Engineer.
- J. Only drawings which have been checked and corrected by the fabricator should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the Drawings and Specifications in all respects. All drawings which are correct shall be marked with the date, checker's name, and indication of the Contractor's approval, and then shall be submitted to the Engineer; other drawings shall be returned for correction.
- K. If a shop drawing shows any deviation from the Contract requirements, the Contractor shall make specific mention of the deviations in his letter of transmittal.
- L. The review of shop and working drawings by the Engineer will be general only, and nothing contained in this Section shall relieve, diminish or alter in any respect the responsibilities of the Contractor under the Contract Documents and in particular, the specific responsibility of the Contractor for details of design and dimensions necessary for proper fitting and construction of the work as required by the Contract and for achieving the result and performance as specified.
- M. Should the Contractor submit equipment that requires modifications to the structures, piping, electrical conduit, wires, appurtenances, or layouts etc., either existing or as detailed on the Drawings, he shall also submit details of the proposed modifications. If such equipment and modifications are accepted, the Contractor, at no additional cost to the Owner, shall do the work necessary to make such modifications.
- N. The Contractor shall furnish additional copies of shop drawings or catalog cuts when so requested.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01400**QUALITY CONTROL****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Requirements for Contractor's quality control of products, suppliers, manufacturers, services, site conditions, and workmanship, to produce work of the specified quality.

1.02 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Comply fully with manufacturers' instructions, including each step in sequence.
- B. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- D. Perform work by persons qualified to produce workmanship of specified quality.
- E. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.03 FIELD SAMPLES

- A. Install field samples at the site as required by individual specifications sections for review.
- B. Acceptable samples represent a quality level for the Work.
- C. Where field sample is specified to be removed, clear area only after field sample has been accepted by the Engineer.

1.04 CERTIFIED WELDERS

- A. Structural welds shall be made only by operators who have been qualified by tests, as prescribed in the "Standard Qualification Procedure" of the American Welders Society, to perform the type of work required.
- B. Pipe welds shall be made only by operators who have been qualified by the National Certified Pipe Welding Bureau and each operator's qualification record shall be submitted to the Engineer before any work is performed.

C. Shop welding shall be in accordance with the "Code for Welding in Building Construction".

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01410**TESTING****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Qualification, duties and responsibilities of testing laboratories. Also, Coordination and scheduling responsibilities of the Contractor.
- B. Related Sections
Section 01600 - Materials and Equipment

1.02 PAYMENT PROCEDURES

- A. Initial Testing: Unless otherwise specified herein, the Owner will pay for initial testing services required by the Engineer.
- B. Retesting: When initial tests indicate noncompliance with the Contract Documents, subsequent retesting occasioned by the noncompliance shall be performed by the same testing agency, and costs thereof will be deducted by the Owner from the Contract Sum.
- C. Contractor's Convenience Testing: Inspecting and testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. E-329-90, Use in the Evaluation of Testing and Inspection Agencies as Used in Construction.

1.04 REQUIREMENTS

- A. Work included:
 - 1. Cooperate with the Owner's selected testing agency and all others responsible or testing and inspecting the Work.
 - 2. Provide other testing and inspecting as specified to be furnished by the Contractor in this Section and/or elsewhere in the Contract Documents.
 - 3. Where no testing requirements are described, but the Owner directs testing, the Contractor shall provide testing under the requirements of this Specification.

1.05 QUALITY ASSURANCE

- A. The testing laboratory will be qualified to the Owner's approval in accordance with ASTM E329-90.
- B. Regulatory requirements
 - 1. Testing, when required, will be in accordance with all pertinent codes and regulations, and with selected standards of the American Society for Testing and Materials.
 - 2. Regulatory Requirements Inspections and tests required by codes or ordinances, or by a plan approved authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with pertinent provisions of Section 01600 - Materials and Equipment.
- B. Promptly process and distribute, to the Engineer, required copies of test reports and instructions to assure necessary retesting and replacement of materials with the least possible delay in progress of the Work.

1.07 SCHEDULING

- A. Establishing schedule
 - 1. By advance discussion with the testing laboratory selected by the Owner, Determine the time required for the laboratory to perform its tests and to issue each of its findings.
 - 2. Provide all required time within the construction schedule.
 - 3. Coordinate testing activity with the appropriate testing laboratory.
- B. Revising schedule
 - 1. When changes of construction schedule are necessary during construction, coordinate all such changes with the testing laboratory as required.
- C. Adherence to schedule
 - 1. When the testing laboratory is ready to test according to the established schedule, but is prevented from testing or taking specimens due to incompleteness of the Work, all extra charges for testing attributable to the delay may be back-charged to the Contractor and shall not be borne by the Owner.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 FIELD QUALITY CONTROL

- A. Representatives of the testing laboratory shall have access to the Work at all times and at all locations where the Work is in progress. Provide facilities for such access to enable the laboratory to perform its functions properly.
- B. All specimens and samples for testing, unless otherwise provided in the Contract Documents, shall be taken by the testing personnel. All sampling equipment and personnel will be provided by the testing laboratory. All deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.

END OF SECTION

SECTION 01510**TEMPORARY UTILITIES****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Requirements for temporary utilities required during construction.

1.02 GENERAL REQUIREMENTS

- A. The Contractor is responsible for payment of all costs associated with the installation and operation of all temporary utilities necessary for the completion of the work. The Contractor shall arrange with the Engineer and Owner methods of determining monthly utility costs for Temporary Utilities prior to connection of any temporary systems. The Contractor shall pay the Owner on a monthly basis for all temporary utility costs. The Temporary Utilities to be paid by the Contractor include, but are not limited to the following: Electricity, Water, Sanitary, Heating, Ventilation, Plumbing and other services required to complete the work.

1.03 TEMPORARY SANITARY FACILITIES

- A. Provide adequate sanitary facilities for the use of those employed on the Work. Sanitary facilities shall be made available when the first employees arrive on the site of the Work, be properly secluded from public observation, and be maintained during the progress of the Work in suitable numbers.
- B. Maintain sanitary facilities in an orderly and sanitary condition at all times and enforce their use. Rigorously prohibit the committing of nuisances on the site of the Work, on the lands of the Owner, or any adjacent property.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01560**TEMPORARY CONTROLS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Requirements for cleaning, maintenance of the project site, barriers and fences required during construction.

1.02 CLEANING DURING CONSTRUCTION

- A. Contractor shall perform clean-up operations during construction as herein specified.
1. Control accumulation of waste materials and rubbish; periodically dispose of off-site. Bear all costs, including fees resulting from disposal.
 2. Maintain project in accordance with all local, State and Federal Regulatory Requirements.
 3. Store volatile wastes in covered metal containers, and remove from premises.
 4. Prevent accumulation of wastes that create hazardous conditions.
 5. Provide adequate ventilation during use of volatile or noxious substances
- B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
1. Do not burn or bury rubbish and waste materials on site.
 2. Do not dispose or volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 3. Do not dispose of wastes into streams or waterways.
 4. Use only those materials which will not create hazards to health or property and which will not damage surfaces.
 5. Execute cleaning to ensure that the buildings, the sites, and adjacent properties are maintained free from accumulations of waste materials and rubbish and wind blown debris, resulting from construction operations.
 6. Provide on-site containers for collection of waste materials, debris, and rubbish.

7. Remove waste materials, debris, and rubbish from the site periodically and dispose of at legal disposal areas off the construction site.
8. During its progress, the work and the adjacent areas affected thereby shall be kept cleaned up and all rubbish, surplus materials, and unneeded construction equipment shall be removed and all damage repaired so that the public and property owners will be inconvenienced as little as possible.
9. Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, gutters, drains, pipes, structures, work done under this contract, or elsewhere during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels, drains, pipes, structures, and work, etc. shall, upon completion of the work, be left in a clean and neat condition.

1.03 DUST CONTROL

- A. Provide adequate means for the purpose of preventing dust caused by construction operations throughout the period of the construction contract.
- B. This provision does not supersede any specific requirements for methods of construction or applicable general conditions or performance obligations of the Contractor.

1.04 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
- B. Minimize amount of bare soil exposed at one time.
- C. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
- D. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- E. Construct sediment control devices for discharge from dewatering trenches.
- F. Construct all sedimentation control devices shown on the plans.

1.05 NOISE CONTROL

- A. Develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum.

- B. Execute construction work by methods and by use of equipment which will reduce excess noise.
 - 1. Equip air compressors with Silencers, and power equipment with mufflers.
 - 2. Manage vehicular traffic and scheduling to reduce noise.

1.06 POLLUTION CONTROL

- A. Special care shall be taken to prevent contamination or muddying up or interfering in any way with the stream flows, if any along the line of work. No waste matter of any kind will be allowed to discharge into the stream flows or impounded water of any pools or other bodies of water.

1.07 SURFACE WATER CONTROL

- A. Take all precautions to prevent damage to the work or equipment by high waters or by storms. The Engineer with the approval of the Owner may prohibit the carrying out of any work at any time when in his judgment, high water or storm conditions are unfavorable or not suitable, or at any time, regardless of the weather, when proper precautions are not being taken to safeguard previously constructed work or work in progress.
- B. In case of damage caused by the failure of the Contractor to take adequate precautions, the Contractor shall repair or replace equipment damaged and shall make such repairs or rebuild such parts of the damaged work, as the Engineer may require, at no additional expense to the Owner.

1.08 BARRIERS AND ENCLOSURES

- A. Fences and Barricades
 - 1. Provide and maintain temporary fences, barriers, lights, guardrails, and barricades as indicated in the Contract Documents, or as necessary to secure the Work and adjacent property, and protect persons and property.
 - 2. Obtain necessary approvals and permits and provide temporary expedients as necessary to accommodate tasks requiring items mentioned herein.
- B. Protection of Trees
 - 1. The Contractor shall take care not to harm trees along the sides of roads or within the existing facility in which the construction work is to be done or trees on adjacent lands except as indicated on the drawings or with the written permission of the Owner and any other owner of the trees involved. Care shall be taken not to cut tree roots so as to harm the growth of trees to remain.

2. If, in the opinion of the Engineer, any trees damaged during construction can be repaired, the Contractor shall satisfactorily repair same at no further cost to the Owner.
3. If, in the opinion of the Engineer, any tree damaged during construction cannot be repaired and should be removed, the Contractor shall satisfactorily remove and replace, in kind, same at no further cost to the Owner.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01570**TRAFFIC REGULATIONS****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Requirements for traffic control for the duration of the Contract.

1.02 REFERENCES

- A. Manual of Uniform Traffic Control Devices (MUTCD) 2003 Edition, including all latest revisions.

1.03 PERFORMANCE REQUIREMENTS

- A. The Contractor shall prepare and submit to the Engineer a proposed work schedule which complies with the plans and specifications. No work shall start until the Engineer's approval of the schedule is received.
- B. Contractor shall have the sole responsibility for the maintenance and protection of traffic.
- C. No construction will be permitted within 300 feet of a school, day care center, or day camp when children are either arriving or departing the facility. The actual hours involved will be obtained by the Contractor from the respective facility.
- D. An authorized representative of the Contractor shall be available on a 24-hour basis for the duration of the Contract for the purpose of correcting construction related impediments or hazards.

1.04 SUBMIT TRAFFIC PLANS

- A. In accordance with SECTION 01300 – SUBMITTALS, submit a traffic plan delineating requirements of this section, the Contract Drawings, and the City of Salem.
- B. Traffic control plans shall detail all typical work zones and detours.

1.05 SITE CONDITIONS

- A. Replace at no cost to the Owner pavement markings, legends and lane arrows removed or damaged by the construction operation.
- B. Restore temporary detours to original condition.

C. Replace traffic signal loops damaged during construction with in 72 hours.

1.06 SCHEDULING

- A. The Contractor shall minimize the construction impacts to the traveling public and abutting property owners by limiting the extent of roadway excavation and requiring the restoration of a weather-tight pavement surface as stipulated below. All proposed underground installations (utilities, drainage, sewer, etc.) must be in place prior to the beginning of roadway excavation.
- B. The Owner reserves the right to alter the lengths of excavation and other operations in order to ensure the safety of the traveling public and abutting property owners.

PART 2 PRODUCTS

2.1 TRAFFIC CONTROL DEVICES

- A. Devices shall be in accordance with the MUTCD.

PART 3 EXECUTION

3.1 INSTALLATION OF TRAFFIC CONTROL DEVICES

- A. Installations shall be in accordance with the MUTCD.

END OF SECTION

SECTION 01600
MATERIALS AND EQUIPMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Requirements for delivery, storage, handling and installation of systems, materials, manufactured units, equipment, components, and accessories used in the work.

1.02 DELIVERY

- A. Refer to Specifications' Sections for requirements pertaining to delivery and handling of materials and equipment.
- B. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturers' unopened containers or packaging, dry.
- C. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- D. Promptly inspect shipments to assure that products comply with requirements, that quantities are correct, and products are undamaged.

1.03 STORAGE AND PROTECTION

- A. Refer to Specifications' Sections for requirements pertaining to storage and protection of materials and equipment.
- B. Store products in accordance with manufacturers' instruction, with seals and labels intact and legible. Store sensitive products in weather tight enclosures; maintain within temperature and humidity ranges required by manufacturers' instructions.
- C. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- D. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- E. Arrange storage to provide access for inspection. Periodically inspect to assure that products are undamaged, and are maintained under required conditions.

1.04 INSTALLATION STANDARDS

- A. Comply with Specifications and referenced standards as minimum requirements.

- B. Components required to be supplied in quantity within a Specification Section shall be the same, and shall be interchangeable.
- C. Do not use materials and equipment removed from existing structures, except as specifically required, or allowed, by the Contract Documents.
- D. Perform work by persons qualified to produce workmanship of specified quality.
- E. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
- F. When work is specified to comply with manufacturers' instructions, submit copies as specified in Section 01300 - Submittals, distribute copies to persons involved, and maintain one set in field office.
- G. Perform work in accordance with details of instructions and specified requirements.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

SECTION 01800**MAINTENANCE****PART 1 GENERAL****1.01 SECTION INCLUDES**

- A. Procedures for maintaining work completed under this Contract.

1.02 MAINTENANCE PERIOD

- A. The general maintenance period for all construction or materials under this Contract shall be one (1) year subsequent to the date of the acceptance of the work by the Owner, or as provided by other sections of this Specification.
- B. If the Owner puts any structure or equipment to use prior to acceptance of all work under the Contract, the maintenance period for such structures or equipment shall be calculated from the time use begins.
- C. Contractor agrees to replace the material which does not conform to the Contract requirements, and to repair any damage of material or work without cost to the Owner, to satisfaction of Engineer, in conformance with Contract Documents provided orders for replacement and/or repairs are received in writing by the Contractor within the one year period.
- D. This Section shall in no way limit the duration of the Contractor's responsibility for the correction of any defect due to workmanship or materials provided by the Contractor which are not in compliance with the Contract Documents.

1.03 ABUSE OF WORK

- A. Contractor is not obligated to perform work of replacement or repair that he may prove is required because of abuse by parties other than the Contractor, after the date the Owner puts to continuous use the work requiring replacements or repair, or after date the Owner has approved the Certificate of Completion.

1.04 EMERGENCY REPAIRS

- A. If the Owner deems necessary, the Owner shall order replacement or repairs be undertaken within 24 hours.
- B. If the Contractor delays or fails to make the ordered replacement or repairs within the time specified, the Owner shall have the right to make such replacements or repairs and the expense shall be deducted from moneys due the Contractor, or moneys of the Contractor retained by the Owner.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION

DIVISION 2
ROAD / TRAFFIC WORK

SECTION 02500

SPECIAL PROVISIONS

SCOPE OF WORK

The work to be done under this contract consists of furnishing all necessary labor, materials and equipment required for the construction of traffic signals at one location and reconstruction of traffic signals at one location in Salem, Massachusetts. The two locations included in the project are as follows:

- Location 1 - Derby Street at Congress Street/Hawthorne Boulevard
- Location 2 - Hawthorne Boulevard at Essex Street

The work includes new and reconstructed traffic signals; signing; pavement markings; and the provision of safety controls and signing for construction operations. Roadway improvements will consist of a removal of a traffic island and repair of the pavement area, installation of conduit, repair of pavement and the reconstruction/restoration of brick sidewalks and cement concrete wheelchair ramps that are impacted by the installation of traffic signals and conduit, as well as other and other incidental items included in the contract documents.

All work done under this contract shall be in conformance with the Massachusetts Highway Department *Standard Specifications for Highways and Bridges* dated 1988 and the English *Supplemental Specifications* dated February 25, 2010; the Standard Special Provisions contained in this book, the *1977 Construction Standards* and the *Supplemental Drawings* dated April 2003; *the latest edition of the Manual on Uniform Traffic Control Devices* with revisions; the *1990 Standard Drawings for Signs and Supports*; the *1968 Standard Drawings for Traffic Signals and Highway Lighting*; the latest edition of *American Standard for Nursery Stock*; the *Plans* and these *Special Provisions*.

WORK SCHEDULE (Supplementing Subsection 8.02)

No work, including the setting up and taking down of work zone traffic control devices shall be done on existing roadway areas between the hours of 3:30 to 6:00 PM. Work shall be permitted in areas outside and off the roadway during these periods. Work will be allowed on the roadway between 7:00 AM and 3:30 PM. If traffic delays exceed 12 minutes, the Contractor will be required to vacate all equipment from the roadway.

No work shall be done on this contract on Saturdays, Sundays, or holidays. No work will be allowed, without prior written approval from the Engineer, the day before or the day after a long weekend, which involves a holiday.

Before starting any work on this contract, the Contractor shall submit a schedule of operations as provided in Subsection 8.02.

SHOP DRAWING SUBMITTAL (Supplementing Subsection 5.02)

The following is a list of items and materials that require shop drawing approval.

Traffic Control Systems

1. Traffic signal equipment (catalog cuts)
2. Mast arm design
3. Mast arm hanger assemblies (catalog cuts)
4. Emergency preemption equipment (catalog cuts)

Within 15 days after receipt of an approved shop drawing for any item, the Contractor shall provide the City written proof that he has ordered such approved materials required on the subject contract and a written confirmation of such order and delivery schedule from the manufacturer of the item. This delivery schedule shall be appropriate for timely completion of this project.

All shop drawing submittal structural calculations shall be stamped by a Professional Engineer registered in Massachusetts.

PUBLIC SAFETY AND CONVENIENCE (Supplementing Subsection 7.09)

Vehicular and pedestrian travel on the public way shall be maintained by the Contractor during construction and access to abutting land shall be provided at all times. If so directed, temporary wooden walkways will be provided by the Contractor to insure safe passage under various weather conditions.

PROTECTION OF UNDERGROUND FACILITIES

The Contractor's attention is directed to the necessity of making his own investigation in order to assure that no damage to existing structures, drainage lines, traffic signal conduits, etc., will occur.

The Contractor shall notify "Mass. DIG SAFE" and procure a DIG SAFE number for each location prior to disturbing the existing ground in any way. The telephone number of the Dig Safe Call Center is 1-888-344-7233.

NOTICE TO OWNERS OF UTILITIES (Supplementing Subsection 7.13)

The Contractor shall give written notice to all public service corporations or officials, owning or having charge of public or privately owned utilities, of his intention to commence operations affecting such utilities one week in advance of the commencement of such operations. The Contractor shall, at the same time, file a copy of such notice with the Engineer. Before commencing work on service connections, the Contractor shall contact the serving utility to ensure that proper construction procedures are followed.

The following are the names and addresses of some of the agencies which may be affected, and must be notified. Completeness of this list is not guaranteed by the City. The Contractor shall assure that all affected agencies are notified.

NOTICE TO OWNERS OF UTILITIES (Continued)**Utility Pole Set Responsibility**

Verizon

Electric:

National Grid
40 Sylvan Road
Waltham, MA 02451
Attn: Ayodele Osimboni
(781) 907-3589

Telephone:

Verizon
1166 Shawmut Avenue
New Bedford, MA 02746
Attn: Karen Nunes
(508) 991-3522

Water:

Salem Engineering Department
120 Washington Street
Salem, MA 01970
Attn: David Knowlton
(978) 619-5670

Cable:

Comcast
676 Island Pond Road
Manchester, N.H. 03109
Attn: Stacey Charest
(603) 628-3732

Fire Alarm:

Salem City Electrician
44 Lafayette Street
Salem, MA 01970
Attn: John Giardi
(978) 745-6300

Gas:

National Grid Gas
40 Sylvan Road
Waltham, MA 02451
Attn: Dennis Peri
(781) 907-2836

Gas:

Tennessee Gas Pipeline
8 Anngina Drive
Enfield, CT 06082
Attn: Jim Hartman
(860) 763-6033

Sewer:

Salem Engineering Department
120 Washington Street
Salem, MA 01970
Attn: David Knowlton
(978) 619-5670

Cable:

AT&T/TCG
c/o Siena Engineering
50 Mall Road - Suite 203
Burlington, MA 01803
Attn: David Edgar
(781) 221-8400

DPW:

Salem Engineering Department
120 Washington Street
Salem, MA 01970
Attn: David Knowlton
(978) 619-5670

NOTICE TO OWNERS OF UTILITIES (Continued)**Other:**

Lighttower
80 Central Street
Boxborough, MA 01719
Attn: Scott Harnios
(978) 264-6017

DESIGNER

Mr. Kenneth Petraglia, Project Manager
BETA Group, Inc.
315 Norwood Park South
Norwood, MA 02062
Tel. (781) 255-1982

CITY OF SALEM

Mr. David Knowlton, City Engineer
Salem Engineering Department
120 Washington Street
Salem, MA 01970
Tel. (978) 619-5670

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in protecting or repairing property as specified in this section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefore.

The Contractor shall be required to furnish all labor, materials, and equipment necessary to protect underground structures and electrical vaults within the project site from construction debris and water penetration. When underground structures or electrical vault roofs are excavated, the Contractor shall be responsible for maintaining security of these structures or electrical vaults against unauthorized access. The Contractor shall be responsible for leaving the structures and vaults in a state of water tightness equal to that existing at the commencement of the contract.

PROTECTION OF UTILITIES AND PROPERTY (Supplementing Subsection 7.13)

The Contractor, in constructing or installing facilities alongside or near sanitary sewers, storm drains, water or gas pipes, electric or telephone conduits, poles, railroad, sidewalks, walls or other structures, shall, at his expense, sustain them securely in place, cooperating with the officers and agents of the various utility companies and municipal departments which control them, so that the services of these structures shall be maintained. He shall also be responsible for the repair or replacement, at his own expense, of any damage to such structures caused by his acts or neglect, and shall leave them in the same condition as they existed prior to the commencement of work. In case of damage to utilities, the Contractor shall promptly notify the owner and shall, if requested by the Engineer, furnish laborers to work temporarily under the owner's direction in providing access to the utility. Pipes or other structures damaged by the operation of the Contractor may be repaired by the City of Salem or by the utility company which suffers the loss. The cost of such repairs shall be borne by the Contractor, without compensation therefore.

If, as the work progresses, it is found that any of the utility structures are so placed as to render it impracticable, in the judgment of the Engineer, to do the work called for under this Contract, the Contractor shall protect and maintain the services in such utilities and structures and the City

will, as soon thereafter as it reasonably can, cause the position of the utilities to be changed or take such other action as it deems suitable and proper.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in protecting or repairing property as specified in this section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefore.

The Contractor will cooperate fully with all utility companies private or public, and will notify all such companies at least twenty-four hours prior to excavating in the vicinity of any utility. It is understood that the Contractor has considered in his bid the existence of the various utilities and that no additional compensation will be allowed for any delays, inconvenience, or damage sustained by him due to any interference by said utilities.

For overhead connections, the serving utility will make the connection from the top of the riser on the utility pole to the power source. The Contractor shall supply all labor, materials and equipment to install the service connection, complete in place and in accordance with National Grid procedures, from the controller to and including the riser. Enough wire shall be coiled above the riser to allow the serving utility to make the final connection.

The Contractor shall pay the serving utility for their services rendered for the connection of underground service connection.

DEWATERING

The Contractor's attention is directed to construction operations which may occur in the vicinity of wetland areas, streams, brooks and/or surface or subsurface areas where surface water or groundwater may exist or accumulate. All dewatering and related work shall be conducted in such a manner as to prevent siltation or contamination of any adjacent resource area. Pumping discharge shall not be allowed to enter directly or indirectly into any wetland resource area without prior treatment (filter bags, silt sacks, settling basins, etc. The Contractor shall include under each pertinent item all labor, materials and equipment necessary to dewater the affected areas for proper installation of the respective items. No additional compensation will be made for dewatering but shall be considered incidental and included in the price for each respective item.

MAINTENANCE OF EXISTING TREES

Caution shall be taken by the Contractor not to damage the plants by burning, by pumping of water, by cutting live roots or branches, or by any other means. No plants to be saved shall be used for crane stay, guys or other fastenings. Vehicles shall not be parked where damage may result to trees to be saved. Construction materials shall not be stored beneath trees to be saved.

If the existing trees to be saved within or outside the limit of work line are damaged, as determined by the Engineer, it shall be assessed at \$300 per caliper inch and deducted from the Contract amount. Existing shrubs, vines and groundcover to be saved which are damaged, as determined by the Engineer, shall be replaced with plants of equal size. All costs incurred shall be paid for by the Contractor at his own expense.

ENVIRONMENTAL CONTROLS

All construction equipment shall be fitted with suitable muffling devices so that the noise from construction operation shall be properly controlled.

The Contractor shall control all dirt, dust erosion and other related construction emissions from the project to the satisfaction of the Engineer.

DISPOSAL OF SURPLUS EXCAVATION MATERIAL

Surplus materials obtained from any type of excavation, and not needed for further use as determined by the Engineer shall become the property of the Contractor and shall be disposed of by him outside the location subject to the regulations and requirements of local authorities governing the disposal of such materials, at no additional compensation.

DISPOSAL OF SURPLUS MATERIALS

All existing and other materials not required or needed for use on the project, and not required to be removed and stacked, shall become the property of the Contractor and shall be removed from the site during the construction period and legally disposed of. No separate payment will be made for this work, but all costs in connection there with shall be included in the prices bid for various contract items.

MATERIALS REMOVED AND STACKED (Supplementing Subsections 580.64, 630.63)

Materials directed to be removed and stacked which are the property of the City of Salem shall be removed, transported to and stacked in the City of Salem Public Works Yard at 5 Jefferson Avenue, Salem MA. All materials shall be neatly stacked as directed by the City of Salem highway and/or water/sewer superintendents. In addition, all materials stacked shall be signed for by said superintendents.

Materials directed to be removed and stacked, which are privately owned, shall be removed, transported to, and stacked on the property, where materials have been removed, as directed by the Engineer.

If the Owner and the Engineer determines that any part of the stacked materials are unsuitable for re-use by the City, or if other owners decide to abandon part or all of their materials, such materials shall become the property of the Contractor and he shall dispose of them away from the site in a legal manner.

The contract prices for the various items shall include full compensation for the services noted above.

FINE TUNING, ADJUSTMENT AND TESTING PERIOD (Supplementing Subsection 7.18)

After the Contractor has finished installing the controller and all other associated signal equipment and after the Contractor has set the signal equipment to operate as specified in the Contract Documents, the fine tuning, adjusting, and testing period shall begin. The Contractor shall advise the Engineer in writing of the date of the beginning of the fine tuning and testing period. This test shall continue for a period of not less than 30 consecutive calendar days without failure, excluding lamp burnout. During this period, the Contractor, under the direction of the Engineer, will make necessary adjustments and tests to ensure safe and efficient operation

of the equipment. The contract completion date includes time for this testing period. No request for final acceptance will be considered until successful completion of the testing period.

In the event of failure during this test period, the Contractor shall repair or replace the malfunctioning parts or equipment, or faulty workmanship, regardless of the cause, within twenty-four (24) hours after having been notified by the Engineer. Upon correcting failures caused by defective equipment, material, or faulty workmanship to the satisfaction of the Engineer, the thirty (30) day test period shall begin anew.

The Engineer shall seek the cooperation of local community representatives in observing the installation during the test period and request these observations be reported to him.

The Contractor shall provide the Engineer with the name and telephone number of the person to be notified in the event of failures or malfunctions during the test period.

The cost of the electric energy consumed by the operation of traffic signals during the construction and fine tuning of the signals shall be borne by the Contractor.

GUARANTEE AFTER FINAL ACCEPTANCE

The Contractor shall diagnose (trouble-shoot) the system and, at his own expenses replace any part of the traffic signal control equipment found to be defective in workmanship, material or manner of functioning within six months from date of final acceptance of all the installations under this Contract. This requirement does not affect the one-year warranty period on equipment specified in Subsection 815.20 of the Standard Specifications.

Upon the date of acceptance of the project by the City, the Contractor shall turn over all guarantees and warranties to the City, where applicable.

MAINTENANCE OF TRAFFIC SIGNALS

The Contractor shall give written notice to the City of Salem of the date the Contractor has assumed responsibility for the maintenance of the signals and provide the City with emergency telephone numbers.

It shall be the responsibility of the Contractor to provide all labor, equipment and material required for the total maintenance of all existing and proposed traffic signal control equipment within the project limits, including damage by automobile accident, from the date of written notice given to the Engineer that the Contractor will start work, until the date when the City Engineer shall recommend acceptance of the completed project. This written notice must be given before the Contractor may proceed with any work on a specified traffic signal system. For the purpose of these paragraphs, the phrase "Traffic Signal Control Equipment" is intended to include, but is not limited to, controllers, detectors, signal housing, supporting structure, cabinets, wires, conduit and all other ancillary electrical equipment used for traffic control.

Existing traffic signal systems are to be maintained until proposed signal equipment is put into service. If an interruption in service is required, it must be approved by the Engineer and the City of Salem. If temporary signals are required to maintain signalized control, the cost shall be included in the respective lump sum item.

MATERIALS FOR MAST ARMS

All materials for traffic signal mast arms shall be steel. The use of aluminum will not be allowed. Mast arms shall be conforming to M8.18.4, B. Steel.

PROPERTY BOUNDS (Supplementing Subsection 7.13)

The Contractor shall exercise due care when working around all property bounds which are to remain. Should any damage to a bound result from the actions of the Contractor, the bound shall be replaced and/or realigned by the Contractor as directed by the Engineer. No further compensation will be due the Contractor for the materials and labor required to re-establish the bound in its proper position as shown on the plans or as found in the field.

TRAFFIC MANAGEMENT PLAN

The Contractor shall follow the requirements of the Traffic Management Plan unless otherwise directed by the Engineer.

The Traffic Management Plan and Typical Details show the suggested construction staging with pertinent traffic controls. The Contractor may submit an alternate traffic management plan, in writing, for approval by the Engineer and the City.

The Contractor shall prepare and submit to the Engineer a proposed work schedule which complies with the plans and specifications. No work shall start until the Engineer's approval of the schedule is received.

The Contractor shall notify the City of Salem Public Works Department 14 days before construction starts.

It is the intent of these Special Provisions to minimize the construction impacts to the traveling public and abutting property owners by limiting the extent of roadway excavation and requiring the restoration of a weather-tight pavement surface as stipulated below. All proposed underground installations (utilities, drainage, sewer, etc.) must be in place prior to the beginning of any roadway excavation. The Engineer reserves the right to alter the lengths of excavation and other operations in order to ensure the safety of the traveling public and abutting property owners.

The following conditions will be followed unless otherwise directed by the Engineer.

- A minimum of one lane of traffic in each direction of travel must be maintained on all streets at all times, except where otherwise shown in the Traffic Management Plan.
- At least one sidewalk on one side of the street shall remain open at all times.
- Reconstruction of intersections shall be undertaken so as to maintain all existing turning movements.
- Pedestrian and vehicle access to all abutting properties shall be maintained except for very short periods of time. When it is necessary to deny access to a property, the owner shall be informed at least 48 hours in advance.

- Utility work shall be done prior to the roadway construction operations. The Contractor shall coordinate his work with the City and the utility companies.
- The Contractor shall coordinate his activities with construction operations that may be undertaken concurrently by others.

SECTION 02550**CONSTRUCTION SPECIFICATIONS****ITEMS**

All Items of work in this Contract shall be governed by the "Commonwealth of Massachusetts, Highway Department (MHD) Standard Specifications for Highway and Bridges", dated 1988, including the latest supplements and addendum thereto.

The following items reflect special conditions particular to this Project. As such, they amend and/or supplement the provisions governing the Item, as described in the Standard Specifications.

ITEM 120.1**UNCLASSIFIED EXCAVATION****CUBIC YARD**

The work to be done hereunder consists of excavating and disposing in accordance with relevant provisions of Section 120, all materials obstructing execution of the required work as shown on the plans or as directed, except those materials for which payment is made inclusive with complete work specified to be performed under other items of this contract.

Also included shall be the removal and disposal of substandard or damaged curb, brick, concrete, as determined by the Engineer, and all other materials not classified and paid for under other items.

Edges of excavations made in existing pavements shall be squared by sawcutting with power-driven tools to provide a neat, clean edge for joining new pavement. Ragged, uneven edges shall not be acceptable. Pavement areas which have been broken or undermined shall be edged neatly with minimum disturbance to remaining pavement. Payment for sawcutting shall be made under Item 482.3.

Before starting excavation, the Contractor shall field check and verify all the vaults and other structures in the project area and make sure that the excavation will not disturb or damage such structures. He will coordinate his construction activities with the owners of such structures and obtain approval or permits, if necessary, prior to starting the excavation. Any damage done to these structures during the construction process will be the responsibility of the Contractor and will be repaired by the Contractor at his own expense. If the owner so wishes, he will repair the damage himself and bill the Contractor for his expenses.

When working next to existing retaining walls, the Contractor shall exercise extreme caution not to disturb existing walls. If existing walls are disturbed, they shall be reconstructed at the Contractor's expense to thoroughly match the existing wall in color, texture, material and workmanship.

Payment for Item 120.1 will be at the contract unit price per cubic yard.

ITEM 431.1**HIGH-EARLY-STRENGTH CEMENT
CONCRETE BASE COURSE****CUBIC YARD**

The work under this item shall conform to the relevant provisions of Section 430 of the Standard Specifications and the following:

The Contractor shall use High-Early-Strength Cement Concrete Base Course in the area of island removal or as directed by the Engineer. The Contractor's attention is drawn to the fact that high early strength cement concrete may be placed in various thicknesses, as authorized by the Engineer.

This High-Early-Strength Cement Concrete Base item will not be used to cap conduit trenches in sidewalks.

Compensation for this work shall be at the contract unit price per cubic yard, which price shall include all form work, labor, materials and equipment to complete the work complete in place.

ITEM 472.**HOT MIX ASPHALT FOR MISCELLANEOUS WORK****TON**

The work to be done under this item shall conform to the relevant provisions of Section 472 and the following:

The work includes the patching of utility trenches which lie within the limits of existing paved surface in full or partial construction areas or that will be opened to vehicles or pedestrians or where otherwise directed by the Engineer.

Temporary patches in the roadway shall consist of 4 inches of Hot Mix Asphalt. Temporary patches in sidewalks shall consist of 2 inches of Hot Mix Asphalt. Temporary patches shall be finished level with the existing adjacent surfaces.

Permanent pavement repair in the roadway shall consist of 8 inches of High Early Strength with 4 inches of Hot Mix Asphalt. Pavement shall be finished level with the existing pavement.

High Early Strength Concrete shall be paid for under item 431.1 and Controlled Density Fill shall be paid for under Item 153.

If Hot Mix Asphalt is not available due to seasonal plant closing, the Contractor may then use cold patch material with the approval of the Engineer.

Hot mix asphalt for miscellaneous work shall be placed only upon the direction of the Engineer.

The Contractor shall be required to maintain and repair temporary patches without additional compensation, if settlement or failure should occur after the original patch has been made.

Compensation for this work shall be made at the contract unit price per ton, which price will include furnishing and applying bitumen tack coat.

ITEM 482.3**SAW CUTTING****FOOT**

The work under this item shall conform to the relevant provision of Section 480 of the Standard Specifications and the following:

The work shall include the saw-cutting of existing asphalt pavement around the area of the median removal as well as proposed conduit for the service connection. The work shall also include the saw-cutting brick over concrete sidewalks as required to install conduit and traffic signal equipment.

Saw-cutting equipment shall be approved by the Engineer prior to commencing work.

All edges of excavations made in existing pavements, which will not be overlaid and which will be visible shall be squared by saw-cutting with power-driven tools to provide a neat, clean edge for joining new pavement and sidewalks as shown on the Plans. Ragged, uneven edges shall not be accepted. Areas which have been broken or undermined shall be edged neatly with a minimum disturbance to remaining pavement or sidewalks.

Sawcut roadway pavement surfaces shall be sprayed or painted with a uniform thin coat of RS-1 asphalt emulsion immediately before placement of hot mix asphalt material against the surface.

Saw Cutting of asphalt pavement and brick / concrete sidewalks will be paid for at the contract unit price per linear foot, regardless of depth; which price shall include all labor, materials, equipment, and incidental costs required to complete the work.

ITEM 590.**CURB REMOVED AND STACKED****FOOT**

This work shall consist of removing existing curb and stacking it in accordance with these specifications and as directed by the Engineer.

A trench of sufficient width and depth shall be excavated so that the present curbing can be removed without damage.

All curbing removed shall be transported to and stacked at the Salem Department of Public Works Yard at #5 Jefferson Avenue in Salem. Any curb that is found to be unsuitable for stacking shall be discarded by the Contractor, without additional compensation.

The quantity of curb removed and stacked to be paid for shall be the length actually removed, as measured along the face of the curb.

Curb removed and stacked will be paid for at the contract unit price bid per foot, which payment will be full compensation for all materials, tools, equipment and labor incidental to the completion of the work, including the loading, transporting, unloading and stacking of curb.

ITEM 701.2 CEMENT CONCRETE WHEELCHAIR RAMP SQUARE YARD

The work under this item shall conform to the relevant provisions of the Standard Specifications and the following:

Individual wheelchair ramp panels may be replaced under this item for ramps which are disturbed by traffic signal conduit installation. Partial panel replacement will not be accepted. The Contractor shall use extreme care when excavating the panel to be removed so as not to disturb adjacent panels whose removal is not otherwise required. Panels unduly disturbed during construction operations, which were not intended for replacement shall be replaced at the Contractor's expense.

If a wheelchair ramp is to be completely replaced, as directed by the Engineer, then detectable warning panels shall be installed in accordance with MassHighway Standard Drawing M/E 107.6.5R. Payment for the warning panels shall be considered as part of the unit price bid for the Item 701.2, without any additional compensation.

ITEM 706.1 BRICK SIDEWALK REMOVED AND RELAID SQUARE YARD

Work under this item shall be done in accordance with relevant provisions of the Standard Specifications, supplemented as follows:

The existing sidewalks consist of mortared brick units over a 4 inch concrete base. Portions of existing brick walk disturbed by conduit installation or the installation of signal equipment shall be removed and reconstructed under this item. The lateral pay limits of this work shall be a maximum of 1 foot. The extent of the sidewalk removal shall be verified with the Engineer prior to the commencement of saw-cutting and excavation.

The Contractor shall have the options of removing and cleaning existing brick units for reuse, or furnishing new brick units as may be required. New brick units shall precisely match the color, texture and size of existing brick. Brick units which are made less than whole by the saw-cutting operation shall be carefully removed, mortar cleaned off adjacent bricks and the concrete base and replaced with new whole brick units.

The areas of sidewalk repair shall meet the elevation of adjacent surfaces, meet the back of sidewalk grades and sloped smoothly and evenly without dips or distinct breaks. Mortar bedding and joint width shall meet existing.

Bricks re-laid around proposed traffic signal equipment shall be cut to fit snug and square against the equipment foundation.

Brick Walk Removed and Relaid shall be paid at the contract unit price bid per square yard complete in place. The price paid shall be full compensation for removing existing brick and concrete base, removing, cleaning and relaying existing brick or furnishing and laying new brick units, removing and replacing partial brick units created by the saw-cutting operation, furnishing and placing bedding and jointing materials, and furnishing and constructing new concrete base. The work shall also include necessary excavation and disposal of surplus material, and all other

materials, labor and equipment required to complete the removal and reconstruction of brick sidewalks to match existing. The Concrete Base thickness shall match existing.

ITEM 804.3 **3 INCH ELECTRICAL CONDUIT TYPE NM -** **FOOT**
PLASTIC (UL)

Work under this item shall conform to the relevant provisions of the standard provisions of Section 801 and the following:

All conduit shown on the plans, or additional conduits placed in locations directed by the Engineer, shall be new 3 inch electrical conduit Type NM. The conduit material shall be Schedule 40 polyvinyl chloride (PVC) plastic conduit.

Conduit trenches under sidewalk areas shall be backfilled with gravel borrow in accordance with Standard Specifications and Standard Details.

The existing roadway pavement or sidewalk shall be cut to neat true lines by saw-cutting along the length of the trench equally spaced from the centerline of trench and not more than 18" apart. Conduit placed in roadways shall be placed and backfilled with controlled density fill (Type 2E) (CDF), conforming to the requirements of Section M4.08.0 of the Standard Specifications, and shall be paid for under Item 153. Controlled Density Fill - Excavatable.

All necessary or incidental work including excavation of the trench, furnishing and installing conduit with yellow warning tape shall be paid for under Item 804.3 for conduit complete in place.

Restoration of unavoidable impacted Cement Concrete Wheelchair Ramps and Brick Sidewalks shall be paid for under Items 701.2 and Item 706.1, respectively.

ITEM 804.3A **HDPE PIPE INSTALLED USING PNEUMATIC -** **FOOT**
PIERCING TOOL

This section includes the requirements for furnishing all labor, materials, transportation and equipment necessary for the installation of HDPE using the pneumatic piercing tool technique as specified on the Contract Drawings.

Pneumatic piercing tool drilling and pipe installation shall be done only by an experienced Contractor specializing in pneumatic piercing tool drilling and whose key personnel have at least five (5) years experience in this work. Furthermore, the Contractor shall have installed pneumatic piercing tool drilled pipe at least as large as 4 inches in diameter, have performed crossings at least 30 feet in length, and successfully installed at least 5,000 feet in length. The owner may require that the Contractor provide certificates of training for any employee directly involved in the supervision or operation of the pneumatic piercing tool drilling system.

Obtain a professional surveyor licensed in the Commonwealth of Massachusetts to implement and maintain a survey program for monitoring road and sidewalk surface settlement, as required by the Owner and Engineer.

The qualifications submitted by a pneumatic piercing tool drilling contractor shall include detailed descriptions such as:

- Name, business address, and telephone number, as well as the names of all the supervisory personnel to be directly involved with the project.
- List of similar projects completed, including name, address, and telephone number of the project manager or other contact, as well as descriptions of the types of pipes drilled and the sizes and lengths of replacement pipes installed.

The Contractor shall sign and date the information provided and certify that the information is true and accurate and that the supervisory personnel identified will participate directly in the pneumatic piercing tool drilling project. Substitutions of personnel or methods shall not be allowed without written authorization of the utility.

The Contractor shall submit written descriptions of the construction methods and equipment to be used, as well as pit dimensions and locations required for equipment and material access.

The Contractor shall hold the Owner and Engineering Firm harmless in any legal action resulting from patent infringements.

All HDPE pipe, pneumatic piercing tool drilling and installation procedures shall conform to the following standards.

1. ASTM D1248-02 Standard Specification for Polyethylene Plastics Extrusion Materials For Wire and Cable.
2. ASTM D1593-99 Standard Specification for Nonrigid Vinyl Chloride Plastic Film and Sheeting
3. ASTM D3035 Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter.
4. ASTM D3261-03 Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
5. ASTM D3350-02a Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
6. ASTM F1417 Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air.
7. ASTM F714-01 Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter.
8. ASTM F1962 Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles, Including River Crossings
9. ASTM F2206-02 Standard Specification for Fabricated Fittings of Butt-Fused Polyethylene (PE) Plastic Pipe, Fittings, Sheet Stock, Plate Stock, or Block Stock

10. American Petroleum Institute API Spec. 13A, Specification for Oil Well Drilling Fluids Material for Fresh Water Drilling Fluids
11. National Utility Contractors Association (NUCA) HDD Installation Guidelines.

Pneumatic piercing tool drilling technologies may be subject to patent protection, so the Contractor shall warrant to the Owner that the equipment to be used is furnished in accordance with applicable licensing or use agreements and that the prices quoted cover all applicable royalties and fees required under such agreements. The Contractor shall protect the Owner against any costs, loss, damage, or expense arising out of any claim of infringement of patent or trademark or any violation of a licensing agreement.

The Contractor is solely responsible for quality assurance during the length of the project. The Contractor shall be responsible for any costs associated with corrective measures required to replace or repair items not meeting the quality standards specified by the Owner.

All drilling operations shall be performed by supervisors and personnel experienced in pneumatic piercing tool directional drilling. All required support, including drilling tool suppliers, survey systems, and other required support systems used during this operation shall be provided by the Contractor.

The Contractor shall visit the site and must be aware of all structures, utilities and site limitations at the pneumatic piercing tool drill crossing and provide the Engineer with a drilling plan.

All pneumatic piercing tool drilling operations, inclusive of pipe assembly and installation and acceptance testing, complete as specified, shall be performed by an experienced Contractor and/or Subcontractor to the Contractor, inclusive of all support personnel and equipment necessary, specializing in and demonstrating documented experience, technical resources and proven expertise in field of pneumatic piercing tool drilling for successfully completing projects similar to that which is proposed under this Contract, both in pipe size/diameter and overall distance, as solely determined by the Owner and Engineer. For the purpose of definition, the contractor/subcontractor in question, hereinafter referred to as the "pneumatic piercing tool drilling contractor", shall fully demonstrate to the Owner/Engineer a minimum of five (5) years specialized experience as a pneumatic piercing tool drilling contractor whose key project related personnel are also as fully and equally qualified in the pneumatic piercing tool field.

At least 30-days prior to mobilizing equipment and/or materials to the project site the pneumatic piercing tool drilling contractor shall submit to the Engineer for review a complete and detailed installation Work Plan. This Work Plan shall be considered a technical document specific to the pneumatic piercing tool elements of the Contract and include and fully address all elements of the Work as deemed necessary and appropriate by the Engineer. The Work Plan shall include at a minimum the following:

- A detailed sequence of operations and support related services and activities, including a construction schedule with activities and durations specifically outlined in calendar days for each of the proposed sequences of Work.
- A detailed site plan clearing illustrating the drilling site, both points of entry and exit locations, locations for major equipment, environmental protection provisions,

site related safety and security provisions, traffic management provisions and plans, and any other site or offsite areas that will be utilized.

- Samples of products if requested and/or required by the Engineer.
- Contingency Plans for the following potential conditions:
 - Unsuitable soils.
 - Damage to other existing utilities.
 - Loss of and return to line and grade.
 - Soil heaving or settlement.
- Traffic Control Plan

Pneumatic Piercing tool Drilling Equipment

1. Pneumatic Piercing tool Drilling Rig: Sufficient capacity to perform bore and pipe installation.
2. Trained and competent personnel to operate system.
3. Use equipment in good, safe operating condition with sufficient supplies, materials, and spare parts on hand to maintain system in good working order for duration of the work.

Unless otherwise directed by the Engineer, pipe and fittings used specifically for the pneumatic drill components of the Contract as indicated to be High Density Polyethylene (HDPE) made of virgin material. The pipe shall contain no recycled compound except that generated in the manufacturers' own production plant from resin of the same specification and from the same raw material supplier.

Materials used for the manufacture of HDPE pipe and fittings shall be as follows: PE-3408 high density polyethylene having been made from polyethylene resin compound with a minimum cell classification of PE 345444C for PE 3408 materials in accordance with ASTM D-3350; meeting Type III classification, per ASTM D1248-02; and shall be listed in the name of the pipe and fitting Manufacturer in PPI (Plastic Pipe Institute) TR-4, Recommended Hydrostatic Strengths and Design Stresses for Thermoplastic Pipe and Fittings Compounds, with a standard long term hydrostatic strength grade rating of 1600 psi at 73 °F when tested and analyzed by ASTM D2837 and shall be a Plastic Pipe Institute (PPI) listed compound.

The Manufacturer shall certify in writing that the materials used to manufacture the pipe and fittings meet the above requirements. The following shall be continuously indent printed on the pipe or spaced at intervals not exceeding 5-feet: Name and/or trademark of the pipe manufacture; nominal pipe size; dimensional ratio (SDR); the polyethylene pipe grade per ASTM D3350 including hydrostatic design basis in 100's of psi; manufacturer's standard reference (ASTM F714); and a production code from which the date and place of manufacture can be determined. Pipe shall also be color coded to signify installation under a "Electrical" related application.

The maximum allowable hoop stress shall be 800 psi at 73.4 degrees F.

The polyethylene compound shall be suitably protected against degradation by ultraviolet light by means of carbon black, well dispersed by precompounding in a concentration of not less than 2 percent.

The HDPE pipe shall have a minimum standard dimension ratio (SDR) of 13.5 and/or be adaptable to schedule 40 PVC electrical conduit, similar to Carlon EPEC 40 or equal.

The Polyvinylchloride (PVC) pipe shall be schedule 40 minimum and be UL listed. PVC pipe, couplings and fittings to be adapted to HDPE pipe shall be manufactured specifically for that purpose, similar to Carlon E-Loc pipe or equal.

The Contractor shall install the pipelines for this element of the Contract by means of using the pneumatic piercing tool methods of pipeline installation.

The required piping shall be assembled in a manner that does not obstruct adjacent roadways or public activities.

All HDPE pipe shall be cut, fabricated, and installed in strict conformance with the pipe manufacturer's recommendations.

Each length of pipe shall be inspected and cleaned as necessary to be free of debris immediately prior to joining.

Pipe sections shall be joined to one another by means of thermal butt fusion in accordance with ASTM D3261-03. HDPE pipe sections to be joined by thermal butt fusion shall be of the same type, grade, and class of polyethylene compound and supplied from the same raw material supplier.

The pneumatic piercing tool drilling contractor shall at all times handle the HDPE pipe in a manner that does not over-stress the pipe.

The Contractor shall furnish and install custom pull tape, subject to the approval of the Owner/Engineer, through the entire length of the completed conduit for purposes of installing the necessary electrical and traffic signal wiring.

The pipe shall be properly cleaned and flushed, and tested for tightness after installation is complete. All costs associated with pipeline testing shall be borne by and paid for by the Contractor.

Leakage Tests:

The completed pipeline shall be made as nearly watertight as practicable, and leakage tests and measurements shall be made after the pipeline installed as indicated on the Drawings and specified. The Contractor shall conduct low pressure air tests.

2. The Contractor shall furnish the pump, pipe, gauge, measuring device, connections, and all other necessary apparatus, and shall furnish the necessary

personnel to conduct the tests. All equipment, gauges, and attachments shall be subject to approval by the Engineer.

3. The Engineer shall be present during the testing period.

The Contractor shall restore all lateral, launching pits and associated surface areas to their original condition or as required by the Engineer.

Prior to backfilling lateral and launching pits the Contractor shall ensure that the new pipe is properly supported and on the required grade. Stone or other suitable material, approved by the Owner shall be used immediately under the pipe as support in order to avoid sagging after backfill and compaction.

Work under this item will be paid for at the contract unit price per foot based on the measurements of actual feet as determined by the Engineer. The contract price shall include all materials, labor and equipment required or incidental to the satisfactory completion of the work, including providing all construction materials and equipment necessary for the operations; removal and disposal of all existing pavement including any existing bituminous, concrete or reinforced concrete base; if encountered, replacing and/or resetting curbing; protection and support of existing utilities; repairing and/or replacing existing utilities; safety precautions, barricades, and signs; mobilization and demobilization; bedding material; excavation, backfill and compacting as specified; and loaming and seeding disturbed grass areas.

<u>ITEM 815.1</u>	<u>TRAFFIC CONTROL SIGNAL - LOCATION NO. 1</u>	<u>LUMP SUM</u>
<u>ITEM 816.02</u>	<u>TRAFFIC SIGNAL ADJUSTMENT - LOCATION NO. 2</u>	<u>LUMP SUM</u>

Work under the above items shall be performed according to the provisions of Section 800 supplemented by the following:

The work consists of furnishing and installing traffic control signal equipment complete and ready for operation, as shown on the plans. The intersection locations are designated as follows:

- Location 1 – Derby Street at Congress Street/Hawthorne Boulevard (New Signal)
- Location 2 – Hawthorne Boulevard at Essex Street (Adjustment to Existing Signal)

Work at Location 2 shall be limited to installation of some new coordination equipment and signal timing adjustments, as specified on the plans.

Locations 1 and 2 shall be coordinated using Time Based Coordination. Time clocks at each intersection shall be synchronized at least once daily by means of a Global Positioning System (GPS) Clock Assembly. Proposed coordination data and schedule of operations for the coordinated system is as shown on the plans.

Included in the work is the modifying, furnishing, and installing of traffic control signal equipment, including controllers and cabinets, vehicle and pedestrian housings, backplates, pedestrian push buttons with signs and saddles, red, amber, and green LED signals, posts and bases, mast arms, foundations, bicycle/vehicle detectors, saw cuts, service connections, wire and

cables, pull boxes, 1 1/2 inch conduit, electrical connections, and providing all incidental materials necessary for operating and controlling the traffic control signals, as shown on the plans and specified.

The top of the concrete base for the control cabinet shall be 18 inches above grade. The top of foundations not in sidewalk or paved areas shall be a minimum of 2 inches above grade. The top of mast arm foundations in sidewalk areas shall be located flush with finish grade.

Flashing Operation

Changes from automatic flashing to stop-and-go operation and from stop-and-go to automatic flashing operation shall occur as set forth in Section 4D.12 of the MUTCD.

Local Traffic Signal Controllers and Cabinets

The controller, malfunction management unit, bus interface units, video detections units, and all other ancillary traffic signal control components included in the traffic control cabinet shall comply with the National Electrical Manufacturers Association (NEMA) Standard No. TS 2, Traffic Controller Assemblies.

The controller and cabinet assembly shall be supplied in an 8-phase, TS 2 Type 2 configuration.

The controller cabinet foundation shall not obstruct a sidewalk or crosswalk so that passage by physically-challenged persons is impaired. Anchor bolts shall be internal to the cabinet.

TS 2 Type 2 Controller and Cabinet Assembly: The controller shall conform to Section 3, Controller Units of NEMA No. TS 2, Traffic Controller Assemblies. The controller shall utilize an input/output interface conforming to Section 3.3.1 of the NEMA TS 2 Standard for all input/output functions with the backpanel terminals and facilities, the malfunction management unit, detector rack assemblies, and auxiliary devices.

The TS 2 Type 2 cabinet shall meet the requirements of Configuration 3 as defined in Table 5.3.1-1, "Type 2 Configurations" of the NEMA TS 2 Standard. The cabinet shall be fabricated of sheet aluminum to Size 6 dimensions as specified in Table 7.3-1 of the NEMA TS 2 Standards. The cabinet shall have a gloss black painted finish.

The cabinet shall also be wired with a normally closed switch connected to a user defined input to the controller for remote monitoring of the control cabinets' door open status.

The following requirements are applicable to each signalized location and are designed for effective use of a laptop computer in conjunction with traffic signal controllers. These requirements are also designed to permit all engineers, electricians and technicians (including those who are disabled but ambulatory) to work in the cabinet in a safe, effective and comfortable manner. To this extent, the following meets applicable ADA requirements.

1. Adjust the control cabinet height by use of a cabinet extender, adjust the placement of cabinet shelves, adjust the height of the cabinet foundation or provide any combination of these three items so that the top of the LCD or other visual display window of both the local controller and the master controller is no more than 48" above finished grade in front of the cabinet. The top of the cabinet door opening shall be at least 5'8" above finished grade. Any technical provision, plan detail, standard specification or standard drawing to the contrary shall not apply to the extent that it may conflict with this viewing height requirement.
2. Furnish and install one slide-out/slide-in shelf or swing-out/swing-in shelf appropriate for the size and load of a laptop computer. This moveable shelf shall support the bottom of the laptop computer at a height between 3'-4" and 3'-8" above finished grade in front of the cabinet.
3. Furnish and install a paved pad in front of the control cabinet. This pad may be of bituminous concrete or cement concrete, built in accordance with the sidewalk specification applicable to this project, approximately level, approximately 1" above the surrounding unpaved surface, or at even grade with the adjacent surface if paved. This pad shall abut the front of the cabinet, project at least 1' to each side of the cabinet and at least 3' in front. No pad is required if the front of the cabinet immediately abuts an existing or proposed paved sidewalk or other paved surface.
4. Both the firmware and software version in each timer unit shall be the same throughout the project, and shall be the latest version available on the market. In addition, the contractor shall promptly furnish to the owner and install all upgraded versions of both firmware and software through the last day of the inspection period, guarantee period or warranty period, whichever date is later.
5. The contractor shall furnish one cable with each new timer unit to connect a controller timing mechanism to a laptop computer. This cable shall have a termination at one end to match the controller. It shall have a termination on the other end to match the type of serial port found on laptop computers, usually DB9. This cable shall be wired to provide serial RS232C communication between the controller and the computer.
6. Payment for the work described above shall be deemed to be incidental to and included in the prices bid for various items of traffic signal work, and no additional payment shall be made for the work described above.

Controller

The local traffic controller shall be capable of being operated in the full-actuated mode, in the free mode, and as semi-actuated in the coordinated mode. The controller shall be keyboard entry, menu-driven unit mounted in an eight-phase cabinet. The controller unit shall meet all applicable requirements of the (N.E.M.A.) Standard Publication No. TS-2, Type 2, the MassHighway Department 1995 Standard Specifications and include the following as minimum requirements for the "Keyboard Entry Controller Unit."

- a. The Keyboard Entry Controller Unit must be type-tested and approved by the MassHighway Department.
- b. The controller shall have hard-wire interconnect capability and internal time base coordination logic. The coordination control shall have the capabilities to operate as described under Section 815.41 of the Standard Specifications.
- c. The controller shall have a data transfer/printer port for data transfer to another controller, printer, or laptop PC computer. A port shall be provided for uploading or downloading controller operating parameters from a laptop PC computer.
- d. The controller shall have a security code function.
- e. The controller unit shall have internal fire preemption control capabilities.
- f. The phase or phases selected for "call to non actuated" (C.N.A.) modes shall be determined as needed by keyboard entries.

The Contractor's attention is directed to Table 2, Required Signal Light Switching Assemblies, Section 815.41 of the Standard Specifications. The Contractor shall furnish the appropriate type and number of load switches and place unutilized load switches in the control cabinet for future use. Load relays shall be easily replaced using a screwdriver. Component relays requiring soldering are not acceptable.

In addition to the convenience outlet as described under Subsection 815.41, a lamp with an on/off switch shall be installed in the controller cabinet.

Bus Interface Units

The Bus Interface Unit (BIU) shall comply with Section 8 of the NEMA TS 2 Standard. The BIU shall be fully interchangeable with any other manufacturer's unit and interchangeable in a NEMA TS 2 Type 1 cabinet assembly.

The BIU shall perform the interface function between Port 1 at the controller unit, the malfunction management unit, loop detector rack assembly, and the backpanel terminal and facilities.

As a minimum, two LED indicators shall be provided on the BIU front panel. One indicator shall serve a dual use; as a power on indication and as a diagnostic indicator for proper operation of the device. The second indicator shall serve as a transmit indicator illuminating each time data is transmitted.

NOTE WELL: The contractor shall supply an additional 3 BIUs in the new controller cabinet.
TS2 Cabinet Power Supply

A separate power supply shall be supplied and installed in the TS 2 cabinet. The unit shall be AC line powered and provide regulated DC power, unregulated AC power, a line frequency

reference for the bus interface units, load switches, and other auxiliary cabinet equipment, as required. As a minimum, the power supply shall meet all requirements of Section 5.3.5 of the NEMA TS 2 Standard.

The power supply shall be either shelf mounted or wall mounted utilizing key hole slots for ease of replacement or installed as part of the rack assembly. The unit shall contain four LED indicators on the front panel to indicate the four outputs; + 12 VDC +/- 1 VDC @ 2.0 amps, + 24 VDC +/- 2 VDC @ 2.0 amps, 12 VAC @ 250 milliamps, and 60 Hz line frequency reference. A test point terminal shall also be located on the units front panel for + 24VDC and logic ground testing.

Malfunction Management Unit

The malfunction management unit (MMU) shall comply with Section 4 of the NEMA TS 2 standard. The MMU shall be capable of operating as either a Type 16 with 16 channels (8 vehicle, 4 pedestrian, 4 overlap) or a Type 12 with 12 channels (8 vehicle, 4 overlap). The MMU supplied shall be configured to operate as a Type 16 unit.

The MMU in either the Type 16 or Type 12 configuration shall be capable of operating in a NEMA TS 2 Type 1 cabinet or a NEMA TS 1 cabinet without loss of functionality.

Video Detection System

The Contractor shall provide a Video Detection System to detect vehicles. The system shall also provide full motion video output showing zones highlighted during detection for fine-tuning. All hardware and software within the traffic signal cabinet shall be NEMA TS-2 compliant.

At the location shown on the plans, the Contractor shall supply and install a Video Detection System. The major components of the Video Detection System are further described as follows:

- A. Prior to installation of the Video Detection System a detailed site survey shall be conducted by a factory trained and certified representative. The site survey shall ensure that the design of the camera, camera location, camera optics, and video/data interconnect is appropriate for the application.
- B. The supplier of the Video Detection System shall supervise the installation and testing of the Video Detection System and computer software. A factory certified representative from the supplier shall be on site during installation.
- C. The Video Detection System shall provide one National Television Standards Committee (NTSC) color composite video output.
- D. The Video Detection System shall provide a minimum of 20 detection zones. The system shall provide flexible, user configurable detection zone placement at any orientation within the field of view of the Video Detection System Camera. It shall be possible to overlap detection zones. It shall be possible to configure the Video Detection System to provide

detection signals to the traffic signal controller which are comprised of Boolean combinations of detection zones.

- E. The Video Detection System shall provide failsafe operation whereby it places continuous vehicle calls to the traffic signal controller on all detection zones in the event it senses unacceptable video from the Video Detection System Camera.
- F. The Video Detection System shall include a configuring device and/or a Windows based computer software that provides for configuring the Video Detection System, viewing real time video, and updating the flash memory of the Video Detection System with updated application software.
- G. The Video Detection System shall provide count and presence detection performance with at least 96% accuracy under normal (day and night) conditions.
- H. The Video Detection System shall utilize FLASH memory to store the resident application software.
- I. The Video Detection System shall be comprised of a Video Detection System Camera, Video Detection System Cable, and Video Detection System Hardware.
- J. Video Detection System Cameras
 - 1) The Video Detection System Camera shall operate without degradation over a temperature range of -34 to 60 degrees Celsius at a relative humidity of 10% to 90% condensing.
 - 2) The Video Detection System Cameras shall be housed in a water resistant, dust proof NEMA-4 housing. The housing shall include a rear connector for connection of the Video Detection System Cable. The housing shall be field rotatable to allow for proper alignment between the camera and the traveled road surface.
 - 3) The Video Detection System Cameras shall have a heater to prevent the formation of ice and condensation in cold weather and allow the camera to operate correctly while exposed to precipitation and direct sunlight.
 - 4) The Video Detection System Cameras shall have a sunshield to protect the lens from direct sunlight and direct precipitation exposure.
 - 5) The Video Detection System Cameras shall provide useable video and resolvable features in the video image when those features have luminance levels as low as 0.1 lux at night, and as high as 10,000 lux during the day. The Video Detection System Camera shall contain an automatic gain control (AGC) to provide a satisfactory image over the full range of light levels.
- K. Video Detection System Cable
 - 1) The Video Detection System Cable shall interconnect the Video Detection System Camera with the Video Detection System Hardware in the traffic signal control cabinet.
 - 2) The Video Detection System Cable shall meet the design requirements of the Video Detection System Camera manufacturer, and shall be designed and manufactured specifically for the Video Detection System Camera supplied.

- 3) The Video Detection System Cable shall be capable of withstanding the rigors of outdoor environments, including all combinations of precipitation, heat and cold from -34 to 74 degrees Celsius, and direct exposure to sunlight without exhibiting any signs of deterioration over time.
- 4) The Video Detection System Cable shall be installed with a suitable drip loop to prevent the entrance of water into the housing.

L. Video Detection System Hardware

- 1) The Video Detection System Hardware shall operate without degradation over a temperature range of -34 to 74 degrees Celsius at a relative humidity of 10% to 90% condensing.
- 2) The Video Detection System Hardware shall include interface device(s) which shall be installed in the traffic control cabinet.
- 3) The interface device(s) shall be used to terminate the traffic controller cabinet end of the Video Detection System Cable.
 - a) The interface device(s) shall contain transient suppression devices for all signals transported on the Video Detection System Cable, including but not limited to video, data, and power.
 - The surge protector shall be electrically connected to the cabinet ground rod.
 - Surge protectors should have peak surge current protection of at least 10K amperes with a response time of less than 5 nanoseconds. The protector complies when a lab report from an independent test laboratory stating the product passes this specification is submitted with the shop drawings.
 - Units should be pre-approved or unconditionally warranted for at least 10 years and certified to comply with the product's published specifications by an independent laboratory.
 - b) The interface device(s) shall contain a switch or shut-off mechanism that shall allow the user to turn off AC service to all components of the Video Detection System.
 - c) The interface device(s) shall contain a connector for interfacing to a configuring device and/or a Windows based computer in the field for the purpose of configuring the Video Detection System, viewing real time video, and for updating the flash memory of the Video Detection System with updated application software.
- 4) The Video Detection System Hardware shall include all necessary cables for interconnection to the traffic signal controller, AC power service, a modem for transport of NTSC video to the traffic operations center, and a configuring device and/or a Windows based computer in the field.

Global Positioning System (GPS) Clock Assembly

The GPS clock assembly shall consist of a programmable GPS interface device, GPS receiver, receiver to interface device harness and power-input harness. The assembly shall be designed to reset the clock time for the traffic signal controller using a time reference signal from GPS at least once per day. The interval for the controller clock resetting shall be programmable.

The programmable GPS interface device shall be contained in a fully enclosed metal or plastic case and be suitable for wall mounting or setting on a shelf inside a traffic signal cabinet.

The receiver shall be a low profile (less than 2.5 inches high) fully enclosed rain-tight GPS antenna unit that shall be suitable for mounting on the exterior of a traffic signal cabinet via a single hole. The GPS antenna case shall be made of a long life exterior grade UV resistant plastic. The bottom of the receiver unit shall have a threaded opening with a short antenna connection cable. Attached to the bottom of the receiver unit shall be a short (2 inch minimum) threaded conduit, hub, or nipple mount. The antenna connect cable shall be long enough to project beyond the end of the mount. The receiver to interface device harness shall connect to the antenna connection cable via a quick disconnect pin type of connection. The threaded mount shall include a suitable gasket and locknut so a rain-tight and secure connection between the receiver unit and the traffic signal cabinet can be achieved.

The interface device shall have an internal power supply. The power supply shall be configured so it can be plugged into a standard 115 volt AC outlet inside the controller cabinet via a three prong outlet (hot, neutral & bond). The power leads shall be internally fused with a 4 amp slow blow type of fuse.

The power supply shall be rated so it operates at 115 input voltage AC (+/- 20 volts) with a 12 output voltage DC (+/- 2 volt). All components shall be rated to operate within these parameters at a temperature range of between -30 degrees C to + 74 degrees C.

If the interface device's case is metal, it shall be bonded.

The interface device shall have a single pole double throw relay that enables it to reset the controller clock when logic ground is applied via a selected pin in the NEMA D connector board. The rating of this relay should be at least 15 amps at 120 volts AC.

The GPS interface device shall be designed to receive a time reference signal from GPS satellites via a time and interval to be programmed. Typically this will be set at a specified time and then be executed once the receiver locks on the required number of satellites. This time reference "pulse" is then processed and then made available to the traffic signal controller via a hard wire interface.

It is preferred that all programming of the time interval updates be accomplished internal to the interface device via a series of rotary or in-line switches and/or jumpers that are mounted and noted on the circuit board. Other programming arrangements are available, but will be subject to the approval of the Engineer.

All programmed settings shall be easy to view either with markings on the circuit board and/or thru the LCD screen. This shall include: time zone selected, day or days of the week the clock will reset, and daylight saving times switch status.

The device shall have a power failure routine that enables the device to restore itself automatically to normal function after short or long interruptions. This includes maintaining the

programmed settings and then also checking in on the last time it received a time reference and performing this function if necessary to catch up.

The device shall have a selectable time zone setting. It shall also have an automatic daylight savings time routine.

The day or days of the week the device shall reset the controller clock shall be programmable. At a minimum the device shall have eight settings, 7 for each day of the week and then an every day of the week setting.

Load Switches

Load switches shall comply with Subsection 6.2 of the NEMA TS 2 Standard. All load switches shall utilize optically isolated encapsulated modular solid-state relays. Discrete components on circuit boards are not acceptable.

Load switch indicator lights shall be LED-type and wired on the input side of the device.

Note: The controller cabinet assembly shall be initially supplied with a full complement of load switches to accommodate each available position of the backpanel.

Flasher

Flashers shall comply with Subsection 6.3 of the NEMA TS 2 Standard and be equipped with two output indicator lights which will show flashing power out to the cabinet assembly.

Flash Transfer Relays

Flash transfer relays shall comply with Subsection 6.4 of the NEMA TS 2 Standard.

The field electrical loading for flash operation shall be wired through the transfer relays such that the load on the 2-circuit flasher is as balanced as possible within the limitations of the signal phasing.

Note: The controller cabinet assembly shall be initially supplied with a full complement of flash transfer relays to accommodate each available position of the backpanel.

Testing of Grounding System

The Contractor shall perform testing of the equipment grounding system in the presence of the Engineer in accordance with the Standard Specifications. A ground rod shall be installed in the controller cabinet.

Software

All computer system, controller, conflict monitor, and amplifier software shall be supplied with the latest available revision. Any software upgrades released by the manufacturer shall be supplied at no charge to the City for a period of five years after acceptance of the work.

Data Base Programming

Each programmable local hardware component (controller, malfunction management unit, and detector amplifier) shall be initially programmed by the Contractor based on information contained on the plans. Three (3) sets of hard copy programming per device shall be supplied and stored in each controller cabinet.

Surge Suppression for Traffic Signal Equipment

Wherever electronic traffic signal equipment is located (cabinets, cameras, etc.), each input & output should be surge protected except traffic signal outputs. Signal outputs from load switches do not need surge suppression since the load switches act as surge suppressors.

The surge protector must be electrically connected to the nearest grounded metal structure or nearest ground rod.

Surge protection for power service shall conform to the current NEMA TS-2 standard except surge capacity shall be 80 kA. The product complies when a lab report from an independent test laboratory stating the product passes the current NEMA TS-2(5.4.2.4) specification (with the additional surge capacity of 80 kA) is submitted with the shop drawings.

Surge protection for all video, loop, pedestrian button, and pre-emption connections should have peak surge current protection of at least 10K amperes with a response time of less than 5 nanoseconds. The product complies when a lab report from an independent test laboratory stating the product passes this specification is submitted with the shop drawings.

Units should be unconditionally warranted for at least 10 years.

Equipment Finish and Color

All traffic signal equipment, including, but not limited to, signal posts, bases, signal heads, visors (outside), mast arms, doors, pushbutton saddles, controller cabinet, service meter socket boxes, hardware, strapping, and rigid mounting brackets for signals and signs, shall be the color **Gloss Black** which shall match Color Number 27038 of the Federal Standard 595A "Colors Used in Government Procurement." This includes the metal strapping used to secure signal heads to the mast arm shaft. The inside of visors shall be **Flat Black** in accordance with Federal Color Number 37038. The Contractor shall submit to the Engineer, Design Engineer (BETA Group), and City of Salem for approval, four (4) paint chips and sample finishes on aluminum and steel of the intended color prior to any work being done under this heading.

Signal heads, doors, visors, mounting brackets, and hardware supplied direct from the manufacturer in the color stipulated above may be acceptable provided it meets or exceeds the finish process for the material indicated below:

1. Steel Equipment

Galvanizing

All bolts, screws, nuts, rods, and washers shall be galvanized in accordance with AASHTO M232 and the Standard Specifications. The hardened machine screws may be electroplate galvanized. Stainless steel studs, bolts, screws, nuts, straps, and washers shall not be galvanized. Galvanized hardware need not be painted; however, the ends of bolts, nuts, and washers shall be painted in the field according to section "Touch-up and Repairs." Immediately prior to galvanizing, the steel shall be immersed in a bath of zinc ammonium chloride. The dry kettle galvanizing process shall be used.

All steel components, other than above, shall be galvanized after fabrication in accordance with AASHTO M111. The galvanizing bath shall contain nickel (0.05% to 0.09% by weight) in accordance with Subsection 960.61 of the Standard Specifications.

Galvanized members requiring shop assembly shall be welded and drilled prior to galvanizing.

Coating over Galvanized Steel

Prior to painting, the applicator shall ensure that all components are smooth and without sharp protrusions that would present an injury hazard to pedestrians. Also, the fabricator shall ensure that all welds shall be thoroughly cleaned in accordance with good practice and according to AWD D1.5 and ASTM A123-89a and shall have a suitable surface to accept the galvanizing.

In preparation for the two coat painting system, the surface shall be blast cleaned in accordance with the requirements of SSPC-SP-7 "Brush-Off Blast Cleaning" or other method producing equivalent results and uniform profile, to achieve a 1.0 to 1.5 mils anchor profile as indicated by a Keane Tator Profile Comparator or similar device. The creation of the anchor profile shall be performed prior to the formation of "white rust" on the galvanized surface. Following blast cleaning, the zinc coating thickness shall be measured to verify that the coating thickness is in accordance with AASHTO M111.

A two coat painting system shall be applied by the Galvanizer in his own facility within twelve hours of galvanizing the steel components. If the two coat painting system cannot be applied by the Galvanizer within twelve hours of galvanizing, the Galvanizer shall bake the steel components at 375 degrees for two hours prior to SSPC-SP-7 "Brush-Off Blast Cleaning".

The prime coat material shall be a polyamide epoxy applied to minimum dry film thickness of 4.0 to 6.0 mils and force cured as given below for the finish coat.

The finish coat material shall be a two component, catalyzed aliphatic urethane applied by airless spray to a minimum dry film thickness of 4.0 mils.

The color shall be **Gloss Black**, as specified above. The fabricator shall submit to the Engineer for approval, paint chips of the intended color prior to any work being done under this heading.

All finish coat material shall be applied under conditions within the following tolerances:

- A. Air Temperature: 10°C min., 32°C max.
- B. Surface Temperature: 10°C min., 38°C max.
- C. Surface temperature must be at least 5°F above the dew point.

The finish coat shall be cured in a booth capable of maintaining 65°C for 2-4 hours.

Touch-up and Repairs

Should any damage occur to the galvanized coating during shipping or handling at the job site, the Contractor shall repair and touch-up any damaged areas to the satisfaction of the Engineer and the following:

Touch-up of galvanizing before the finish coat is applied shall be accomplished by applying galvanizing repair paint in accordance with Section M7.04.11. The dry film thickness of the applied repair paint shall not be less than 4.0 mils. Applications shall be in accordance with the manufacturer's instructions.

Field touch-up procedures shall conform to the recommendations of the Galvanizer. Touch-up of the finish coat shall be by applying a coating of a two-part urethane, as supplied by the Galvanizer, to achieve a dry film thickness of at least 4.0 mils. Prior to the application of the paint, remove all damaged coatings down to a solidly adhered coating and apply galvanizing repair paint as primer. Allow the primer to dry for at least 4 hours prior to top coating.

The Contractor shall also use the touch-up paint material and procedures to paint the galvanized hardware used in field erection that has not been finish coated previously.

2. Aluminum Equipment

All aluminum equipment called for shall have a powder coat finish **Gloss Black** in color. The coating shall be a polyester-TGIC (triglycidyl isocyanurate) resin system conforming to the following:

Quality	Test	Limits
Abrasion	Taber abraser CS-10, 1000 gram load, 1000 cycles, ASTM D4060	100 mg. maximum weight loss
Adhesion	ASTM D 3359 Initial 1000 hours	5A 5A

Quality	Test	Limits
Gloss	ASTM D 523 15°C - 600 hours 15°C - 1000 hours	82% retention 90% retention (washed)
Hardness	ASTM D 3363	2H - No Gouge
Impact	ASTM D 2794 Direct	Pass 6.59 Nm
Salt Spray Resistance	ASTM B 177 ASTM D 1654 1000 hours unscribed 400 hours scribed	Table 2-10 Table 1-10
Weather Resistance	ASTM G 23, 1000 hours, 18 min. waterspray, 102 min. light	No film failure
Color	Gloss Black	
Identify	Infrared fingerprint	Match
Flexibility	180° bend; 13mm dia., mandrel within 10 seconds	No breaks, flaking or cracks. Tested with a Q-panel with 2 mils or less of coating
Humidity	ASTM D 2247, 1000 hours	No blister or film failure
Thickness		4 mils± 1 mils
Mar Resistance		Good

A Certificate of Compliance of the powder coating system is required for the Engineer's approval.

Mast Arm Structures

Mast arm structures shall be galvanized steel, painted gloss black, and shall conform to the provisions of M8.18.4. Mast arm structures shall be fabricated by the suppliers approved by MassHighway. Mast arm structures shall be monolever type. All signal heads and signs on the mast arms shall be fixed mounted. Shoe type bases shall be used.

Shop drawings and calculations shall be submitted for the mast arm structure. The foundation shall be as shown on the MassHighway Standard Drawing included in the plans. All shop drawings and calculations shall be stamped by a Professional Engineer registered in Massachusetts. The top of all foundations in sidewalk areas shall be located flush with finish grade.

Mast Arm Sign Hanger Brackets

Sign hanger brackets for mast arms shall be used in all locations where a sign is to be mounted to the mast arm. Mast arm sign hanger brackets shall consist of a mast arm clamp assembly cast from 356-T6 aluminum alloy or equivalent, vertical support tube extruded from 6063 aluminum

or equivalent, stainless steel bands, clamp screw, hardware, and all miscellaneous materials necessary to fix mount the sign to the mast arm.

The sign hanger bracket shall be universally adjustable capable of making horizontal, vertical, and 360 degree rotational adjustments so that any sign mounted on a mast arm can be adjusted to provide proper alignment and sight perpendicular to the flow of traffic.

Vertical support tubes shall be of sufficient length to allow mounting of the sign to within 3 inches of the top and bottom of the sign.

Labels

All time settings, switches, harnesses, relays, terminals, and fuses shall be clearly and permanently labeled.

Pedestrian Signal Heads

All pedestrian signal heads shall be mounted so that there is a minimum of 24 inches between any part of the housing or visor and the outer face of the curb. All pedestrian signal heads shall be aluminum.

Pedestrian signals shall be an approved single section 16 inch Light Emitting Diode (LED) type pedestrian signal head capable of displaying international symbols ("Hand/Person Walking" indications) as per the MUTCD with a countdown display.

Backplates

Backplates shall be aluminum with a louvered profile. Backplates shall have a 5 inch border width and a dull flat black color. Only backplates that are listed in the latest MassHighway "Approved Equipment List" will be used on this project.

Posts and Bases

All traffic signal posts shall be galvanized steel and painted gloss black. Bases shall be of the pedestal type.

Vehicle Signal Heads

All proposed vehicle signal heads shall be aluminum and painted gloss black. When, in judgment of the Engineer, the visibility of existing or proposed signal faces will be obstructed by trees and other vegetation, the contractor shall clear the obstructions for proper sight distance.

Any clearing necessary shall be done within the State, County, or City layout, as directed by the Engineer.

Red, Amber and Green LED Vehicle Signal Modules

The LED module shall be an approved item from MassDOT's Traffic Control Devices Approved Equipment List. See "Traffic Signal Controls" under "Qualified Construction Materials" on the Department website:

<http://www.mhd.state.ma.us/downloads/trafficMaterials/TrafficSignalControls.pdf>

If the LED module conforms to the latest ITE performance specifications and is Energy Star compliant, it may be submitted for approval to be placed on the Traffic Control Devices Approved Equipment List. See the above PDF document for instructions.

To prevent the LED module warranty from being voided, the connecting leads on the module shall not be cut. The original LED module leads shall be connected to the signal head terminal block as continuous wire without splices.

The LED signal module will be replaced or repaired by the manufacturer if it exhibits one of the following:

A failure due to workmanship or material defects within the first 60 months of field operation.

A greater than 40 percent light output degradation or a fall below the minimum intensity levels (as defined by the latest ITE performance specifications) within the first 36 months of field operation.

Pedestrian Pushbutton with Sign and Saddle

Pedestrian pushbuttons shall be installed on a saddle of cast aluminum with the approved MassHighway instructional legend, as shown on the plans, firmly attached to the casting. The saddle shall have a clear coat finish. The plunger shall be a maximum of 42 inches above the finished sidewalk and a minimum of two inches in the smallest dimension. The force required to activate controls shall be no greater than 5 pounds. This sign and saddle shall be used in locations where a pushbutton is shown on the plans.

Audible Pedestrian Signal Unit

An audible pedestrian signal unit shall be furnished and installed at all locations as shown on the plans. The audible pedestrian signal unit shall conform to the following:

SIZE: 5" X 3.75" X 5"

WEIGHT: 3 LBS

VOLTAGE: 115 VOLTS +/- 22%

WATTAGE: 3 WATTS

HUMIDITY: 5-95% RELATIVE HUMIDITY

TEMPRANGE: -35 TO +167F

OUTPUT: 90DB @ 3 FEET

OUTPUT: CUCKOO (NORTH / SOUTH) PEEP-PEEP (EAST/ WEST)

COLOR: GLOSS BLACK

Pedestrian LED Signal Modules

The following material specifications shall apply to pedestrian LED signal modules:

1. General

The pedestrian signal lamps shall be designed as a retrofit unit for installation in a standard housing head. Each retrofit unit shall consist of an Light Emitting Diode (LED) array installed in a dust and moisture tight enclosure. The unit shall be designed to connect in the existing incandescent bulb socket. It shall incorporate a lateral positioning feature to facilitate alignment with the hand or walking person symbol of the existing lens and shall not require special tools for installation.

LEDs shall be made of the Aluminum-Indium-Gallium-Phosphorus (AlInGaP) type. The beam color shall meet the ITE PTSCS specifications.

Each unit shall be identified on the back side with the manufacturer's trademark, serial number, voltage rating, and nominal operating current.

2. Environmental Requirements

The LED signal shall be rated for use in the ambient temperature range of -40 degrees C to +74 degrees C. The unit shall be sealed against dust and moisture per the requirements of NEMA Standard 250-1991 for Type 4 enclosures to protect all internal electrical components.

3. Electrical

The LED module shall operate with 60 Hz AC line voltage ranging from 80 to 135 Volts. The circuitry shall prevent flicker over this voltage range. The signal module circuitry shall include voltage surge protection to withstand transient voltage of 1500 Volts for 1 millisecond.

The individual LEDs shall be wired so that catastrophic failure of one LED will not result in the loss of illumination of more than that LED. The control circuitry shall prevent the current flow through the LEDs in the off state to avoid any false indication during daylight or evening hours.

The maximum power consumed by the unit shall not exceed 8 Watts at 117 Volts.

4. Warranty

The warranty for all LED signals shall be for 60 months of field operation for failure due to workmanship or material defects and a minimum of 60 months for loss of more than 50% of the initial rated luminous intensity. The Manufacturer shall repair or replace any LED signals found defective during the warranty period.

Wiring and Service Connections

Traffic signal cable shall be of Type 2, #14 AWG stranded, 10-conductor minimum meeting the requirements of IMSA Specification 20-1, except for mast arm and /or span wire traffic signal cable, which shall be Type 2, #14 AWG stranded, 5-conductor minimum meeting the requirements of IMSA Specification 19-1. All systems shall have a minimum of one (1) 10-conductor cable for each vehicle phase, overlap phase, and pedestrian phase for controller outputs to field wiring required by the timing and sequence plan. A minimum of a five (5) spare conductors shall be provided in the base of each signal post and mast arm. Openings, where cables enter the base of a cabinet, shall be sealed with an approved elastic sealing compound. The open ends of conduits entering or leaving mast arms, posts, and pull boxes shall also be sealed with the approved elastic sealing compound.

The work for service connections shall consist of furnishing and installing all materials and equipment to deliver power to the traffic signals and related electrical systems.

Optical Emergency Preemption System

The work consists of furnishing and installing optical traffic signal preemption systems ready for operation, as described herein and shown on the plans. Included in the work is the furnishing and installing of traffic signal preemption unit and related equipment, optical detection equipment and all necessary connections to the traffic signal controller. The emergency preemption system equipment shall be included in the latest version of the MassHighway Approved Equipment List.

The emergency preemption system shall consist of a data-encoded phase selector to be installed within the existing control cabinet. This unit will serve to validate, identify, classify, and record the signal from the optical detectors located on support structures at the intersection. Upon receiving a valid signal from the detector, the phase selector shall generate a preempt call to the controller initiating a preemption operation as shown on the plans.

The phase selector shall be a rack-mounted plug-in two channel, dual priority device. Programming the phase selector shall be via a PC-based computer utilizing unit specific

software. One copy of software on a disk shall be supplied and licensed to the City as part of this contract. A hard copy of final programming data shall be left in the control cabinet. The Contractor shall supply a complete set of interface cables for phase selector to laptop connection.

Emergency vehicles equipped with optical energy emitters transmit optical energy impulses to optical detectors mounted at the intersection. When optical energy impulses are received at the intersection, control of the signals shall transfer from the local controller to show a selected display shown on the plans to assist the vehicle through the intersection without conflict. After the vehicle has passed through the intersection, control of the signals shall then return to the local controller which shall restore the appropriate timings that were in effect prior to preemption.

1. General Operation and Description of Work

The following description of work specifies the responsibilities involved in the installation of optical preemption equipment.

The Contractor is required to supply material and labor (required or shown) for the complete installation of optical preemption equipment at the specified location in this project. Intersection preemption equipment required includes optical detectors, phase selectors, card rack, preemption indicator lights, cable, interfacing of preemption equipment to the local controller, making electrical connections, and all required incidentals.

The following are the operational requirements of the optical preemption system:

- Operating sequence, as specified, shall be initiated when detector receives optical energy of the required repetition rate from an emitter.
- Detector shall transform the optical energy signals into electrical signals and transmit the electrical signal to the phase selector for processing.
- Phase selector shall cause the local controller to show a selected display identical to one of the color interval displays normally available in the controller which will assist the emergency vehicles through the intersection without conflict.
- Phase selector shall allow the controller to release from hold and resume normal operation after optical energy signals are lost provided the desired green display has already been obtained.

Detector cable for optical preemption equipment shall meet specifications of the system manufacturer.

The Contractor shall arrange for a trained representative of the manufacturer of the optical energy preemption equipment to perform the following field supervision and turn-on services:

- The representative shall select the proper quantity and place and method of installing all components on each controller, to comply with the operational requirements shown in the preemption schedule included in these special provisions.
- He shall instruct the Contractor and City of Salem personnel in the procedures of installation and operations.
- He shall be available to assist, supervise, and check all wiring to insure proper operation.
- He shall perform a final checkout to include initial adjustment of range and timing to acceptable standards within the capabilities of the intersection.
- He shall initiate documentation for as-built drawings.
- He shall demonstrate the system and instruct the drivers of fire fighting vehicles in the operation of the system.
- Any operation problems occurring within the next 30 days shall be corrected by the Field Service representative. This requirement is not intended to modify the Contractor's six-month guarantee obligation, as set further in an earlier portion of these Special Provisions.

The cost of these field supervision and turn-on services shall be included in the lump sum prices bid for traffic signal controls and no additional payment shall be made therefore.

2. Installation

The preemption equipment manufacturer shall be responsible for preemption system design and documentation.

Preemption System Design and documentation shall include the following:

- Provide the installing agency with locations for detector installation. Suggested detector locations are shown on the plans and may be changed to improve the operation. Notice shall be given to the Engineer prior to any change.
- Provide the controller manufacturer, Engineer, and owner with electrical diagrams.

The installer shall install the equipment consistent with the preemption equipment manufacturer's recommended installation procedures and electrical diagrams in a neat and workmanlike manner.

The preemption equipment manufacturer shall be responsible for operational checkout of the specified preemption functions prior to final acceptance and approval by MassHighway.

Operating checkout includes the following:

- Verifying that the preemption system is properly installed as per the preemption manufacturer's recommendations and the electrical diagrams as provided by the preemption equipment manufacturer.
- Verifying that the priority system timing and range are properly set. Preemption equipment warranties are put into effect.
- Instructing the vehicle drivers or their representative(s) in the operation of the preemption system.

3. Warranty

All components of the preemption system specified herein shall be warranted by the manufacturer to be free of defects in materials and workmanship for a period of two years from the date of delivery or one year from the date of installation, whichever occurs first.

The Contractor shall repair or replace, free of charge to the City of Salem, any part that fails in any manner during the warranty period, and six months after final acceptance of the project by the Owner.

Preemption Indicator Light

A preemption indicator light shall be provided and mounted as shown on the plans. It shall be located in a position where it may be visible from all preemption approaches to each intersection. The light shall be weather tight and consist of a clear (white) strobe which shall be illuminated whenever the controller is in the emergency preemption phase. The indicator light shall meet ITE, NEMA, IMSA, and MassHighway standards.

Record Traffic Signal Layout Plans

It will be the responsibility of the Contractor to submit any changes during the construction period to the Design Engineer. In turn, the Design Engineer will submit final record plans and permanent traffic signal permits to the District Traffic Engineer prior to the final acceptance inspection. The Design Engineer may charge a fee to the Contractor for preparing the record plans and signal permits. The plans shall indicate the location of all traffic signal equipment retained, removed and reset, and installed, including detectors, signal posts, mast arms, pedestrian and vehicular signal heads, controller cabinets, conduit, pull boxes, and service connections. The plans shall also indicate the final as-built timing and sequence, major item list, power-pole number, and meter number. MassDOT will issue the permits to the City of Salem.

Mast Arm Foundations

At Location 1 (Derby Street at Congress Street/Hawthorne Boulevard), the Contractor shall perform, and include in his lump sum price bid for Item 815.1, soil borings to verify the foundation design shown on the plans.

The following information is to be obtained and provided to the Engineer at each mast arm location:

- Complete boring log and classification of soils;
- Elevation of groundwater at time of drilling;
- Continuous soil sampling and PID screening of soils at two-foot intervals;
- Collection of an undisturbed sample of the clay layer (see below); and
- Performance of consolidation tests and Atterberg limits.

In addition to Standard Penetration Tests and split spoon (drive) samples required by the Standard Specifications, the Contractor shall take one undisturbed sample of the underlying clay layer in accordance with Sections 190.65 and 190.66 of the Standard Specifications. A 4-inch diameter cased boring will be required for the undisturbed sample, and the diameter of the undisturbed sample shall be 3 inches.

All samples shall be delivered to the Geotechnical Engineer retained by the Contractor. The Geotechnical Engineer shall perform laboratory testing on the samples, including, but not limited to, consolidation tests and Atterberg Limits. The Geotechnical Engineer shall prepare a Geotechnical Report discussing findings and recommendations for the mast arm foundations at Location 1. The Geotechnical Report shall be sent to the Design Engineer to verify the proposed design.

For the purpose of bidding only, mast arm foundations at Location 1 shall be assumed to be as shown on the plans. Adjustments to the foundation design shall be paid for under Item 815.98, Footing Cost Adjustment.

Miscellaneous Requirements

The actuated controller shall have capability to preempt to a preselected phase by external command. Because this is often overlooked, the Contractor's attention is drawn to the requirements of Section 813.60C, Splicing, relative to four optional methods of splicing in signal bases, Section 813.40C, Ground Electrodes, relative to Requirement 1 - Connection to a Water Piping System, and Section 813.61, Equipment Grounding.

All anchor bolts and bolts for holding hand hole and access covers shall be greased at the time of installation.

All proposed conduit shall be 3 inch Type NM, plastic conduit unless otherwise specified. 3 inch conduit shall be paid for under Items 804.3 and 810.3 and shall not be included in the lump sum bid price for Traffic Signal Reconstruction.

The Contractor shall make all necessary arrangements with the electric company for the service connections or for any main power cut off when necessary, and bear all charges incurred thereby.

Basis of Payment

The lump sum price bid for Item 815.1 and Item 816.02 shall constitute full compensation for all labor, materials, and equipment necessary or incidental to the installation of a complete intersection traffic control signal system functioning as specified and as shown, including excavation and backfill, foundation, service connection and all charges therefore, except for the 3 inch electrical conduit, Type NM Plastic (UL), which will be paid for under Items 804.3. In addition, the lump sum price bid for Item 815.1, Traffic Control Signal – Location 1, shall include soil borings at 4 mast arm locations, testing, and Geotechnical Report.

<u>ITEM 815.98</u>	<u>FOOTING COST ADJUSTMENT</u>	<u>SQUARE FOOT</u>
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The contract lump sum price for Item 815.1 includes the cost of Mast Arm foundations based on an assumed foundation design. This foundation design as shown on the plans is based on assumed soil conditions. Soil borings and a Geotechnical Report shall be performed at Location 1 (Derby Street at Congress Street/Hawthorne Boulevard) under this contract using the methodology described under Item 815.1. This Geotechnical Report shall be forwarded to the Design Engineer, at which time the Design Engineer may resize the proposed foundation.

Any cost adjustment required in the foundation size due to a modification of the foundation design will be made under Item 815.98 Footing Cost Adjustment. If a larger foundation is required, the Contractor shall install the footing at the dimensions determined by the Design Engineer and the Contractor will be paid for the difference in size at the contract unit price for Item 815.98. Inversely, if the Design Engineer determines a smaller foundation is required, the Owner shall be credited for the difference in size at the contract unit price for Item 815.98. The difference in size calculation will be based on the dimensions shown on the Foundation Design Charts, detailed in the contract documents, for the size closest to the actual size constructed, regardless of the size assumed in the lump sum price bid.

<u>ITEM 847</u>	<u>SIGN SUPPORT(N/Guide) + RTE MKR w/1 BRKWAY</u>	<u>EACH</u>
	<u>POST ASSEMBLY –STEEL</u>	

The work on this item shall include furnishing and installing sign supports in accordance with the Standard Specifications.

Payment under this item shall be at the Contract unit bid per each, which price shall be full compensation for drilling/coring and protecting brick sidewalk, removing and reinstalling brick units, placement of filler and grout, and furnishing and installing posts at locations so that they are “locked” in position and do not rotate.

ITEM 864.04 **PAVEMENT ARROWS AND LEGENDS** **SQUARE FOOT**
REFL. WHITE (THERMOPLASTIC)

The work to be done under this item shall conform to the relevant provisions of Section 860 for reflectorized lines (thermoplastic) and material Subsections M7.01.03 and M7.01.04.

Work under this item will be paid for at the contract unit price per square foot based on the measurements of actual square feet as determined by the Engineer. The contract prices shall include all materials, labor and equipment required or incidental to the satisfactory completion of the work.

ITEM 874.7 **MISCELLANEOUS SIGNS REMOVED AND STACKED** **EACH**

Work under this item includes the dismantling, removal, transportation and stacking of the existing roadside signs shown on the plans and removal and stacking of the sign supports and their foundations where noted on the plans. Signs shall be stacked

All signs to be removed and stacked as directed by the Engineer, shall be removed and transported to the Salem Department of Public Works Yard at 5 Jefferson Avenue in Salem.

The existing signs shall not be removed until the new signs and structures replacing them are ready for traffic or until the Engineer shall permit.

The quantity of signs removed and stacked to be paid for will be each sign actually removed and stacked.

Any remaining signs unsuitable for stacking, as determined by the Engineer, shall be discarded and paid for under Item 120.1 Unclassified Excavation.

Payment for work to be done under this item will be paid for at the Contract unit price bid each, which price will be full compensation for dismantling, loading, transporting, and stacking of the signs as designated above, the excavating and disposal of the existing foundation and supports of the same, and the supplying and placing of compacted gravel backfill where foundations and posts are removed and restoration of surface.

APPENDIX



THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY



DEVAL L. PATRICK
Governor

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

JOANNE F. GOLDSTEIN
Secretary of Labor and Workforce Development

TIMOTHY P. MURRAY
Lieutenant Governor

GEORGE E. NOEL
Director of Labor

HEATHER E. ROWE
Acting Commissioner of
Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Salem

Contract Number: L-43

City/Town: SALEM

Description of Work: Installation of new traffic signal equipment at one location, and modification of existing traffic signal equipment at one location.

Job Location: Derby Street/Congress Street, Salem, MA

Classification	Effective Dates and Total Rates							
Construction								
(2 AXLE) DRIVER - EQUIPMENT	06/01/2010	\$43.830	12/01/2010	\$44.430	06/01/2011	\$45.180		
	12/01/2011	\$45.840	06/01/2012	\$46.490	12/01/2012	\$47.520		
(3 AXLE) DRIVER - EQUIPMENT	06/01/2010	\$43.900	12/01/2010	\$44.500	06/01/2011	\$45.250		
	12/01/2011	\$45.910	06/01/2012	\$46.560	12/01/2012	\$47.590		
(4 & 5 AXLE) DRIVER - EQUIPMENT	06/01/2010	\$44.020	12/01/2010	\$44.620	06/01/2011	\$45.370		
	12/01/2011	\$46.030	06/01/2012	\$46.680	12/01/2012	\$47.710		
ADS/SUBMERSIBLE PILOT	08/01/2009	\$101.110	08/01/2010	\$104.640	08/01/2011	\$108.760		
AIR TRACK OPERATOR	06/01/2010	\$45.500	12/01/2010	\$46.750	06/01/2011	\$47.750		
	12/01/2011	\$49.000						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT.	12/01/2009	\$40.250						
ASPHALT RAKER	06/01/2010	\$45.000	12/01/2010	\$46.250	06/01/2011	\$47.250		
	12/01/2011	\$48.500						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE	06/01/2010	\$59.730	12/01/2010	\$60.980				
BACKHOE/FRONT-END LOADER	06/01/2010	\$59.730	12/01/2010	\$60.980				
BARCO-TYPE JUMPING TAMPER	06/01/2010	\$45.000	12/01/2010	\$46.250	06/01/2011	\$47.250		
	12/01/2011	\$48.500						
BLOCK PAVER, RAMMER / CURB SETTER	06/01/2010	\$45.500	12/01/2010	\$46.750	06/01/2011	\$47.750		
	12/01/2011	\$49.000						
BOILER MAKER	01/01/2010	\$55.850						
APPRENTICE: BOILERMAKER - Local 29								
Ratio Step	1	2	3	4	5	6	7	8
1:5 %	65.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00
Apprentice wages shall be no less than the following:								
Step 1\$38.75/2\$38.75/3\$41.19/4\$43.64/5\$46.08/6\$48.53/7\$50.97/8\$53.42								
BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	02/01/2010	\$68.010	08/01/2010	\$69.910	02/01/2011	\$70.900		
	08/01/2011	\$73.000	02/01/2012	\$73.990				
APPRENTICE: BRICK/PLASTER/CEMENT MASON - Local 3 Lynn								
Ratio Step	1	2	3	4	5			
1:5 %	50.00	60.00	70.00	80.00	90.00			
Apprentice wages shall be no less than the following:								
Step 1\$45.71/2\$50.17/3\$54.63/4\$59.09/5\$63.55								
BULLDOZER/GRADER/SCRAPER	06/01/2010	\$59.380	12/01/2010	\$60.630				
CAISSON & UNDERPINNING BOTTOM MAN	06/01/2010	\$49.250	12/01/2010	\$50.500	06/01/2011	\$51.500		
	12/01/2011	\$52.750						
CAISSON & UNDERPINNING LABORER	06/01/2010	\$48.100	12/01/2010	\$49.350	06/01/2011	\$50.350		
	12/01/2011	\$51.600						
CAISSON & UNDERPINNING TOP MAN	06/01/2010	\$48.100	12/01/2010	\$49.350	06/01/2011	\$50.350		
	12/01/2011	\$51.600						

This wage schedule must be posted at the work site in accordance with M.G.L. c. 149, § 27. Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. c. 149, § 27. Employees not receiving such rates should report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465. Contractors with questions about the wage rates or classifications included on the wage schedules have an affirmative obligation to inquire with DOS at www.mass.gov/dos/pw or at 617-626-6952.



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EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY



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GEORGE E. NOEL
Director of Labor

HEATHER E. ROWE
Acting Commissioner of
Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Salem

Contract Number: L-43

City/Town: SALEM

Description of Work: Installation of new traffic signal equipment at one location, and modification of existing traffic signal equipment at one location.

Job Location: Derby Street/Congress Street, Salem, MA

Classification	Effective Dates and Total Rates										
CARBIDE CORE DRILL OPERATOR	06/01/2010	\$45.000	12/01/2010	\$46.250	06/01/2011	\$47.250					
	12/01/2011	\$48.500									
CARPENTER	03/01/2010	\$54.500	09/01/2010	\$55.380	03/01/2011	\$56.250					
	09/01/2011	\$57.380	03/01/2012	\$58.500							
APPRENTICE: CARPENTER - Zone 2 Eastern MA											
Ratio	Step	1	2	3	4	5	6	7	8		
1:5	%	50.00	60.00	70.00	75.00	80.00	80.00	90.00	90.00		
Apprentice wages shall be no less than the following:											
Step 1\$25.26/2\$28.43/3\$40.29/4\$41.87/5\$45.03/6\$45.03/7\$51.35/8\$51.35											
CEMENT MASONRY/PLASTERING	02/01/2010	\$66.200	08/01/2010	\$67.670	02/01/2011	\$68.440					
	08/01/2011	\$70.060	02/01/2012	\$70.830							
CHAIN SAW OPERATOR	06/01/2010	\$45.000	12/01/2010	\$46.250	06/01/2011	\$47.250					
	12/01/2011	\$48.500									
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES	06/01/2010	\$60.730	12/01/2010	\$61.980							
COMPRESSOR OPERATOR	06/01/2010	\$48.760	12/01/2010	\$49.690							
DELEADER (BRIDGE)	01/01/2010	\$63.410									
DEMO: ADZEMAN	06/01/2010	\$48.100	12/01/2010	\$49.350	06/01/2011	\$50.350					
	12/01/2011	\$51.600									
DEMO: BACKHOE/LOADER/HAMMER OPERATOR	06/01/2010	\$49.100	12/01/2010	\$50.350	06/01/2011	\$51.350					
	12/01/2011	\$52.600									
DEMO: BURNERS	06/01/2010	\$48.850	12/01/2010	\$50.100	06/01/2011	\$51.100					
	12/01/2011	\$52.350									
DEMO: CONCRETE CUTTER/SAWYER	06/01/2010	\$49.100	12/01/2010	\$50.350	06/01/2011	\$51.350					
	12/01/2011	\$52.600									
DEMO: JACKHAMMER OPERATOR	06/01/2010	\$48.850	12/01/2010	\$50.100	06/01/2011	\$51.100					
	12/01/2011	\$52.350									
DEMO: WRECKING LABORER	06/01/2010	\$48.100	12/01/2010	\$49.350	06/01/2011	\$50.350					
	12/01/2011	\$51.600									
DIRECTIONAL DRILL MACHINE OPERATOR	06/01/2010	\$59.380	12/01/2010	\$60.630							
DIVER	08/01/2009	\$75.090	08/01/2010	\$77.440	08/01/2011	\$80.190					
DIVER TENDER	08/01/2009	\$60.220	08/01/2010	\$62.570	08/01/2011	\$65.320					
DIVER TENDER (EFFLUENT)	08/01/2009	\$78.810	08/01/2010	\$82.330	08/01/2011	\$86.460					
DIVER/SLURRY (EFFLUENT)	08/01/2009	\$101.110	08/01/2010	\$104.640	08/01/2011	\$108.760					
ELECTRICIAN	03/01/2010	\$65.790	09/01/2010	\$67.030	03/01/2011	\$68.270					
APPRENTICE: ELECTRICIAN - Local 103											
Ratio	Step	1	2	3	4	5	6	7	8	9	10
2:3***	%	40.00	40.00	45.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00
Apprentice wages shall be no less than the following Steps: App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80											
1\$34.88/2\$34.88/3\$42.31/4\$42.31/5\$44.45/6\$46.58/7\$48.72/8\$50.85/9\$52.99/10\$55.12											
ELEVATOR CONSTRUCTOR	01/01/2010	\$65.190	01/01/2011	\$66.690	01/01/2012	\$68.190					

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Prevailing Wage Rates

Awarding Authority: City of Salem

Contract Number: L-43

City/Town: SALEM

Description of Work: Installation of new traffic signal equipment at one location, and modification of existing traffic signal equipment at one location.

Job Location: Derby Street/Congress Street, Salem, MA

Classification

Effective Dates and Total Rates

Classification	Effective Dates	Total Rates
APPRENTICE: ELEVATOR CONSTRUCTOR - Local 4		
Ratio Step 1 2 3 4 5		
1:1 % 50.00 55.00 65.00 70.00 80.00		
Apprentice rates shall be no less than the following:	Steps 1-2 are 6 mos.; Steps 3-5 are 1 year	
Step 1\$44.47/2\$46.89/3\$51.73/4\$54.17/5\$58.99		
ELEVATOR CONSTRUCTOR HELPER	01/01/2010	\$51.330
FENCE & GUARD RAIL ERECTOR	06/01/2010	\$45.000
	12/01/2011	\$48.500
FIELD ENG. - INST. PERSON (BLDG, SITE, HVY CONST)	05/01/2010	\$56.950
FIELD ENG. - ROD PERSON (BLDG, SITE, HVY CONST)	05/01/2010	\$41.520
FIELD ENG.-CHIEF OF PARTY (BLDG, SITE, HVY CONST)	05/01/2010	\$58.320
FIRE ALARM INSTALLER	03/01/2010	\$65.790
FIRE ALARM REPAIR / MAINTENANCE	03/01/2010	\$53.800
FIREMAN (ASST. ENGINEER)	06/01/2010	\$53.760
FLAGGER & SIGNALER	06/01/2010	\$36.400
	12/01/2011	\$37.400
FLOORCOVERER	03/01/2010	\$59.630
	09/01/2010	\$60.380
	09/01/2011	\$62.380
	03/01/2012	\$63.630
APPRENTICE: FLOORCOVERER - Local 2168 Zone 1		
Ratio Step 1 2 3 4 5 6 7 8		
1:1 % 50.00 55.00 60.00 65.00 70.00 75.00 80.00 85.00		
Apprentice rates shall be no less than the following:	Steps are 750 hrs.	
Step 1\$27.35/2\$29.13/3\$39.93/4\$41.71/5\$45.32/6\$47.10/7\$50.69/8\$52.47		
FORK LIFT/CHERRY PICKER	06/01/2010	\$59.730
GENERATOR/LIGHTING PLANT/HEATERS	06/01/2010	\$48.760
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)	01/01/2010	\$52.910
APPRENTICE: GLAZIER - Local 35 Zone 2		
Ratio Step 1 2 3 4 5 6 7 8		
1:1 % 50.00 55.00 60.00 65.00 70.00 75.00 80.00 90.00		
Apprentice wages shall be no less than the following:	Steps are 750 hrs.	
Step 1\$23.86/2\$28.43/3\$30.31/4\$32.18/5\$41.26/6\$43.13/7\$45.01/8\$48.76		
HOISTING ENGINEER/CRANES/GRADALLS	06/01/2010	\$59.730
APPRENTICE: HOIST/PORT. ENG.- Local 4		
Ratio Step 1 2 3 4 5 6 7 8		
1:6 % 55.00 60.00 65.00 70.00 75.00 80.00 85.00 90.00		
Apprentice wages shall be no less than the following:		
Step 1\$30.40/2\$44.42/3\$46.33/4\$48.25/5\$50.16/6\$52.07/7\$53.99/8\$55.90		

This wage schedule must be posted at the work site in accordance with M.G.L. c. 149, § 27. Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. c. 149, § 27. Employees not receiving such rates should report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465. Contractors with questions about the wage rates or classifications included on the wage schedules have an affirmative obligation to inquire with DOS at www.mass.gov/dos/pw or at 617-626-6952.



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Prevailing Wage Rates

Awarding Authority: City of Salem

Contract Number: L-43

City/Town: SALEM

Description of Work: Installation of new traffic signal equipment at one location, and modification of existing traffic signal equipment at one location.

Job Location: Derby Street/Congress Street, Salem, MA

Classification	Effective Dates and Total Rates					
HVAC (DUCTWORK)	02/01/2010	\$63.470	08/01/2010	\$64.720	02/01/2011	\$65.970
	08/01/2011	\$67.220	02/01/2012	\$68.470	08/01/2012	\$69.720
	02/01/2013	\$70.970				
HVAC (ELECTRICAL CONTROLS)	03/01/2010	\$65.790	09/01/2010	\$67.030	03/01/2011	\$68.270
HVAC (TESTING AND BALANCING - AIR)	02/01/2010	\$63.470	08/01/2010	\$64.720	02/01/2011	\$65.970
	08/01/2011	\$67.220	02/01/2012	\$68.470	08/01/2012	\$69.720
	02/01/2013	\$70.970				
HVAC (TESTING AND BALANCING - WATER)	03/01/2010	\$64.400				
HVAC MECHANIC	03/01/2010	\$64.400				
HYDRAULIC DRILLS	06/01/2010	\$45.500	12/01/2010	\$46.750	06/01/2011	\$47.750
	12/01/2011	\$49.000				
INSULATOR (PIPES & TANKS)	09/01/2009	\$59.260	09/01/2010	\$61.660		
APPRENTICE: ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston						
Ratio	Step	1	2	3	4	
1:4	%	50.00	60.00	70.00	80.00	
Apprentice wages shall be no less than the following:			Steps are 1 year			
Step 1\$36.64/2\$41.16/3\$45.69/4\$50.21						
IRONWORKER/WELDER	03/16/2010	\$60.940				
APPRENTICE: IRONWORKER - Local 7 Boston						
Ratio	Step	1	2	3	4	5 6
**	%	60.00	70.00	75.00	80.00	85.00 90.00
Apprentice wages shall be no less than the following:			** Structural 1:6; Ornamental 1:4			
Step 1\$46.82/2\$50.35/3\$52.12/4\$53.88/5\$55.65/6\$57.41						
JACKHAMMER & PAVING BREAKER OPERATOR	06/01/2010	\$45.000	12/01/2010	\$46.250	06/01/2011	\$47.250
	12/01/2011	\$48.500				
LABORER	06/01/2010	\$44.750	12/01/2010	\$46.000	06/01/2011	\$47.000
	12/01/2011	\$48.250				
APPRENTICE: LABORER - Zone 2						
Ratio	Step	1	2	3	4	
1:5	%	60.00	70.00	80.00	90.00	
Apprentice wages shall be no less than the following:						
Step 1\$33.61/2\$36.40/3\$39.18/4\$41.97						
LABORER: CARPENTER TENDER	06/01/2010	\$44.750	12/01/2010	\$46.000	06/01/2011	\$47.000
	12/01/2011	\$48.250				
LABORER: CEMENT FINISHER TENDER	06/01/2010	\$44.750	12/01/2010	\$46.000	06/01/2011	\$47.000
	12/01/2011	\$48.250				
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER	06/01/2010	\$44.750	12/01/2010	\$46.000	06/01/2011	\$47.000
	12/01/2011	\$48.250				
LABORER: MASON TENDER	06/01/2010	\$45.000	12/01/2010	\$46.250	06/01/2011	\$47.250
	12/01/2011	\$48.500				

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THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DIVISION OF OCCUPATIONAL SAFETY



DEVAL L. PATRICK
Governor

As determined by the Commissioner under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

JOANNE F. GOLDSTEIN
Secretary of Labor and Workforce Development

TIMOTHY P. MURRAY
Lieutenant Governor

GEORGE E. NOEL
Director of Labor

HEATHER E. ROWE
Acting Commissioner of
Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Salem

Contract Number: L-43

City/Town: SALEM

Description of Work: Installation of new traffic signal equipment at one location, and modification of existing traffic signal equipment at one location.

Job Location: Derby Street/Congress Street, Salem, MA

Classification	Effective Dates and Total Rates								
LABORER: MULTI-TRADE TENDER	06/01/2010	\$44.750	12/01/2010	\$46.000	06/01/2011	\$47.000			
	12/01/2011	\$48.250							
LABORER: TREE REMOVER	06/01/2010	\$44.750	12/01/2010	\$46.000	06/01/2011	\$47.000			
	12/01/2011	\$48.250							
This classification applies to the wholesale removal of standing trees including all associated trimming of branches and limbs, and applies to the removal of branches at locations not on or around utility lines.									
LASER BEAM OPERATOR	06/01/2010	\$45.000	12/01/2010	\$46.250	06/01/2011	\$47.250			
	12/01/2011	\$48.500							
MARBLE & TILE FINISHERS	02/01/2010	\$56.950	08/01/2010	\$58.470	02/01/2011	\$59.270			
	08/01/2011	\$60.950	02/01/2012	\$61.740					
APPRENTICE: MARBLE & TILE FINISHER - Local 3 Marble & Tile									
Ratio	Step	1	2	3	4	5			
1:3	%	50.00	60.00	70.00	80.00	90.00			
Apprentice wages shall be no less than the following:			Steps are 800 hrs.						
Step 1\$39.66/2\$43.11/3\$46.57/4\$50.03/5\$53.49									
MARBLE MASONS, TILELAYERS & TERRAZZO MECH	02/01/2010	\$68.050	08/01/2010	\$69.950	02/01/2011	\$70.940			
	08/01/2011	\$73.040	02/01/2012	\$74.030					
APPRENTICE: MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile									
Ratio	Step	1	2	3	4	5			
1:3	%	50.00	60.00	70.00	80.00	90.00			
Apprentice wages shall be no less than the following:									
Step 1\$45.73/2\$50.19/3\$54.66/4\$59.12/5\$63.59									
MECH. SWEEPER OPERATOR (NON-CONSTRUCTION)	07/01/2009	\$28.890	07/01/2010	\$29.590	07/01/2011	\$30.290			
MECH. SWEEPER OPERATOR (ON CONST. SITES)	06/01/2010	\$59.380	12/01/2010	\$60.630					
MECHANICS MAINTENANCE	06/01/2010	\$59.380	12/01/2010	\$60.630					
MILLWRIGHT (Zone 1)	04/01/2010	\$55.850							
APPRENTICE: MILLWRIGHT - Local 1121 Zone 1									
Ratio	Step	1	2	3	4	5	6	7	8
1:5	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00
Apprentice wages shall be no less than the following:									
Step 1\$34.63/2\$36.31/3\$39.44/4\$41.12/5\$44.26/6\$45.94/7\$47.65/8\$49.32									
MORTAR MIXER	06/01/2010	\$45.000	12/01/2010	\$46.250	06/01/2011	\$47.250			
	12/01/2011	\$48.500							
OILER (OTHER THAN TRUCK CRANES, GRADALLS)	06/01/2010	\$42.430	12/01/2010	\$43.170					
OILER (TRUCK CRANES, GRADALLS)	06/01/2010	\$45.500	12/01/2010	\$46.330					
OTHER POWER DRIVEN EQUIPMENT - CLASS II	06/01/2010	\$59.380	12/01/2010	\$60.630					
PAINTER (BRIDGES/TANKS)	01/01/2010	\$63.410							

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GEORGE E. NOEL
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HEATHER E. ROWE
Acting Commissioner of
Division of Occupational Safety

Prevailing Wage Rates

Awarding Authority: City of Salem

Contract Number: L-43

City/Town: SALEM

Description of Work: Installation of new traffic signal equipment at one location, and modification of existing traffic signal equipment at one location.

Job Location: Derby Street/Congress Street, Salem, MA

Classification

Effective Dates and Total Rates

Classification	Effective Dates	Total Rates
APPRENTICE: PAINTER Local 35 - BRIDGES/TANKS Ratio Step 1 2 3 4 5 6 7 8 1:1 % 50.00 55.00 60.00 65.00 70.00 75.00 80.00 90.00 Apprentice wages shall be no less than the following: Steps are 750 hrs. Step 1\$29.31/2\$34.43/3\$36.85/4\$39.27/5\$48.89/6\$51.31/7\$53.73/8\$58.57		
PAINTER (SPRAY OR SANDBLAST, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.	01/01/2010	\$54.310
APPRENTICE: PAINTER Local 35 Zone 2 - Spray/Sandblast - New Ratio Step 1 2 3 4 5 6 7 8 1:1 % 50.00 55.00 60.00 65.00 70.00 75.00 80.00 90.00 Apprentice wages shall be no less than the following: Step 1\$24.76/2\$31.85/3\$33.55/4\$32.24/5\$44.14/6\$45.83/7\$47.53/8\$50.92		
PAINTER (SPRAY OR SANDBLAST, REPAINT)	01/01/2010	\$52.370
APPRENTICE: PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint Ratio Step 1 2 3 4 5 6 7 8 1:1 % 50.00 55.00 60.00 65.00 70.00 75.00 80.00 90.00 Apprentice wages shall be no less than the following: Step 1\$23.79/2\$30.78/3\$32.38/4\$33.98/5\$42.78/6\$44.38/7\$45.98/8\$49.17		
PAINTER (TRAFFIC MARKINGS)	06/01/2010 12/01/2011	\$44.750 \$48.250
PAINTER / TAPER (BRUSH, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.	01/01/2010	\$52.910
APPRENTICE: PAINTER - Local 35 Zone 2 - BRUSH NEW Ratio Step 1 2 3 4 5 6 7 8 1:1 % 50.00 55.00 60.00 65.00 70.00 75.00 80.00 90.00 Apprentice wages shall be no less than the following: Steps are 750 hrs. Step 1\$23.86/2\$28.43/3\$30.31/4\$32.18/5\$41.26/6\$43.13/7\$45.01/8\$48.76		
PAINTER / TAPER (BRUSH, REPAINT)	01/01/2010	\$50.970
APPRENTICE: PAINTER Local 35 Zone 2 - BRUSH REPAINT Ratio Step 1 2 3 4 5 6 7 8 1:1 % 50.00 55.00 60.00 65.00 70.00 75.00 80.00 90.00 Apprentice wages shall be no less than the following: Steps are 750 hrs. Step 1\$22.89/2\$27.36/3\$29.14/4\$30.92/5\$39.90/6\$41.68/7\$43.46/8\$47.01		
PANEL & PICKUP TRUCKS DRIVER	06/01/2010 12/01/2011	\$43.660 \$45.670
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2009	\$60.220
PILE DRIVER	08/01/2009	\$60.220
	12/01/2010 06/01/2012	\$44.260 \$46.320
	08/01/2010	\$62.570
	06/01/2011 12/01/2012	\$45.010 \$47.350
	08/01/2011	\$65.320
	08/01/2011	\$65.320

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Prevailing Wage Rates

Awarding Authority: City of Salem

Contract Number: L-43

City/Town: SALEM

Description of Work: Installation of new traffic signal equipment at one location, and modification of existing traffic signal equipment at one location.

Job Location: Derby Street/Congress Street, Salem, MA

Classification

Effective Dates and Total Rates

APPRENTICE: PILE DRIVER - Local 56 Zone 1											
Ratio	Step	1	2	3	4	5	6	7	8		
1:3	%	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00		
Apprentice wages shall be no less than the following: Step 1\$45.35/2\$47.21/3\$49.07/4\$50.93/5\$52.79/6\$54.64/7\$56.50/8\$58.36											
PIPEFITTER & STEAMFITTER						03/01/2010	\$64.400				
APPRENTICE: PIPEFITTER Local 537 (Local 138)											
Ratio	Step	1	2	3	4	5					
**	%	40.00	45.00	60.00	70.00	80.00					
Apprentice wages: Step 1\$30.00/2\$40.33/3\$46.90/4\$51.27/5\$55.65						** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.					
Refrig/AC Mechanic **1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)											
PIPELAYER						06/01/2010	\$45.000	12/01/2010	\$46.250	06/01/2011	\$47.250
						12/01/2011	\$48.500				
PLUMBER						03/01/2010	\$63.420				
APPRENTICE: PLUMBER/GASFITTER - Local 12 (Local 138)											
Ratio	Step	1	2	3	4	5	6	7	8	9	10
1:5	%	37.50	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00
Apprentice wages shall be no less than the following: Step 1\$27.15/2\$29.63/3\$37.06/4\$42.01/4lic\$44.49/5\$46.97/5lic\$49.43											
PNEUMATIC CONTROLS (TEMP.)						03/01/2010	\$64.400				
PNEUMATIC DRILL/TOOL OPERATOR						06/01/2010	\$45.000	12/01/2010	\$46.250	06/01/2011	\$47.250
						12/01/2011	\$48.500				
POWDERMAN & BLASTER						06/01/2010	\$45.750	12/01/2010	\$47.000	06/01/2011	\$48.000
						12/01/2011	\$49.250				
POWER SHOVEL/DERRICK/TRENCHING MACHINE						06/01/2010	\$59.730	12/01/2010	\$60.980		
PUMP OPERATOR (CONCRETE)						06/01/2010	\$59.730	12/01/2010	\$60.980		
PUMP OPERATOR (DEWATERING, OTHER)						06/01/2010	\$48.760	12/01/2010	\$49.690		
READY-MIX CONCRETE DRIVER						04/30/2009	\$37.100				
RECLAIMERS						06/01/2010	\$59.380	12/01/2010	\$60.630		
RESIDENTIAL WOOD FRAME CARPENTER **						04/01/2009	\$35.620				
** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.											
APPRENTICE: CARPENTER (Residential Wood Frame) - Zone 2											
Ratio	Step	1	2	3	4	5	6	7	8		
1:5	%	60.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00		
Apprentice wages shall be no less than the following: Step 1\$20.13/2\$26.04/3\$27.23/4\$28.43/5\$29.63/6\$30.83/7\$32.03/8\$33.22											

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Prevailing Wage Rates

Awarding Authority: City of Salem

Contract Number: L-43

City/Town: SALEM

Description of Work: Installation of new traffic signal equipment at one location, and modification of existing traffic signal equipment at one location.

Job Location: Derby Street/Congress Street, Salem, MA

Classification	Effective Dates and Total Rates										
RIDE-ON MOTORIZED BUGGY OPERATOR	06/01/2010	\$45.000	12/01/2010	\$46.250	06/01/2011	\$47.250					
	12/01/2011	\$48.500									
ROLLER/SPREADER/MULCHING MACHINE	06/01/2010	\$59.380	12/01/2010	\$60.630							
ROOFER (Inc.Roofers Waterproofing &Roofers Dampproofg)	02/01/2009	\$53.860									
APPRENTICE: ROOFER - Local 33											
Ratio	Step	1	2	3	4	5					
**	%	50.00	60.00	65.00	75.00	85.00					
** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1			Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.								
Apprentice rates no less than: Step 1\$34.48/2\$40.86/3\$42.58/4\$46.02/5\$49.50											
SHEETMETAL WORKER	02/01/2010	\$63.470	08/01/2010	\$64.720	02/01/2011	\$65.970					
	08/01/2011	\$67.220	02/01/2012	\$68.470	08/01/2012	\$69.720					
	02/01/2013	\$70.970									
APPRENTICE: SHEET METAL WORKER - Local 17-A											
Ratio	Step	1	2	3	4	5	6	7			
1:4	%	40.00	45.00	50.00	60.00	65.00	75.00	85.00			
Apprentice wages shall be no less than the following:			Steps 1-3 are 1 year; Steps 4-7 are 6 mos.								
Step 1\$15.75/2\$26.51/3\$35.36/4\$37.38/5\$46.40/6\$55.63											
SIGN ERECTOR	06/01/2009	\$37.780									
APPRENTICE: SIGN ERECTOR - Local 35 Zone 2											
Ratio	Step	1	2	3	4	5	6	7	8	9	
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	
Steps are 4 mos.											
SLATE / TILE / PRECAST CONCRETE ROOFER	02/01/2009	\$54.110									
SPECIALIZED EARTH MOVING EQUIP < 35 TONS	06/01/2010	\$44.120	12/01/2010	\$44.720	06/01/2011	\$45.470					
	12/01/2011	\$46.130	06/01/2012	\$46.780	12/01/2012	\$47.810					
SPECIALIZED EARTH MOVING EQUIP > 35 TONS	06/01/2010	\$44.410	12/01/2010	\$45.010	06/01/2011	\$45.760					
	12/01/2011	\$46.420	06/01/2012	\$47.070	12/01/2012	\$48.100					
SPRINKLER FITTER	04/01/2010	\$69.550									
APPRENTICE: SPRINKLER FITTER - Local 550											
Ratio	Step	1	2	3	4	5	6	7	8	9	10
1:1	%	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00
Apprentice wages shall be no less than the following steps:											
1\$35.04/2\$37.82/3\$40.60/4\$43.38/5\$46.16/6\$48.94/7\$51.72/8\$54.50/9\$57.28/10\$60.06											
STEAM BOILER OPERATOR	06/01/2010	\$59.380	12/01/2010	\$60.630							
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN	06/01/2010	\$59.380	12/01/2010	\$60.630							
TELECOMMUNICATION TECHNICIAN	03/01/2010	\$53.800	09/01/2010	\$54.730	03/01/2011	\$55.660					

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Prevailing Wage Rates

Awarding Authority: City of Salem

Contract Number: L-43

City/Town: SALEM

Description of Work: Installation of new traffic signal equipment at one location, and modification of existing traffic signal equipment at one location.

Job Location: Derby Street/Congress Street, Salem, MA

Classification

Effective Dates and Total Rates

Classification	Effective Dates	Total Rates
APPRENTICE: TELECOMMUNICATION TECHNICIAN - Local 103		
Ratio Step 1 2 3 4 5 6 7 8		
1:1 % 40.00 45.00 50.00 55.00 60.00 65.00 75.00 80.00		
Apprentice wages shall be no less than the following:		
Step 1\$34.59/2\$36.19/3\$37.80/4\$39.39/5\$40.99/6\$42.60/7\$45.80/8\$47.40		
TERRAZZO FINISHERS	02/01/2010 \$66.950 08/01/2010 \$68.850 02/01/2011 \$69.840	
	08/01/2011 \$71.940 02/01/2012 \$72.930	
APPRENTICE: TERRAZZO FINISHER - Local 3 Marble & Tile		
Ratio Step 1 2 3 4 5		
1:3 % 50.00 60.00 70.00 80.00 90.00		
Apprentice wages shall be no less than the following:		
Step 1\$45.18/2\$49.53/3\$53.89/4\$58.24/5\$62.60		
TEST BORING DRILLER	06/01/2010 \$49.500 12/01/2010 \$50.750 06/01/2011 \$51.750	
	12/01/2011 \$53.000	
TEST BORING DRILLER HELPER	06/01/2010 \$48.220 12/01/2010 \$49.470 06/01/2011 \$50.470	
	12/01/2011 \$51.720	
TEST BORING LABORER	06/01/2010 \$48.100 12/01/2010 \$49.350 06/01/2011 \$50.350	
	12/01/2011 \$51.600	
TRACTORS/PORTABLE STEAM GENERATORS	06/01/2010 \$59.380 12/01/2010 \$60.630	
TRAILERS FOR EARTH MOVING EQUIPMENT	06/01/2010 \$44.700 12/01/2010 \$45.300 06/01/2011 \$46.050	
	12/01/2011 \$46.710 06/01/2012 \$47.360 12/01/2012 \$48.390	
TUNNEL WORK - COMPRESSED AIR	06/01/2010 \$60.680 12/01/2010 \$61.930 06/01/2011 \$63.180	
	12/01/2011 \$64.430	
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	06/01/2010 \$62.680 12/01/2010 \$63.930 06/01/2011 \$65.180	
	12/01/2011 \$66.430	
TUNNEL WORK - FREE AIR	06/01/2010 \$52.750 12/01/2010 \$54.000 06/01/2011 \$55.250	
	12/01/2011 \$56.500	
TUNNEL WORK - FREE AIR (HAZ. WASTE)	06/01/2010 \$54.750 12/01/2010 \$56.000 06/01/2011 \$57.250	
	12/01/2011 \$58.500	
VAC-HAUL	06/01/2010 \$44.120 12/01/2010 \$44.720 06/01/2011 \$45.470	
	12/01/2011 \$46.130 06/01/2012 \$46.780 12/01/2012 \$47.810	
WAGON DRILL OPERATOR	06/01/2010 \$45.000 12/01/2010 \$46.250 06/01/2011 \$47.250	
	12/01/2011 \$48.500	
WASTE WATER PUMP OPERATOR	06/01/2010 \$59.730 12/01/2010 \$60.980	
WATER METER INSTALLER	03/01/2010 \$63.420	
Outside Electrical - East		
CABLE TECHNICIAN (Power Zone)	08/31/2009 \$32.830 08/30/2010 \$34.050 08/29/2011 \$35.310	
CABLEMAN (Underground Ducts & Cables)	08/31/2009 \$42.590 08/30/2010 \$44.320 08/29/2011 \$46.110	
DRIVER / GROUNDMAN CDL	08/31/2009 \$37.940 08/30/2010 \$39.360 08/29/2011 \$40.830	
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs)	08/31/2009 \$30.780 08/30/2010 \$31.890 08/29/2011 \$33.050	

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Prevailing Wage Rates

Awarding Authority: City of Salem

Contract Number: L-43

City/Town: SALEM

Description of Work: Installation of new traffic signal equipment at one location, and modification of existing traffic signal equipment at one location.

Job Location: Derby Street/Congress Street, Salem, MA

Classification	Effective Dates and Total Rates							
EQUIPMENT OPERATOR (Class A CDL)	08/31/2009	\$46.590	08/30/2010	\$48.320	08/29/2011	\$50.110		
EQUIPMENT OPERATOR (Class B CDL)	08/31/2009	\$40.240	08/30/2010	\$41.760	08/29/2011	\$43.340		
GROUNDMAN	08/31/2009	\$30.280	08/30/2010	\$31.390	08/29/2011	\$32.550		
GROUNDMAN -Inexperienced (<2000 Hrs.)	08/31/2009	\$25.920	08/30/2010	\$26.840	08/29/2011	\$27.790		
JOURNEYMAN LINEMAN	08/31/2009	\$55.480	08/30/2010	\$57.510	08/29/2011	\$59.620		
APPRENTICE: LINEMAN (Outside Electrical) - East Local 104								
Ratio	Step	1	2	3	4	5	6	7
1:2	%	60.00	65.00	70.00	75.00	80.00	85.00	90.00
Apprentice wages shall be no less than the following:								
Step 1\$39.06/2\$41.11/3\$43.17/4\$45.22/5\$47.27/6\$49.32/7\$51.38								
TELEDATA CABLE SPLICER	03/01/2007	\$27.330						
TELEDATA LINEMAN/EQUIPMENT OPERATOR	03/01/2007	\$27.330						
TELEDATA WIREMAN/INSTALLER/TECHNICIAN	03/01/2007	\$27.330						
TREE TRIMMER	02/01/2009	\$19.010						
This classification applies only to the trimming of branches on and around utility lines.								
TREE TRIMMER GROUNDMAN	02/01/2009	\$17.060						
This classification applies only to the trimming of branches on and around utility lines.								

Additional Apprentices Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, Section 11.

All steps are six months (1000 hours) unless otherwise specified.

- * Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof.
- ** Multiple ratios are listed in the comment field.
- *** The job site ratio of 2 apprentices (APP) for every 3 journeymen (JM) is allowed as follows:
1 JM: 1 APP; 2-3 JM: 2 APP; 4-6 JM: 4 APP; 7-9 JM: 6 APP; 10-12 JM: 8 APP; 13-15 JM: 10 APP; etc.
- **** The job site ratio of 2 apprentices (APP) for every 3 journeymen (JM) is allowed as follows:
1-2 JM: 1 APP; 3-4 JM: 2 APP; 5 JM: 3 APP; 6-7 JM: 4 APP; 8 JM: 5 APP; etc.

This wage schedule must be posted at the work site in accordance with M.G.L. c. 149, § 27. Failure of the employer to pay "prevailing wage rates," which are the minimum wage rates listed above, on public works projects is a violation of M.G.L. c. 149, § 27. Employees not receiving such rates should report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465. Contractors with questions about the wage rates or classifications included on the wage schedules have an affirmative obligation to inquire with DOS at www.mass.gov/dos/pw or at 617-626-6952.