WAREHAM ELEMENTARY SCHOOL PROJECT
MINOT FOREST SITE PREPARATION PACKAGE
63 Minot Avenue, Wareham, MA 02017.06

PROJECT MANUAL

BID SET
JULY 10, 2019

OWNER'S PROJECT MANAGER
PMA CONSULTANTS
35 Braintree Hill Office Park, Suite 300
Braintree, MA 02184
(617) 694-9575

LANDSCAPE ARCHITECT
MARSHALL / GARY LLC
17 Naumkeag Row
Danvers, MA 01923
(781) 245-7699

SPECIFICATION / SUSTAINABILITY
MOUNT VERNON GROUP ARCHITECTS, INC.
200 Harvard Mill Square
Wakefield, MA 01880
(781) 213-5030

ARCHITECT
MOUNT VERNON GROUP ARCHITECTS, INC.
200 Harvard Mill Square
Wakefield, MA 01880
(781) 213-5030

CIVIL ENGINEER
SAMIOTES CONSULTANTS, INC.
20 A Street
Framingham, MA 01701
(508) 877-6688

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SPECIFICATION SECTION — DOCUMENT DATE

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INVITATION TO BID

The Town of Wareham, the Awarding Authority, invites sealed bids for the Wareham Elementary School – Minot Forest Site Preparation Package located in 63 Minot Ave., Wareham, MA 02571, in accordance with Contract Documents prepared by Mount Vernon Group Architects, Inc., 200 Harvard Mill Square, Wakefield, MA 01880, (781) 213-5030. Bidding procedures shall be in accordance with Chapter 149 – Sections 44A to 44J, inclusive, Section 26 to 29 inclusive, and Chapter 30, Section 39F to 39M inclusive, and 39R of the General Laws of the Commonwealth of Massachusetts, as amended to date.

The Wareham Elementary School Project – Minot Forest Site Preparation Package are subject to the competitive procuring procedures contained in M.G.L. c. 30, §39M. The Work shall include, but not limited to, removal of trees and stumps, cutting and capping of all utilities on site, removal of existing utilities on site, removal of all paving, grading to subgrade of the proposed plan, slope stabilization in areas of cut and fill, soil erosion and sediment control.

Bidding procedures are subject to the provisions of the General Laws of the Commonwealth of Massachusetts (MGL), as amended, including Chapter 149, §44A to §44J inclusive; applicable sections of MGL Chapter 30.

Upon Award, the Work of this Contract for the Wareham Elementary School – Minot Forest Site Preparation Package Project shall be finally complete by November 29, 2019.

General bidders are advised that before contract award, the lowest general bidder shall be required to provide the Owner with documentation stating how it intends to meet the minority and women business enterprise goals for the project. Those goals are:

MBE/WBE Combined goal of 10.4% of construction contract amount.

The Supplier Diversity Office (SDO) has issued Guidelines to assist municipalities in meeting goals for MBE/WBE participation for state-assisted construction projects. Attachments B, C and D of those Guidelines are included in Appendix A of the Contract For Construction Services and General Conditions. Attachment C relates to Model Bidding Instructions. Notwithstanding the provisions of Attachment C to the contrary, the Awarding Authority reserves the right to revise the time period given to the low general bidder to provide documentation on how it intends to meet the MBE/WBE goals. The awarding Authority also reserves its right under MGL c. 7 Section 40N (f), to reduce the amount of the MBE/WBE goals for the Project at any time prior to the award of the contract to the low general bidder, if the Awarding Authority determines that full compliance with the goals is not feasible and the low general bidder has demonstrated to the satisfaction of the Awarding Authority that it has made a good faith effort to meet the MBE/WBE goals.

Sealed Bids for the General Contract will be received at the Office of the Town Administrator, Memorial Town Hall, 54 Marion Rd., Wareham, MA 02571 until 3:00 P.M. local time, on July 31, 2019 at which time all bids will be publicly opened and read aloud.

Bid Forms and Contract Documents will be available for pick up on July 10, 2019 after 2:00 PM at:

Andrew T. Johnson Co.
15 Tremont Place
Boston, MA 02108
(617) 742-1610

There is a plan deposit of $300.00 per set (maximum 2 sets) made payable to the Town of Wareham. Deposits must be in the form of a certified or cashier's check. The deposit will be refunded for up to two sets upon return of the sets in good condition within thirty days of receipt of general bids. Otherwise the deposit shall be the property of the awarding authority.

Bidders requesting documents to be mailed, shall include a separate check, (company, certified, or money order) made out to Andrew T. Johnson Co in the amount of $75.00 for UPS Ground service.

Bidding documents will also be made available online at atjplanroom.com. Go to www.atjplanroom.com, click on Public Jobs then the project name. Drawings and Specifications will be available to view and download. To download you must register for a free account, which will place you on the plan holders list to receive addendums when issued.

Questions regarding plan distribution should be directed to Andrew Johnson Co. at (617) 742-1610. Questions regarding Project details should be directed by e-mail to Mount Vernon Group Architects. Attn: Luis Ascensao at LAscensao@mvgarchitects.com. Questions deadline will be 3:00 PM on July 26, 2019.

General Bids must be submitted on the Form For General Bid included herein. The General Bids shall be completed, signed, enclosed in an envelope, sealed and plainly marked with the project name. The General Bids shall be filed with the Owner at the location designated above accompanied by a bid deposit in the form of a bid bond or cash or a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company payable to The Town of Wareham in the amount of 5% of the bid.

A bid bond shall be:

(a) in a form satisfactory to the Owner;
(b) with a surety company qualified to do business in the Commonwealth of Massachusetts and satisfactory to the Owner;
(c) conditioned upon the faithful performance by the principal of the agreements contained in the General Bid.

Contract Documents may be examined at the following locations;

1. Office of the Town Administrator, Memorial Town Hall, 54 Marion Road, Wareham, MA 02571
2. Mount Vernon Group Architects, Inc., 47 North Second Street, New Bedford, MA 02740
3. Mount Vernon Group Architects, Inc., 200 Harvard Mill Square, Wakefield, MA 01880

A Labor and Materials Payment Bond, each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Owner and each in the sum of 50% of the Contract Price will be required of the successful general bidder.

The rate per hour of the wages to be paid to mechanics, teamsters, chauffeurs and laborers in the Work to be performed shall not be less than the rate of wages determined for this Work by the Commissioner of Labor and Industries of the Commonwealth of Massachusetts under the provisions of General Laws, Chapter 149, §25 to §28, inclusive, as amended, a schedule of which appears in the Specifications.

The successful bidder will be required to provide insurance for the payment of compensation and the furnishing of other benefits under the Workmen's Compensation Law, General Laws, Chapter 152, to all persons to be employed under the Contract, and sufficient proof of compliance with the forgoing stipulation will be required before commencing performance of this Contract.

All bids shall remain in effect for thirty (30) days, Saturdays, Sundays and legal holidays excluded, after the opening of General Bids.

Pre-Bid Conference/Site Inspection: All bidders are alerted to the fact that a pre-bid conference will be held at the existing Minot Forest Elementary School, 63 Minot Ave., Wareham, MA 02571 at 3:00 PM on July 17, 2019.

The Owner will reject general bids when required to do so pursuant to Massachusetts General Law. In addition, the Owner reserves the right to waive any informalities in bidding and to reject any or all general bids if it deems it in the public interest to do so. Also, the Owner reserves the right to reject any sub-bid if it determines that such sub-bid does not represent the bid of a company competent to perform work as specified or that less than three such sub-bids were received and that the prices are not reasonable for acceptance without further competition.

END OF INVITATION TO BID

SECTION 00 01 00

INSTRUCTIONS TO BIDDERS

A. FOREWORD: The attention of all Bidders is called to the provisions of Sections 44A to 44H, inclusive, of Chapter 149 of the General Laws, as amended.

B. GENERAL: The Awarding Authority invites proposals for the work described in the Contract Documents attached hereto. Before submitting his/her proposal each bidder shall visit the site, examine its conditions, thoroughly acquaint himself/herself with its obstacles and advantages for performing the work, and compare the Contract Documents with the conditions found. All proposals submitted shall be subject to all applicable provisions of law, including, without limiting the generality of the foregoing, Section 39 of Chapter 30 and Sections 44A to 44H, inclusive, of Chapter 149 of the General Laws, as amended.

C. QUESTIONS: All questions as to the interpretation of the Contract Documents shall be submitted in writing to the Architect and answers to such questions will be sent by the Architect, only in the form of an Addendum, to every individual or firm on record as having taken a set of Contract Documents. No questions will be answered unless received at least seven days, Saturdays, Sundays and legal holidays excluded prior to the expiration of the time set for filing of General Bids.

D. BID FORMS: The Architect and/or Awarding Authority will furnish to every person applying therefor a Form for General Bid. All line items included in the Form For General Bid shall be filled in. Where the required information does not apply, or no cost is associated, the bidder shall include the words 'Does Not Apply' or 'Zero' Dollars, respectively. General Bids submitted without all line items completed as described above shall be deemed non-responsive by the Awarding Authority and rejected for consideration in accordance with requirements of the Contract Documents.

E. CONTRACT DOCUMENTS: The Awarding Authority will, upon deposit of the amount per set as designated in the Invitation to Bid for the return of same in good condition, furnish one (I) complete set of Contract Documents to each Bidder requesting same. No partial sets of Contract Documents will be issued.

F. REJECTION OF CERTAIN GENERAL BIDS AND CERTAIN SUB-BIDS REQUIRED BY LAW: The law requires that every general bid, and every sub-bid, which is not accompanied by the prescribed bid deposit or which is not on a form furnished by the Architect or Awarding Authority or otherwise does not conform with Sections 44A to 44H, inclusive, of Chapter 149 of the General Laws, as amended, or which is on a form not completely filled in or which is incomplete, conditional, or obscure, or which contains any addition not called for, shall be rejected by the Awarding Authority.

G. FURTHER RIGHT TO REJECT GENERAL BIDS: The Awarding Authority further reserves the right to reject any or all general bids if it be in the public interest determines that such general bids does not represent the person competent to perform the work as specified and that the prices are not reasonable for acceptance without further competition.

H. GENERAL BIDS: General Bids must be submitted on the FORM FOR GENERAL BID, a sample of which is bound into the Contract Documents as Section 00 03 00 and may be removed and used for additional copies. The General Bid shall be completed, signed, enclosed in an envelope, sealed and plainly marked with the Project Name. The bid accompanied by a bid deposit in the amount of five percent (5%) of the bid price shall be filed with the Awarding Authority at the place designated in the Invitation to Bid. The bid shall be filed before the time designated in the Invitation to Bid for the opening of General Bids.

1. General Bids shall be for the complete work as specified and the General Contractor shall be selected in the basis of such General Bids.
2. If the bid is mailed, the General Bidders shall enclose their sealed bid in an outer envelope and address as follows:

FROM: General Bidder's Name and Business Address

TO: Office of the Town Administrator
Memorial Town Hall
54 Marion Road,
Wareham, MA 02571

3. The Statement of Qualification Forms to include Schedules A, B, C, D, and E must be completed, signed, and submitted with the Form for General Bid. A sample of the qualification forms are bound into the Contract Documents as Section 00 03 00 and may be removed and used for additional copies.

I. All bidders are cautioned to allow ample time for transmittal of bids. Bids received after the specified times will not be accepted or recognized. Note that the times of receipt will determine the acceptability of mailed bids regardless of postmark.

J. REQUIREMENTS FOR FOREIGN CORPORATIONS: The attention of all bidders is called to the provisions of General Laws Chapter 30, Section 39L, which provides that the Awarding Authority may not enter into a contract for construction work and may not approve as a sub-contractor furnishing labor and materials for a part of any such work a foreign corporation which has not complied with the requirements of Sections 3 and 5 of Chapter 181 of the General Laws. The term "foreign corporation" means a corporation not incorporated under the laws of the Commonwealth of Massachusetts.

K. SALES TAX: Purchases of building materials and supplies to be used on this project are entitled to exemption from the Sales and Use Tax if the conditions imposed by Paragraph 6 (f) of Section I of Chapter l4 of the Acts of 1966 are otherwise satisfied. Bidders are instructed to submit proposals on the basis that no Massachusetts Sales and Use Tax will be imposed on purchases of building materials and supplies used in connection with this Project.

L. CONSTRUCTION TIME: The Agreement will include a stipulation that all Work of the Project, as described in the Contract Documents, shall be completed as defined in the Invitation To Bid. If the Contractor fails to meet the construction deadline, the Contractor is responsible for all Owner and Architects costs associated with the deadline not being met. The Architect is to perform two on-site punch lists. If additional punch lists are needed, the Contractor is responsible for all Owners and Architect's costs associated with the additional punch list visits.

M. WITHDRAWAL OF BIDS: A bidder may withdraw his or her bid, either personally or by written request, at any time prior to the scheduled time for opening bids. No bidder may withdraw his or her bid for a period of thirty calendar days after the date set for the opening thereof, and bids shall be subject to acceptance by the Owner during this period.

N. EXECUTION OF AGREEMENT:

The form of Agreement which the successful bidder will be required to execute is included in the Project Manual.

The bidder to whom the Contract is awarded shall, within seven calendar days after notice of award and receipt of Agreement forms from the Owner, sign and deliver required copies to the Owner.

At or prior to delivery of the signed Agreement, the bidder to whom the Contract is awarded shall deliver to the Owner those Certificates of Insurance required by the Contract Documents and such Labor and Materials Payment Bonds and Performance Bond as are required by the Owner.

Bonds and Certificates of Insurance shall be approved by the Owner before the successful bidder may proceed with the Work. Failure or refusal to provide Bonds or Certificates of Insurance in a form satisfactory to the Owner shall subject the successful bidder to loss of time from the allowable construction period equal to the time of delay in furnishing the required material.

O. METHOD OF AWARD: The contract will be awarded to the lowest responsible and eligible general bidder on the basis of the proposed contract price if such exists, and if the Awarding Authority, in its sole discretion, decides to award on the basis of such alternate. Special attention is called to the provisions of the General Laws, Chapter 149, Sections 44A to 44H defining the term "lowest responsible and eligible bidder" and giving the Awarding Authority the right to require essential information regarding to qualifications.

P. TAX CERTIFICATION: The successful Bidder will be required to submit a tax certificate as required by chapter 62C, Section 49A of the Massachusetts General Laws, as follows:

CERTIFICATE UNDER M.G.L. c.62C, S49A

I certify under the pains and penalties of perjury that _____
has/have complied with all laws of the Commonwealth of Massachusetts relating to taxes.

_____	_____
Employer Identification Number	Name
_____	_____
Date	Title of Business Officer (if Applicable)

END OF SECTION

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SECTION 00 03 00

FORM FOR GENERAL BID

FROM:

_____

_____

_____

TO:

A. The undersigned proposes to furnish all labor and materials required for the new Wareham Elementary School, Wareham, Massachusetts, in accordance with the accompanying Plans and Specifications prepared by the Mount Vernon Group Architects, Inc., 200 Harvard Mill Square, Wakefield, Massachusetts 01880, (781) 213-5030, for the Contract Price specified below, subject to additions and deductions according to the terms of the Specifications,

B. This Bid includes addenda numbered ___,____,____,____,____,____,____,____,____,____,____,___,

C. The Proposed Contract Price, inclusive of all unit prices and quantities itemized below, is _____

_____DOLLARS ($_____)

D. UNIT PRICES

As authorized by the Owner, should the quantities of certain classes of work to be increased or decreased, as described below, the Unit Prices listed below shall be the basis of payment to the General Contractor, or credit to the Owner, for such increase or decrease in the Work. The Unit Prices shall represent the exact net amount, per unit, to be paid the General Contractor, in the case of additions, and the exact net amount to be refunded to the Owner, in the case of decreases. No additional adjustment shall be allowed for overhead, profit, insurance, or other direct or indirect expenses of the General Contractor. No additional adjustments shall be allowed for over excavation, or other related work, without prior written approval of the Owner.

1. Unit Price No. 1: Removal of Ledge and Boulders Open Cut Excavation: The proposed price to excavate, remove, and legally dispose of off-site, ledge and boulders two cubic yards and larger in open-cut excavation, unit price for 500 cubic yards at $ _____ per cubic yard, for a total of _____ ($_____)

2. Unit Price No. 2: Strip topsoil at new entrance and exit, location of utilities, and other improvements. It is expected that a backhoe with a flat-bladed bucket will be used by the construction contractor to strip topsoil.

PAL staff will direct machine assisted archeological investigations. This will include utilizing a backhoe with a flat-bladed bucket to systematically strip the area in 20 cm increments. The surface will be shovel-scraped in order to observe any visible cultural features. Any archeological features visible on the machine stripped surface identified by PAL or a monitor form a Tribal Historic Preservation Office (THPO) will be left intact and documented with the THPO. PAL will photograph these features and map their locations using a Trimble GeoTXT Global Positioning System (GPS) handheld receiver.

If any human remains or features determined to be unmarked graves in situ or within disturbed soils are identified during the course of machine excavation and monitoring, all work on-site will cease and the area protected. The local police, the Medical Examiner, the project proponent, and the State Archeologist will be notified immediately. The MHC will then consult

with the property owner, and the Massachusetts Commission on Indian Affairs, if appropriate, in compliance with the Massachusetts Unmarked Burial Law.

The proposed price to strip topsoil at archeological areas with unit price for 160 hours at $ _____ per hour, for a total of _____ _____ ($_____)

3. Unit Price No. 3: ASBESTOS ABATEMENT QUANTITY

As authorized by the Owner, should the quantities of certain classes of work to be increased or decreased, as described below, the Unit Prices listed below shall be the basis of payment to the General Contractor, or credit to the Owner, for such increase or decrease in the Work. The Unit Prices shall represent the exact net amount, per unit, to be paid to the General Contractor, in the case of additions. The Unit Prices with a 10% reduction shall represent the exact net amount, per unit, to be paid to Owner, in case of decreases. No additional adjustment shall be allowed for overhead, profit, insurance, or other direct or indirect expenses of the General Contractor. No additional adjustments shall be allowed for over excavation, or other related work, without prior written approval of the Owner. Owner reserves the right to negotiate total additive or deductive change value for any line items which deviate more than 25% from the stated quantities below.

ITEM	DESCRIPTION	CONTRACT QUANTITY	UNIT	PRICE PER UNIT ($)	CONTRACT PRICE ($)
1.	Transite Water and Sewer Pipe	500	LF	_____	_____

Both added and deducted prices shall include all equipment, labor, materials, removal, replacement, installation, overhead, profit, insurance, to complete the required Work, in accordance with requirements of the Contract Documents.

E. The undersigned agrees that the above-named General Contractor will be used for the Work indicated at the amount stated, unless a substitution is made.

The undersigned agrees that, if he is selected as General Contractor, he will within five (5) days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the Awarding Authority, execute a Contract in accordance with the terms of this General Bid and furnish a performance bond and also a labor and materials or payment bond each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Awarding Authority and each in the sum of fifty percent (50%) of the Contract Price, the premiums for which are to be paid by the General Contractor and are included in the Contract Price.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the Work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations applicable to awards made subject to section 44A.

The undersigned hereby certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any other rule or regulation promulgated thereunder.

The undersigned certifies that he shall comply with the provisions of the "Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program" as set forth in the contract, Article XII, included under Section 00900 Labor Standard of the Commonwealth

Should the notice to contractors, bid form, contract, plans or specifications require submission of special data to accompany the bid, the awarding authority reserved the right to rule the bidder's failure to submit such data an informality and to receive said bid subsequently, within reasonable time as set by the awarding authority.

TAXES: As required by MGL Chapter 62c, Section 49A, the undersigned certifies that he or she has complied with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

DATE _____ _____
(Print Name of General Bidder)

Federal Employees
Identification Number._____ _____
(Signature) (Title)

_____ _____
(Telephone No.) (Business Address)

_____
(City, State and Zip Code)

END OF SECTION

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Statement of Qualifications Form (SOQ)

Firm Name: _____

Mailing Address: _____

_____

Street Address (if different from mailing address): _____

_____

Telephone Number: _____ Fax Number: _____

Contact Person: _____ Title: _____

Email: _____

A. **<u>Qualifications Application</u>:** Respondent MUST complete the qualifications **Schedule A** attached below. Joint ventures must provide information about each of the joint venture partners.

B. **<u>Management Personnel and Project Organizational Chart</u>:** Respondent must provide the information requested below for each and every person who will have any direct or indirect management responsibility for the Project, including but not limited to project executives, project managers, field superintendents and field engineers. Respondents must attach a copy of the resume for each person listed. Respondents must also attach an Organizational Chart for the Project to this Schedule B. Attach additional sheets if necessary. Joint ventures must identify the company that employs each individual listed.

C. **<u>Similar Project Experience</u>:** Respondent is required to complete all three parts, Parts A, B and C of Schedule C. List below all similar projects the firm has completed during the last FIVE (5) years. For the purpose of this form "similar projects" shall mean projects where the respondent was the Prime Contractor (Part A) or Subcontractor (Part B) and shall mean projects where the construction cost for the project was for an amount of at least $1,500,000; the project was one of similar complexity; the project was of similar type or scope; and the project was the approximate size of this Project or larger. **Bids from contractors lacking at least 3 qualified "similar projects" in the last 5 years shall be considered non-responsive**. On Part C list the Contact information for the owner and designer for each and every project listed on Part A or Part B. Attach additional sheets if necessary. Joint ventures must complete a Schedule C for each individual joint venture partner.

D. **Terminations and Legal Proceedings*:*** Respondent MUST complete **Schedule D** attached below. **Part A** of Schedule D requires a complete listing of each and every project on which the respondent firm was **terminated or failed to complete** the work within the past five (5) years. Joint ventures must complete a Schedule D for each individual joint venture partner.

E. **Safety Record:** Respondent MUST attach at **Schedule E** documentation from its insurance carrier of its Workers' Comp. Experience Modifier for the past three years. Joint ventures must attach a Schedule E for each individual joint venture partner.

This form **MUST** be signed by an officer of the firm or an individual so authorized by an officer of the firm who has personal knowledge regarding the information contained herein and submitted with the SOQ.

To the Town of Wareham

The undersigned declares that he or she has carefully examined all the qualification documents for the Project, and certifies to the best of his/her knowledge, that this Statement of Qualifications fully complies with all of the requirements of the solicitation and all addenda and clarifications issued.

The undersigned further certifies that he or she (or, if he or she is the authorized representative of a company, the company) is the only person interested in this Statement of Qualifications and any subsequent proposal; that it is made without any connection with any other person making any submission for the same work; that no person acting for, or employed by, the Town of Wareham is directly or indirectly interested in this Statement of Qualifications or any subsequent proposal, or in any contract which may be made under it, or in expected profits to arise therefrom; that the undersigned Respondent has not influenced or attempted to influence any other person or corporation to file a Statement of Qualifications or subsequent proposal or to refrain from doing so or to influence the terms of the Statement of Qualifications or any subsequent proposal of any other person or corporation; and that this submission is made in good faith without collusion or connection with any other person applying for the same work.

The undersigned further certifies under pains and penalties of perjury that the undersigned is not debarred from doing public construction work in the Commonwealth of Massachusetts under the provisions of section twenty nine F of chapter twenty nine, or any other applicable debarment provision of any other chapter of the General Laws or any rule or regulation promulgated thereunder, and further is not debarred from doing public construction work under any law, rule or regulation of the federal government.

The undersigned states that he or she has carefully examined all of the information provided and representations made in this Statement of Qualifications and the documents submitted with the SOQ including all schedules, forms and materials**,** and certifies to the best of his/her knowledge, that this Statement of Qualifications in its entirety is complete, true and accurate.

SIGNED UNDER THE PAINS AND PENALTIES OF PERJURY:

Signature: _____
(Signature of Authorized Representative)

Name: _____

Title: _____

Firm Name: _____

Date: _____

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SCHEDULE A

QUALIFICATIONS APPLICATION

Firm Name: _____

1. BUSINESS INFORMATION

Type of business entity (corporation, partnership, joint venture, etc.): _____

Number of years in business under current business name: _____

List all other business names firm has operated under and the time frames for each:

_____

_____

If firm is a corporation provide the following information:

State of incorporation: _____ Date of Incorporation: _____

Name of President: _____

Name of Vice President: _____

Name of Secretary or Clerk: _____

Name of Treasurer: _____
If firm is a foreign corporation, is it registered to do business in Massachusetts? _____

If firm is a foreign corporation and is selected, it is required under M.G.L. c. 30, §. 39L to obtain from the Massachusetts Secretary of State, One Ashburton Place, 17th floor, Boston, MA a certificate stating that the corporation is registered to do business in Massachusetts, and to furnish said certificate to the awarding authority prior to the award.

If firm is a partnership or joint venture provide the following information:

Type of partnership/joint venture: _____ Date of organization: _____
Name of each partner or venturer:

_____

_____

Is partnership or joint venture registered in Massachusetts? _____

If firm is a foreign limited partnership and is selected, it will be required under M.G.L. c. 30, §. 39L to obtain from the Massachusetts Secretary of State, One Ashburton Place, 17th floor, Boston, MA a certificate stating that the partnership is registered to do business in Massachusetts, and to furnish said certificate to the awarding authority prior to the award.

For each general partner or venturer that is a corporation, provide the following information (use additional sheets if necessary):

Name of corporation: _____
State of incorporation: _____
President: _____
Secretary or Clerk: _____
Treasurer: _____

Name of corporation: _____
State of incorporation: _____
President: _____
Secretary or Clerk: _____
Treasurer: _____

If firm is individually owned provide the following information:

Name of Owner: _____

Date of organization: _____

Owner's Residence Address: _____

Names under which firm does business _____

Business Address: _____

If selected firm is an individual doing business under a different name then they must furnish evidence of any required DBA filings.

---

2. LICENSURE AND PERFORMANCE INFORMATION

List all jurisdictions and trade categories in which the firm is legally licensed or otherwise qualified to do business and for each jurisdiction provide registration and license numbers where applicable:

_____

_____

If the firm customarily provides scopes of work with its own forces please identify the types/areas of work below:

_____

_____

3. REFERENCES

Provide three trade references below include name of reference, current contact person, telephone number, email address and mailing address:

1. _____

2. _____

3. _____

Provide two bank references below, include name of reference, current contact person, telephone number and mailing address:

1. _____

2. _____

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SCHEDULE B

MANAGEMENT PERSONNEL

Firm Name:_____

Respondent must provide the information requested below for each and every person who will have **any direct or indirect management responsibility for the Project**, including but not limited to project executives, project managers, field superintendents and field engineers**.** Respondents must **attach a copy of the resume for each person listed**. Respondents **must also attach an Organizational Chart** for the Project to this Schedule B. Attach additional sheets if necessary.

NAME	TITLE	ROLE/JOB RESPONSIBILITIES ON THIS PROJECT	# OF YEARS W/FIRM	EDUCATION & EXPERIENCE	COMPLETED PROJECTS (if resume lists all completed projects this section can reference resume)

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SCHEDULE C

SIMILAR PROJECT INFORMATION

Firm Name:_____

Respondent is required to complete all three parts, Parts A, B and C of Schedule C. List below all similar projects the firm has completed during the last FIVE (5) years. For the purpose of this FORM "similar projects" shall mean projects where the respondent was the Prime Contractor (Part A) or Subcontractor (Part B) and shall mean projects where the construction cost for the project was for an amount of at least $1,500,000; the project was one of similar complexity; the project was of similar type or scope; and the project was the approximate size of this Project or larger. **Bids from contractors lacking at least 3 qualified "similar projects" in the last 5 years shall be considered non-responsive.** On Part C list the Contact information for the owner and designer for each and every project listed on Part A or Part B. Attach additional sheets if necessary.

Part A. PRIME CONTRACT PROJECTS – List only projects on which the firm was the Prime Contractor in this section.

PROJECT NAME & LOCATION	PROJECT OWNER	PROJECT DESCRIPTION	DESCRIPTION OF SERVICES PROVIDED BY FIRM	ORIGINAL AND FINAL CONTRACT AMOUNT WITH EXPLANATION	PROJECT START AND COMPLETION DATE

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Schedule C - SIMILAR PROJECT INFORMATION (continued)

Firm Name:_____

Part B. SUBCONTRACT PROJECTS – List only projects on which the firm was a subcontractor in this Section. Attach additional sheets if necessary.

PROJECT NAME & LOCATION	PRIME CONTRACTOR	PROJECT DESCRIPTION	DESCRIPTION OF SERVICES PROVIDED BY FIRM	ORIGINAL AND FINAL CONTRACT AMOUNT WITH EXPLANATION	PROJECT START AND COMPLETION DATE

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Schedule C – SIMILAR PROJECT INFORMATION (continued)

Firm Name:_____

Part C. PROJECT CONTACTS – Respondent must list below contact information for the owner and designer on each of the projects listed on Schedule D Part A and Part B above. Be certain to confirm the contact information is current. Attach additional sheets of necessary.

Project Name & Location	Company Name	Contact Person/Address	Tel #	Email Address
	Owner			
	Designer			
	Owner			
	Designer			
	Owner			
	Designer			
	Owner			
	Designer			
	Owner			
	Designer			
	Owner			
	Designer			
	Owner			
	Designer			

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Schedule D - Terminations and Legal Proceedings

Firm Name:_____

Part A. Terminations, Incomplete Projects, Liquidated Damages Paid - List each and every project on which the firm was **terminated, failed to complete the work,** or **paid liquidated damages** within the past five (5) years. Failure to provide a complete and accurate list may result in a firm being deemed unqualified and further action may be taken against the firm. Attach Additional Sheets If Necessary.

PROJECT NAME & LOCATION	PROJECT OWNER	SCOPE OF WORK PERFORMED	PROJECT START & END DATES	ESTIMATED CONTRACT AMOUNT	% COMPLETE	REASON FOR FAILURE TO COMPLETE, TERMINATION, OR PAYMENT OF LIQUIDATED DAMAGES

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SCHEDULE E

SAFETY RECORD

Respondents must list their workers compensation experience modifiers for the past three years in the space provided on the Statement of Qualifications form and **must also attach here documentation from their insurance carrier** of their Worker's Compensation Experience Modifier for the past three years.

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AIA® Document A101™ – 2007

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the « » day of « » in the year « »
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

TOWN OF WAREHAM
54 MARION ROAD
WAREHAM, MA 02571

and the Contractor:
(Name, legal status, address and other information)

« »
« »
« »
« »

for the following Project:
(Name, location and detailed description)

WAREHAM ELEMENTARY SCHOOL PROJECT
MINOT FOREST SITE PREPARATION PACKAGE
63 MINOT AVENUE
WAREHAM, MA 02571

The Architect:
(Name, legal status, address and other information)

MOUNT VERNON GROUP ARCHITECTS, INC.
200 HARVARD MILL SQUARE, SUITE 410
WAKEFIELD, MA 01880

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

AIA Document A201™–2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

TABLE OF ARTICLES

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement.

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work as follows:

Portion of Work	Substantial Completion Date
SITE PREPARATION	NOVEMBER 29, 2019

, subject to adjustments of this Contract Time as provided in the Contract Documents.

Liquidated damages relating to failure to achieve Substantial Completion on time shall be assessed per Article 8.4 of the General Conditions of the Contract.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be « » ($ « »), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

SEE ATTACHED BID FORM

§ 4.3 Unit prices, if any:
(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

SEE ATTACHED BID FORM

§ 4.4 Allowances included in the Contract Sum, if any:
(Identify allowance and state exclusions, if any, from the allowance price.)

SEE ATTACHED BID FORM

ARTICLE 5 PAYMENTS

§ 5.1 PROGRESS PAYMENTS

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

§ 5.1.3 Provided that an Application for Payment and all required pre-requisite documentation is received by the Architect not later than the 5th day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the 20th day of the same month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than 30 (thirty) days after the Architect receives the Application for Payment and all required pre-requisite documentation.

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

.1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of five percent (5%).

.2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of five percent (5%);

.3 Subtract the aggregate of previous payments made by the Owner; and

.4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201–2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

.1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and

.2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10 of AIA Document A201–2007.

§ 5.1.8 Reduction or limitation of retainage, if any, shall be in accordance with the Contract Documents and MGL c. 30, §39K.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 FINAL PAYMENT

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2007, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment.

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 INITIAL DECISION MAKER

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201–2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

§ 6.2 BINDING DISPUTE RESOLUTION

For any Claim not resolved by Article 15 of AIA Document A201–2007, the method of binding dispute resolution shall be as follows:

[ ] Arbitration pursuant to Section 15.4 of AIA Document A201–2007

[X] Litigation in a court of competent jurisdiction

[ ] Other *(Specify)*

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2007.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2007.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due, at the legal rate prevailing from time to time at the place where the Project is located.

§ 8.3 The Owner's representative:

PMA CONSULTANTS LLC
35 BRAINTREE HILL PARK, SUITE 300
BRAINTREE, MA 02184

§ 8.4 The Contractor's representative:

(Name, address and other information)

« »
« »
« »
« »
« »
« »

§ 8.5 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101–2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201–2007, General Conditions of the Contract for Construction.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

§ 9.1.4 The Specifications:

(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

« »

Section	Title	Date	Pages

§ 9.1.5 The Drawings:

(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

« »

Number	Title	Date

§ 9.1.6 The Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

.1 Other documents, if any, listed below:
Invitation to Bid
Instructions to Bidders
Form for General Bid
Bid Security Form
Performance Bond
Payment Bond

Supplementary General Conditions
Commonwealth of Massachusetts Prevailing Wage Rates
Certificate of Non-Collusion
Conflict of Interest Certification
Certificate of Vote
Certificate of Compliance with M.G.L. c.151b
Certificate of Non-Debarment
State Taxes Certification
Certificate of Compliance with Applicable EEO/AA/SDO Provisions

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201–2007.

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	CONTRACTOR *(Signature)*
(Printed name and title)	*(Printed name and title)*

AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)
A-201-2007 Template

THE OWNER:
(Name, legal status and address)

THE ARCHITECT:
(Name, legal status and address)

TABLE OF ARTICLES

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

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INDEX
(Topics and numbers in bold are section headings.)

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 INTERPRETATION

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the

portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 TAXES

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall

continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- **.1** Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- **.2** Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- **.3** Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required

submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop

Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

§ 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a

party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed.

However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- **.1** assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- **.2** assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

§ 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;
.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
.4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;

.2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and

.5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon

compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- **.1** defective Work not remedied;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- **.3** failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- **.4** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- **.5** damage to the Owner or a separate contractor;
- **.6** reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- **.7** repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the

Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract

Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- **.1** liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- **.2** failure of the Work to comply with the requirements of the Contract Documents; or
- **.3** terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- **.1** employees on the Work and other persons who may be affected thereby;
- **.2** the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- **.3** other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in

whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 HAZARDOUS MATERIALS

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 EMERGENCIES

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- **.1** Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- **.2** Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- **.3** Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- **.4** Claims for damages insured by usual personal injury liability coverage;
- **.5** Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- **.6** Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- **.7** Claims for bodily injury or property damage arising out of completed operations; and
- **.8** Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional

insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 BOILER AND MACHINERY INSURANCE

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 WAIVERS OF SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be

sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- **.1** Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- **.2** An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- **.3** Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- **.4** The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 ARBITRATION

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

Additions and Deletions Report for
AIA® Document A201™ – 2007

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

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PAGE 1

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Certification of Document's Authenticity

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I, , hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 12:34:48 on 09/12/2018 under Order No. 1693828218 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A201™ – 2007, General Conditions of the Contract for Construction , as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

_____

(Signed)

_____

(Title)

_____

(Dated)

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

BOND AMOUNT: $

PROJECT:
(Name, location or address, and Project number, if any)

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this day of ,

(Witness)	*(Contractor as Principal)* *(Seal)*
	(Title)
(Witness)	*(Surety)* *(Seal)*
	(Title)

Init.

/

Additions and Deletions Report for

AIA® Document A310™ – 2010

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 12:50:28 on 09/12/2018.

There are no differences.

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, , hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 12:50:28 on 09/12/2018 under Order No. 1693828218 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A310™ – 2010, Bid Bond , as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

_____

(Signed)

_____

(Title)

_____

(Dated)

AIA® Document A312™ – 2010

Performance Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:
Amount: $
Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount: $
Modifications to this Bond: ☐ None ☐ See Section 16

CONTRACTOR AS PRINCIPAL	**SURETY**
Company: *(Corporate Seal)*	Company: *(Corporate Seal)*
Signature: _____	Signature: _____
Name and Title:	Name and Title:

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:
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This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

.1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the

Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and

.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:	_____	Signature:	_____
Name and Title:		Name and Title:	
Address:		Address:	

Additions and Deletions Report for
AIA® Document A312™ – 2010

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There are no differences.

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, , hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 12:51:31 on 09/12/2018 under Order No. 1693828218 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A312™ – 2010, Performance Bond , as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

_____

(Signed)

_____

(Title)

_____

(Dated)

AIA® Document A312™ – 2010

Payment Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:
Amount: $
Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount: $
Modifications to this Bond: ☐ None ☐ See Section 18

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:
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This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

.2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- **.1** the name of the Claimant;
- **.2** the name of the person for whom the labor was done, or materials or equipment furnished;
- **.3** a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- **.4** a brief description of the labor, materials or equipment furnished;
- **.5** the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- **.6** the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- **.7** the total amount of previous payments received by the Claimant; and
- **.8** the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:	_____	Signature:	_____
Name and Title:		Name and Title:	
Address:		Address:	

Additions and Deletions Report for
AIA® Document A312™ – 2010

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Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, , hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 12:51:40 on 09/12/2018 under Order No. 1693828218 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A312™ – 2010, Payment Bond , as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

_____

(Signed)

_____

(Title)

_____

(Dated)

SECTION 00 03 32

TOWN OF WAREHAM

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club or other organization, entity, or group of individuals.

FIRM

FIRM	
ADDRESS	

AUTHORIZED INDIVIDUAL

SIGNATURE			
NAME		TITLE	
TELEPHONE		FAX	
EMAIL			
DATE			

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SECTION 00 03 33

CONFLICT OF INTEREST CERTIFICATION

The Responder hereby certifies that:

1. The Responder has not given, offered, or agreed to give any gift, contribution, or offer of employment as an inducement for, or in connection with, the award of a Contract pursuant to this Request for Qualifications.

2. No consultant to, or subcontractor for, the Responder has given, offered, or agreed to give any gift, contribution, or offer of employment to the Responder, or to any other person, corporation, or entity as an inducement for, or in connection with, the award to the consultant or subcontractor of a Contract by the Responder.

3. No person, corporation, or other entity, other than a bona fide full time employee of the Responder has been retained or hired to solicit for or in any way assist the Responder in obtaining the Contract (pursuant to this Request for Qualifications) upon an agreement or understanding that such person, corporation or entity be paid a fee or other compensation contingent upon the award of a Contract to the Responder.

4. The Responder understands that the Massachusetts Conflict of Interest Law, Chapter 268A of the Massachusetts General Laws, applies to the Responder with respect to the services described in the Request for Qualifications.

5. The Responder understands that the Responder, his/her/its officers, employees, agents, subcontractors, and affiliated entities, shall not participate in any activity which constitutes a violation of the Massachusetts Conflict of Interest Law or which creates an appearance of a violation of the Massachusetts Conflict of Interest Law.

_____

Name of Responder

_____

Address of Responder

_____

_____

Telephone Number

By: _____

(Signature)

_____

Printed Name

_____

Printed Title

_____

Date

SECTION 00 03 34

CERTIFICATE OF VOTE

(to be filed if Contractor is a Corporation)

At a duly authorized meeting, the Board of Directors of the _____
(Company Name)

held on _____, it was VOTED THAT
(Date of Meeting)

_____, _____
(Name of Appointee) *(Title)*

of _____be and herby is authorized to execute contracts and
(Company Name)

bonds in the name and on behalf of said _____,and affix its
(Company Name)

corporate seal hereto; and such execution of any contract or obligation in the name of

_____on its behalf by such officer under seal of
(Company Name)

_____, shall be valid and binding upon _____
(Company Name) *(Company Name)*

I hereby certify that I am the Clerk of the above named _____
(Company Name)

that _____ is the duly elected officer as above of said
(Name of Appointee)

_____, and that the above vote has not been amended or
(Company Name)

rescinded and remains in full force and effect as of the date of this contract.

_____ _____
(Date) *(Clerk of Company)*

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SECTION 00 03 35

CERTIFICATE OF COMPLIANCE WITH M.G.L. c.151B

The Responder hereby certifies that it is in compliance with and shall remain in compliance with Massachusetts General Laws (M.G.L.) Chapter 151B and shall not discriminate on any prohibited basis outlined therein.

_____

Name of Responder

_____

Address of Responder

_____

Telephone Number

By: _____

(Signature)

_____

Printed Name

_____

Printed Title

_____

Date

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SECTION 00 03 36

CERTIFICATE OF NON-DEBARMENT

The Responder hereby certifies that it is presently not debarred, suspended, or otherwise prohibited from practice by any federal, state, or local agency, and that, should any proceeding arise in which it is debarred, suspended, or otherwise prohibited from practice by any federal, state, or local agency, the Responder shall inform the District within one (1) business day of such debarment, suspension, or prohibition from practice.

_____

Name of Responder

_____

Address of Responder

_____

_____

Telephone Number

By: _____

(Signature)

_____

Printed Name

_____

Printed Title

_____

Date

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SECTION 00 03 37

TOWN OF WAREHAM

STATE TAXES CERTIFICATION

I certify under the penalties of perjury that, I, to my best knowledge and belief, have filed all state tax returns and paid all state taxes under law.

_____ By:_____

*Signature of individual or Corporate Name (Mandatory)

Corporate Officer (Mandatory, if applicable)

_____

**Social Security Number (Voluntary)

Or Federal Identification Number

* Approval of a contract or other agreement will not be granted unless this certification clause is signed by the applicant.

** Your Social Security Number will be furnished to the Massachusetts Department of Revenue to determine whether you have met tax filing or tax payment obligations. Providers who fail to correct their non-filing or delinquency will not have a contract or other agreement issued, renewed, or extended. This request is made under the authority of Mass. G.L..62C s. 49.A.

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SECTION 00 03 38

CERTIFICATE OF COMPLIANCE WITH APPLICABLE EEO/AA/SDO PROVISIONS

The Responder hereby certifies that it shall comply with all applicable minority workforce percentage ratio and specific affirmative action steps contained in any EEO/AA/SDO provisions of this Contract, including, without limitation any imposed by the Massachusetts Supplier Diversity Office (SDO).

_____

Name of Responder

_____

Address of Responder

_____

_____

Telephone Number

By: _____

(Signature)

_____

Printed Name

_____

Printed Title

_____

Date

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SECTION 00 08 00

SUPPLEMENTARY GENERAL CONDITIONS

I. THE GENERAL CONDITIONS

The "General Conditions of the Contract for Construction", AIA Document A201 - 2007, Articles 1 through 15 inclusive, is hereby made a part of the requirements of this Contract.

II. THE SUPPLEMENTARY GENERAL CONDITIONS

The following supplements modify, delete and/or add to the General Conditions. Where any Article, Paragraph or Subparagraph in the General Conditions is supplemented by one of the following paragraphs, the provisions of such Article, Paragraph, or Subparagraph shall remain in effect and the supplemental provisions shall be considered as added thereto. Where any Article, Paragraph, or Subparagraph in the General Conditions is amended, voided or superseded by any of the following paragraphs, the provisions of such Article, Paragraph or Subparagraph not so amended, voided, or superseded shall remain in effect.

III. MODIFICATIONS TO VARIOUS ARTICLES OF THE AIA GENERAL CONDITIONS

ARTICLE 1: GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 Add the following Subparagraphs 1.1.1.1 and 1.1.1.2:

"§ 1.1.1.1 In the event of any conflict among the Contract Documents, the Documents shall be construed according to the following priorities:

Highest Priority:	Modifications, with later date having greater priority.
Second Priority:	Agreement.
Third Priority:	Addenda with later date having greater priority.
Fourth Priority:	Supplementary General Conditions.
Fifth Priority:	General Conditions.
Sixth Priority:	Drawings and Specifications.
Seventh Priority:	Bidding Requirements

Notwithstanding the order of priority of documents set forth in Article 1.1.1, any matters contained in the Specifications which have been omitted from the Drawings or vice versa shall be construed as though contained in both. In the event of any duplication, conflict, or discrepancy between the Drawings and the Specifications or between other contract clauses, so far as the same pertains to the Drawings, the Specifications or any modifications to the Drawings or the Specifications, the matter shall be promptly brought to the attention of the Architect, without whose instructions the Contractor shall not adjust the matter except at his own risk. Any instructions of the Architect shall be given in writing."

§ 1.1.1.2 Statutory Provisions: Construction of this Project is subject to statutes governing public construction contracts in the Commonwealth of Massachusetts (referred to in such paragraphs or subparagraphs as the "Commonwealth"). When a reference to M.G.L. ("Statutory Reference") introduces a change, the amended text is intended to be consistent with the statute cited and any deviations or inconsistencies are unintentional. In case of conflict between such statutory provisions and other provisions of the Contract Documents, the statutory provisions shall govern."

1.1.2 Delete the third sentence of Subparagraph 1.1.2 and replace with "Except as provided in Paragraph 3.18, nothing contained in the Contract Documents shall be construed to create a contractual relationship of any kind (1) between the Contractor, Owner's Project Manager, Architect, or the Architect's Consultants, (2) between the Owner, the Owner's Project Manager, the Architect, and a Subcontractor or Sub-subcontractor, (3) between the Owner, the Owner's Project Manager, and the Architect or the Architect's Consultants, or (4) between any persons or entities other than the Owner and the Contractor."

1.1.2 Delete the fourth sentence of Subparagraph 1.1.2 without replacement.

1.1.8 Delete the sentence of Subparagraph 1.1.8 and replace with **"**The Architect will serve as the Initial Decision Maker referenced in these General Conditions."

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

1.2.1 After the last sentence of Subparagraph 1.2.1, add "All Work mentioned or indicated in the Contract Documents shall be performed by the Contractor as part of this Contract unless it is specifically indicated in the Contract Documents that such Work is to be done by others. Should the Drawings or the Specifications disagree in themselves or with each other, the Contractor shall provide the better quality or greater quantity of Work in accordance with the Architect's written interpretation unless otherwise directed by written addendum to the Contract or as directed by the Architect."

1.2.2 In the first sentence and after "any trade" of Subpararaph 1.2.2, add ", except the Contractor shall not divide the work of any filed sub-bid trade, bids for which have been received separately by the Awarding Authority in accordance with Chapter 149 of the Laws of the Commonwealth of Massachusetts. The Contractor and all Subcontractors shall refer to all of the Drawings, and to all of the Sections of the Specifications, and shall perform all Work reasonably inferable therefrom as being necessary to produce the indicated results."

1.2.4 - 1.2.11 Add the following Subparagraphs 1.2.4 through 1.2.11:

"§ 1.2.4 All indications or notations which apply to one of a number of similar situations, materials or processes shall be deemed to apply to all such situations, materials or processes wherever they appear in the Work, except where a contrary result is clearly indicated by the Contract Documents.

§ 1.2.5 Where codes, standards, requirements and publications of public and private bodies are referred to in the Specifications, references shall be understood to be to the latest revision prior to the date of receiving bids, except where otherwise indicated.

§ 1.2.6 Where no explicit quality or standards for materials or workmanship are established for Work, such Work is to be of good quality for the intended use and consistent with the quality of the surrounding Work and of the construction of the Project generally.

§ 1.2.7 All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned in accordance with the manufacturer's written or printed directions and instructions unless otherwise indicated in the Contract Documents.

§ 1.2.8 The Drawings are diagrammatic only, and are not intended to show precisely the alignment, physical locations or configurations of such Work. Such Work shall be installed without additional cost to the Owner to clear all obstructions, permit proper clearances for the Work of other trades, and present an orderly appearance where exposed. Prior to beginning such Work, the Contractor shall prepare coordination drawings showing the exact alignment, physical location and configuration of the installations and demonstrating to the Contractor's satisfaction that the installations will comply with the preceding sentence. The Contractor shall be solely liable and responsible for any costs and/or delays resulting from the Contractor's failure to timely submit such coordination drawings for Architect's review.

§ 1.2.9 Exact locations of fixtures and outlets shall be obtained from the Architect as provided in subparagraph 3.2.5 before the Work is roughed in; Work installed without such information from the Architect shall be relocated at the Contractor's expense.

§ 1.2.10 Test boring or soil test information included with the Contract Documents or otherwise made available to the Contractor was obtained by the Owner for use by the Architect in the design of the Project or Work. The Owner does not hold out such information to the Contractor as an accurate or approximate indication of subsurface conditions, and no claim for extra cost or extension of time resulting from a reliance by the Contractor on such information shall be allowed except as provided in subparagraph 4.3.6.

§ 1.2.11 Where the Work is to fit with existing conditions or work to be performed by others, the Contractor shall fully and completely join the Work with such conditions or work, unless otherwise specified. Owner provided drawings showing existing conditions or construction are based on available documents and are not guaranteed to show actual existing conditions. The Contractor will make necessary adjustments and changes required by actual conditions now existing at no additional cost to the Owner."

1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

1.5.1 Delete Subparagraph 1.5.1 and replace with the following:

"§ 1.5.1 All Drawings, Specifications and copies thereof furnished by the Owner are and shall remain the Owner's property. They are to be used only with respect to this Project and are not to be used on any other project without the prior written consent of the Owner. With the exception of one contract set for each party to the Contract, such documents are to be returned or suitably accounted for to the Owner at the completion of the Work. Submission or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of any reserved rights."

1.6 TRANSMISSION OF DATA IN DIGITAL FORM

1.6 In the first sentence and after "necessary protocols" of Paragraph 1.6, add "and payments".

1.6.1 Add the following Subparagraph 1.6.1:

"§ 1.6.1 The Architect's Drawings shall not alter nor diminish the Contractor's and Subcontractor's responsibilities under other provisions of these Contract Documents, including, but not limited to, Paragraph 3.2 of the General Conditions."

ARTICLE 2: OWNER

2.1 GENERAL

2.1.1 Delete the last sentence of Subparagraph 2.1.1 and replace with "Where the term 'Awarding Authority' appears in any statutory provision, it shall mean the Owner. The Owner and its authorized representatives, as well as Architect and Owner's Project Manager, if any, shall at all times have access to and be permitted to observe and review all Work, materials, payrolls, records of personnel, conditions of employment, invoices for materials, and generally all records relating to the Work. No member, officer, agent, employee, representative or official of the Owner shall in any way, directly or indirectly, be personally liable, under any provisions of the Contract."

2.1.2 Delete Subparagraph 2.1.2 and replace with the following:

"§2.1.2 No officer, official, agent or employee of Owner shall have the power to amend, modify or alter the Contract or waive any of its provisions or to bind the Owner by making any promise or representation not contained herein except by an amendment, in writing, executed by the Owner in the same manner as the Contract is executed. Neither party may rely on any conduct, statement, action, inaction or course of conduct of the employees, agents or officers of the other party as having changed, modified or amended the Contract. Neither party shall be construed as waiving any provision of the Contract unless the waiver is executed in writing as an amendment to the Contract. No waiver by either party of any default of breach shall constitute a waiver of any subsequent default or breach. Forbearance or indulgence in any form or manner by either party shall not be construed as waiver of any term or condition hereto nor shall it limit the legal or equitable remedies available to that party."

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.1 Delete Subparagraph 2.2.1 without replacement.

2.2.2 Delete Subparagraph 2.2.2 without replacement.

2.2.3 Delete Subparagraph 2.2.3 and replace with the following:

"§ 2.2.1 The Owner shall not be responsible for furnishing surveys (unless required for the execution of the work and requested by the Contractor in writing) or other information as to the physical characteristics of, legal limitations of or utility locations for the project site, but shall furnish or caused to be furnished to the Contractor a legal description of the Project site, which shall not constitute one of the Contract Documents. Contractor shall confirm the location of each utility, shall excavate and dispose of each on-site utility and shall cap each off-site utility as required by the Work and as may be included in the Specifications. Owner has made available to Contractor, and the Contractor has studied the results of such test borings and information that it has as to subsurface conditions and site geology. Owner does not assume any responsibility whatsoever with respect to the sufficiency or accuracy of borings made, or of the logs of test borings, or of other investigations, or of the interpretations made thereof, and there is no warranty or guaranty, express or implied, that the conditions indicated by such investigation, borings, logs, or information are representative of those existing throughout the Project site, or any part thereof, or that unforeseen developments may not occur. At Owners request, the Contractor shall make available to the Owner the result of any site investigation, test borings, analyses, studies or other tests conducted by or in possession of the Contractor or any of its agents. The Contractor represents that it is familiar with the Project site and has received all information it needs concerning the conditions of the Project site. The Contractor represents that it inspected location of the Work and has satisfied itself as to the condition thereof, including, without limitation, all structural, surface and subsurface conditions. The Contractor shall undertake such further investigations and studies as may be necessary or useful to determine surface and subsurface conditions. Based upon the foregoing inspections, understandings, agreements and acknowledgments, the Contractor agrees and acknowledges (I) that the Contract Sum is just and reasonable compensation for all the Work, including all unforeseen, foreseen and foreseeable risks, hazards and difficulties in connection therewith, (2) that the Contract Time is adequate for the performance of the Work and (3) that the Work shall not result in any lateral or vertical movement of any structure. The Contractor shall have no claims for surface or subsurface conditions encountered. The Contractor shall exercise special care in executing subsurface work in proximity of known subsurface utilities, improvements and easements. The Owner makes no warranty as to the accuracy or completeness of such information, and the Contractor shall exercise proper precautions relating to the safe performance of the Work."

2.2.4 Delete Subparagraph 2.2.4 and replace with the following:

"§ 2.2.2 Information or services required of the Owner hereunder shall be furnished by the Owner with reasonable promptness after receipt from the Contractor of a written request for such information or services."

2.2.5 Delete Subparagraph number "2.2.5" and replace with "2.2.3"

2.3 **OWNER'S RIGHT TO STO**P THE WORK

2.3 Add the following Subparagraph 2.3.1:

"§ 2.3.1 The Owner shall also have the authority, without any notice to the Contractor, to clean up or correct any situation which presents a hazardous or unsafe condition, or which materially affects the Owner's use of the facility. Reasonable costs incurred by the Owner for such clean-up or correction shall be charged to the Contractor and paid to the Owner by the Contractor."

2.4 **OWNER'S RIGHT TO CAR**RY OUT THE WORK

2.4 Delete Subparagraph 2.4 and replace with the following:

"§ 2.4 **OWNER'S RIGHT TO CARRY OUT THE WORK**
If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven (7)-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Construction Change Directive shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's and Owner's Project Manager's additional services made necessary by such default, neglect or failure. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. The rights of the Owner hereunder are in addition to any other rights set forth in the Contract Documents or available at law or in equity."

2.4.1 Add the following Subparagraph 2.4.1:

"§ 2.4.1 The Contractor's warranty required by Section 3.5 of the General Conditions shall remain in full effect for work corrected by Owner in accordance with this section."

ARTICLE 3: CONTRACTOR

3.1 GENERAL

3.1.1 In the second sentence and after "licensed" of Subparagraph 3.1.1, delete ", if required in the jurisdiction where the Project is located." without replacement.

3.1.2 After the last sentence of Subparagraph 3.1.2, add "The Contractor warrants that its financial condition is sound and that the Contractor shall be capable of obtaining any bonds required by the Contract Documents. The Contractor shall promptly advise the Owner of any occurrence, event, fact, or other matter that has had or will have a materially adverse effect upon the financial condition of the Contractor."

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.1 After the last sentence of Subparagraph 3.2.1, add ", and evaluated and satisfied itself as to the conditions and limitations under which the Work is to be performed, including, without limitation (1) the location, condition, layout and physical conditions of the Project site and surrounding areas, (2) generally prevailing climatic conditions, (3) anticipated labor supply and costs, (4) availability and cost of materials, tools and equipment, and (5) other similar issues. The Owner shall not be required to make any adjustment in the Contract Time or Cost in connection with any failure by the Contractor or any Subcontractor to comply with the requirements of this Paragraph 3.2.1. Before starting the Work, and at frequent intervals during the progress thereof, the Contractor shall carefully study and compare the Contract Documents with each other and with the information furnished by the Owner pursuant to Article 2 and shall at once report to the Architect any error, inconsistency or omission the Contractor may discover. Any necessary change shall be ordered as provided in Article 7, subject to the requirements of Paragraph 1.2 and other provisions of the Contract Documents. If the Contractor proceeds with the Work without such notice to the Architect, having discovered such errors, inconsistencies or omissions, or if by reasonable study of the Contract Documents the Contractor could have discovered such, the Contractor shall bear all costs arising therefrom. The Contractor shall not be entitled to any change in the Contract Time or Contract Sum on account of its failure, or that of any Subcontractor, to comply with the foregoing requirements."

3.2.2 Delete Subparagraph 3.2.2 and replace with the following:

"§ 3.2.2 Before starting the Work, and at frequent intervals during the progress thereof, the Contractor shall carefully study and compare the Contract Documents with each other and with the information furnished by the Owner pursuant to subparagraph 2.2.3 and shall at once report to the Architect and the Owner's Project Manager in writing any error, inconsistency or omission the Contractor may discover. Any necessary change shall be ordered as provided in Article 7, subject to the requirements of subparagraph 1.2, as amended, and other provisions of the Contract Documents. If the Contractor proceeds with the Work without such notice to the Architect, having discovered such errors, inconsistencies or omissions, or if by reasonable study of the Contract Documents the Contractor could have discovered such, the Contractor shall bear all costs arising therefrom."

3.2.3 In the first sentence and after "Contractor is" of Subparagraph 3.2.3, delete "not" without replacement.

After the last sentence of Subparagraph 3.2.3, add "Nothing in this subparagraph 3.2.3 relieves the Contractor of the legal compliance requirements of Subparagraph 3.7.2."

3.2.4 Delete the last sentence of Subparagraph 3.2.4 and replace with "The Contractor shall be liable for damage to the extent the Contractor reasonably should have, but failed to, discover such error, inconsistency or omission. If the Contractor performs any construction activity knowing it involves a recognized error, inconsistency or omission in the Contract Documents without such notice to the Architect, the Contract shall assume appropriate responsibility for such performance and shall bear an appropriate amount of the attributable costs for such correction."

3.2.5 Add the following Subparagraph 3.2.5:

"§ 3.2.5 Any claim by the Contractor or Subcontractor that, in submitting their respective bid proposals, they did not include all items as shown in the Contract Documents, will be given no consideration for an adjustment of any kind. If any item is specified in a Section which would not normally furnish this item it shall be the responsibility of the Contractor to coordinate the situation with the Subcontractor, and if the item under consideration is not to be provided by the Subcontractor it shall be the responsibility of the Contractor to provide the work in questions, without any additional cost to the Owner. The Contractor shall not proceed with any Work not clearly and consistently defined in detail in the Contract Documents but shall request additional information from the Architect. If the Contractor proceeds with such Work without obtaining further information, the Contractor shall correct Work incorrectly done at the Contractor's own expense."

3.2.6-3.2.6.3 Add the following Subparagraphs 3.2.6 through 3.2.6.3:

"**§ 3.2.**6 The Contractor shall reimburse the Owner for costs incurred by the Architect and the Project manager for design and construction administration services which are caused by the Contractor's inefficient execution of its Work. These may include, but are not limited to, the cost of the Architect or Project Manager to perform:

§ 3.2.6.1 Repeated review of the Contractor's resubmittals and submittals, substantially out of sequence from the submittal schedule provided by the Contractor and agreed to by the Architect.

§ 3.2.6.2 An extensive number of responses to the Contractor's requests for information where such information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings or prior Project correspondence or documentation.

§ 3.2.6.3 Evaluation of an extensive number of substitutions proposed by the Contractor or requested revisions to the Contract Documents resulting therefrom.

3.2.7 Add the following Subparagraph 3.2.7:

"§ 3.2.7 The Contractor shall notify the Owner and Architect in writing of any existing damage to the property or any unsafe conditions at the site prior to commencing the Work."

3.2.8 - 3.2.9 Add the following Subparagraphs 3.2.8 through 3.2.9:

§3.2.8 The Contractor may submit requests for information (RFI's) to the Architect to help facilitate the Contractor's performance of the Contract, subject to conditions and procedures set forth in the Specifications. The Contractor shall reimburse the Owner amounts charged to the Owner by the Architect for responding to Contractor requests for information where such information is available to the Contractor from a careful study and comparison of Contractor Documents, field conditions, other Owner-provided information, Contractor prepared Shop Drawings, Coordination Drawings, or prior Project correspondence or documentation. Utilization of the request for information process shall not replace the Shop Drawing process; Contractor submission of an RFI as a Shop Drawing will not be accepted.

§3.2.9 Any claim by the Contractor or Subcontractors that, in submitting their respective bids, they did not include all items as shown in the Contract Documents, will be given no consideration for an adjustment of any kind. If any item is specified in a Section which would not normally furnish this item, it shall be the responsibility of the Contractor to coordinate the situation with the Subcontractor, and if the item under consideration is not to be provided by the Subcontractor, it shall be the responsibility of the Contractor to provide the work in question, without any additional cost to the Owner.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

3.3.1 In the first sentence and after "attention" of Subparagraph 3.3.1, add "which shall not be less than such state of skill and attention generally rendered by the contracting profession for projects similar to the Project in scope, difficulty and location.The General Contractor shall adequately staff the Project site with one full time on-site representative through the date of Substantial Completion to properly and thoroughly manage, schedule and supervise all construction activities. In the event that the Contractor fails to staff the Project site as required, the Contract amount shall be adjusted by a deductive Change Order in the amount of $100 per hour for each employee hour where the Contractor lacks the required Project site presence for each or any of these required supervisory positions. For the purposes of this section, full time shall be defined as Work in between 7:00 A.M. to 3:30 P.M, Monday thru Friday."

Delete the last sentence of Subparagraph 3.3.1 and replace with "Where the Contract Documents refer to particular construction means, methods, techniques, sequences or procedures or indicate or imply that such are to be used in the Work, such mention is intended only to indicate that the operations of the Contractor shall be such as to produce at least the quality of work implied by the operations described, but the actual determination of whether or not the described operations may be safely and suitably employed on the Work shall be the responsibility of the Contractor, who shall notify the Architect in writing of the actual means, methods, techniques, sequences or procedures which will be employed on the Work, if these differ from those mentioned in the Contract Documents, which shall not be less than such state of skill and attention generally rendered by the contracting profession for projects similar to the Project in scope, difficulty and location. All loss, damage, or liability, or cost of correcting defective work arising from the employment of any construction means, methods, techniques, sequences or procedures shall be borne by the Contractor, notwithstanding that such construction means, methods, techniques, sequences or procedures are referred to, indicated or implied by the Contract Documents, unless the Contractor has given timely notice to the Owner and Architect in writing that such means, methods, techniques, sequences or procedures are not safe or suitable, and the Owner has then instructed the Contractor in writing to proceed at the Owner's risk."

3.3.2 After the last sentence of Subparagraph 3.3.2, add "This obligation shall also extend to the presence on the Site of suppliers of materials or equipment, their employees, contractors, and agents engaged in the Work."

3.3.2.1 Add the following Subparagraph 3.3.2.1:

"§3.3.2.1 The Contractor shall, upon written request of the Owner, remove and replace workers whom the Owner deems to be disorderly, careless, or incompetent or to be employed in violation of the terms of the Contract Documents, at no increase in the Contract Sum or the Contract Time."

3.3.4 - 3.3.17 Add the following Subparagraphs 3.3.4 through 3.3.17:

"§ 3.3.4 The Contractor shall furnish sufficient forces, plant and equipment as may be necessary to insure the progress of the Work in accordance with the Project Schedule.

§ 3.3.5 If, in the opinion of the Owner, the Contractor has fallen behind the Project Schedule, the Contractor shall demonstrate the manner in which the desired rate of progress may be increased and shall take such steps, at the Contractor's own cost, as may be necessary to meet the Project Schedule. It shall be the responsibility of the Contractor to maintain its schedule so as not to delay the progress of the Work or the scheduled work of separate Contractors.

§ 3.3.6 The Contractor shall be solely responsible for properly laying out the Work, and for all lines, elevations and measurements for all of the Work. It shall verify the figures shown on the Drawings before laying out the Work and will be responsible for any error or inaccuracies resulting from its failure to do so. In the event that the Contractor shall, while laying out the Work, become aware of (i) any conflicts among or between the Drawings, the Specifications or any Modification to the Drawings or the Specifications and the actual layout of the Work, or (ii) any conflicts or inconsistencies in the Drawings and Specification themselves, it shall promptly notify the Owner, without whose instructions the Contractor shall not adjust the matter except at his own risk. Coordination of all work shall include without limitation, review of all shop drawings (including, without limitation, structural, mechanical, and electrical drawings) submitted by Subcontractors for various trades or subdivisions of work and approval of shop drawings indicated by Contractor's stamp of approval.

§ 3.3.7 The Contractor shall comply with all provisions of Federal, Massachusetts and local law applicable to his work including, without limitation, statutes, by-laws, rules, regulations, orders and directives, as amended, and including, without limitation.

§ 3.3.8 If this Project requires the containment, abatement or removal of asbestos or material containing asbestos, lead or waste containing lead-based paint, the Contractor shall ensure that the person or entity performing the asbestos or lead related services is licensed pursuant to applicable State laws and regulations.

§ 3.3.9 Chemical waste shall be stored in corrosion resistant containers, removed from the Project site, and disposed of not less frequently than every three weeks unless directed otherwise. Disposal of chemical waste shall be in accordance with requirements of the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP). Fueling and lubricating of vehicles and equipment shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants to be discarded or burned shall be disposed of in accordance with approved procedures meeting all applicable Federal, State and Local regulations. In the event of an oil or hazardous materials spill large enough to violate Federal, State or Local regulations, the Contractor shall notify the Owner immediately. The Contractor shall be responsible for immediately cleaning up any oil or hazardous waste spills resulting from its operations. Any costs incurred in cleaning up any such spills shall be borne exclusively by the Contractor.

§ 3.3.10 The Contractor shall be solely responsible for compliance with laws and regulations governing the handling, storage, use or disposal of hazardous materials or wastes used, stored, generated or disposed of in connection with construction of the Work and shall obtain all permits and approvals, give all required notices, and observe all applicable procedures prescribed by the EPA, DEP or other governmental authorities having jurisdiction with respect to such activities. At the Owner's request, the Contractor shall properly furnish the Owner with evidence satisfactory to the Owner demonstrating the Contractor's compliance with such procedures, the giving of such notices, and the issuance of such permits and approvals.

§ 3.3.11 The Contractor shall provide and maintain in good operating condition suitable and adequate fire protection equipment and services, and shall comply with all reasonable recommendations regarding fire protection made by the representatives of the fire insurance company carrying insurance on the Work or by the local fire chief or state fire marshal. The area within the site limits shall be kept orderly and clean, and all combustible rubbish shall be promptly removed from the site.

§ 3.3.12 The Contractor shall at all times protect excavations, trenches, buildings and materials from rain water, ground water, backup or leakage of sewers, drains and other piping, and from water of any other origin, and shall remove promptly any accumulation of water. The Contractor shall provide and operate all pumps, piping and other equipment necessary to this end.

§ 3.3.13 The Contractor shall be responsible for all security measures necessary and appropriate to protect the Work area until acceptance by the Owner to assure that the Work, and all materials and equipment stored at the Site, are fully and completely protected against loss or damage due to vandalism, theft, or malicious mischief. The Contractor shall not use guard dogs for this purpose unless authorized in advance in writing by the Owner. If the Owner approves the use of guard dogs, each dog shall at all times be accompanied by an adult handler.

§ 3.3.14 The Contractor shall be responsible for the adequate strength and safety of all scaffolding, staging, and hoisting equipment and for temporary shoring, bracing, and tying.

§ 3.3.15 The Contractor shall furnish on site all personal protective equipment as required, approved first aid supplies, the name of its first-aid attendant, and a posted list of emergency facilities.

§ 3.3.16 Contractor shall be responsible for safety of all visitors on the Work site.

§ 3.3.17 If the Contractor fails to comply with its obligations under Subparagraphs 3.3.4 - 3.3.16, the Owner, without prejudice to any other remedies available to the Owner, may provide for such measures and charge the reasonable cost thereof to the Contractor."

3.4 LABOR AND MATERIALS

3.4.1 In the first sentence and after "utilities" of Subparagraph 3.4.1, add "security,"

After the last sentence of Subparagraph 3.4.1, add "The word "provide" shall mean furnish and install complete, including connections, unless otherwise specified."

3.4.3 In the last sentence and after "assigned to them" of Subparagraph 3.4.3, add ", and the Contractor shall ensure that all workers to be employed on the Project have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration (OSHA) of at least 10 hours. The Contractor shall be responsible for maintaining all safety precautions at and around the Project site. On the Owner's request, the Contractor shall permanently remove from the Project site any employee of the Contractor or any Subcontractor who fails to comply with the requirements of the Contract Documents or whose presence or behavior is deemed by the Owner to be adversed to the success of the Project or the Owner's interests. The Contractor shall employ labor subject to contract terms and conditions in order to ensure harmonious labor relations on the site and prevent strikes or labor disputes. The Contractor, in the event of a labor dispute including strikes, shall take whatever action is required at no expense to the Owner to prevent the disruption of the Work. The Contractor shall not permit employment of any person who is not of good character and morals nor permit disorderly or indecent conduct on the job site. The Contractor shall not permit the consumption of alcoholic beverages or illegal drugs on the job site nor permit any employment or person under his supervision or control to be under the influence thereof."

3.4.4 - 3.4.13 Add the following Subparagraphs 3.4.4 through 3.4.13:

"§3.4.4 CORI Reporting. The School Superintendent or School Principal may require criminal offender record information ("CORI") from the criminal history systems board, relating to any worker who is scheduled to work in the School within areas of the School occupied by students. The Contractor and subcontractors shall cooperate fully and immediately with a request from the Superintendent or Principal to identify the workmen who may be placed in a position where they may have direct and unmonitored contact with the students. The Contractor and its subcontractors shall make every effort to notify the Architect or OPM at least two weeks before any workmen may be working in areas of the School occupied by students and will provide a listing of the workmen who they anticipate will be working in those areas. The Owner reserves the right to stop work if there has been a failure to comply with this paragraph, in which event the Contractor and subcontractors shall have no claim for damages, delays or time extensions against the Owner.

§ 3.4.5 List of Jobs; Classification; Determination of Rate of Wages; Schedule [Statutory Reference M.G.L. c.149, §27]. The rate per hour of the wages paid to such mechanics and apprentices, teamsters, chauffeurs and laborers in the construction of public works shall not be less than the rate of wages to be determined by the Commissioner of Labor. The Schedule of Wage Rates applicable to this Project is bound into this Project Manual. The Contractor and subcontractors shall be responsible for anticipating the costs of future changes to the prevailing wage rates and or classifications in their bid prices.

§ 3.4.6 [M.G.L. c.149, §34B] The Contractor shall pay to any reserve police officer employed by it in any city or town the prevailing rate of wage paid to regular police officers in such city or town.

§ 3.4.7 The Contractor is solely responsible for the proper and safe operation and maintenance of all utility systems within the construction limits, whether these are supplied by the Owner's distribution system or otherwise, until the Work is accepted by the Owner, and until the Owner has notified the Contractor that other arrangements have been made. The Contractor shall maintain and operate appurtenances within the construction area which serve the distribution system, subject to periodic inspection by the Owner's operating personnel. Inspection by any representative or personnel of the Owner shall not relieve the Contractor of his responsibilities in connection with operation and maintenance of these facilities and equipment. The Contractor shall provide the Owner at least seventy-two (72) hours' advance notice of the Contractor's desire to extend, connect, disconnect, or turn on or off any steam, electric, water, or other service from the Owner's supply systems. The actual operation shall be witnessed and approved by an authorized representative of the Owner. All plumbing, heating, and electrical work, including installation of equipment, and other work to be performed by the Contractor, shall be carried out without interference with the Owner's normal operation. Where any work requires interruption of any service, the Contractor shall make advance arrangements with the Owner for dealing with and minimizing such interruption.

The Contractor agrees to procure materials, equipment, labor and supplies from such sources and to perform all Work on the Project with labor, material suppliers and Subcontractors that will work harmoniously with the Owner's employees, employees of other contractors employed by the Owner, and with other elements of labor involved in the construction of the Project or the operation of the building in which the Project is located, including, without limitation, any tenant improvement work contractors engaged by Owner or any tenants of Owner."

§ 3.4.8 In accordance with Section 39M of Chapter 30 of the General Laws "an item shall be considered equal to the item so named or described if (I) it is at least equal in quality, durability, appearance, strength and design, (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased, and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the said specifications."

§ 3.4.9 However, the Contractor and the Subcontractors are required to submit to the Architect for consideration as to its equality, a written notice containing the name and full particulars pertaining to any item other than the specific or specifics named or described therefore in the Contract Documents. Such submittal shall be made prior to the time required for furnishing and delivering to the site the specific or specifics named, but in no event shall it be made later than 120 calendar days prior to the incorporation of the item into the work, except as stated below.

§ 3.4.10 If the item in question is to be incorporated in the work prior to the expiration of 180 calendar days from the time of the execution of the Contract, the aforesaid written notice shall be submitted to the Architect immediately following the execution of the Contract.

§ 3.4.11 Forthwith upon receipt of such written notice, the Architect shall conduct a reasonable investigation to determine whether the item in question shall be considered equal to the item named or described therefore in the Contract Documents. Upon conclusion of the investigation, the Architect shall, in writing, promptly advise the Contractor or Subcontractor submitting the written notice that the item in question is, or is not, considered the equal of the item named or described as aforesaid, and that said item may, or may not, be furnished on the work accordingly.

§ 3.4.12 Although it is to be clearly understood that an item equal to the named or described in the Contract Documents may be furnished on the work, in no case however, may an item be furnished on the work other than the item named or described unless the Architect shall consider the item as the equal of the item so named or described, as provided by law.

§ 3.4.13 The equality of items offered as "equal" to the specific or specifics named shall be proved to the satisfaction of the Architect at the expense of the Contractor or Subcontractor submitting the substitution. The Contract Documents are intended to produce a building of consistent character and quality of design. All components of the building including visible items of mechanical and electrical equipment have been selected to have a coordinated design in relation to the overall appearance of the building. The Architect shall judge the design and appearance of proposed substitutes on the basis of their suitability in relation to the overall design of the Project, as well as for their intrinsic merits. The Architect will not approve as equal to materials specified proposed substitutes which, in the Architect's opinion, would be out of character, obtrusive, or otherwise inconsistent with the character or quality of design of the Project. In order to permit coordinated design of color and finishes the Contractor shall, if required by the Architect, furnish the substituted material in any color, finish, texture, or pattern which would have been available from the manufacturer originally specified, at no additional cost to the Owner. Any structural or material changes made necessary to accommodate any substitute products or materials under this paragraph shall be at the expense of the Contractor or Subcontractor responsible for the Work items."

3.5 WARRANTY

3.5 In the first sentence and after "otherwise" of Subparagraph 3.5, add "and, promptly after written notification of non-conformance, shall be repaired or replaced by the Contractor with Work conforming to such requirements."

Delete the fourth sentence of Subparagraph 3.5 without replacement.

3.5.1 - 3.5.11 Add the following Subparagraphs 3.5.1 through 3.5.11:

"§3.5.1 The Contractor warrants that the materials and equipment furnished under the Contract will be new and of recent manufacture unless otherwise specified, and that all Work will be of good quality, free from faults and defects, and in conformance with the Contract Documents and, promptly after written notification of non-conformance by the Owner or Architect, the Contractor shall repair or replace the same with Work conforming to such requirements.

§3.5.2 The warranty provided in this paragraph 3.5 shall be in addition to and not in limitation of any other warranty required by the Contract Documents or otherwise prescribed by law.

§3.5.3 The Contractor shall procure and deliver to the Architect and the Owner's Project Manager, no later than the date claimed by the Contractor as the date of Substantial Completion, all special warranties required by the Contract Documents.

§ 3.5.4 The Contractor shall be responsible for determining that all materials furnished for the Work meet all requirements of the Contract Documents. The Architect may require the Contractor to produce reasonable evidence that a material meets such requirements, such as certified reports of past tests by qualified testing laboratories, reports of studies by qualified experts, or other evidence which, in the opinion of the Architect, would lead to a reasonable certainty that any material used, or proposed to be used, in the Work meets the requirements of the Contract Documents. All such data shall be furnished at the Contractor's expense. This provision shall not require the Contractor to pay for periodic testing of different batches of the same material, unless such testing is specifically required by the Contract Documents to be performed at the Contractor's expense.

§ 3.5.5 If the Contractor proposes to use a material which, while suitable for the intended use, deviates in any way from the detailed requirements of the Contract Documents, the Contractor shall inform the Architect in writing of the nature of such deviations at the time the material is submitted for approval and request approval of the deviation.

The Architect shall judge the design and appearance of proposed substitutes, an may refuse to approve any substitute which, in the Architect's opinion, would be out of character or otherwise inconsistent with the character or quality of design of the Project. The Architect will not approve as equal to materials specified proposed substitutes which, in the Architect's opinion, would be out of character, obtrusive, or otherwise inconsistent with the character or quality of design of the Project. In order to permit coordinated design of color and finishes, the Contractor shall, if required by the Architect, furnish the substituted material in any color, finish, texture, or pattern which would have been available from the manufacturer originally specified, at no additional cost to the Owner.

§ 3.5.6 In informing the Architect of deviations or substitutions, the Contractor shall provide, upon request, evidence leading to a reasonable certainty that the proposed substitution or deviation will provide a quality of result at least equal to that otherwise attainable in accordance with the Contract Documents. If, in the opinion of the Architect, the evidence presented by the Contractor does not provide a sufficient basis for such reasonable certainty, the Architect may reject such substitution or deviation without further investigation.

§ 3.5.7 Any additional cost, or any loss or damage arising from the substitution of any material or any method for those originally specified shall be borne by the Contractor, notwithstanding approval or acceptance of such substitution by the Owner or the Architect, unless such substitution was made at the written request or direction of the Owner or the Architect.

§ 3.5.8 The warranty provided in this paragraph 3.5 shall be in addition to and not in limitation of any other warranty required by the Contract Documents or otherwise prescribed by law.

§ 3.5.9 The Contractor shall procure and deliver to the Architect, no later than the date claimed by the Contractor as the date of Substantial Completion, all special warranties required by the Contract Documents.

§3.5.10 The Contractor shall guarantee all Work for a period of one year after Date of Substantial Completion, or by the terms of any special guarantee required by the Contract Documents. The Contractor shall, upon written notice from the Owner, promptly correct defective Work or Work not in accordance with the Contract Documents.

§3.5.11 (Statutory reference: M.G.L. c. 30 § 39M(b)) Where products or materials are prescribed by manufacturer name, trade name, or catalog reference, the word "or approved equal" shall be understood to follow. An item shall be considered equal to the item so named or described if in the opinion of the Architect:

a. it is at least in quality, durability, appearance, strength and design;

b. it performs at least equally the function imposed by the general design for the work; and

c. it conforms substantially, even with deviations, to the detailed requirements for the items as indicated by the specifications.

Any changes made necessary to accommodate substituted equipment under this Paragraph shall be at the expense of the Contractor, Subcontractor or Sub-subcontractor responsible for the Work item."

3.6 TAXES

3.6.1-3.6.2 Add the following Subparagraphs 3.6.1 and 3.6.2:

"§3.6.1 The project is exempt from the Massachusetts Sales Tax to the extent permitted by G.L. c.64H, Section 6(f). The exemption number can be obtained from the Awarding Authority upon request by the successful bidder.

§3.6.2 However, the Contractor shall not pay, and the Owner shall not reimburse or pay the Contractor for, any sales taxes for building supplies or materials for which an exemption is provided by law. The Owner's tax exemption number, to be used by the Contractor in this regard, will be provided by the Owner."

3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

3.7.4 Delete Subparagraph 3.7.4 and replace with the following:

"§ 3.7.4 Concealed or Unknown Conditions. Claims for concealed or unknown conditions shall be governed by Chapter 30, Section 39N of the General Laws of the Commonwealth of Massachusetts, as amended."

3.7.5 Delete the second and fourth sentence of Subparagraph 3.7.5 without replacement.

3.7.5.1 Add the following Subparagraph 3.7.5.1:

"§ 3.7.5.1 Human remains have been previously encountered in the general area at least twice - once when a waterline was being laid in 1965 for the Minot Forest School, and more recently during site examination testing to the north of the current project area. The school sits on Brandy Hill, and at other locations (such as the Conant's Hill Site in West Wareham), Native burials were discovered on the hill associated with the village location, so it is possible that Native people were buried on Brandy Hill as well. If human remains are encountered during construction, then the procedures outlined in Massachusetts Unmarked Burial Law (Massachusetts General Laws c.7, s.38A; c.38, s.6; c.9, ss.26A & 27C; and c.114, s.17; all as amended) should be followed, and no State Archaeologist permitee is authorized to excavate human skeletal remains without obtaining a Special Permit (950 CMR 70.20). In the event that human skeletal remains are encountered, construction should cease, and the contractor should consult first with the state medical examiner, the MHC, and the Town of Wareham about further procedures. The remains should be left in place and covered, and the site should be secured until the appropriate officials can determine the proper course of action. No definite or potential human remains, grave-related artifacts, or soil samples that may have come from a grave should be removed from the site without prior consultation with the MHC and the Commission on Indian Affairs."

3.8 ALLOWANCES

3.8.1 - 3.8.2 Delete Subparagraphs 3.8.1 and 3.8.2 without replacement.

3.9 SUPERINTENDENT

3.9 Delete Subparagraph 3.9.1 and replace with the following:

"§ 3.9.1 The Contractor shall employ, in accordance with the Contract Documents, a competent superintendent, reasonably acceptable to the Owner and who shall not be replaced without the Owner's prior written approval, and necessary assistants who shall be in attendance at the Project site at all times during performance of the Work until the date of Substantial Completion, and for such additional time thereafter as the Owner may determine to be necessary for the expeditious completion of the work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. The Contractor shall remove the superintendent if requested to do so in writing by the Owner and shall promptly provide a competent replacement deemed acceptable to the Owner, at no increase in the Contract Sum or Contract Time."

3.9.4 - 3.9.7 Add the following Subparagraphs 3.9.4 through 3.9.7:

"§3.9.4 The Contractor shall retain a competent Registered Professional Engineer or Registered Land Surveyor, acceptable in writing to the Architect and the Owner's Project Manager, who shall establish the exterior lines and required elevations of all buildings and structures to be erected on the site and shall establish sufficient lines and grades for the construction of associated Work such as, but not limited to, roads, utilities and site grading. The Engineer or Land Surveyor shall certify as to the actual location of the constructed facilities in relation to property lines, building lines, easements, and other restrictive boundaries.

§3.9.5 The Contractor shall establish the building grades, lines, levels, column, wall and partition lines required by the various Subcontractors in laying out their Work.

§3.9.6 The Contractor shall coordinate and supervise the Work performed by Subcontractors to the end that the Work is carried out without conflict between trades and so that no trade, at any time, causes delay to the general progress of the Work. The Contractor and all Subcontractors shall at all times afford each trade, any separate contractor, or the Owner, every reasonable opportunity for the installation of Work and the storage of materials.

§3.9.7 The Contractor shall arrange for and attend job meetings with the Architect and such other persons as the Architect may from time to time wish to have present. The Contractor shall be represented by a principal, project manager, general superintendent or other authorized main office representative, as well as by the Contractor's own superintendent. An authorized representative of any Subcontractor or Sub-subcontractor shall attend such meetings if the representative's presence is requested by the Architect. Such representatives shall be empowered to make binding commitments on all matters to be discussed at such meetings, including costs, payments, change orders, time schedules and manpower. Any notices required under the Contract may be served on such representatives."

3.10 **CONTRACTOR'S CONSTRU**CTION SCHEDULES

3.10.1 Delete Subparagraph 3.10.1 and replace with the following:

"§ 3.10.1 The Contractor, promptly within ten (10) days after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project or as requested by the Architect or Owner's Project Manager, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work. Provide a minimum 50 activity bar chart project schedule within 10 calendar days after award of contract. Update schedule on a weekly basis. Develop schedule in MS Project, MS Excel, or equal. The construction schedule shall be resource loaded for the Contractor and all subcontractors, with each resource identified by name, description, unit of measure, and calendar assignment. For each class of work included in the Contractor's schedule of values, the construction schedule shall show the percentage of completion to be obtained and the total dollar value of the work to be completed as of the first of each month until Substantial Completion. All calculations shall be on the basis of work in place, but not including the value of materials delivered but not in place. A forecast early completion date in the Contractor's schedule shall not be permissible as a basis for any additional compensation request as it is understood by all parties that the Contract value is based upon the Contractor and Subcontractors staffing the Project through the Contractual milestone dates."

3.10.3 After the last sentence of Subparagraph 3.10.3, add "The Contractor's compliance with the construction schedule is a material obligation of the Contract."

3.10.4 - 3.10.6 Add the following Subparagraphs 3.10.4 through 3.10.6

"§ 3.10.4 The Contractor shall monitor the progress of the Work for conformance with the requirements of the construction schedule and shall promptly advise the Owner of any delays or potential delays. The construction schedule shall be updated every month (or more frequently if requested by the Owner) to reflect actual conditions (such updates are sometimes referred to in these General Conditions as "progress reports"). In the event any progress report indicates delays in achievement of any milestone date set forth in such schedule, the Contractor shall propose in written form an affirmative plan (the "Recovery Schedule") to correct the delay, including overtime and/or additional labor, if necessary, which Recovery Schedule shall indicate the date by which the progress of the Work will comply with the construction schedule, and shall be subject to the approval of the Owner and the Architect. In no event shall any progress report or Recovery Schedule constitute an adjustment in the construction schedule, Contract Time or any milestone date unless any such adjustment is agreed to by the Owner and authorized pursuant to a Change Order.

§ 3.10.5 In the event (i) that the performance of the Work, as of a milestone date, has not progressed or reached the level of completion required by the construction schedule, and (ii) the progress of the Work is not brought back into compliance with the construction schedule on the date proposed by the Recovery Schedule, or the Contractor otherwise fails to comply with the Recovery Schedule, the Owner shall have the right to order the Contractor to take corrective measures to expedite the progress of the Work, including, without limitation, (1) supplying additional manpower, equipment, and facilities, (2) working additional shifts or overtime, (3) working additional days, and (4) other similar measures (hereinafter referred to collectively as "Corrective Measures"). Such Corrective Measures shall continue until the progress of the Work complies with the stage of completion required by the Contract Documents.

§ 3.10.6 The Contractor shall not be entitled to an adjustment in the Contract Sum in connection with Corrective Measures required by the Owner under or pursuant to Section 3.10.5. The Owner may exercise the rights furnished the Owner under or pursuant to Section 3.10.5 as frequently as reasonably necessary to ensure that the Contractor's performance of the Work complies with the milestone dates set forth in the construction schedule."

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.12.6 Delete Subparagraph 3.12.6 and replace with the following:

"§3.12.6 By approving and submitting Shop Drawings, Product Data, Samples, and similar submittals the Contractor thereby represents that the Contractor has determined and verified all dimensions, quantities, field dimensions, relations to existing work, coordination with work to be installed later, coordination with information on previously accepted Shop Drawings, Product Data, Samples, or similar submittals and verification of compliance with all the requirements of the Contract Documents. The accuracy of all such information is the responsibility of the Contractor. In reviewing Shop Drawings, Product Data, Samples, and similar submittals the Architect shall be entitled to rely upon the Contractor's representation that such information is correct and accurate."

3.12.9 At the last sentence of Subparagraph 3.12.9, add "Unless such written notice has been given, the Architect's approval of a resubmitted Shop Drawing, Product Data, Sample, or similar submittal shall not constitute approval of any changes not requested on the prior submittal."

3.12.11 Add the following Subparagraph 3.12.11:

"§ 3.12.11 When professional certification of materials, systems or equipment is required by the Contract Documents, the Owner shall be entitled to rely upon such certifications, and neither the Owner nor the Architect shall be expected to make an independent examination with respect to the performance of such materials, systems or equipment."

3.13 USE OF SITE

3.13.1 - 3.13.2 Add the following Subparagraphs 3.13.1 and 3.13.2:

"§3.13.1 The right of possession of the premises and the improvements made thereon by the Contractor shall remain at all times in the Owner. The Contractor's right to entry and use thereof arises solely from the permission granted by the Owner under the Contract Documents. The Contractor shall confine the Contractor's apparatus, the storage of materials and the operations of the Contractor's workmen to limits indicated by law, ordinances, the Contract Documents and permits and/or directions of the Architect and shall not unreasonably encumber the premises with the Contractor's materials. The Owner shall not be liable to the Contractor, the Subcontractors, their employees or anyone else with respect to the conditions of the premises, except only for a condition caused directly and solely by the negligence of the Owner.

§3.13.2 The Contractor shall not take or use for publication or promotion any photographic or video records of the students, teachers or staff without the express written consent of the Owner."

3.14 CUTTING AND PATCHING

3.14.3 Add the following Subparagraph 3.14.3:

"§ 3.14.3 The Contractor shall be responsible for installation of all required sleeves, forms and/or inserts for any built-in building component. No finished materials or existing structural work shall be cut which is not shown on the Contract Documents unless the Architect approves such cutting after submittal of appropriate detail drawings to the Architect by the Contractor. At no cost to the Owner, the Contractor shall affect all cutting and/or patching of any building elements which is required due to a failure to provide or properly to locate sleeves, forms and/or inserts or due to incorrect location of work or failure to cooperate with other trades. All installation and repair work shall be carried out by mechanics skilled in the repair trade concerned, with due regard to trade practices and with suitable protection of existing work."

3.15 CLEANING UP

3.15.1.1 Add the following Subparagraph 3.15.1.1:

"§3.15.1.1 Immediately prior to the Architect's inspection for Substantial Completion, the Contractor shall completely clean the premises. Concrete and ceramic surfaces shall be cleaned and washed. Resilient coverings shall be cleaned, waxed and buffed. Woodwork shall be dusted and cleaned. Sash, fixtures and equipment shall be thoroughly cleaned. Stains, spots, dust, marks and smears shall be removed from all surfaces. Hardware and all metal surfaces shall be cleaned and polished. Glass and plastic surfaces shall be thoroughly cleaned by professional window cleaners. All damaged, broken or scratched glass or plastic shall be replaced by the Contractor at the Contractor's expense."

3.16 ACCESS TO WORK

3.16 In the first sentence and after "Owner" of Subparagraph 3.16, add ", Owner's Representatives,"

3.18 INDEMNIFICATION

3.18.1 Delete Subparagraph 3.18.1 and replace with the following:

"§3.18.1 The Contractor shall compensate the Owner for all damage to the Owner's property of any nature arising out of the Contractor's work. To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless the Owner, the Owner's Project Manager, the Architect and its consultants, and any and all of their officers, employees, boards, commissions, committees, agents and representatives from and against all claims, causes of action, suits, costs, damages, and liability of any kind which arise out of the breach by the Contractor of its obligations under the Contract, or the act or omission of the Contractor, its Subcontractors, or their officers, employees, agents and representatives and assigns or anyone directly or indirectly employed by them, or anyone for whose acts or omissions they may be liable, regarding the Work to be performed by the Contractor under the Contract, or which arise out of the violation of any Federal, Massachusetts or local statute, by-law, rule, regulation, order or directive, or which relate to personal injury or property damage suffered by the Contractor or any of its officers or employees regarding the subject matter of the Contract.

Neither the Owner, nor any of its officers, employees, boards, committees, commissions, agents and representatives shall be under any personal obligation or shall incur any personal liability by reason of the Contract, the execution thereof or anything relating thereto which arises out of the violation of any provision of the Contract, or the violation of any Federal, Massachusetts or local statute, by-law, rule, regulation, order or directive, or which relates to personal injury or property damage suffered by the Contractor or its employees, regarding the subject matter of the Contract."

3.18.3 - 3.18.4 Add the following Subparagraphs 3.18.3 and3.18.4:

"§3.18.3 The obligations of the Contractor under this paragraph 3.18 shall not extend to the liability of the Owner's Project Manager, the Owner's Project Manager's consultants, the Architect, the Architect's consultants, and agents or employees of any of them arising out of (1) the preparation of maps, Drawings, opinions, reports, surveys, Change Orders, designs or Specifications, or (2) directions or instructions given by the Owner's Project Manager, the Owner's Project Manager's consultants, the Architect, the Architect's consultants and agents or employees of any of them, provided such instructions or directions are the primary cause of the injury or damage."

§3.18.4 In consideration of the Contractor's undertaking to indemnify and hold harmless the Architect, the Owner's Project Manager, the Owner's Project Manager's consultants and agents or employees of any of them, the Architect's consultants and agents or employees of any of them, in accordance with this paragraph 3.18, the Architect and the Owner's Project Manager agrees that the Architect and the Owner's Project Manager will not bring any civil suit, action or other proceeding in law, equity or arbitration against the Contractor, or the officers, employees, agents and servants of the Contractor, for or on account of any action which the Architect or the Owner's Project Manager may have arising out of or in any manner connected with the Work, except to enforce the provisions of this paragraph 3.18; and the Contractor, or any successor, assign or subrogee of the Contractor,

agrees not to bring any civil suit, action or other proceeding in law, equity or arbitration against the Architect, the Owner's Project Manager, or the officers, employees, agents and servants of the Architect or the Owner's Project Manager, for the enforcement of any action which the Contractor may have arising out of or in any manner connected with the Work. The Contractor shall assure that this covenant not to sue is contained in all agreements or contracts with Subcontractors and Sub-subcontractors of every tier and shall assure its enforcement. The Owner's Project Manager and Architect, their officers, employees, agents, and consultants are intended third-party beneficiaries of this covenant not to sue, who are entitled to enforce this covenant in law or equity."

ARTICLE 4: ARCHITECT

ARTICLE 4 Delete "ARCHITECT" and replace with "ARCHITECT AND OWNER'S PROJECT MANAGER"

4.1 GENERAL

4.1.2 Delete Subparagraph 4.1.2 without replacement

4.1.3 In the first sentence of Subparagraph 4.1.3, delete "as to whom the Contractor has no reasonable objection and" without replacement.

Delete Subparagraph number "4.1.3" and replace with "4.1.2"

4.2 ADMINISTRATION OF THE CONTRACT

4.2.1 In the first sentence and after "The Architect" of Subparagraph 4.2.1, add, "and Owner's Project Manager, pursuant to their respective obligations"

In the second sentence and after "Architect" of Subparagraph 4.2.1, add, "and Owner's Project Manager".

4.2.3 In the first and second sentences and after "Architect" of Subparagraph 4.2.3, add, "and Owner's Project Manager."

4.2.4 Delete Subparagraph 4.2.4 and replace with the following:

"§4.2.4 Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Project Manager about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors (retained by the Owner pursuant to Article 5) shall be through the Project Manager."

4.2.5 In the first sentence and after "Architect's" of Subparagraph 4.2.5, add, "and Owner's Project Manager's"

4.2.6 In the first and second sentences and after "Architect" of Subparagraph 4.2.6, add "and Owner's Project Manager"

Delete the third sentence of Subparagraph 4.2.6 and replace with "However, neither this authority of the Architect and the Project Manager nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or Project Manager to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work. Any such rejection of work or inspection or testing requirement shall not relieve the Contractor of the responsibility to maintain protection of the Work and the Owner's property."

4.2.7 In the first sentence and after "Contract Documents" of Subparagraph 4.2.7, add "and only to the extent which the Architect believes desirable to protect the Owner's interest."

Delete the second sentence of Subparagraph 4.2.7 and replace with "The Architect's action will be taken with reasonable promptness, while allowing sufficient time in the Architect's professional judgment to permit adequate review, taking into account the time periods set forth in the latest schedule prepared by the Contractor and approved by the Architect pursuant to subparagraph 8.2.4."

In the fifth sentence of Subparagraph 4.2.7, delete "unless otherwise specifically stated by the Architect" without replacment.

4.2.9 Delete Subparagraph 4.2.9 and replace with the following:

"§4.2.9 The Architect and the Owner's Project Manager will conduct inspections to determine the date or dates of Substantial Completion and the date of Final Completion. The Architect will receive from the Contractor and forward to the Owner, for the Owner's review and records, "As-Built" Drawings, written warranties and related documents required by the Contract and assembled by the Contractor and will issue a final Certificate for Payment upon compliance with the requirements of the Contract Documents."

4.2.10 Delete Subparagraph 4.2.10 and replace with the following:

"§4.2.10 The Owner will employ an Owner's Project Manager for the project. Except as expressly set forth in a written statement from the Owner to the Contractor, the Owner's Project Manager shall have no authority to approve work, to approve changes, or exercise any of the power and authority of the Owner or the Architect. The Owner's Project Manager shall be required to be on site at all times when the Contractor is on site. The Owner will pay for up to 40 hours in any one week, which 40 hours shall include paid holidays recognized by the Awarding Authority. Should the Contractor perform work outside or in addition to normal working hours, or in excess of 40 hours per week, either by election, or because the Contractor is required to do so in order to keep the project schedule, or any other reason, then the Owner's Project Manager will work the same as the Contractor, and the Contractor shall reimburse the Owner for the additional cost of the Owner's Project Manager's services during these hours. The reimbursement shall be by means of a credit Change Order executed at the time of Final Completion."

4.2.11 In the first sentence and after "Owner" of Subparagraph 4.2.11, add ", Owner's Project Manager,".

Delete the last sentence of Subparagraph 4.2.11 and replace with "The parties agree that the Architect's duties under this subparagraph shall be governed by Chapter 30, Section 39P of the General Laws of the Commonwealth of Massachusetts as amended."

4.2.14 Delete the last sentence of Subparagraph 4.2.14 and replace with "The Architect may, as the Architect judges desirable, issue additional drawings or instructions indicating in greater detail the construction or design of the various parts of the Work; such drawings or instructions may be effected by field order or other notice to the Contractor and, provided such drawings or instructions are reasonably consistent with the previously existing Contract Documents, the Work shall be executed in accordance with such additional drawings or instructions without additional cost or extension of the Contract Time."

ARTICLE 5: SUBCONTRACTORS

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 In the first sentence of Subparagraph 5.2.1, delete "through the Architect" and replace with "and the Architect through the Owner's Project Manager".

Delete the last sentence of Subparagraph 5.2.1 without replacement

5.2.2 Delete the first sentence of Subparagraph 5.2.2 and replace with "The Contractor shall not contract with a proposed person or entity to whom the Owner, Owner's Project Manager, or Architect has made reasonable, legally permissible, and timely objection."

5.2.3 In the first sentence and after "Owner" of Subparagraph 5.2.3, add ", Owner's Project Manager,"

Delete the second and third sentence of Subparagraph 5.2.3 without replacement

After the last sentence of Subparagraph 5.2.3, add "No increase in the Contract Sum or Contract Time shall be allowed for such change."

5.2.4 In the first sentence and after "Owner" of subparagraph 5.2.4, add ", Owner's Project Manager,"

5.2.5 Add the following Subparagraph 5.2.5:

"§5.2.5 The award of Subcontracts for any sub-trade listed in Item 2 of the Form for General Bid shall conform to the requirements of Sections 44A to 44H inclusive of Chapter 149 of the General Laws as amended, which shall supersede any contradictory provisions of Paragraphs 5.2 and 5.3."

5.3 SUBCONTRACTUAL RELATIONS

5.3 In the first and second sentence and after "Owner" of Paragraph 5.3, add ", Owner's Project Manager,"

After the last sentence of Paragraph 5.3 add "The applicable provisions of Chapter 149, Section 44F of the General Laws of the Commonwealth of Massachusetts shall apply to filed sub-bid subcontractors.

5.3.1 Add the following Subparagraph 5.3.1:

"§ 5.3.1 The Contractor shall be fully responsible to the Owner for all acts and omissions of the Subcontractors and Suppliers at all tiers, to the same extent as the Contractor is responsible for the Contractor's own acts and omissions. Nothing in the Contract Documents shall create a contractual relationship between the Owner and any Subcontractor or Supplier, nor create an express or implied duty or obligation on the part of the Owner to any Subcontractor or Supplier or the Subcontractor's sureties, to pay or to see the payment of any monies owed to them."

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.4.1 Delete the last sentence of Subparagraph 5.4.1 without replacement.

5.4.2 Delete Subparagraph 5.4.2 without replacement

5.4.3 Delete subparagraph 5.4.3 without replacement

ARTICLE 6: CONSTRUCTION BY OWNER ORBY SEPARATE CONTRACTORS

6.1 **OWNER'S RIGHT TO PER**FORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 In the first sentence of Subparagraph 6.1.1 delete "under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation" without replacement.

6.1.1.1 Add the following Subparagraph 6.1.1.1:

"§6.1.1.1 The Owner reserves the right to access any part of the Project at any time to install other Work either with its own forces or with separate Contractors hired by the Owner. Such access is not to be construed as partial occupancy by the Owner. The Contractor shall permit the Owner to place and install furniture, equipment and other material during the progress of the Work, and agrees that the installation of such items shall not be construed as acceptance of the Work or any portion thereof."

6.1.4 Delete Subparagraph 6.1.4 and replace with the following:

"§ 6.1.4 The Contractor acknowledges that there may be separate contractors performing other work related to the Project, including, without limitation, utility work, site work, and telecommunications work. The Contractor agrees to coordinate the performance of the Work with the Work of such other contractors, and the Contractor covenants and agrees that the Contractors and all of of its forces shall work in harmony with all such separate contractors. The Owner agrees to include a substantially similar provision in its contracts with other contractors performing work at the Project site."

6.2 MUTUAL RESPONSIBILITY

6.2.3 Delete the last sentence of Subparagraph 6.2.3 without replacement.

6.2.4 After the last sentence of Subparagraph 6.2.4 add "If such separate contractor sues or initiates an arbitration proceeding against the Owner on account of any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor, who shall defend such proceedings at the Owner's expense, and if any judgment or award against the Owner arises therefrom the Contractor shall pay or satisfy it and shall reimburse the Owner for all attorneys' fees and court or arbitration costs which the Owner has incurred."

6.2.5 Delete Subparagraph 6.2.5 and replace with the following:

"§ 6.2.5 Should the Contractor sustain damage through an act or omission of a Subcontractor or any party providing labor, materials, equipment, or services to the Contractor, the Contractor shall have no claim against the Owner for such damage."

ARTICLE 7: CHANGES IN THE WORK

7.1 GENERAL

7.1.1 After the last sentence of Subparagraph 7.1.1, add the following:

"As used in this Article, "Cost" shall mean the estimated or actual net increase or decrease in cost to the Contractor, Subcontractor, or Sub-subcontractor for performing the work covered by the change, including actual payments for materials, equipment rentals, expendable items, wages and associated benefits to workmen employed full time at the site, insurance, bonds and other provable direct costs, but not including any supervisory, administrative, accounting or expediting costs, or other indirect or overhead costs, or any wages or benefits of personnel not assigned full time to the site, or any amount for profit or fee to the Contractor, Subcontractor or Sub-subcontractor.

Determination of "Cost" for owned equipment valued in excess of $1,000 shall be via Equipment Watch Blue Book Internal Charge (Cost Recovery) Rate. In no event will the Owner be responsible for Costs associated with tools of the trade valued at less than $1,000 and not consumed in the work being performed or for vehicles primarily used for worker transportation and not used directly in the performance of the work covered by the change.

"Percentage" shall mean an allowance to be added to or subtracted from the cost in lieu of overhead and profit and of any other expense which is not included in the Cost of the Work covered by the change, as defined above. Percentage for the Contractor shall be 10% of any net increase or decrease of Cost of any Work if performed by the Contractor's own forces or 5% of any net increase or decrease in the Cost for all other Work performed by Subcontractors.

Percentage for the Subcontractor or Sub-subcontractors shall be no greater than 10% of any net increase or decrease of Cost of any Work performed by their own forces, plus a total amount not to exceed 5% of any net increase or decrease which shall be divided among any higher tier Subcontractors, if applicable.

When in the reasonable judgment of the Architect a series of Construction Change Directives or Change Orders effects a single change, percentage shall be calculated on the cumulative net increase or decrease in Cost, if any."

7.1.2 After the last sentence of Subparagraph 7.1.2, ,add "Changes not approved in writing by the Owner and Architect in advance shall not be recognized as the basis for a valid claim at a later date, except where the Owner and the Architect agree in writing that the change shall be started in the interest of job progress, subject to an equitable price adjustment at a later date."

7.1.4 - 7.1.6 Add the following Subparagraphs 7.1.4 through 7.1.6:

"§ 7.1.4 Change authorizations which precede a fully executed Change Order such as Executed Change Order Requests, Proposed Change Orders, Construction Change Authorizations or other similar documents utilized to ascertain agreement between Contractor, Architect and Owner prior to performance of the work shall be final and binding on all parties. Reservation of rights to additional adjustment in Contract Time or Price will not be considered. Any request for additional Contract Time must be accompanied by a full Time Extension Analysis utilizing the Contractor's most recent schedule submission which has been accepted by the Architect.

§ 7.1.5 The Contractor is responsible for all work indicated within the Contract Documents and which may be required in order to provide the intended finished product. Prior to submitting a bid, the Contractor shall take care to identify work which is to be furnished and/or installed by filed sub-bid contractors. Similarly, the Contractor shall also take particular care to identify work which is not furnished and/or installed by filed sub-bid contractors and therefore is to be provided by the Contractor's own forces. The Architect will not be responsible for responding to questions from the Contractor requesting interpretation of scope ownership after the bidder questions deadline.

§ 7.1.6 The Contractor shall provide pricing for Proposal Requests as soon as practical, but in no event later than three (3) weeks from receipt of the request. Proposal Requests for which the Architect has not received a complete and accurate pricing proposal within three (3) weeks shall be subject to unilateral interpretation of fair and reasonable costs by the Architect and issuance of a Construction Change Directive in accordance with Section 7.3."

7.2 CHANGE ORDERS

7.2.2 - 7.2.3 Add the following Subparagraphs 7.2.2 and 7.2.3

"§ 7.2.2 (Statutory reference: M.G.L. c. 30, § 39I) The Contractor shall perform all the work required by this contract in conformity with the plans and specifications contained herein. No willful and substantial deviation from said plans and specifications shall be made unless authorized in writing by the Owner or by the Engineer or Architect in charge of the Work who is duly authorized by the Owner to approve such deviations. In order to avoid delays in the prosecution of the Work required by such contract such deviation from the plans or specifications may be authorized by a written order of the Owner or such Engineer or Architect so authorized to approve such deviation. Within thirty days thereafter, such written order shall be confirmed by a certificate of the Owner stating: (1) If such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefor; (2) that the specified deviation does not materially injure the project as a whole; (3) that either the work substituted for the work specified is of the same cost and quality, or that an equitable adjustment has been agreed upon between the Owner and the Contractor and the amount in dollars of said adjustment; and (4) that the deviation is in the best interest of the Owner. Such certificates shall be signed under the penalties of perjury and shall be a permanent part of the file record of the work contracted for.

§ 7.2.3 Upon request of the Owner or the Architect, the Contractor shall without cost to the Owner submit to the Architect, in such form as the Architect may require, an accurate written estimate of the cost of any proposed extra Work or change. The estimate shall indicate the quantity and unit cost of each item of material, and the number of hours of work and hourly rate for each class of labor, as well as a description and the amounts of all other costs chargeable under the terms of this Article. Unit labor costs for the installation of each item of material shall be shown if required by the Architect. The Contractor shall promptly revise and resubmit each estimate if the Architect determines that it is not in compliance with the requirements of this Article, or that it contains errors of fact or mathematical errors. If required by the Architect, in order to establish the exact cost of new Work added or of previously required Work omitted, the Contractor shall obtain and furnish to the Architect bona fide proposals from recognized suppliers for furnishing any material included in such Work. Such estimates shall be furnished promptly so as to occasion no delay in the Work, and shall be furnished at the Contractor's expense. The Contractor shall state in the estimate any extension of time required for the completion of the Work if the change or extra work is ordered."

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.3 Delete Subparagraph 7.3.3 and replace with the following:

"§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, and if the Contract Documents include a unit price for the work that is the subject of such directive, such unit price shall be the basis of the adjustment to the Contract Sum, unless the Owner, in its sole discretion, chooses another method. If, however, the Contract Documents do not include a unit price for such work, the adjustment shall be based on one of the following methods, as selected by the Owner:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation; the agreed upon lump sum shall become a fixed price which shall not be changed by any variation in the actual cost of executing the Work covered by the change;

.2 Unit prices subsequently agreed upon;

.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in Section 7.3.7.

7.3.4 Delete Subparagraph 7.3.4 and replace with the following:

"§7.3.4 If the Owner elects to determine the Cost of the Work as provided herein using unit prices stated in the Contract Documents or subsequently agreed upon, the unit prices shall be subject to requirements of this Article. Notwithstanding the inclusion of unit prices in the Contract Documents, it shall be the Owner's option to require the Cost of any given change to be determined by one of the other methods stated this Article. If the Owner elects to determine the cost of the change by unit prices and the nature of the work is such that its extent cannot readily be measured after the completion of such work or any subsequent work, the Contractor shall keep daily records, available at all times to the Architect for inspection, of the actual quantities of such work put in place, and delivery receipts or other adequate evidence, acceptable to the Architect, indicating the quantities of materials delivered to the site for use in such unit price work, and distinguishing such from other similar material delivered for use in work included in the base Contract Sum. If so required by the Architect, materials for use in unit price work shall be stored apart from all other materials on the Project."

7.3.5 Delete Subparagraph 7.3.5 and replace with the following:

"§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and, within five (5) calendar days from receipt of the Construction Change Directive, advise the Architect by written notice of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time. Failure to so advise the Architect within such 5-day period (1) shall be interpreted as Contractor's agreement with the proposed method of adjustment; (2) shall constitute an irrevocable waiver of any right of the Contractor to submit a claim on account of the method of adjustment; and (3) shall cause the Construction Change Directive to be deemed and constitute a Change Order."

7.3.6 In the last sentence of Subparagraph 7.3.6, delete "recorded as" without replacement.

7.3.7 Delete Subparagraph 7.3.7 and replace with the following:

"§ 7.3.7
If the proposed method of adjustment in the Contract Sum is based on unit prices that are stated in the Contract Documents, such unit prices shall be the basis of any adjustment to the Contract Sum, unless the Owner has chosen another method pursuant to subparagraph 7.3.3. If the proposed method of adjustment is not based on such unit prices and the Contractor objects to the proposed method of adjustment, the Contractor must notify the Architect of such objection in writing within five (5) calendar days from Contractor's receipt of the Construction Change Directive. Failure to so object will irrevocably waive any such objections and claims on account of such method of adjustment, and the Construction Change Directive shall be deemed and shall constitute a Change Order. If the Contractor does so object, the adjustment to the Contract Sum shall be determined by the Architect on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, a reasonable allowance for overhead and profit.

In such case, and also under Section 7.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance; Overhead cost associated with items such as: uniforms, vehicles, and bonuses shall not be considered cost of labor.

.2 Costs of materials, supplies and equipment, including cost of transportation of materials, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others (see Section 7.1.1);

.4 Costs of premiums for all bonds and insurance and permit fees; and

.5 A reasonable allowance for overhead and profit (see Section 7.1.1).

7.3.9 Delete Subparagraph 7.3.9 and replace with the following:

"§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner amounts for such changes in the Work shall not be included in Applications for Payment. Such amounts shall only be included in an Application for Payment after the adjustment for the Construction Change Directive has been included in a Change Order signed by the Owner and the Contractor.

The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15."

7.5 CERTIFICATE OF APPROPRIATIONS

7.5 - Add the following Paragraph 7.5:

"§ 7.5 CERTIFICATE OF APPROPRIATIONS (Statutory reference: M.G.L. c. 44, § 31(C))
This contract shall not be deemed to have been made until the auditor or accountant or other officer of the city or town having similar duties has certified thereon that an appropriation in the amount of this contract is available therefor and that an officer or agent of the city, town, or awarding authority has been authorized to execute said contract and approve all requisitions and change orders. No order to the Contractor for a change in or addition to the Work, whether in the form of a drawing, plan, detail or any other written instruction, unless it is an order which the Contractor is willing to perform without any increase in the contract price, shall be deemed to be given until the auditor or accountant, or other officer of the awarding authority having similar duties, has certified thereon that an appropriation in the amount of such order is available therefor; but such certificate shall not be construed as an admission by the awarding authority of its liability to pay for such work. The certificate of the auditor or accountant or other officer of the awarding authority having similar duties, that an appropriation in the amount of this contract or in the amount of such order is available shall bar any defense by the awarding authority on the grounds of insufficient appropriation."

7.6 WORK PERFORMED UNDER PROTEST

7.6 Add the following Paragraph 7.6:

"§ 7.6 WORK PERFORMED UNDER PROTEST
The Contractor shall perform all work as directed by the Owner and if the Owner determines that certain work for which the Contractor has requested a Change Order does not represent a change in the Contract, or if the Contractor and Owner cannot agree to the amount of compensation for a Change Order, the Contractor shall perform said work under protest and must follow the procedures described in the following subparagraphs:

(a) If the Contractor claims compensation for a Change Order not approved by the Owner, the Contractor shall, on or before the first working day following commencement of any such work or sustaining of any such damage, submit to the Owner's representative a written statement of the nature of such work or damage sustained. The Contractor will not be entitled to compensation for any portion of its Change Order claim related to work performed prior to the Owner's receipt of the written statement referred to in the previous sentence.

(b) On or before the second (2nd) working day after the commencement of such work or sustaining of such damage, and daily thereafter, the Contractor shall file to the extent possible with the Owner itemized statements of the details and costs of such work performed or damage sustained; and unless such statements shall be made as so required, its claim for such compensation shall be forfeited and invalid and it shall not be entitled to payment on account of any such work or damage.

(c) The Owner shall have the right to reject any and all change requests which include a reservation of rights or otherwise conflict with the terms of the Contract.

7.7 COMPUTING TIME EXTENSIONS

7.7 Add the following Paragraph 7.7:

"§ 7.7 COMPUTING TIME EXTENSIONS
Contract Time shall not be changed due to a delay until all Contract Float is used and performance of the specified work necessarily extends beyond the Contract Time. An extension in Contract Time will not be approved unless the Contractor demonstrates through a detailed Critical Path Method (CPM) schedule analysis that unforeseeable causes, beyond the control of and without the fault or negligence of both the Contractor and the Subcontractors or Suppliers at any tier, led to performance or completion of all or part of the Work beyond the corresponding Contract Time despite the Contractor's reasonable and diligent actions. If granted, an extension in Contract Time shall be the Contractor's sole and exclusive remedy for any delay, disruption, interference, hindrance, and associated costs, however caused."

7.8 STATUTORY PROVISIONS – DIFFERING SITE CONDITIONS; TIMELY DECISIONS

7.8 Add the following Paragraph 7.8:

"§ 7.8 STATUTORY PROVISIONS – DIFFERING SITE CONDITIONS; TIMELY DECISIONS
The Contractor's attention is directed to M.G.L. c.30, sections 39I, 39J, 39N, 39O, and 39P, as well as to 39G (if applicable), the provisions of which apply to the Contract.

*(a) Differing Site Conditions, M.G.L. c.30, section 39N.
"If, during the progress of the Work, the Contractor or the Owner discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the Contract Documents either the Contractor or the Owner may request an equitable adjustment in the Contract price applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions as discovered. Upon receipt of such a claim from a Contractor, or upon its own initiative, the Owner shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the Contract Documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and Contract Documents and are of such nature as to cause an increase or decrease in the cost of performance of the Work or a change in the construction methods required for the performance of the Work which results in an increase or decrease in the cost of the Work, the Owner shall upon submission by the Contractor of a properly submitted change order request, make an equitable adjustment in the Contract price and the Contract shall be modified in writing accordingly."

*(b) Timely decision by the Owner. M.G.L. c.30, Section 39P.
"Whenever the Contract requires the Owner to make a decision during construction of the Project on interpretation of the specifications, approval of equipment, material, or any other approval, or progress of the Work, that decision shall be made promptly and, in the event, no later than thirty (30) days after receipt of a written submission for such decision by the Contractor, but if such decision requires extended investigation and study, the Owner shall, within thirty (30) days after the receipt of the submission, give the Contractor written notice of the reasons why the decision cannot be made within the thirty (30) day period and the date by which the decision will be made."

7.9 CERTIFICATE OF APPROPRIATIONS

7.9 Add the following Paraggraph 7.9"

"§ 7.9 CERTIFICATE OF APPROPRIATIONS
Statutory reference: M.G.L. c.44 §31C)
The Contract shall not be deemed to have been made until the auditor or accountant or other officer of the city or town having similar duties has certified thereon that an appropriation in the amount of the Contract is available therefor and that an officer or agent of the city, town, or Awarding Authority has been authorized to execute said contract and approve all requisitions and change orders. No order to the Contractor for a change in or addition to the Work, whether in the form of a drawing, plan, detail or any other written instruction, unless it is an order which the Contractor is willing to perform without any increase in the contract price, shall be deemed to be given until the auditor or accountant, or other officer of the Awarding Authority having similar duties, has certified thereon that an appropriation in the amount of such order is available therefor; but such certificate shall not be construed as an admission by the Awarding Authority of its liability to pay for such work. The certificate of the auditor or accountant or other officer of the Awarding Authority having similar duties that an appropriation in the amount of the Contract or in the amount of such order is available shall bar any defense by the Awarding Authority on the grounds of insufficient appropriation."

ARTICLE 8: TIME

8.2 PROGRESS AND COMPLETION

8.2.2 Delete Subparagraph 8.2.2 without replacement

8.2.4-8.2.11 Add the following Subparagraphs 8.2.4 through 8.2.11:

§8.2.4 Within two weeks after award of the Contract, the Contractor shall submit to the Architect and the Owner's Project Manager a Progress Schedule showing for each class of work included in the Schedule of Values, the percentage completion to be obtained and the total dollar value of work to be completed as of the first of each month until Substantial Completion. All calculations shall be on the basis of work in place, but not including the value of materials delivered but not in place.

§8.2.5 The Progress Schedule shall be based on an orderly progression of the Work, allowing adequate time for each operation (including adequate time for submission and review of submittals), and leading to a reasonable certainty of Substantial Completion by the date established in the Agreement. The Progress Schedule will be reviewed by the Architect and the Owner's Project Manager for compliance with the requirements of this Article and will be accepted by the Architect or returned to the Contractor for revision and resubmittal. Unless specifically required by law, no payment under this Contract shall be due until the Progress Schedule has been approved by the Architect.

§8.2.6 If in any Application for Payment the total value of the completed Work in place, as certified by the Architect, is less than 90% of the total value of the Work in place estimated in the Progress Schedule, the Owner may, at the Owner's option, require the Contractor to accelerate the progress of the Work without cost to the Owner by increasing the work force or hours of work, or by other reasonable means approved by the Architect.

§8.2.7 If each of three successive applications, as certified by the Architect, indicate that the actual Work completed is less than 90% of the values estimated in the Progress Schedule to be completed by the respective dates, the Owner may at the Owner's option, treat the Contractor's delinquency as a default justifying the action permitted under paragraph 14.2.

§8.2.8 If the Architect has determined that the Contractor should be permitted to extend the time for completion as provided in paragraph 8.3, the calendar dates in the Progress Schedule shall be adjusted accordingly to retain their same relationship to the adjusted date of Substantial Completion, and the dollar value of Work to be completed as of the first of each month shall be adjusted prorata.

§8.2.9 If the Contractor fails to submit any Application for Payment in any month, the Architect shall, for the purpose of this evaluation of progress, certify separately to the actual value of the Work in place completed as of the first of the month to the best of the Architect's knowledge.

§8.2.10 Nothing herein shall limit the Owner's right to liquidated or other damages for delays by the Contractor or to any other remedy which the Owner may possess under other provisions of the Contract Documents or by law.

§ 8.2.11 If the Architect in reviewing any Application for Payment determines that the amount of completed Work in place as certified by the Architect is less than 90% of the Work in place required by the Contractor's construction schedule or schedule of values provided for in Section 9.2, or that there have been delays to critical paths and the Contract completion date will not be met, or that, in the Owner's sole discretion, there is reasonable concern that the Work will not be Substantially Complete by the date required in the Contract Documents, the Contractor shall be required to submit a recovery schedule with a written description of the steps the Contractor intends to take to put the Project back on schedule. At the Owner's option, the Contractor shall take some or all of the following actions at no additional cost to the Owner:

.1 Increase the number of workers on the site, in such quantities and trades as will substantially eliminate the backlog of work;

.2 Increase the number of working hours per shift, shifts per day, working days per week, amount of construction equipment, or any combination of the foregoing, sufficiently to substantially eliminate backlog of work; or

.3 Reschedule activities so that the completion dates initially scheduled will be met."

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 Delete Subparagraph 8.3.1 and replace with the following:

"§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes (except weather) beyond the Contractor's control; or by delay authorized by the Owner; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine, and this shall be the Contractor's sole remedy for such delay. Under no circumstances will the Contractor be entitled to an increase in the Contract Sum, or to any other damages, on account of or in connection with any delay, regardless of the cause of such delay, and Contractor agrees not to make any claim for such damages, including, but not limited, claims for damages on account of having to perform out-of-sequence work, claims for damages on account of loss of production, and claims for damages on account of hindrances or interference with the work."

8.3.3 Delete Subparagraph 8.3.3 and replace with the following

"§8.3.3 No claim for delay shall be allowed on account of failure of the Architect to furnish Drawings, Specifications or instructions or to return Shop Drawings or Samples until 30 days after receipt by the Architect by registered or certified mail of written demand for such instructions, Drawings, or Samples, and not then unless such claim be reasonable."

8.3.4 - 8.3.5 Add the following Subparagraphs 8.3.4 and 8.3.5:

"§8.3.4 No extension of time shall be granted because of seasonal or abnormal variations in temperature, humidity or precipitation, which conditions shall be wholly at the risk of the Contractor, whether occurring within the time originally scheduled for completion or within the period of any extension granted. There shall be no increase in the Contract Sum on account of any additional costs of operations or conditions resulting therefrom.

§8.3.5 Except as expressly provided in M.G.L. c.30, §39O, the Contractor hereby agrees that the Contractor shall have no claim for damages of any kind against the Owner, the Owner's Project Manager or the Architect on account of any delay in the commencement of the Work and/or any delay or suspension of any portion of the Work, whether such delay is caused by the Owner, the Owner's Project Manager, the Architect, or otherwise. The Contractor acknowledges that the Contractor's sole remedy for any such delay and/or suspension will be an extension of time as provided in this Article."

8.4 TIME FOR COMPLETION AND LIQUIDATED DAMAGES

8.4 Add the following Paragraph 8.4 and Subparagraphs 8.4.1 through 8.4.8:

"§8.4 TIME FOR COMPLETION AND LIQUIDATED DAMAGES

§8.4.1 It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the date of beginning and the time for completion of the work to be done hereunder are ESSENTIAL CONDITIONS of this Contract; and it is further mutually understood and agreed that the work embraced in this Contract shall be commenced on a date to be specified in the "Notice to Proceed."

§8.4.2 The Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will ensure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

§8.4.3 If the said Contractor shall neglect, fail, of refuse to complete the work within the time herein specified, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as a part consideration for the awarding of this Contract, to pay to the Owner the amount specified in the Contract, not as a penalty but as liquidated damages for such breach of contract has hereinafter set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the Contract for completing the work.

§8.4.4 The said amount of liquidated damages is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would sustain in such event and said amount shall be retained from time to time by the Owner from current periodic estimates, monies which may be then due, or which may become due and payable to the Contractor a sum sufficient to compensate the Owner for the costs and expenses of employing architects, engineers, inspectors and employees to the extent that their services are reasonably required during the period of default. These expenses also include, but are not limited to, additional costs due to the rental or lease or the extension of any rental or lease agreement for buildings to house students and the rental or lease or the extension of any rental or lease agreement or the purchase of any vehicles to transport students, and additional security to maintain the project site and any other site used to house students because of the Contractor's delay.

§8.4.5 It is further agreed that time is of the essence of each and every portion of this Contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this contract. Provided, that the Contractor shall not be charged with liquidated damages or any excess cost when the Owner determines that the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the owner; provided further, that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:

(a) To any preference, priority, or allocation order duly issued by the Government;

(b) To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including but not restricted to, acts of God, unjustified acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather;

(c) To any delays of sub-contractors or suppliers occasioned by any of the causes specified in subsections (a) and (b) of this article.

§8.5.6 Provided, further, that the Contractor shall, within ten (10) days from the beginning of each delay, unless the Owner shall grant a further period of time prior to the date of final settlement of the Contract, notify the Owner, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify the Contractor within a reasonable time of its decision in the matter.

§8.4.7 The amount of such liquidated damages shall be in the amount of twenty-five hundred dollars ($2,500.00) for each calendar day beyond the Contract time.

§8.4.8 The provisions of this paragraph 8.4 shall not prevent the Owner from exercising its contractual and statutory rights, and seeking recovery from the Contractor, on account of any actual damages incurred by reason of the Contractor's failure to perform the work within the time required by the Contract Documents."

ARTICLE 9: PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

9.1. In the first sentence of Subparagraph 9.1, delete "total" and replace with "maximum".

9.2 SCHEDULE OF VALUES

9.2 Delete Subparagraph 9.2 and replace with the following:

"§9.2.1 Before the first Application for Payment, the Contractor shall submit to the Project Manger and Architect a schedule of values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Project Manager or Architect may require and shall be revised if later found by the Architect to be inaccurate. This schedule, unless objected to the Project Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment."

9.2.1 Add the following Subparagraphs 9.2.1 and 9.2.2:

"§9.2.1 The Schedule of Values shall be divided in items corresponding to each Section of these Specifications. If required by the Architect, these items shall further be broken down in such form as the Architect may require, as to facilitate the checking of the Contractor's Application for Payment.

§9.2.2 The Contractor shall submit cash Flow Schedule at least 14 days before first application for payment, that shows the percentage completion to be obtained and the total dollar value of Work to be completed as of the first of each month until Substantial Completion. All calculations in the Cash Flow Schedule shall be on the basis of Work in place and shall exclude the value of materials delivered but not in place. The Cash Flow Schedule shall be based on an orderly progression of the Work allowing adequate time for each operation (including adequate time for submission and review of submittals) and leading to a reasonable certainty of Substantial Completion by the date established in the Agreement. The Cash Flow Schedule will be reviewed by the Architect for compliance with the requirements of the Contract Documents. Unless specifically required by law, no payment under this Contract shall be due until the Cash Flow Schedule has been reviewed and approved by the Architect. The Architect's review of the Cash Flow Schedule shall not impose any duty on the Architect or the Owner with respect to the timing, planning, scheduling or execution of the Work. In particular if the Contractor proposes a Cash Flow Schedule indicating a date of Substantial Completion which is earlier than the Contract Time the Contractor shall not be entitled to additional payment or compensation of any kind if for any reason the full Contract Time is required to achieve Substantial Completion of the Work."

9.3 APPLICATIONS FOR PAYMENT

9.3.1 Delete Subparagraph 9.3.1 and replace with the following:

"§9.3.1 On the first day of each month, exclusive of a Saturday, Sunday or legal holiday, the Contractor shall deliver to the Architect and the Owner's Project Manager by hand or by registered or certified mail with return receipt an itemized Application for Payment, supported by such data substantiating the Contractor's right to payment as the Owner or the Architect may require and reflecting retainage if any, as provided elsewhere in the Contract Documents. Such Application for Payment shall be in form approved by the Architect and similar to A.I.A. Form G702 "Application for Payment"; however, notarization will not be required. The form shall show separately."

.1 The value of labor and materials incorporated in the Work.

.2 The value, kind and quantity of each item of material and/or equipment not incorporated in the Work but delivered and suitably stored at the site or at some other location agreed upon in writing in accordance with Subparagraph 9.3.2 hereinbelow.

.3 All executed Change Orders and Change Directives up to the date of Application for Payment.

9.3.1.1 Delete Subparagraph 9.3.1.1 without replacement

9.3.2 Add the following Subparagraph 9.3.2:

"§9.3.2 The Owner may deduct the amount of such costs from payments due the Contractor. The Contractor shall assume responsibility to protect all such materials from loss or damage, at no cost to the Owner, until they are finally incorporated into the work, whether or not they have been paid for by the Owner."

9.3.4-9.3.6 Add Subparagraphs 9.3.4 through 9.3.6:

"§9.3.4 In no event may materials and/or equipment be deemed delivered and suitably stored at the site (or at some other location agreed upon in writing), unless in the judgement of the Architect, the following requirements are met:

.1 The materials and/or equipment are ready for and actually scheduled for prompt use, as so called stockpiling is expressly forbidden, except where otherwise specified.

.2 The materials and/or equipment meet the requirements of the Contract Documents.

.3 The Contractor can and will adequately protect the materials and/or equipment until they are incorporated in the work.

.4 The Contractor shall pay storage' charges and related expenses, if materials and/or equipment are stored at some other location agreed upon in writing.

§9.3.5 Each Application for Payment or periodic estimate requesting payment shall be accompanied at the Owner's option by (i) a waiver of liens from each Subcontractor or (ii) a certificate from each Subcontractor stating that the Subcontractor has been paid all amounts due the Subcontractor on the basis of the previous periodic payment to the Contractor, or else stating the amount not so paid and the reason for the discrepancy. In the event of any such discrepancy,. the Contractor shall furnish the Contractor's own written explanation to the Owner through the Architect and the Owner's Project Manager. Such waiver or certificate shall be in a form acceptable to the Owner.

§9.3.6 Each monthly Application for Payment shall include an additional line item adjacent to the Description of Work that reads, 'MSBA Code' where the MSBA code number that coincides with the Description of Work and describes a separate summary of the invoiced costs by Division and follows the MSBA cost classification codes summary form. The Contractor shall tie the subtotals for each Division in the Requisition itself."

9.5 DECISIONS TO WITHHOLD CERTIFICATION

9.5.1 In Subparagraph 9.5.1, delete Item .6 and replace with the following:

".6 reasonable evidence that the Work will not be completed within the Contract Time, and that retainage currently held by the Owner would not be adequate to cover actual or liquidated damage for the anticipated delay;"

After Item 7 of Subparagraph 9.5.1, add the following:

".8 failure of mechanical trade or electrical trade subcontractors to comply with mandatory requirements for maintaining record drawings. The Contractor shall check record drawings each month and provide to the Owner's Project Manager for their review. Written confirmation that the record drawings are current will be required by the Architect and the Owner's Project Manager before approval of the Contractor's monthly payment requisition.

.9 failure of the Contractor to provide required warranties under subparagraph 9.3.3, claims for direct payment, or reasonable evidence indicating probable filing of such claims; or

.10 liquidated damages incurred by the Owner pursuant to Section 8.4.

.11 costs incurred by the Owner under Section 10.2.5;

.12 failure of the Contractor to submit an acceptable monthly project schedule update or any other prerequisite documentation required by the General Requirements."

9.5.3 Delete Subparagraph 9.5.3 without replacement.

9.6 PROGRESS PAYMENTS

9.6.1- Delete Subparagraphs 9.6.1 and 9.6.2 and replace with the following:

"§9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment to the General Contractor in accordance with Section 39K of Chapter 30 of the General Laws.

§9.6.2 Payments to the Subcontractors for any sub-trade listed in Item 2 of the Form for General Bid shall be made in accordance with Section 39F of Chapter 30 of the General Laws, as amended, which Section provides as follows:

.1 Forthwith after the General Contractor receives payment on account of a periodic estimate, the General 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 General Contractor.

.2 Not later than the sixty-fifth 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 Awarding Authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the Subcontractor; and the Awarding Authority shall pay the amount specified in any court proceeding barring such payment and also less any amount claimed due from the Subcontractor by the General Contractor.

.3 Each payment made by the Awarding Authority to the General Contractor pursuant to Subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a Subcontractor shall be made to the General Contractor for the amount of that Subcontractor; and the Awarding Authority shall take reasonable steps to compel the General Contractor to make each such payment to each such Subcontractor. If the Awarding Authority has received a demand for direct payment from a Subcontractor for any amount which has already been included in a payment to the General Contractor or which is to be included in a payment to the General Contractor for payment to the Subcontractor as provided in Subparagraphs (a) and (b), the Awarding Authority shall act upon the demand as provided in this Section.

.4 If, within seventy days after the Subcontractor has substantially completed the Subcontract work, the Subcontractor has not received from the General Contractor the balance due under the Subcontract including any amount due for extra labor and materials furnished to the General Contractor, less any amount retained by the Awarding Authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the Subcontractor may demand direct payment of that balance from the Awarding Authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the Awarding Authority, and a copy shall be delivered to or sent by certified mail to the General 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 seventieth 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 Awarding Authority and delivered or so mailed a copy to the General Contractor, the General Contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the Awarding Authority 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 General Contractor and of the amount due for each claim made by the General Contractor against the Subcontractor.

.5 Within fifteen days after receipt of the demand by the Awarding Authority, but in no event prior to the seventieth day after substantial completion of the Subcontract work, the Awarding Authority 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 General Contractor, less any amount, (i) retained by the Awarding Authority 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 General Contractor in the sworn reply; provided, that the Awarding Authority 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 (d).

The Awarding Authority 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.

.6 The Awarding Authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of Subparagraph (e) in an interest-bearing joint account in the names of the General Contractor and the Subcontractor in a bank in Massachusetts selected by the Awarding Authority or agreed upon by the General Contractor and the Subcontractor and shall notify the General 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 General Contractor and the Subcontractor or as determined by decree of a court of competent jurisdiction.

.7 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 (f) shall be made out of amounts payable to the General 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 General Contractor and in order of receipt of such demands from Subcontractors. All direct payments shall discharge the obligation of the Awarding Authority to the General Contractor to the extent of such payment.

.8 The Awarding Authority shall deduct from payments to a General Contractor amounts which, together with the deposits in interest-bearing accounts pursuant to Subparagraph (f), 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 General Contractor.

.9 If the Subcontractor does not receive payment as provided in Subparagraph (a) or if the General Contractor does not submit periodic estimate for the value of the labor and 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 (a), the Subcontractor may demand direct payment by following the procedure in Subparagraph (d) and the General 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 performed or furnished the labor and materials 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 General Contractor. Thereafter the Awarding Authority shall proceed as provided in Subparagraphs (e), (f), (g) and (h).

9.6.3 Delete Subparagraph 9.6.3 without replacement

9.6.4 In the first sentence and after "Owner" of subparagraph 9.6.4, add "and Owner's Project Manager"

In the second sentence of Subparagraph 9.6.4, delete "If the Contractor fails to furnish such evidence within seven days," without replacement.

Delete the last sentence of Subparagraph 9.6.4 and replace with "Neither the Owner, the Owner's Project Manager, or the Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, Sub-subcontractor or material supplier."

9.6.5 Delete Subparagraph 9.6.5 and replace with the following:

"§9.6.5 On all applications for payment, the Contractor shall indicate the sums of money being requisitioned for payment of his principal material suppliers and Subcontractors, and shall include a sworn certificate that his money will be used to pay these material suppliers and Subcontractors promptly after receipt of payment from the Owner. Applications for payment shall be consistent with the Schedule of Values. Upon completion of the Work, the Contractor shall sign a sworn and notarized release form certifying that all payrolls, materials, bills and other obligations of the Contractor in connection with the Work have been paid and in consideration of all prior payments and the final payment, releasing and forever discharging the Owner from all claims, demands, obligations and liabilities of every kind and nature which arise out of or relate to the Contract."

9.6.7 Delete Subparagraph 9.6.7 without replacement

9.7 FAILURE OF PAYMENT

9.7 Delete Paragraph 9.7 replace with the following:

"§9.7 If the Owner fails to make payments as provided in Section 39K of Chapter 30, the Contractor shall be compensated as set forth in said Section."

9.8 SUBSTANTIAL COMPLETION

9.8.1 After the last sentence of Subparagraph 9.8.1, add "and only minor items which can be corrected or completed without any material interference with the Owner's use of the Work remaining to be corrected or completed. In addition, Substantial Completion for the entire Project shall be achieved only when: (1) the Owner has beneficial occupancy and use of the entire Project for all its intended uses; (2) all Project systems included in the Work are operational and acceptable to the Owner; (3) all governmental inspections for the Project have been successfully completed, all governmental approvals and related paperwork have been delivered to the Owner, and final and unconditional certificates of occupancy for the entire Project have been delivered to the Owner, (4) the only remaining Work to be performed is minor in nature and the remaining Work may reasonably be performed without having a material adverse effect on or materially interfering with the Owner's occupancy and use of the Project and (5) all prerequisites to Substantial Completion defined in the Contract Documents have been completed."

9.8.2 Delete Subparagraph 9.8.2 and replace with the following:

"§9.8.2 When the Contractor considers that the Work is substantially complete and the premises comply with subparagraph 3.15.1, the Contractor shall submit to the Architect (1) a list of items to be completed or corrected, (2) all special warranties required by the Contract Documents, endorsed by the Contractor and in a form reasonably acceptable to the Architect and (3) the permits and certificates referred to in subparagraph 13.5.4. The failure to include any items on the list mentioned in the preceding sentence does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the Architect on the basis of an inspection determines that the Work or designated portion thereof is substantially complete and the other conditions have been met, the Architect will then prepare a Certificate of Substantial Completion which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of the responsibilities assigned to them in such Certificate."

9.8.5 Delete the second and third sentences of Subparagraph 9.8.5 without replacement.

9.8.6 Add the following Subparagraph 9.8.6:

"§ 9.8.6 Services provided by the Architect to conduct more than three (3) inspections of completed Work and any inspections beyond sixty (60) days after the date of substantial completion of any portion of the Work as stated in the Agreement shall be paid by the Contractor to the Owner. The Owner may deduct the cost of such services and inspections from payments due the Contractor."

9.9 PARTIAL OCCUPANCY OR USE

9.9.1 Delete Subparagraph 9.9.1 and replace with the following:

"§9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any state. Such partial occupancy or use may begin whether or not the portion is substantially complete, provided that the respective responsibilities of the Owner and Contractor with respect to payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work, insurance, correction of the Work, and warranties shall be established by agreement of the Owner and Contractor or, absent such agreement, shall be determined by the Architect subject to the right of either party to contest such determination as provided in Article 15."

9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.1 After the last sentence of subparagraph 9.10.1, add "Final Payment shall be made in accordance with Section 39K of Chapter 30. By Final Completion, the Contractor shall have completed its performance of all Punchlist items, completed all balancing of mechanical and other applicable systems and all seasonal system adjustments that are reasonably necessary to proper functioning of the completed Project, delivered to the Owner all operations and maintenance manuals and completed related training for such manuals, and delivered to the Owner all required warranties and guarantees."

9.10.2 Delete the second and third sentences of Subparagraph 9.10.2 without replacement

9.10.3 Delete Subparagraphs 9.10.3 and 9.10.4 without replacements.

9.10.5 In the first sentence and after "payee" of Subparagraph 9.10.5, add "for payment for Work performed and of all other claims of which the payee knew or should have known at the time of final payment,"

9.11 AVAILABILITY OF FUNDS

9.11 - 9.11.1 Add the following Paragraph 9.11 and Subparagraph 9.11.1:

"§ 9.11 AVAILABILITY OF FUNDS

§ 9.11.1 Anything herein before set forth to the contrary notwithstanding, nothing in this contract shall be deemed to commit the Owner to pay a sum in excess of monies lawfully appropriated by or available to the Owner for such payments."

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1.2 At the end of subparagraph 10.2.1.2, delete the word "and" without replacement.

10.2.1.3 At the end of subparagraph 10.2.1.3, add the word ", and"

10.2.1 Add the following Item 4:

".4 any other property of the Owner, whether or not forming part of the Work, located at the site or adjacent thereto in areas to which the Contractor has access."

10.2.5 Delete Subparagraph 10.2.5 and replace with the following:

"§ 10.2.5 The Contractor shall promptly remedy damage and loss to property referred to in subparagraphs 10.2.1.2, 10.2.1.3 and 10.2.1.4. If the damage or loss is due in whole or in part to the Contractor's failure to take the precautions required by this paragraph 10.2, the Contractor shall, subject to any reimbursement to which the Contractor is entitled under property insurance required by the Contract Documents, bear the cost."

10.2.8- 10.2.15 Add the following Subparagraphs 10.2.8 through 10.2.15:

"§ 10.2.8 The Contractor shall provide and maintain in good operating condition suitable and adequate fire protection equipment and services, and shall comply with all reasonable recommendations regarding fire protection made by the representatives of the fire insurance company carrying insurance on the Work or by the local fire chief or fire marshal. The area within the site limits shall be kept orderly and clean, and all combustible rubbish shall be promptly removed from the site. The Contractor shall promptly remedy damage and loss to property of the Owner. If the damage or loss is due in whole or in part to Contractor's failure to take the precautions required in Article 10, the Contractor shall, subject to any reimbursement to which the Contractor is entitled under Property insurance required by the Contract Documents, bear the cost. The Contractor shall be fully and solely responsible for all Work and other operations carried out on any adjacent properties. The insurance required under the General Conditions, as modified by the Supplementary General Conditions, shall cover such Work operations, and the Contractor shall indemnify and defend the Owner, Architect, and Owner's Project Manager from and against any and all claims suits, losses or costs arising out of such Work or operations or caused by the failure of the Subcontractor, regardless of tier, or anyone directly or indirectly employed by any of them or anyone for whose acts they may be liable, to take precautions required by Article 10.

§ 10.2.9 The Contractor shall at all times protect excavations, trenches, buildings and materials, from rain water, ground water, backup or leakage of sewers, drains and other piping, and from water of any other origin and shall remove promptly any accumulation of water. The Contractor shall provide and operate all pumps, piping and other equipment necessary to this end.

§ 10.2.10 The Contractor shall take care of all existing pipe lines, conduits, poles, wiring and other utilities that in any way interfere with the work, whether or not they are specifically shown on the drawings. He shall notify the proper authorities and see that all items to be maintained are protected, supported, or relocated as necessary to adjust them to the new work. He shall notify the Architect in writing of the exact nature, size, and location of any utilities encountered which are not shown in or deviate from the drawings. Any damage to active utilities shall be repaired by the Contractor, as directed by the Architect, at no cost to the Owner.

§ 10.2.11 The Contractor and all Subcontractors shall comply with applicable provisions of Federal Laws including, but not limited to the latest amendments of the following:

.1 William-Steiger Occupational Safety and Health Act of 1970, Public Law 91-596.

.2 Part 1518 - Safety and Health Regulations for Construction, Chapter XIII of Title 29, Code of Federal Regulations.

.3 Part 1910 - Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations.

§ 10.2.12 During the progress of the Work and at all times prior to the date of Substantial Completion or occupancy of the Work by the Owner, whichever is earlier, the Contractor shall provide temporary heat, ventilation, and enclosure, adequate to permit the Work to proceed in a timely fashion, and to prevent damage to completed Work or Work in progress, or to materials stored on the premises. The permanent heating and ventilation systems may be used for these purposes when available unless otherwise provided in the Contract Documents."

§ 10.2.13 The Contractor shall remove snow and ice which might result in damage or delay.

§ 10.2.14 [G.L. c.149, §44F(1)] The Contractor shall install weather protection and furnish adequate heat in the protected area from November 1 to March 31.

§ 10.2.15 The Contractor shall arrange for, coordinate and pay all costs associated with crossing guards and police details required for the Work."

10.3 HAZARDOUS MATERIALS

10.3.1 In the second sentence and after "(PCB)" of Subparagraph 10.3.1, add "or any other hazardous and/or toxic, and/or any potentially hazardous and/or toxic materials."

After the last sentence of Subparagraph 10.3.1, add "Contractor shall not perform any testing of existing soils or existing building materials contained within the existing site."

10.3.2 Delete Subparagraph 10.3.2 without replacement

10.3.3 Delete Subparagraph 10.3.3 without replacement

10.3.4 Delete Subparagraph 10.3.4 without replacement

10.3.5 In the first sentence and after "under" of Subparagraph 10.3.5, delete the rest of the paragraph, and replace with the following: "Article 10 or for any violation of applicable law related to the Contractor's noncompliance with the provisions of this Article 10."

Delete the last sentence of Subparagraph 10.3.5 without replacement.

10.3.6 Delete Subparagraph 10.3.6 and replace with the following:

"§ 10.3.6 The Contractor shall strictly comply with all laws, regulations, rules, orders, ordinances and the like related to the excavation, storage, removal and disposal of any such hazardous substances or materials."

10.4 EMERGENCIES

10.4.1 Add the following Subparagraph 10.4.1:

"§ 10.4.1 The Contractor shall furnish the Owner and the Architect in writing, the names, addresses and telephone numbers, of members of the Contractor's organization to be called in the event of an out-of-hours emergency at the project site. He also shall have this information affixed in legible form under glass or plastic to the outside of the field office."

ARTICLE 11: INSURANCE AND BONDS

11.1 **CONTRACTOR'S LIABILI**TY INSURANCE

11.1.1 In the second sentence and after "word" of subparagraph 11.1.1, add "and to which the Owner has no reasonable objection".

11.1.2 Delete Subparagraph 11.1.2 and replace with the following:

"§ 11.1.2 The insurance required by subparagraph 11.1.1 shall include all major divisions of coverage, and shall be on a commercial general basis including Premises and Operations (including X-C-U), Owner's and Contractor's Protective, Products and Completed Operations, and Owned, Non-owned, and Hired Motor Vehicles. Such insurance shall be written for not less than any limits of liability required by law or those set forth in the Contract Documents, whichever is greater.

All insurance shall be written on an occurrence basis, unless the Owner approves in writing coverage on a claims-made basis. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment. The Owner and the Architect shall be added as an Additional Insured on all policies. Coverage for such liability insurance shall be provided by a company or companies reasonably acceptable to the Owner and authorized to do business in Massachusetts. Contractor shall furnish to Owner written confirmation as to the insurance carrier's most current financial ratings prior to commencing work."

11.1.3 After the last sentence of subparagraph 11.1.3, add "These certificates shall set forth evidence of all coverage required by 11.1.1 and 11.1.2. The form of certificate shall be AIA Document G705. The Contractor shall furnish to the Owner copies of any endorsements that are subsequently issued amending limits of coverage."

11.1.3.1 Add the following Subparagraphs 11.1.3.1 and 11.1.3.2:
11.1.3.2

"§ 11.1.3.1 The Contractor shall be responsible for having acceptable insurance coverage provided by or on behalf of all Subcontractors, with such insurance to be similar to that required of the Contractor under the Agreement and these General Conditions. The Contractor shall not allow any Subcontractor to commence Work on the Project prior to the Contractor's receipt of certificates of insurance that are acceptable in form and limits to the Owner; the Owner shall have no obligation to pay the Contractor for any Work performed by a Subcontractor who has not supplied acceptable insurance certificates prior to starting its Work. The Owner shall be named an additional insured on all such certificates.

§ 11.1.3.2 All insurance policies shall contain provisions or endorsements necessary to assure coverage of claims by one insured against another. All required insurance policies are to be endorsed to state that the Contractor's policies shall be primary to all other insurance available to the Owner and other specified additional insureds for liability arising out of or resulting from the Contractor's operations under the Contract, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable."

11.1.4 In the first sentence and after "Owner" of Subpqaragraph 11.1.4, add ", the Owner's Project Manager"

11.1.5 - 11.1.6 Add the following Subparagraphs 11.1.5 and 11.1.6:

"§ 11.1.5 In no case shall the limits of liability be less than required by the Massachusetts School Building Authority Standard Construction Contract Insurance provisions (see specification Sections 00 08 26 – Insurance Requirements).

§ 11.1.6 Comply with all additional requirements as outlined in the Massachusetts School Building Authority Standard Construction Contract Insurance provisions (see specification Section 00 08 26 – Insurance Requirements)."

11.2 **OWNER'S LIABILITY IN**SURANCE

11.2 Delete the sentence of Paragraph 11.2 and replace the following: "The Contractor shall procure and pay for an Owner's policy of Owner's protective liability insurance insuring the Owner and its officers, employees and agents against claims which may arise from operations under the Contract or relating thereto"

11.3 PROPERTY INSURANCE

11.3.1 Delete Subparagraph 11.3.1 and replace with the following:

"§ 11.3.1 The Contractor shall purchase and maintain property insurance upon the entire Work at the site to the full insurable value thereof. Coverage for such insurance shall be provided by a company or companies reasonably acceptable to the Owner and which have, and shall maintain throughout the pendency of this contract, a minimum financial rating of not less than A+ according to A.M. Best or AAA according to Moody's. Contractor shall furnish to Owner written confirmation as to the insurance carrier's most current financial ratings prior to commencing work. Such insurance shall include the interest of the Owner, the Contractor, Subcontractor and Sub-subcontractors in the work and shall insure against the perils of fire and extended coverage and shall include "all risks" insurance for physical loss or damage including without duplication, theft, vandalism and malicious mischief. This insurance shall also cover portions of the Work stored off the site or in transit, which are included in an Application for Payment. If this insurance is written with stipulated amounts deductible, the Owner shall not be responsible for any difference between the payments made by the insurance carrier and the claim. The policy shall contain a provision that coverages afforded under policies will not be cancelled or allowed to expire until at least 30 days' written notice has been given to the Owner. The Owner shall be named insured within the policy."

11.3.1.1- 11.3.7 Delete Subparagraphs 11.3.1.1 through 11.3.7 without replacement

11.3.8 Delete the first sentence of Subparagraph 11.3.8 without replacement

11.3.9 Delete Subparagraph 11.3.9 and replace with the following:

"**§** 11.3.9 The Owner shall have the power to adjust and settle with its insurers any loss for which it has obtained insurance pursuant to 11.2. Upon the occurrence of an issue of loss, the Owner and the Contractor shall cooperate with each other and with each other's insurer in the submission of claims and related information and the distribution of any insurance proceeds. If after such loss no other special agreement is made, replacement of damaged work shall be covered by an appropriate change order."

11.3.10 Delete Subparagraph 11.3.10 without replacement

11.4 PERFORMANCE BOND AND PAYMENT BOND

11.4.1 Delete Subparagraph 11.4.1 and replace with the following:

"§11.4.1 The Contractor shall furnish bonds covering the faithful performance of the Contract and payment of obligations arising thereunder. Bonds may be obtained through the Contractor's usual source and the cost thereof shall be included in the Contract Sum. The amount of each bond shall be equal to 50% percent of the Contract Sum.

11.4.1.1 - Add the following Subparagraphs 11.4.1.1 and 11.4.1.2:
11.4.1.2

"§ 11.4.1.1 The Contractor shall deliver the required bonds to the Owner not later than three days following the date the Agreement is entered into, or if the Work is to be commenced prior to that date in response to a letter of intent, the Contractor shall, prior to the commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished.

§ 11.4.1.2 The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bonds a certified and current copy of the power of attorney."

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

12.2 CORRECTION OF WORK

12.2.1 In the last sentence of Ssubparagraph 12.2.1 add "and any cost, loss, or damages to the Owner resulting from such failure or defect."

12.2.2.1 Delete the third sentence of Subparagraph 12.2.2.1 without replacement

After the last sentence of Subparagraph 12.2.2.1, add the following: "If the Contractor does not proceed with correction of such nonconforming Work within a reasonable time fixed by written notice from the Architect, the Owner may remove it and store the salvable materials or equipment at the Contractor's expense. If the Contractor does not pay costs of such removal and storage within ten days after written notice, the Owner may upon ten additional days' written notice sell such materials and equipment at auction or at private sale and shall account for the proceeds thereof, after deducting costs and damages that should have been borne by the Contractor, including compensation for the Architect's services and expenses made necessary thereby. If such proceeds of sale do not cover costs which the Contractor should have borne, the Contract Sum shall be reduced by the deficiency. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner. If the correction or repair of any of the Work is required to avoid impacts to the maintenance, operation or safety of any portion of the Project site or the Owner's property, the Owner reserves the right to undertake the repairs prior to notifying the Contractor or without waiting for the Contractor to respond, without waiving the Owner's rights under the warranties and the Owner's right to correct work under Section 2.4."

ARTICLE 13: MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

13.1 Delete Paragraph 13.1 and replace with the following:

"**§ 13.1 GOVERNING LAW**
The Contract shall be governed by the law of the Commonwealth of Massachusetts."

13.2 SUCCESSORS AND ASSIGNS

13.2.2 Delete Subparagraph 13.2.2 and replace with the following:

"§13.2.2 If the Owner conveys its interest in the Project to a third party, any rights which the Owner may have against the Contractor arising from this Agreement including without limitation Claims under Article 12 or Claims which, under the terms of Article 15, are reserved to the Owner after the making and acceptance of final payment, shall automatically transfer to such third party."

13.5 TESTS AND INSPECTIONS

13.5.4 Delete Subparagraph 13.5.4 and replace with the following:

"§13.5.4 The Contractor shall obtain and deliver promptly to the Architect and the Owner's Project Manager any occupancy permit and any certificates of final inspection of any part of the Contractor's work and operating permits for any mechanical apparatus, such as elevators, escalators, boilers, air compressors, etc., which may be required by law to permit full use and occupancy of the premises by the Owner. Receipt of such permits or certificates by the Architect and the Owner's Project Manager shall be a condition precedent to Substantial Completion of the Work."

13.5.5 Delete subparagraph 13.5.5 and replace with the following:

"**§ 13.5.5** If the Architect or Owner's independent testing agency is to observe tests, inspections or approvals required by the Contract Documents, the Architect or Owner's independent testing agency will do so promptly and, where practicable, at the normal place of testing. Where independent testing is requested, the Contractor shall provide written notification to the Owner's Project Manager two business days in advance of the scheduled activities requiring independent testing."

13.7 STATUTORY LIMITATION PERIOD

13.7 Delete Paragraph 13.7 and Subparagraph 13.7.1 and replace with the following:
13.7.1

"**§ 13.7 STATUTORY LIMITATION PERIOD**
§ 13.7.1 It is expressly agreed that the obligations of the Contractor hereunder arise out of contractual duties, and that the failure of the Contractor to comply with the requirements of the Contract Documents shall constitute a breach of contract, not a tort, for the purpose of applicable statutes of limitation and repose. Any cause of action which the Owner may have on account of such failure shall be deemed to accrue only when the Owner has obtained actual knowledge of such failure, not before."

13.8 LIMITATIONS OF LIABILITY

13.8 Add the following Paragraphs 13.8. and 13.9:
13.9

"§13.8 LIMITATION OF LIABILITY
§13.8.1 The Owner shall be liable only to the extent of its interest in the Project; and no officer, director, partner, agent or employee of the Owner (or any partner of a partner or any agent or employee of a partner, board, commission or committee of the Owner) shall ever be personally or individually liable with respect to this Contract or the Work. Each Subcontract shall include the foregoing limitation, which shall be effective if the Owner ever succeeds to the Contractor's rights and obligations under a Subcontract."

§13.9 DEFENSE OF SUITS
§13.9.1 The Contractor shall be responsible for, shall defend and pay all costs, attorneys' fees and liabilities, for both direct and indirect, as a result of suits arising out of this Contract.

§13.9.2 Neither final acceptance nor occupation of the premises by the Owner shall relieve the Contractor of responsibility for all claims for labor, materials, and equipment arising out of this contract.

§13.9.3 The Contractor shall indemnify and hold harmless the Owner and the Architect and their agents and employees from and against all claims, damages, losses, and expenses including attorneys' fees arising out of or resulting from the performance of the work."

13.10 STATUTORY REQUIREMENTS

13.10 Add the following Paragraph 13.10:

"§ 13.10 STATUTORY REQUIREMENTS

§ 13.10.1 The Contractor and Subcontractors should take notice of and agrees to comply with the following, to the extent that they are applicable: M.G.L. c.30 s 39F | M.G.L. c.30 s 39G | M.G.L. c.30 s 39I | M.G.L. c.30 s 39J | M.G.L. c.30 s 39K | M.G.L. c.30 s 39L | M.G.L. c.30 s 39M(b) | M.G.L. c.30 s 39N | M.G.L. c.30 s 39O | M.G.L. c.30 s 39P | M.G.L. c.30 s 39R | M.G.L. c.149 s 34 | M.G.L. c.149 s 44J | M.G.L. c.82 s 40

Prevailing wage rates, as contained in the bidding documents, shall apply, pursuant to M. G. L. c. 149, §§26-27G for all work done at the building site. Contractor agrees that it shall pay laborers to be employed on the project wages in an amount no less than the applicable prevailing wage rates established for the project by the Massachusetts Department of Labor and Workforce Development. The Contractor shall indemnify the Owner for, from and against any loss, expense, damages, actions or claims, including any expense incurred in connection with any delay or stoppage of the project work, arising out of or as a result of (1) the failure of the Contractor's or Subcontractor's bid to be based upon the payment of the said applicable prevailing wage rates, (2) the failure of the Contractor or Subcontractor to pay laborers employed on the project the said applicable prevailing wage rates, or (3) the failure of the Contractor or Subcontractor to anticipate and include pricing escalation which may result from annual prevailing wage rate updates as part of their bid.

In accordance with the requirements of M. G. L. c. 149, §27B, the Contractor shall submit, and shall require all of its Subcontractors, if any, to keep a record of hours and wages paid to laborers employed on the project to submit to the Awarding Authority, on a weekly basis, copies of such records.

The Contractor shall not discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, sexual orientation, 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, genetic status, sexual orientation (provided that a minor child is not the object of said orientation), age,

handicapped status, or national origin.

The Contractor shall comply with M.G.L. c. 268A, the Commonwealth's Conflict of Interest Law.

The Contractor shall comply with any and all MBE/WBE goals established for the project. The Contractor shall take all affirmative steps necessary to achieve this goal, and shall provide reports documenting the portion of contract and subcontract dollars paid to minority and women-owned businesses, and its efforts to achieve the goals, with each invoice submitted or at such greater intervals as specified by the (municipality). The Contractor shall require similar reports from its subcontractors.

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 1986, as amended, or engage in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws.

To the extent any of the foregoing sections required by Massachusetts law are inconsistent with other, non-statutory sections in this agreement, any statutorily- mandated provisions contained herein shall control.

Additionally, as stated, supra, any public solicitation issued by the awarding authority shall be expressly incorporated into this Contract.

Any public solicitation issued by the awarding authority shall be expressly incorporated into this Contract.

Contractor certifies, pursuant to M.G.L. c. 62C, §49A, that it is in compliance with all laws of the Commonwealth that pertain to taxes, to the reporting of employees and contractors, and to the withholding and remittance of child support.

CONTRACTOR SHALL SUBMIT ANY REQUIRED BONDS, ALL OF WHICH ARE SPECIFICALLY INCORPORATED BY REFERENCE INTO THE FOUR CORNERS OF THIS CONTRACT."

ARTICLE 14: TERMINATION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1. Delete Subparagraph 14.1 and replace with the following:

"14.1 TERMINATION BY THE CONTRACTOR
§ 14.1.1 Provided that the Contractor is not in breach of any of its obligations under the Contract, the Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reason:

.1 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or."

14.1.2 Delete Subparagraph 14.1.2 and replace with the following:

"§ 14.1.2 If one of the above reasons exists, the Contractor may, upon seven days written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work properly executed and for all materials or equipment not incorporated in the Work, but delivered and suitably stored at the site. The payment for materials or equipment stored at the site shall be conditioned upon submission by the Contractor of bills of sale or such other evidence as is satisfactory to the Owner to establish the Owner's title to such material or equipment or otherwise protect the Owner's interest."

14.1.1.4 Delete Subparagraph 14.1.1.4 without replacement

14.2 TERMINATION BY THE OWNER FOR CAUSE

14.2 Delete Paragraph 14.2 and replace with the following:

"**§** 14.2 TERMINATION BY THE OWNER
If the Contractor is adjudged a bankrupt, or if the Contractor makes a general assignment for the benefit of the Contractor's creditors, or if a receiver is appointed on account of the Contractor's insolvency, or if the Contractor persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if the Contractor fails to make prompt payment to Subcontractors or for materials or labor, or persistently disregards laws, ordinances, rules, regulations or orders of any public authority having jurisdiction or disregards an instruction, order or decision of the Architect, or otherwise is guilty of a substantial violation of any provision of the Contract, then the Contractor shall be in default, and the Owner may, without prejudice to any other right or remedy and upon written notice to the Contractor, exclude the Contractor from the Project site, take possession of all materials, tools, appliances, equipment, construction equipment and machinery and vehicles, offices and other facilities on the Project site, and all materials intended for the Work, wherever stored, and, seven (7) days after such notice, may terminate the employment of the Contractor, accept assignment of any or all subcontracts pursuant to subparagraph 5.4, and finish the Work by whatever method the Owner may deem expedient. The Owner shall be entitled to collect from the Contractor all direct, indirect, and consequential damages suffered by the Owner on account of the Contractor's default, including without limitation additional services and expenses of the Architect made necessary thereby. The Owner shall be entitled to hold all amounts due the Contractor at the date of termination until all of the Owner's damages have been established, and to apply such amounts to such damages."

14.2.1 Add the following Subparagraph 14.2.1:

"**§ 14.2.1** In addition, the Owner may terminate the Contract if the Contractor

.1 refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 becomes the subject of a voluntary petition in bankruptcy or any voluntary proceeding related to insolvency, receivership, liquidation or comparable proceeding or any assignment for the benefit of creditors or becomes the subject of an involuntary petition in bankruptcy or any involuntary proceeding related to insolvency, receivership, liquidation or comparable proceeding or any assignment for the benefit of creditors

.5 submits three successive Applications for Payment, each of which indicate that the actual Work completed is less than 90 percent of the values estimated in the construction schedule (submitted by the Contractor pursuant to Section 3.10.1) to be completed by the respective dates."

14.2.4 Delete Subparagraph 14.2.4 and replace with the following:

"§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including all costs and losses incurred by the Owner on account of the Contractor's failure to comply with the Contract Documents and compensation for the Architect's and Owner's Project Manager's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The Owner shall be entitled to hold all amounts due the Contractor at the date of termination until all of the Owner's damages have been established, and to apply such amounts to such damages."

14.3.2 Delete the first sentence of Subparagraph 14.3.2 and replace with "The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1, subject to compliance with the conditions of Section 8.3."

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

14.4.3 Delete Subparaqraph 14.4.3 and replace with the following:

"§ 14.4.3 In the event that the Contract is terminated for the Owner's convenience, the Contractor shall be reimbursed in accordance with the Contract Documents for all Work properly performed up to the termination date, and for all materials or equipment not incorporated in the Work but delivered and suitably stored at the site. Payment for materials or equipment stored at the site shall be conditioned upon submission by the Contractor of bills of sale or such other evidence as is satisfactory to the Owner to establish the Owner's title to such material or equipment or otherwise protect the Owner's interest. The Contractor shall not be entitled to payment for overhead and profit on the Work not executed."

ARTICLE 15 CLAIMS AND DISPUTES

15.1 CLAIMS

15.1.1 Delete Subparagraph 15.1.1 and replace with the following:

"§ 15.1.1 DEFINITION
The word "Claim" shall mean a written demand by the Contractor for an increase in the Contract Time or the Contract Sum. The Contractor is responsible for substantiating its Claims. The word "Claim" shall not include claims by the Owner. The Owner may withhold from the Contractor the value of any claims against the Contractor in accordance with Massachusetts General Laws, including, but not limited to, Sections 39G and 39K of Chapter 30."

15.1.1.1 Add the following Subparagraph 15.1.1.1:

"§ 15.1.1.1 Claims arising prior to final payment or the earlier termination of the Contract, including those alleging an error or omission by the Architect, shall be referred initially to the Initial Decision Maker for action as provided in paragraph 15.2. Any change or addition to a previously made Claim shall be made by timely written notice to the Initial Decision Maker as provided in paragraph 15.2. Claims arising after final payment or the earlier termination of The Contract shall not be subject to the provisions of paragraph 15.2."

15.1.2 Delete Subparagraph 15.1.2 and replace with the following:

"§ 15.1.2 NOTICE OF CLAIMS
Contractor must initiate Claims within twenty (20) calendar days after occurrence of the event giving rise to such Claim by written notice to the Architect and the Owner. Such written notice must (1) be signed by the Contractor; (2) conspicuously identify on its face that the notice serves as a notice of claim; (3) explain in sufficient detail the basis of the Claim; (4) identify the date of the event giving rise to such Claim; and (5) state the exact dollar amount of the increase in the Contract Sum being requested, if any, and the number of days extension to the Contract Time sought, if any."

15.1.4 Delete Subparagraph 15.1.4 and replace with the following:

"§ 15.1.4 CLAIMS FOR ADDITIONAL COST
If the Contractor claims that any acts or omissions of the Owner, the Owner's Project Manager or the Architect, including any instructions or orders, whether oral, written, by Drawings, or otherwise, involve extra cost or time, and the Contractor has not received a written acknowledgment by the Owner or Architect that extra payment will be made or time extended on account thereof, the Contractor shall promptly so notify the Architect in writing of such Claim and shall not proceed with the Work relating to such Claim until the Contractor has received a further written order to proceed in accordance with paragraph 15.2 except, as provided in paragraph 10.4, in the case of an emergency affecting life or property. No Claim by the Contractor on account of such acts, omissions, instructions or orders shall be valid unless the Contractor has so notified the Architect, before proceeding, and has received the further written order to proceed."

15.1.5.1 Delete the second sentence of subparagraph 15.1.5.1 and replace with "The Contractor shall have the burden of demonstrating the effect of the claimed delay on the Contract Time and shall furnish the Architect and the Owner's Project Manager with such documentation relating thereto as the Architect or the Owner's Project Manager may reasonably require. The progress Schedule in the Critical Path Method (CPM) format provided in accordance with requirements of the Contract Documents, shall be used for determining the Contractor's rights to an extension of time under paragraph 8.4. The Architect and the Owner's Project Manager will not be obligated to grant an extension of time unless the Contractor can demonstrate that the critical path has been negatively affected for reasons allowable under Paragraph 8.4. If requested to do so by the Architect or the Owner's Project Manager the Contractor shall furnish additional hard copy print-outs of revised CPM Progress Schedules reflecting actual or estimated time changes resulting from change orders or other events or actions which are the basis for the Claim for Additional Time."

15.1.5.2 Delete Subparagraph 15.1.5.2 and replace with the following:

"§15.1.5.2 No increase in Contract Time or claim for delay will be allowed for work which is delayed due to the failure of the General Contractor to submit, revise or submit shop drawings, product data and samples in adequate time to allow the Architect and the Owner's Project Manager reasonable time, for nominal checking and processing of each submission or resubmission, at least 14 days but no more than 21 days, depending upon the complexity of the submittal."

15.1.6 Delete Subparagraph 15.1.6 without replacement.

15.2 INITIAL DECISION

15.2.2 In the first sentence and after "and within" of subparagraph 15.2.2, delete "ten days" and replace with "twenty-one days."

15.2.4 Delete Subparagraph 15.2.4 and replace with the following:

"**§ 15.2.4** If the Architect requests the Contractor to furnish additional supporting data in connection with a Claim, the Contractor shall provide such data within ten (10) calendar days of such request. If the Contractor is of the opinion that it is impossible to provide such data within such time, the Contractor shall notify the Architect of such opinion in writing within such ten-day period. If the Architect determines that it is impossible for such data to be provided within such ten-day period through no fault of the Contractor, the Contractor shall provide such data within 30 calendar days of the Architect's request, unless the Architect fixes another date, in which case the data must be submitted by the date so fixed. Failure of the Contractor to provide such data within the time prescribed herein shall result in the irrevocable waiver of the Claim."

15.2.5 Delete the last sentence and replace with the following: "The rejection of a claim by the Architect and any decisions of the Owner with respect to the same, and the interpretations by the Architect of the plans, drawings and specifications, shall be final and binding on the Contractor in accordance with Section 39J of Chapter 30 of the Massachusetts General Laws."

15.2.6 Delete Subparagraphs 15.2.6 and 15.2.6.1 without replacement.
15.2.6.1

15.2.8 Delete Subparagraph 15.2.8 without replacement.

15.3 MEDIATION

15.3 Delete Paragraph 15.3 and all Subparagraphs 15.3.1, 15.3.2, 15.3.3, and all other references to mediation in the Contract. Disputes between the Owner and the Contractor shall be finally resolved in a court of competent jurisdiction.

15.4 ARBITRATION

15.4 Delete Paragraph 15.4 and all Subparagraphs 15.4.1, 15.4.1.1, 15.4.2,15.4.3, 15.4.4, 15.4.4.1, 15.4.4.2, 15.4.4.3, and all other references to arbitration in the Contract. Disputes between the Owner and the Contractor shall be finally resolved in a court of competent jurisdiction.

15.5 WORK TO CONTINUE

15.5 - 15.7 Add the following Subparagraphs 15.5, 15.6 and 15.7:

"§ 15.5 WORK TO CONTINUE

Unless ordered by the Owner to suspend all or any portion of the Work, the Contractor shall proceed with the performance of the Work without any interruption or delay during the pendency of any of the foregoing dispute resolution procedures. During the pendency of any of the foregoing dispute resolution procedures, the Owner shall continue to make all payments that are not in dispute in accordance with the provisions of the Contract Documents. The Contractor shall comply with any orders which the Owner may issue under the Contract Documents regarding the performance, schedule, or acceleration of all or any portion of the Work in accordance with the terms of the Contract.

§ 15.6 (Statuary Reference M.G.L. C.30 § 39P) In every case in which the Awarding Authority, any official, its Architect or Engineer is required by these Contract Documents to make a decision or interpretation of the specifications, approval of equipment, material or any other approval, or progress of work, the decision shall be made promptly and, in any event, no later than thirty days after written submission for decision; but if such decision requires extended investigation and study, the Awarding authority, the official, Architect or Engineer shall, within thirty days after the receipt of the submission, give the party making submissions written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision shall be made

§ 15.7 (Statuary Reference M.G.L. C.30 § 39J) Notwithstanding any contrary provision of this Contract, no decision by the Awarding Authority or by the Architect on a dispute, whether of fact or by law, arising under said contract shall be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, or arbitrarily, is unsupported by substantial evidence or is based upon the error of law."

ARTICLE 16 CONTRACTOR'S ACCOUNTING METHOD REQUIREMENTS

Article 16 Add the following Article 16 and Subparagraphs 16.1 through 16.5:
16.1 – 16.5

"§ ARTICLE 16 CONTRACTOR'S ACCOUNTING METHOD REQUIREMENTS [M.G.L. c.30, §39R]

§ 16.1 The words defined herein shall have the meaning stated below whenever they appear in this Article 16:

§ 16.1.1 "Contractor" means the Contractor as defined in the Contract.

§ 16.1.2 "Contract" means this agreement.

§ 16.1.3 "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

§ 16.1.4 "Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public account under the laws of the place of its residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the Owner.

§ 16.1.5 "Audit," when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a *certified* opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.

§ 16.1.6 "Accountant's Report," when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he has made and sets forth its opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the Contractor.

§ 16.1.7 "Management," when used herein, means the chief executive officers, partners, principals, or other person or persons primarily responsible for the financial and operational policies and practices of the Contractor.

§ 16.1.8 Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

§ 16.2 The following provisions shall apply to the Contract:

§ 16.2.1 The Contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor.

§ 16.2.2 Until the expiration of six years after final payment, the Owner, office of inspector general, and the commissioner of capital asset management and maintenance shall have the right to examine any books, documents, papers or records of the Contractor or of its Subcontractors that directly pertain to, and involve transactions relating to, the Contractor or its Subcontractors.

§ 16.2.3 The Contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the Owner, including in its description the date of the change and reasons therefor, and shall accompany said description with a letter from the Contractor's independent certified public accountant approving or otherwise commenting on the changes.

§ 16.2.4 The Contractor shall file a statement of management on internal accounting controls as set forth in Paragraph 16.3 below prior to the execution of the Contract.

§ 16.2.5 The Contractor shall file prior to the execution of the Contract and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in Paragraph 16.5 below.

§ 16.3 The Contractor shall file with the Owner a statement of management as to whether the system of internal accounting controls of the Contractor and its subsidiaries reasonably assures that:

§ 16.3.1 Transactions are executed in accordance with management's general and specific authorization;

§ 16.3.2 Transactions are recorded as necessary:

.1 to permit preparation of financial statements in conformity with generally accepted accounting principles, and

.2 to maintain accountability for assets;

§ 16.3.3 Access to assets is permitted only in accordance with management's general or specific authorization; and

§ 16.3.4 The recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

§ 16.4 The Contractor shall also file with the Owner a statement prepared and signed by an independent certified public accountant, stating that he has examined the statement of management on internal accounting controls, and expressing an opinion as to:

§ 16.4.1 Whether the representations of management in response to this Paragraph and Paragraph 16.2 above are consistent with the result of management's evaluation of the system of internal accounting controls; and

§ 16.4.2 Whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.

§ 16.5 The Contractor shall annually file with the commissioner of capital asset management and maintenance during the term of the Contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report."

ARTICLE 17 MASSACHUSETTS SCHOOL BUILDING AUTHORITY REQUIREMENTS

ARTICLE 17 -Add the following Article 17 and Paragraphs 17.1 through 17.3:
17.1 – 17.3

"§ ARTICLE 17 MASSACHUSETTS SCHOOL BUILDING AUTHORITY REQUIREMENTS

§ 17.1 The Contract for Construction is issued pursuant to a Project Funding Agreement between Owner and the Massachusetts School Building Authority under Massachusetts General Laws Chapter 70B and 960 CMR 2.00.

§ 17.2 Contractor acknowledges having received a copy of the Project Funding Agreement and agrees to comply with the terms thereof that are applicable to Contractor including, but not limited to the requirements of Section 16 for indemnification of the Massachusetts School Building Authority by the Contractor.

§ 17.3 Contractor agrees to comply with any and all conditions or requirements established by the Massachusetts School Building Authority through the Project Funding Agreement, or otherwise, at Contractor's sole cost and expense."

END OF SUPPLEMENTARY GENERAL CONDITIONS

SECTION 00 08 26

INSURANCE REQUIREMENTS

PART 1 - GENERAL

A. These insurance requirements refer to the AIA A201-2007 General Conditions of the Contract for Construction.

B. Provisions of the General Conditions of the Contract for Construction which are not modified by Supplementary General Condition or these Insurance Requirements remain in full effect.

C. Exhibit G – MSBA Standard Construction Contract Insurance Provisions for an Owner-Contractor Contract attached hereto and hereby made a part of the Contract Documents.

PART 2 – PRODUCTS NOT USED

PART 3 – EXECUTION NOT USED

END OF SECTION

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EXHIBIT "G"

MASSACHUSETTS SCHOOL BUILDING AUTHORITY
STANDARD CONSTRUCTION CONTRACT INSURANCE PROVISIONS FOR AN OWNER-CONTRACTOR CONTRACT
(Alternate Form for Construction Manager at Risk on Page 6 of this Exhibit G)

The District shall include, at a minimum, the following language regarding insurance requirements in the Owner-Contractor contract. The District may impose additional insurance requirements provided that any such additional requirements shall not be inconsistent with the requirements imposed by the standard language set forth herein and further provided that, prior to issuing an invitation for bids for construction of the Project, the District shall give the Authority adequate written notice clearly describing any such additional requirements so that the Authority may, at its discretion, review and comment upon such additional requirements. Any such additional requirements may be set forth in Section 8 of the Insurance Requirements below. It shall be the sole responsibility of the District to determine whether additional insurance requirements are desirable or necessary for the Project and should be included in the Owner-Contractor contract.

INSURANCE REQUIREMENTS (Design-Bid-Build)

1. <u>Insurance Generally</u>.

A. The Contractor shall purchase and maintain insurance of the type and limits listed in this Article with respect to the operations as well as the completed operations of this Contract. This insurance shall be provided at the Contractor's expense and shall be in full force and effect for the full term of the Contract or for such longer period as this Article requires.

B. All policies shall be written on an occurrence basis and be issued by companies lawfully authorized to write that type of insurance under the laws of the Commonwealth with a financial strength rating of A- or better as assigned by AM Best Company, or an equivalent rating assigned by a similar rating agency acceptable to the Owner, or as otherwise acceptable to the Owner.

C. The Contractor shall submit three originals of each certificate of insurance, acceptable to the Owner, simultaneously with the execution of this Contract. Certificates shall show each type of insurance, insurance company, policy number, amount of insurance, deductibles and/or self-insured retentions, and policy effective and expiration dates. Certificates shall show the Massachusetts School Building Authority (hereinafter "Authority"), the Owner and anyone else the Owner may request as additional insureds as to all policies of liability insurance. Certificates shall specifically note the following:

- that the automobile liability, umbrella liability and pollution liability policies include the Authority and the Owner as additional insureds;
- that all policies include the coverage and endorsements in accordance with the terms and conditions as required by this Contract;
- that none of the coverages shall be cancelled, terminated, or materially modified unless and until thirty (30) days prior notice is given in writing to the Owner and the Authority;
- the Contractor shall submit updated certificates of insurance prior to the expiration of any of the policies referenced in the certificates so that the Owner shall at all times possess certificates indicating current coverage.

D. The Contractor shall file one certified, complete copy of all policies and endorsements with the Owner within sixty (60) days after Contract award. If the Owner is damaged by the Contractor's failure to maintain such insurance and to comply with the terms of this Article, then the Contractor shall be responsible for all costs and damages to the Owner and the Authority attributable thereto.

E. Termination, cancellation, or material modification of any insurance required by this Contract, whether by the insurer or the insured, shall not be valid unless written notice thereof is given to the Owner, and the Authority to the extent that the Authority is an additional insured, at least thirty (30) days prior to the effective date thereof, which shall be expressed in said notice.

F. The Contractor is responsible for the payment of any and all deductibles under all of the insurance required herein. Neither the Owner nor the Authority shall in any instance be responsible for the payment of deductibles, self-insured retentions, or any portion thereof.

2. <u>Contractor's Commercial General Liability.</u>

A. The Contractor shall purchase and maintain general liability coverage on the ISO form CG 00 01 or equivalent, including products and completed operations, on an occurrence basis. The form must be amended to state that the aggregate limit applies on a per location/project basis. The policy shall provide the following minimum coverage to protect the Contractor from claims with respect to the operations performed by Contractor and any employee, subcontractor, or supplier, or by anyone for whose acts they may be liable unless a higher coverage is specified in Section 8 below in which case the Contractor shall provide the additional coverage:

Bodily Injury &	$1,000,000 each occurrence
Property Damage	$2,000,000 general aggregate per project
Products & Completed Operations	$1,000,000 annual aggregate
Personal & Advertising Injury	$1,000,000 each occurrence
Medical Expenses	$5,000

B. This policy shall include coverage relating to explosion, collapse, and underground property damage.

C. This policy shall include contractual liability coverage.

D. The completed operations coverage shall be maintained for a period of three (3) years after Substantial Completion and acceptance by the Owner. The Contractor shall provide renewal certificates of insurance to the Owner as evidence that this coverage is being maintained.

E. If the Work includes work to be performed within fifty (50) feet of a railroad, any exclusion for liability assumed under contract for work within fifty (50) feet of a railroad shall be deleted.

F. This policy shall include the Authority, the Owner and anyone else requested by the Owner as additional insureds via endorsements CG 20 10 for ongoing operations and CG 20 37 for completed operations This policy shall be primary and non-contributory with respect to any other insurance available to additional insureds.

G. The policy shall include endorsement CG 24 04, a Waiver of Subrogation in favor of the Authority and the Owner.

3. <u>Automobile Liability.</u>

A. The Contractor shall purchase and maintain the following minimum coverage with respect to the operations of any owned, non-owned, and hired vehicles including trailers used in the performance of the work, unless a higher coverage is specified in Section 8 below in which case the Contractor shall provide the additional coverage:

Bodily Injury & Property Damage	$1,000,000 combined single limit

B. The policy shall include a CA 99 48 Broadened Pollution Endorsement. If specified in Section 8 below, the Contractor, if hauling contaminants and/or pollutants, must adhere to Sections 29 and 30 of the Motor Carrier Act of 1980, which shall include coverage Form MCS-90.

C. The policy shall name the Authority and the Owner as additional insureds.

D. The policy shall contain a Waiver of Subrogation in favor of the Owner and the Authority.

4. Contractor's Pollution Liability.

The Contractor shall purchase and maintain coverage for bodily injury and property damage resulting from liability arising out of pollution related exposures such as asbestos abatement, lead paint abatement, tank removal, removal of contaminated soil, etc. The insurance policy shall cover the liability of the Contractor during the process of removal, storage, transport and disposal of hazardous waste and contaminated soil and/or asbestos abatement. The policy shall include coverage for on-Site and off-Site bodily injury and loss of, damage to, or loss of use of property, directly or indirectly arising out of the discharge, dispersal, release or escape of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gas, waste materials or other irritants, contaminants or pollutants into or upon the land, the atmosphere or any water course or body of water, whether it be gradual or sudden and accidental. The policy shall also include defense and clean-up costs. The Authority and the Owner shall be named as additional insureds and coverage must be on an occurrence basis. The amount of coverage shall be as follows unless a higher amount is specified in Section 8 below to this Contract, in which case the Contractor shall provide the additional coverage:

Limit of liability	$1,000,000 per occurrence $3,000,000 aggregate

5. Worker's Compensation.

A. The Contractor shall provide the following coverage in accordance with M.G.L. c.149 §34A and c.152, as amended, unless a higher coverage is specified in Section 8 below, in which case the Contractor shall provide the higher coverage:

Worker's Compensation	Statutory limits
Employer's Liability	$ 500,000 each accident $ 500,000 disease per employee $ 500,000 disease policy aggregate

B. If specified in Section 8 below, the policy must be endorsed to cover United States Longshoremen & Harborworkers Act (USLHW), or Maritime Liability.

C. The policy shall contain a Waiver of Subrogation in favor of the Authority and the Owner.

6. Builder's Risk/ Installation Floater/Stored Materials.

Owner may purchase and maintain coverage against loss or damage to the Work included in this Contract. If purchased by Owner, such coverage shall be on an "all risks" or equivalent form and will include a waiver of subrogation in favor of Contractor for loss or damage that occurs during the term of the Project. Owner will be responsible for the payment of any deductible under such coverage.

If specified in Section 8 below , Owner may require the Contractor to purchase and maintain coverage against loss or damage to the Work in accordance with the following requirements:

A. The Contractor shall purchase and maintain coverage against loss or damage on all Work included in this Contract in an amount equal to the Contract Price. Such coverage shall be written on an all risks basis or equivalent form and shall include, without limitation, insurance against perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, terrorism ("certified" and "non-certified"), collapse, earthquake, flood (if the project is not in an "A" or a "V" flood Zone), windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss. Unless otherwise specified in this Contract, the limits for earthquake and flood shall be the lesser of the Contract Price or $10,000,000. This policy and/or installation floater shall include transportation and Stored Materials coverage in an amount equal to the value of the stored materials as required in **C**. below.

B. When Work will be completed on existing buildings owned by the Owner, the Contractor shall provide an installation floater, in the full amount of the Contract Price. Such coverage shall be written on an all risks basis or equivalent form and shall include, without limitation, insurance against perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood (if the project is not in an "A" or a "V" flood Zone), windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss. Unless otherwise specified in this Contract, the limits for earthquake and flood shall be the lesser of the Contract Price or $10,000,000. This policy and/or installation floater shall include transportation and Stored Materials coverage in an amount equal to the value of the stored materials as required in **C**. below.

C. The Contractor shall maintain insurance on delivered and/or stored material designated to be incorporated in the Work against fire, theft or other hazards. Any loss or damage of whatever nature to such material while stored at an off Site location shall be forthwith replaced by the Contractor at no expense to the Owner or the Authority..

D. The policy or policies shall specifically state that they are for the benefit of and payable to the Authority, the Owner, the Contractor, and all persons furnishing labor or labor and materials for the Contract Work, as their interests may appear. The policy or policies shall list the Authority, the Owner, the Contractor, and Subcontractors of any tier as named insureds.

E. Coverage shall include any costs for work performed by the Designer or any consultant as the result of a loss experienced during the term of this Contract.

F. Coverage shall include permission for temporary occupancy and a Waiver of Subrogation in favor of the Owner and the Authority.

G. Coverage shall be maintained until final acceptance by the Owner of the Work and final payment has been made.

H. A loss under the property insurance shall be adjusted by the Contractor as fiduciary and made payable to the Contractor as fiduciary for the insureds. The Contractor shall pay the subcontractors their just shares of insurance proceeds received by the Contractor and shall require subcontractors to make payments to their sub-subcontractors in similar manner.

7. Umbrella Coverage.

The Contractor shall provide Umbrella Coverage in a form at least as broad as primary coverages required by Sections 2, 3 and 5 of this Article in the following amount unless a higher amount is specified in Section 8 below in which case the Contractor shall provide the higher amount:

Contract Price:	Limit of Liability:
Under $1,000,000	$2,000,000 per occurrence
$1,000,001 -- $5,000,000	$5,000,000 per occurrence
$5,000,001-- $10,000,000	$10,000,000 per occurrence
$10,000,001 and over	$25,000,000 per occurrence

8. Additional Insurance Requirements

The Contractor shall provide such other and/or additional types and/or amounts of insurance as may be set forth below:

MASSACHUSETTS SCHOOL BUILDING AUTHORITY
STANDARD CONSTRUCTION CONTRACT INSURANCE PROVISIONS FOR A CONSTRUCTION MANAGER AT RISK CONTRACT

The District shall include, at a minimum, the following language regarding insurance requirements in the Owner-Construction Manager at Risk ("CM") contract. The District may impose additional insurance requirements provided that any such additional requirements shall not be inconsistent with the requirements imposed by the standard language set forth herein and further provided that, prior to issuing an RFQ for construction management at risk services for the Project, the District shall give the Authority adequate written notice clearly describing any such additional requirements so that the Authority may, at its discretion, review and comment upon such additional requirements. Any such additional requirements may be set forth in Section 8 of the Insurance Requirements below. It shall be the sole responsibility of the District to determine whether additional insurance requirements are desirable or necessary for the Project and should be included in the Owner-CM contract.

INSURANCE REQUIREMENTS (CM at Risk)

1. Insurance Generally.

A. The CM shall purchase and maintain the insurance of the type and limits listed in this Article with respect to the operations as well as the completed operations of this Contract. This insurance shall be provided at the CM's expense and shall be in full force and effect for the full term of the Contract or for such longer period as this Article requires.

B. All policies shall be written on an occurrence basis and be issued by companies lawfully authorized to write that type of insurance under the laws of the Commonwealth with a financial strength rating of A- or better assigned by AM Best Company, or equivalent rating assigned by a similar rating agency acceptable to the Owner or as otherwise acceptable to the Owner.

C. CM shall submit three originals of each certificate of insurance, acceptable to the Owner, simultaneously with the execution of this Contract. Certificates shall show each type of insurance, insurance company, policy number, amount of insurance, deductibles and/or self insured retentions, and policy effective and expiration dates. Certificates shall show the Massachusetts School Building Authority (hereinafter "Authority"), the Owner and anyone else that the Owner may request as additional insureds as to all policies of liability insurance. Certificates shall specifically note the following:

- that the automobile liability, umbrella liability and pollution liability policies include the Owner and the Authority as additional insureds;
- that all policies include the coverage and endorsements in accordance with the terms and conditions as required by this construction contract;
- that none of the coverages shall be cancelled, terminated, or materially modified unless and until thirty (30) days prior notice is given in writing to the Owner and the Authority;.
- CM shall submit updated certificates prior to the expiration of any of the policies referenced in the certificates so that the Owner shall at all times possess certificates indicating current coverage.

D. The CM shall file one certified complete copy of all policies and endorsements with the Owner within sixty (60) days after Contract award. If the Owner or the Authority is damaged by the CM's failure to maintain such insurance and to comply with the terms of this Article, then the CM shall be responsible for all costs and damages to the Owner and the Authority attributable thereto.

E. Termination, cancellation, or material modification of any insurance required by this Contract, whether by the insurer or the insured, shall not be valid unless written notice thereof is given to Owner, and the Authority to the extent that the Authority is an additional insured, at least thirty (30) days prior to the effective date thereof, which shall be expressed in said notice.

F. The CM is responsible for the payment of any and all deductibles under all of the insurance required below unless the Owner and the Authority specifically provide a written waiver to the CM.

2. <u>CM's Commercial General Liability.</u>

A. The CM shall purchase and maintain general liability coverage on the ISO form CG 00 01 or equivalent, including products and completed operations, on an occurrence basis. The form must be amended to state that the aggregate limit applies on a per location/per project basis. The policy shall provide the following minimum coverage to protect the CM from claims with respect to the operations performed by CM and any employee, subcontractor, or supplier, unless a higher coverage is specified in Section 8 below, in which case the CM shall provide the additional coverage:

Bodily Injury &	$1,000,000	each occurrence
Property Damage	$2,000,000	general aggregate, per project
Products & Completed Operations	$1,000,000	annual aggregate
Personal & Advertising Injury	$1,000,000	each occurrence
Medical Expenses	$5,000	

B. This policy shall include coverage relating to explosion, collapse, and underground property damage.

C. This policy shall include contractual liability coverage.

D. The completed operations coverage shall be maintained for a period of three (3) years after Substantial Completion and acceptance by the Owner. The CM shall provide renewal certificates of insurance to the Owner as evidence that this coverage is being maintained.

E. If the Work includes work to be performed within fifty (50) feet of a railroad, any exclusion for liability assumed under contract for work within fifty (50) feet of a railroad shall be deleted.

F. This policy shall include the Authority, the Owner and anyone else requested by the Owner as additional insureds via endorsements CG 20 10 for ongoing operations and CG 20 37 for completed operations. This policy shall be primary and non-contributory with respect to any other insurance available to additional insureds.

G. The policy shall include endorsement CG 24 04, a Waiver of Subrogation in favor of the Owner and the Authority.

3. <u>Automobile Liability.</u>

A. The CM shall purchase and maintain the following minimum coverage with respect to the operations of any owned, non-owned, and hired vehicles including trailers used in the performance of the work, unless a higher coverage is specified in Section 8 below, in which case the CM shall provide the additional coverage:

Bodily Injury & Property Damage $1,000,000 combined single limit

B. The policy shall include a CA 99 48 Broadened Pollution Endorsement. If specified in Section 8 below, the CM, if hauling contaminants and/or pollutants, must adhere to Sections 29 and 30 of the Motor Carrier Act of 1980, which shall contain coverage Form MCS-90.

C. The policy shall name the Owner and the Authority as additional insureds.

D. The policy shall contain a Waiver of Subrogation in favor of the Owner and the Authority.

4. Contractor's Pollution Liability.

The CM shall purchase and maintain coverage for bodily injury and property damage resulting from liability arising out of pollution related exposures such as asbestos abatement, lead paint abatement, tank removal, removal of contaminated soil, etc. The insurance policy shall cover the liability of the CM during the process of removal, storage, transport and disposal of hazardous waste and contaminated soil and/or asbestos abatement. The policy shall include coverage for on-Site and off-Site bodily injury and loss of, damage to, or loss of use of property, directly or indirectly arising out of the discharge, dispersal, release or escape of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gas, waste materials or other irritants, contaminants or pollutants into or upon the land, the atmosphere or any water course or body of water, whether it be gradual or sudden and accidental. The policy shall also include defense and clean-up costs. The Owner and the Authority shall be named as additional insureds and coverage must be on an occurrence basis. The amount of coverage shall be as follows unless a higher amount is specified in Section 8 below, in which case the CM shall provide the additional coverage:

Limit of liability	$1,000,000 per occurrence $3,000,000 aggregate

5. Worker's Compensation.

A. The CM shall provide the following coverage in accordance with M.G.L. c.149 §34A and c.152 as amended, unless a higher coverage is specified in Section 8 below, in which case the CM shall provide the higher coverage:

Workers' Compensation	Statutory limits
Employer's Liability	$ 500,000 each accident $ 500,000 disease per employee $ 500,000 disease policy aggregate

B. If specified in Section 8 below the policy must be endorsed to cover United States Longshoremen & Harborworkers Act (USLHW), or Maritime Liability for $1,000,000/$1,000,000.

C. The policy shall contain a Waiver of Subrogation in favor of the Owner and the Authority.

6. Builder's Risk/ Installation Floater/Stored Materials.

Owner may purchase and maintain coverage against loss or damage to the Work included in this Contract. If purchased by Owner, such coverage shall be on an "all risks" or equivalent form and will include a waiver of subrogation in favor of CM for loss or damage that occurs during the term of the Project. Owner will be responsible for the payment of any deductible under such coverage.

If specified in Section 8 below, Owner may require the CM to purchase and maintain coverage against loss or damage to the Work in accordance with the following requirements:

A. The CM shall purchase and maintain coverage against loss or damage on all Work included in this Contract in an amount equal to the GMP. Such coverage shall be written on an all risks basis or equivalent form and shall include, without limitation, insurance against perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, terrorism ("certified" and "non-certified"), collapse, earthquake, flood (if the project is not in an "A" or a "V" flood Zone), windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's, Program Manager's and CM's services and expenses required as a result of such insured loss. Unless otherwise specified in this Contract, the limits for earthquake and flood shall be the lesser of the Contract Price or $10,000,000. This policy and/or installation floater shall include transportation and Stored Materials coverage in an amount equal to the value of the stored materials as required in **C**. below.

B. When Work will be completed on existing buildings owned by the Owner, the CM shall provide an installation floater, in the full amount of the Contract Price. Such coverage shall be written on an all risks basis or equivalent form and shall include, without limitation, insurance against perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood (if the project is not in an "A" or a "V" flood Zone), windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's, Program Manager's and CM's services and expenses required as a result of such insured loss. Unless otherwise specified in this Contract, the limits for earthquake and flood shall be the lesser of the Contract Price or $10,000,000. This policy and/or installation floater shall include transportation and Stored Materials coverage in an amount equal to the value of the stored materials as required in **C**. below.

C. The CM shall maintain insurance on delivered and/or stored material designated to be incorporated in the Work against fire, theft or other hazards. Any loss or damage of whatever nature to such material while stored at some approved off Site location shall be forthwith replaced by the CM at no expense to the Owner or the Authority.

D. The policy or policies shall specifically state they are for the benefit of and payable to the Authority, the Owner,, the CM, subcontractors and all persons furnishing labor or labor and materials for the Contract Work, as their interests may appear. The policy or policies shall list the Authority, the Owner, the CM, and Subcontractors of any tier as named insureds.

E. Coverage shall include any costs for work performed by the Designer or any consultant as the result of a loss experienced during the term of this Contract.

F. Coverage shall include permission for temporary occupancy and a Waiver of Subrogation in favor of the Owner and the Authority.

G. Coverage shall be maintained until final acceptance by Owner of the Work and final payment has been made.

H. A loss under the property insurance shall be adjusted by CM as fiduciary and made payable to the Contractor as fiduciary for the insureds. CM shall pay the subcontractors their just shares of insurance proceeds received by the CM and shall require subcontractors to make payments to their sub-subcontractors in similar manner.

7. <u>Umbrella Coverage.</u>

The CM shall provide Umbrella Coverage in form at least as broad as primary coverages required by Sections 2, 3 and 5 of this Article in the following amount unless a higher amount is specified in Section 8 below in which case the CM shall provide the higher amount:

Contract Price:	Limit of Liability:
Under $1,000,000	$2,000,000 per occurrence
$1,000,000 -- $5,000,000	$5,000,000 per occurrence
$5,000,001-- $10,000,000	$10,000,000 per occurrence
$10,000,001and over	$25,000,000 per occurrence

8. Additional Insurance Requirements

The CM shall provide such other and/or additional types and/or amounts of insurance as may be set forth below:

SECTION 00 90 00

LABOR STANDARDS OF THE COMMONWEALTH

ARTICLE 1 - EMPLOYMENT, HOURS AND WAGES

1.1. The Contractor and any Subcontractor shall conform to any Labor Laws of the Commonwealth, and, without limiting the generality of the foregoing, shall conform to the provisions of Sections 25, 26, 27B, 30, 34, 34A and 34B of Chapter 149 of the General Laws, as amended, which Sections are incorporated herein by reference and made a part hereof.

1.2. Every employee in the work to be performed under this Contract shall lodge, board and trade where and with whom he elects, and the Contractor and any Subcontractor shall not directly or indirectly require, as a condition of employment in said work, that an employee shall lodge, board or trade at a particular place or with a particular person.

1.3. The Contractor and any Subcontractor shall give preference in the employment of mechanics, teamsters, chauffeurs and laborers first to citizens of the Commonwealth who have been residents of the Commonwealth for at least six months at the commencement of their employment who are veterans as defined in clause Forty-three of Section Seven of Chapter Four, and who are qualified to perform the work to which the employment relates; and secondly, to citizens of the Commonwealth generally who have been residents of the Commonwealth for at least six months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States.

1.4. No laborer, workman, mechanic, foreman, or inspector working in the employment of the Contractor, Subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by this Contract, shall be required or permitted to work any more than eight hours in any one day, or more than forty-eight hours in any one week, except in cases of emergency.

1.5. The rate per hour of the wages to be paid to mechanics, teamsters, chauffeurs, and laborers in the work to be performed under this Contract shall not be less than the rate of wages in the schedule annexed hereto and made a part hereof as determined by the Commissioner of Labor and Industries of the Commonwealth. This schedule shall continue to be the minimum rate of wages for said employees during the life of this Contract.

1.6. The Contractor shall pay to any reserve police officer employed by him in any City or Town the prevailing rate of wages paid to regular police officers in such City or Town as required by General Laws, Chapter 149, Section 24B, as amended.

1.7. Claims and disputes pertaining to the classification of labor or wage determinations made by the Commission of Labor and Industries must be presented by appeal filed with the Department of Labor and Industries within three days from the date of the first advertisement of call for bids; in one manner provided by General Laws, Chapter 14, Section 27A.

1.8. The Contractor shall include with the Form For General Bid, signed and certified copies of Owner's Instructions To Bidders For Affirmative Action Issues, Non-Collusion and State Tax Compliance Certificate, OSHA Training Certificate, and Undocumented Worker Certificate, included at the end of this Section, as set forth in the contract, Article XII, and hereby made a part of the Contract Documents.

ARTICLE 2 - MINIMUM WAGE RATES

2.1. The Contractor shall keep posted on the site of the Work a legible copy of the schedule of "Minimum Wage Rates and Health and Welfare Fund Contributions" attached thereto.

2.2. The rates listed are straight hourly rates. Apprentices employed pursuant to this determination of wage rates must be registered and approved by the State Apprenticeship Council. Wherever rates for journeymen or apprentices are not listed, and if any other labor is not included in this list, the Contractor shall insert the rates of all those employed on the work.

2.3. The Contractor must keep on file the wage rates and qualifications of all labor employed on this Project in order that they may be available for inspection by the Awarding Authority or the Architect.

END OF SECTION

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H

ROSALIN ACOSTA
Secretary

WILLIAM D MCKINNEY
Director

Awarding Authority: Town of Wareham

Contract Number:

City/Town: WAREHAM

Description of Work: Wareham Minot Forest Elementary School ~~Asbestos Removal and Demolition Early Package~~

Job Location: 63 Minot Ave, Wareham, MA 02571

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.**
- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.
- Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at http://www.mass.gov/dols/pw.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.25	$11.91	$12.70	$0.00	$57.86
	06/01/2019	$34.25	$11.91	$12.70	$0.00	$58.86
	08/01/2019	$34.25	$12.41	$12.70	$0.00	$59.36
	12/01/2019	$34.25	$12.41	$13.72	$0.00	$60.38
	06/01/2020	$35.15	$12.41	$13.72	$0.00	$61.28
	08/01/2020	$35.15	$12.91	$13.72	$0.00	$61.78
	12/01/2020	$35.15	$12.91	$14.82	$0.00	$62.88
	06/01/2021	$35.95	$12.91	$14.82	$0.00	$63.68
	08/01/2021	$35.95	$13.41	$14.82	$0.00	$64.18
	12/01/2021	$35.95	$13.41	$16.01	$0.00	$65.37
(3 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.32	$11.91	$12.70	$0.00	$57.93
	06/01/2019	$34.32	$11.91	$12.70	$0.00	$58.93
	08/01/2019	$34.32	$12.41	$12.70	$0.00	$59.43
	12/01/2019	$34.32	$12.41	$13.72	$0.00	$60.45
	06/01/2020	$35.22	$12.41	$13.72	$0.00	$61.35
	08/01/2020	$35.22	$12.91	$13.72	$0.00	$61.85
	12/01/2020	$35.22	$12.91	$14.82	$0.00	$62.95
	06/01/2021	$36.02	$12.91	$14.82	$0.00	$63.75
	08/01/2021	$36.02	$13.41	$14.82	$0.00	$64.25
	12/01/2021	$36.02	$13.41	$16.01	$0.00	$65.44
(4 & 5 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.44	$11.91	$12.70	$0.00	$58.05
	06/01/2019	$34.44	$11.91	$12.70	$0.00	$59.05
	08/01/2019	$34.44	$12.41	$12.70	$0.00	$59.55
	12/01/2019	$34.44	$12.41	$13.72	$0.00	$60.57
	06/01/2020	$35.34	$12.41	$13.72	$0.00	$61.47
	08/01/2020	$35.34	$12.91	$13.72	$0.00	$61.97
	12/01/2020	$35.34	$12.91	$14.82	$0.00	$63.07
	06/01/2021	$36.14	$12.91	$14.82	$0.00	$63.87
	08/01/2021	$36.14	$13.41	$14.82	$0.00	$64.37
	12/01/2021	$36.14	$13.41	$16.01	$0.00	$65.56
ADS/SUBMERSIBLE PILOT *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2018	$97.80	$9.90	$21.15	$0.00	$128.85
	08/01/2019	$102.78	$9.90	$21.15	$0.00	$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR *LABORERS - ZONE 2*	12/01/2018	$34.27	$7.85	$14.44	$0.00	$56.56
	06/01/2019	$35.14	$7.85	$14.44	$0.00	$57.43
	12/01/2019	$36.00	$7.85	$14.44	$0.00	$58.29
	06/01/2020	$36.89	$7.85	$14.44	$0.00	$59.18
	12/01/2020	$37.78	$7.85	$14.44	$0.00	$60.07
	06/01/2021	$38.70	$7.85	$14.44	$0.00	$60.99
	12/01/2021	$39.61	$7.85	$14.44	$0.00	$61.90
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASBESTOS WORKER (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (SOUTHERN MASS)*	12/01/2018	$35.40	$12.50	$8.50	$0.00	$56.40
	06/01/2019	$36.40	$12.50	$8.50	$0.00	$57.40
	12/01/2019	$37.40	$12.50	$8.50	$0.00	$58.40
	06/01/2020	$38.40	$12.50	$8.50	$0.00	$59.40
	12/01/2020	$39.40	$12.50	$8.50	$0.00	$60.40
ASPHALT RAKER *LABORERS - ZONE 2*	12/01/2018	$33.77	$7.85	$14.44	$0.00	$56.06
	06/01/2019	$34.64	$7.85	$14.44	$0.00	$56.93
	12/01/2019	$35.50	$7.85	$14.44	$0.00	$57.79
	06/01/2020	$36.39	$7.85	$14.44	$0.00	$58.68
	12/01/2020	$37.28	$7.85	$14.44	$0.00	$59.57
	06/01/2021	$38.20	$7.85	$14.44	$0.00	$60.49
	12/01/2021	$39.11	$7.85	$14.44	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.58	$11.50	$15.60	$0.00	$74.68
	06/01/2019	$48.68	$11.50	$15.60	$0.00	$75.78
	12/01/2019	$49.83	$11.50	$15.60	$0.00	$76.93
	06/01/2020	$50.93	$11.50	$15.60	$0.00	$78.03
	12/01/2020	$52.08	$11.50	$15.60	$0.00	$79.18
	06/01/2021	$53.18	$11.50	$15.60	$0.00	$80.28
	12/01/2021	$54.33	$11.50	$15.60	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.58	$11.50	$15.60	$0.00	$74.68
	06/01/2019	$48.68	$11.50	$15.60	$0.00	$75.78
	12/01/2019	$49.83	$11.50	$15.60	$0.00	$76.93
	06/01/2020	$50.93	$11.50	$15.60	$0.00	$78.03
	12/01/2020	$52.08	$11.50	$15.60	$0.00	$79.18
	06/01/2021	$53.18	$11.50	$15.60	$0.00	$80.28
	12/01/2021	$54.33	$11.50	$15.60	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER *LABORERS - ZONE 2*	12/01/2018	$33.77	$7.85	$14.44	$0.00	$56.06
	06/01/2019	$34.64	$7.85	$14.44	$0.00	$56.93
	12/01/2019	$35.50	$7.85	$14.44	$0.00	$57.79
	06/01/2020	$36.39	$7.85	$14.44	$0.00	$58.68
	12/01/2020	$37.28	$7.85	$14.44	$0.00	$59.57
	06/01/2021	$38.20	$7.85	$14.44	$0.00	$60.49
	12/01/2021	$39.11	$7.85	$14.44	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER *LABORERS - ZONE 2*	12/01/2018	$34.27	$7.85	$14.44	$0.00	$56.56
	06/01/2019	$35.14	$7.85	$14.44	$0.00	$57.43
	12/01/2019	$36.00	$7.85	$14.44	$0.00	$58.29
	06/01/2020	$36.89	$7.85	$14.44	$0.00	$59.18
	12/01/2020	$37.78	$7.85	$14.44	$0.00	$60.07
	06/01/2021	$38.70	$7.85	$14.44	$0.00	$60.99
	12/01/2021	$39.61	$7.85	$14.44	$0.00	$61.90
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BOILER MAKER *BOILERMAKERS LOCAL 29*	01/01/2019	$44.71	$7.07	$17.72	$0.00	$69.50
	01/01/2020	$46.10	$7.07	$17.98	$0.00	$71.15

Apprentice - *BOILERMAKER - Local 29*

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$29.06	$7.07	$11.52	$0.00	$47.65
2	65	$29.06	$7.07	$11.52	$0.00	$47.65
3	70	$31.30	$7.07	$12.40	$0.00	$50.77
4	75	$33.53	$7.07	$13.30	$0.00	$53.90
5	80	$35.77	$7.07	$14.18	$0.00	$57.02
6	85	$38.00	$7.07	$15.07	$0.00	$60.14
7	90	$40.24	$7.07	$15.95	$0.00	$63.26
8	95	$42.47	$7.07	$16.84	$0.00	$66.38

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$29.97	$7.07	$11.69	$0.00	$48.73
2	65	$29.97	$7.07	$11.69	$0.00	$48.73
3	70	$32.27	$7.07	$12.59	$0.00	$51.93
4	75	$34.58	$7.07	$13.49	$0.00	$55.14
5	80	$36.88	$7.07	$14.38	$0.00	$58.33
6	85	$39.19	$7.07	$15.29	$0.00	$61.55
7	90	$41.49	$7.07	$16.18	$0.00	$64.74
8	95	$43.80	$7.07	$17.09	$0.00	$67.96

Notes:

Apprentice to Journeyworker Ratio:1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) *BRICKLAYERS LOCAL 3 (NEW BEDFORD)*	02/01/2019	$53.55	$10.75	$20.66	$0.00	$84.96
	08/01/2019	$54.90	$10.75	$20.80	$0.00	$86.45
	02/01/2020	$55.54	$10.75	$20.80	$0.00	$87.09
	08/01/2020	$56.89	$10.75	$20.95	$0.00	$88.59
	02/01/2021	$57.53	$10.75	$20.95	$0.00	$89.23
	08/01/2021	$58.93	$10.75	$21.11	$0.00	$90.79
	02/01/2022	$59.52	$10.75	$21.11	$0.00	$91.38

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *BRICK/PLASTER/CEMENT MASON - Local 3 New Bedford*

Effective Date - 02/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.78	$10.75	$20.66	$0.00	$58.19
2	60	$32.13	$10.75	$20.66	$0.00	$63.54
3	70	$37.49	$10.75	$20.66	$0.00	$68.90
4	80	$42.84	$10.75	$20.66	$0.00	$74.25
5	90	$48.20	$10.75	$20.66	$0.00	$79.61

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.45	$10.75	$20.80	$0.00	$59.00
2	60	$32.94	$10.75	$20.80	$0.00	$64.49
3	70	$38.43	$10.75	$20.80	$0.00	$69.98
4	80	$43.92	$10.75	$20.80	$0.00	$75.47
5	90	$49.41	$10.75	$20.80	$0.00	$80.96

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$15.60	$0.00	$74.20
	06/01/2019	$48.19	$11.50	$15.60	$0.00	$75.29
	12/01/2019	$49.33	$11.50	$15.60	$0.00	$76.43
	06/01/2020	$50.41	$11.50	$15.60	$0.00	$77.51
	12/01/2020	$51.55	$11.50	$15.60	$0.00	$78.65
	06/01/2021	$52.64	$11.50	$15.60	$0.00	$79.74
	12/01/2021	$53.78	$11.50	$15.60	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2018	$39.75	$7.85	$15.55	$0.00	$63.15
	06/01/2019	$40.75	$7.85	$15.55	$0.00	$64.15
	12/01/2019	$41.75	$7.85	$15.55	$0.00	$65.15
	06/01/2020	$42.74	$7.85	$15.55	$0.00	$66.14
	12/01/2020	$43.72	$7.85	$15.55	$0.00	$67.12
	06/01/2021	$44.74	$7.85	$15.55	$0.00	$68.14
	12/01/2021	$45.75	$7.85	$15.55	$0.00	$69.15
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2018	$38.60	$7.85	$15.55	$0.00	$62.00
	06/01/2019	$39.60	$7.85	$15.55	$0.00	$63.00
	12/01/2019	$40.60	$7.85	$15.55	$0.00	$64.00
	06/01/2020	$41.59	$7.85	$15.55	$0.00	$64.99
	12/01/2020	$42.57	$7.85	$15.55	$0.00	$65.97
	06/01/2021	$43.59	$7.85	$15.55	$0.00	$66.99
	12/01/2021	$44.60	$7.85	$15.55	$0.00	$68.00
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING TOP MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2018	$38.60	$7.85	$15.55	$0.00	$62.00
	06/01/2019	$39.60	$7.85	$15.55	$0.00	$63.00
	12/01/2019	$40.60	$7.85	$15.55	$0.00	$64.00
	06/01/2020	$41.59	$7.85	$15.55	$0.00	$64.99
	12/01/2020	$42.57	$7.85	$15.55	$0.00	$65.97
	06/01/2021	$43.59	$7.85	$15.55	$0.00	$66.99
	12/01/2021	$44.60	$7.85	$15.55	$0.00	$68.00
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR *LABORERS - ZONE 2*	12/01/2018	$33.77	$7.85	$14.44	$0.00	$56.06
	06/01/2019	$34.64	$7.85	$14.44	$0.00	$56.93
	12/01/2019	$35.50	$7.85	$14.44	$0.00	$57.79
	06/01/2020	$36.39	$7.85	$14.44	$0.00	$58.68
	12/01/2020	$37.28	$7.85	$14.44	$0.00	$59.57
	06/01/2021	$38.20	$7.85	$14.44	$0.00	$60.49
	12/01/2021	$39.11	$7.85	$14.44	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
CARPENTER *CARPENTERS -ZONE 2 (Eastern Massachusetts)*	03/01/2019	$42.35	$9.90	$17.50	$0.00	$69.75

Apprentice - *CARPENTER - Zone 2 Eastern MA*

Effective Date - 03/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.18	$9.90	$1.73	$0.00	$32.81
2	60	$25.41	$9.90	$1.73	$0.00	$37.04
3	70	$29.65	$9.90	$12.31	$0.00	$51.86
4	75	$31.76	$9.90	$12.31	$0.00	$53.97
5	80	$33.88	$9.90	$14.04	$0.00	$57.82
6	80	$33.88	$9.90	$14.04	$0.00	$57.82
7	90	$38.12	$9.90	$15.77	$0.00	$63.79
8	90	$38.12	$9.90	$15.77	$0.00	$63.79

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 $30.69/ 3&4 $36.59/ 5&6 $53.59/ 7&8 $59.55

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME *CARPENTERS -ZONE 2 (Wood Frame)*	10/01/2018	$27.09	$7.07	$7.86	$0.00	$42.02
	04/01/2019	$27.52	$7.07	$7.86	$0.00	$42.45
	10/01/2019	$27.95	$7.07	$7.86	$0.00	$42.88
All Aspects of New Wood Frame Work						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CARPENTER (Wood Frame) - Zone 2*

Effective Date - 10/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$16.25	$7.07	$0.00	$0.00	$23.32
2	60	$16.25	$7.07	$0.00	$0.00	$23.32
3	65	$17.61	$7.07	$7.86	$0.00	$32.54
4	70	$18.96	$7.07	$7.86	$0.00	$33.89
5	75	$20.32	$7.07	$7.86	$0.00	$35.25
6	80	$21.67	$7.07	$7.86	$0.00	$36.60
7	85	$23.03	$7.07	$7.86	$0.00	$37.96
8	90	$24.38	$7.07	$7.86	$0.00	$39.31

Effective Date - 04/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$16.51	$7.07	$0.00	$0.00	$23.58
2	60	$16.51	$7.07	$0.00	$0.00	$23.58
3	65	$17.89	$7.07	$7.86	$0.00	$32.82
4	70	$19.26	$7.07	$7.86	$0.00	$34.19
5	75	$20.64	$7.07	$7.86	$0.00	$35.57
6	80	$22.02	$7.07	$7.86	$0.00	$36.95
7	85	$23.39	$7.07	$7.86	$0.00	$38.32
8	90	$24.77	$7.07	$7.86	$0.00	$39.70

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 $19.26/ 3&4 $26.72/ 5&6 $33.89/ 7&8 $36.60

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING *BRICKLAYERS LOCAL 3 (NEW BEDFORD)*	01/01/2019	$47.50	$12.50	$22.41	$0.30	$82.71
	07/01/2019	$48.24	$12.50	$22.41	$0.30	$83.45
	01/01/2020	$49.64	$12.50	$22.41	$0.30	$84.85

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CEMENT MASONRY/PLASTERING - Eastern Mass (New Bedford)*

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.75	$12.50	$15.41	$0.00	$51.66
2	60	$28.50	$12.50	$17.41	$0.30	$58.71
3	65	$30.88	$12.50	$18.41	$0.30	$62.09
4	70	$33.25	$12.50	$19.41	$0.30	$65.46
5	75	$35.63	$12.50	$20.41	$0.30	$68.84
6	80	$38.00	$12.50	$21.41	$0.30	$72.21
7	90	$42.75	$12.50	$22.41	$0.30	$77.96

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.12	$12.50	$15.41	$0.00	$52.03
2	60	$28.94	$12.50	$17.41	$0.30	$59.15
3	65	$31.36	$12.50	$18.41	$0.30	$62.57
4	70	$33.77	$12.50	$19.41	$0.30	$65.98
5	75	$36.18	$12.50	$20.41	$0.30	$69.39
6	80	$38.59	$12.50	$21.41	$0.30	$72.80
7	90	$43.42	$12.50	$22.41	$0.30	$78.63

Notes:

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR *LABORERS - ZONE 2*	12/01/2018	$33.77	$7.85	$14.44	$0.00	$56.06
	06/01/2019	$34.64	$7.85	$14.44	$0.00	$56.93
	12/01/2019	$35.50	$7.85	$14.44	$0.00	$57.79
	06/01/2020	$36.39	$7.85	$14.44	$0.00	$58.68
	12/01/2020	$37.28	$7.85	$14.44	$0.00	$59.57
	06/01/2021	$38.20	$7.85	$14.44	$0.00	$60.49
	12/01/2021	$39.11	$7.85	$14.44	$0.00	$61.40

For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$48.58	$11.50	$15.60	$0.00	$75.68
	06/01/2019	$49.68	$11.50	$15.60	$0.00	$76.78
	12/01/2019	$50.83	$11.50	$15.60	$0.00	$77.93
	06/01/2020	$51.93	$11.50	$15.60	$0.00	$79.03
	12/01/2020	$53.08	$11.50	$15.60	$0.00	$80.18
	06/01/2021	$54.18	$11.50	$15.60	$0.00	$81.28
	12/01/2021	$55.33	$11.50	$15.60	$0.00	$82.43

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
COMPRESSOR OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$32.03	$11.50	$15.60	$0.00	$59.13
	06/01/2019	$32.78	$11.50	$15.60	$0.00	$59.88
	12/01/2019	$33.57	$11.50	$15.60	$0.00	$60.67
	06/01/2020	$34.32	$11.50	$15.60	$0.00	$61.42
	12/01/2020	$35.10	$11.50	$15.60	$0.00	$62.20
	06/01/2021	$35.85	$11.50	$15.60	$0.00	$62.95
	12/01/2021	$36.64	$11.50	$15.60	$0.00	$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2019	$50.36	$8.15	$20.85	$0.00	$79.36
	07/01/2019	$51.46	$8.15	$20.85	$0.00	$80.46
	01/01/2020	$52.56	$8.15	$20.85	$0.00	$81.56
	07/01/2020	$53.66	$8.15	$20.85	$0.00	$82.66
	01/01/2021	$54.76	$8.15	$20.85	$0.00	$83.76

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.18	$8.15	$0.00	$0.00	$33.33
2	55	$27.70	$8.15	$5.64	$0.00	$41.49
3	60	$30.22	$8.15	$6.15	$0.00	$44.52
4	65	$32.73	$8.15	$6.66	$0.00	$47.54
5	70	$35.25	$8.15	$17.78	$0.00	$61.18
6	75	$37.77	$8.15	$18.29	$0.00	$64.21
7	80	$40.29	$8.15	$18.80	$0.00	$67.24
8	90	$45.32	$8.15	$19.83	$0.00	$73.30

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.73	$8.15	$0.00	$0.00	$33.88
2	55	$28.30	$8.15	$5.64	$0.00	$42.09
3	60	$30.88	$8.15	$6.15	$0.00	$45.18
4	65	$33.45	$8.15	$6.66	$0.00	$48.26
5	70	$36.02	$8.15	$17.78	$0.00	$61.95
6	75	$38.60	$8.15	$18.29	$0.00	$65.04
7	80	$41.17	$8.15	$18.80	$0.00	$68.12
8	90	$46.31	$8.15	$19.83	$0.00	$74.29

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN *LABORERS - ZONE 2*	12/01/2018	$38.80	$7.85	$15.35	$0.00	$62.00
	06/01/2019	$39.80	$7.85	$15.35	$0.00	$63.00
	12/01/2019	$40.80	$7.85	$15.35	$0.00	$64.00
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: BACKHOE/LOADER/HAMMER OPERATOR *LABORERS - ZONE 2*	12/01/2018	$39.80	$7.85	$15.35	$0.00	$63.00
	06/01/2019	$40.80	$7.85	$15.35	$0.00	$64.00
	12/01/2019	$41.80	$7.85	$15.35	$0.00	$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS *LABORERS - ZONE 2*	12/01/2018	$39.55	$7.85	$15.35	$0.00	$62.75
	06/01/2019	$40.55	$7.85	$15.35	$0.00	$63.75
	12/01/2019	$41.55	$7.85	$15.35	$0.00	$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER *LABORERS - ZONE 2*	12/01/2018	$39.80	$7.85	$15.35	$0.00	$63.00
	06/01/2019	$40.80	$7.85	$15.35	$0.00	$64.00
	12/01/2019	$41.80	$7.85	$15.35	$0.00	$65.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR *LABORERS - ZONE 2*	12/01/2018	$39.55	$7.85	$15.35	$0.00	$62.75
	06/01/2019	$40.55	$7.85	$15.35	$0.00	$63.75
	12/01/2019	$41.55	$7.85	$15.35	$0.00	$64.75
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER *LABORERS - ZONE 2*	12/01/2018	$38.80	$7.85	$15.35	$0.00	$62.00
	06/01/2019	$39.80	$7.85	$15.35	$0.00	$63.00
	12/01/2019	$40.80	$7.85	$15.35	$0.00	$64.00
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$15.60	$0.00	$74.20
	06/01/2019	$48.19	$11.50	$15.60	$0.00	$75.29
	12/01/2019	$49.33	$11.50	$15.60	$0.00	$76.43
	06/01/2020	$50.41	$11.50	$15.60	$0.00	$77.51
	12/01/2020	$51.55	$11.50	$15.60	$0.00	$78.65
	06/01/2021	$52.64	$11.50	$15.60	$0.00	$79.74
	12/01/2021	$53.78	$11.50	$15.60	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2018	$65.20	$9.90	$21.15	$0.00	$96.25
	08/01/2019	$68.52	$9.90	$21.15	$0.00	$99.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2018	$46.57	$9.90	$21.15	$0.00	$77.62
	08/01/2019	$48.94	$9.90	$21.15	$0.00	$79.99
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2018	$69.86	$9.90	$21.15	$0.00	$100.91
	08/01/2019	$73.41	$9.90	$21.15	$0.00	$104.46
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2018	$97.80	$9.90	$21.15	$0.00	$128.85
	08/01/2019	$102.78	$9.90	$21.15	$0.00	$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
ELECTRICIAN *ELECTRICIANS LOCAL 223*	03/01/2019	$41.64	$9.90	$13.15	$0.00	$64.69
	09/01/2019	$42.26	$10.15	$13.54	$0.00	$65.95
	03/01/2020	$42.87	$10.40	$13.94	$0.00	$67.21

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELECTRICIAN - Local 223*

Effective Date - 03/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$16.66	$9.90	$0.50	$0.00	$27.06
2	42	$17.49	$9.90	$0.52	$0.00	$27.91
3	45	$18.74	$9.90	$0.58	$0.00	$29.22
4	48	$19.99	$9.90	$4.64	$0.00	$34.53
5	50	$20.82	$9.90	$4.68	$0.00	$35.40
6	55	$22.90	$9.90	$5.04	$0.00	$37.84
7	60	$24.98	$9.90	$5.34	$0.00	$40.22
8	65	$27.07	$9.90	$5.64	$0.00	$42.61
9	70	$29.15	$9.90	$5.93	$0.00	$44.98
10	75	$31.23	$9.90	$6.18	$0.00	$47.31

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$16.90	$10.15	$0.51	$0.00	$27.56
2	42	$17.75	$10.15	$0.53	$0.00	$28.43
3	45	$19.02	$10.15	$0.57	$0.00	$29.74
4	48	$20.28	$10.15	$4.93	$0.00	$35.36
5	50	$21.13	$10.15	$4.97	$0.00	$36.25
6	55	$23.24	$10.15	$5.33	$0.00	$38.72
7	60	$25.36	$10.15	$5.64	$0.00	$41.15
8	65	$27.47	$10.15	$5.94	$0.00	$43.56
9	70	$29.58	$10.15	$6.25	$0.00	$45.98
10	75	$31.70	$10.15	$6.50	$0.00	$48.35

Notes:

Steps are 750 hours

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2019	$59.47	$15.58	$17.51	$0.00	$92.56
	01/01/2020	$61.42	$15.73	$18.41	$0.00	$95.56
	01/01/2021	$63.47	$15.88	$19.31	$0.00	$98.66
	01/01/2022	$65.62	$16.03	$20.21	$0.00	$101.86

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELEVATOR CONSTRUCTOR - Local 4*

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$29.74	$15.58	$0.00	$0.00	$45.32
2	55	$32.71	$15.58	$17.51	$0.00	$65.80
3	65	$38.66	$15.58	$17.51	$0.00	$71.75
4	70	$41.63	$15.58	$17.51	$0.00	$74.72
5	80	$47.58	$15.58	$17.51	$0.00	$80.67

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$30.71	$15.73	$0.00	$0.00	$46.44
2	55	$33.78	$15.73	$18.41	$0.00	$67.92
3	65	$39.92	$15.73	$18.41	$0.00	$74.06
4	70	$42.99	$15.73	$18.41	$0.00	$77.13
5	80	$49.14	$15.73	$18.41	$0.00	$83.28

Notes:
Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2019	$41.63	$15.58	$17.51	$0.00	$74.72
	01/01/2020	$42.99	$15.73	$18.41	$0.00	$77.13
	01/01/2021	$44.43	$15.88	$19.31	$0.00	$79.62
	01/01/2022	$45.93	$16.03	$20.21	$0.00	$82.17
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR *LABORERS - ZONE 2*	12/01/2018	$33.77	$7.85	$14.44	$0.00	$56.06
	06/01/2019	$34.64	$7.85	$14.44	$0.00	$56.93
	12/01/2019	$35.50	$7.85	$14.44	$0.00	$57.79
	06/01/2020	$36.39	$7.85	$14.44	$0.00	$58.68
	12/01/2020	$37.28	$7.85	$14.44	$0.00	$59.57
	06/01/2021	$38.20	$7.85	$14.44	$0.00	$60.49
	12/01/2021	$39.11	$7.85	$14.44	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2018	$43.19	$11.00	$15.50	$0.00	$69.69
	05/01/2019	$44.33	$11.00	$15.50	$0.00	$70.83
	11/01/2019	$45.33	$11.00	$15.50	$0.00	$71.83
	05/01/2020	$46.48	$11.00	$15.50	$0.00	$72.98
	11/01/2020	$47.48	$11.00	$15.50	$0.00	$73.98
	05/01/2021	$48.68	$11.00	$15.50	$0.00	$75.18
	11/01/2021	$49.63	$11.00	$15.50	$0.00	$76.13
	05/01/2022	$50.78	$11.00	$15.50	$0.00	$77.28
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2018	$44.67	$11.00	$15.50	$0.00	$71.17
	05/01/2019	$45.82	$11.00	$15.50	$0.00	$72.32
	11/01/2019	$46.83	$11.00	$15.50	$0.00	$73.33
	05/01/2020	$47.98	$11.00	$15.50	$0.00	$74.48
	11/01/2020	$48.99	$11.00	$15.50	$0.00	$75.49
	05/01/2021	$50.15	$11.00	$15.50	$0.00	$76.65
	11/01/2021	$51.16	$11.00	$15.50	$0.00	$77.66
	05/01/2022	$52.32	$11.00	$15.50	$0.00	$78.82
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	11/01/2018	$22.45	$11.00	$15.50	$0.00	$48.95
	05/01/2019	$23.13	$11.00	$15.50	$0.00	$49.63
	11/01/2019	$23.72	$11.00	$15.50	$0.00	$50.22
	05/01/2020	$24.39	$11.00	$15.50	$0.00	$50.89
	11/01/2020	$24.98	$11.00	$15.50	$0.00	$51.48
	05/01/2021	$25.66	$11.00	$15.50	$0.00	$52.16
	11/01/2021	$26.26	$11.00	$15.50	$0.00	$52.76
	05/01/2022	$26.93	$11.00	$15.50	$0.00	$53.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER *ELECTRICIANS LOCAL 223*	03/01/2019	$41.64	$9.90	$13.15	$0.00	$64.69
	09/01/2019	$42.26	$10.15	$13.54	$0.00	$65.95
	03/01/2020	$42.87	$10.40	$13.94	$0.00	$67.21
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING*ELECTRICIANS LOCAL 223*	03/01/2019	$35.25	$9.90	$11.14	$0.00	$56.29
	09/01/2019	$35.78	$10.15	$11.45	$0.00	$57.38
	03/01/2020	$36.27	$10.40	$11.78	$0.00	$58.45
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$39.13	$11.50	$15.60	$0.00	$66.23
	06/01/2019	$40.04	$11.50	$15.60	$0.00	$67.14
	12/01/2019	$40.99	$11.50	$15.60	$0.00	$68.09
	06/01/2020	$41.90	$11.50	$15.60	$0.00	$69.00
	12/01/2020	$42.85	$11.50	$15.60	$0.00	$69.95
	06/01/2021	$43.76	$11.50	$15.60	$0.00	$70.86
	12/01/2021	$44.71	$11.50	$15.60	$0.00	$71.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER *LABORERS - ZONE 2*	12/01/2018	$22.50	$7.85	$14.44	$0.00	$44.79
	06/01/2019	$22.50	$7.85	$14.44	$0.00	$44.79
	12/01/2019	$23.50	$7.85	$14.44	$0.00	$45.79
	06/01/2020	$23.50	$7.85	$14.44	$0.00	$45.79
	12/01/2020	$24.50	$7.85	$14.44	$0.00	$46.79
	06/01/2021	$24.50	$7.85	$14.44	$0.00	$46.79
	12/01/2021	$24.50	$7.85	$14.44	$0.00	$46.79
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER *FLOORCOVERERS LOCAL 2168 ZONE I*	03/01/2016	$42.13	$9.80	$17.62	$0.00	$69.55

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *FLOORCOVERER - Local 2168 Zone I*

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.07	$9.80	$1.79	$0.00	$32.66
2	55	$23.17	$9.80	$1.79	$0.00	$34.76
3	60	$25.28	$9.80	$12.25	$0.00	$47.33
4	65	$27.38	$9.80	$12.25	$0.00	$49.43
5	70	$29.49	$9.80	$14.04	$0.00	$53.33
6	75	$31.60	$9.80	$14.04	$0.00	$55.44
7	80	$33.70	$9.80	$15.83	$0.00	$59.33
8	85	$35.81	$9.80	$15.83	$0.00	$61.44

Notes: Steps are 750 hrs.
% After 09/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
Step 1&2 $30.55/ 3&4 $36.49/ 5&6 $53.33/ 7&8 $59.33

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.58	$11.50	$15.60	$0.00	$74.68
	06/01/2019	$48.68	$11.50	$15.60	$0.00	$75.78
	12/01/2019	$49.83	$11.50	$15.60	$0.00	$76.93
	06/01/2020	$50.93	$11.50	$15.60	$0.00	$78.03
	12/01/2020	$52.08	$11.50	$15.60	$0.00	$79.18
	06/01/2021	$53.18	$11.50	$15.60	$0.00	$80.28
	12/01/2021	$54.33	$11.50	$15.60	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$32.03	$11.50	$15.60	$0.00	$59.13
	06/01/2019	$32.78	$11.50	$15.60	$0.00	$59.88
	12/01/2019	$33.57	$11.50	$15.60	$0.00	$60.67
	06/01/2020	$34.32	$11.50	$15.60	$0.00	$61.42
	12/01/2020	$35.10	$11.50	$15.60	$0.00	$62.20
	06/01/2021	$35.85	$11.50	$15.60	$0.00	$62.95
	12/01/2021	$36.64	$11.50	$15.60	$0.00	$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) *GLAZIERS LOCAL 1333*	06/01/2018	$37.18	$10.40	$9.35	$0.00	$56.93
	06/01/2019	$38.18	$10.60	$9.90	$0.00	$58.68
	06/01/2020	$39.18	$10.80	$10.45	$0.00	$60.43

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *GLAZIER - Local 1333*

Effective Date - 06/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.59	$10.40	$1.60	$0.00	$30.59
2	56	$20.91	$10.40	$1.60	$0.00	$32.91
3	63	$23.24	$10.40	$2.10	$0.00	$35.74
4	69	$25.56	$10.40	$2.10	$0.00	$38.06
5	75	$27.89	$10.40	$2.60	$0.00	$40.89
6	81	$30.21	$10.40	$2.60	$0.00	$43.21
7	88	$32.53	$10.40	$9.35	$0.00	$52.28
8	94	$34.86	$10.40	$9.35	$0.00	$54.61

Effective Date - 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.09	$10.60	$1.80	$0.00	$31.49
2	56	$21.48	$10.60	$1.80	$0.00	$33.88
3	63	$23.86	$10.60	$2.40	$0.00	$36.86
4	69	$26.25	$10.60	$2.40	$0.00	$39.25
5	75	$28.64	$10.60	$2.90	$0.00	$42.14
6	81	$31.02	$10.60	$2.90	$0.00	$44.52
7	88	$33.41	$10.60	$9.90	$0.00	$53.91
8	94	$35.79	$10.60	$9.90	$0.00	$56.29

Notes:

Apprentice to Journeyworker Ratio:1:3

HOISTING ENGINEER/CRANES/GRADALLS *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.58	$11.50	$15.60	$0.00	$74.68
	06/01/2019	$48.68	$11.50	$15.60	$0.00	$75.78
	12/01/2019	$49.83	$11.50	$15.60	$0.00	$76.93
	06/01/2020	$50.93	$11.50	$15.60	$0.00	$78.03
	12/01/2020	$52.08	$11.50	$15.60	$0.00	$79.18
	06/01/2021	$53.18	$11.50	$15.60	$0.00	$80.28
	12/01/2021	$54.33	$11.50	$15.60	$0.00	$81.43

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 12/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$26.17	$11.50	$0.00	$0.00	$37.67
2	60	$28.55	$11.50	$15.60	$0.00	$55.65
3	65	$30.93	$11.50	$15.60	$0.00	$58.03
4	70	$33.31	$11.50	$15.60	$0.00	$60.41
5	75	$35.69	$11.50	$15.60	$0.00	$62.79
6	80	$38.06	$11.50	$15.60	$0.00	$65.16
7	85	$40.44	$11.50	$15.60	$0.00	$67.54
8	90	$42.82	$11.50	$15.60	$0.00	$69.92

Effective Date - 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$26.77	$11.50	$0.00	$0.00	$38.27
2	60	$29.21	$11.50	$15.60	$0.00	$56.31
3	65	$31.64	$11.50	$15.60	$0.00	$58.74
4	70	$34.08	$11.50	$15.60	$0.00	$61.18
5	75	$36.51	$11.50	$15.60	$0.00	$63.61
6	80	$38.94	$11.50	$15.60	$0.00	$66.04
7	85	$41.38	$11.50	$15.60	$0.00	$68.48
8	90	$43.81	$11.50	$15.60	$0.00	$70.91

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) *SHEETMETAL WORKERS LOCAL 17 - B*	10/01/2018	$35.21	$12.20	$16.55	$1.92	$65.88
	04/01/2019	$35.71	$12.20	$16.55	$1.92	$66.38
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) *ELECTRICIANS LOCAL 223*	03/01/2019	$41.64	$9.90	$13.15	$0.00	$64.69
	09/01/2019	$42.26	$10.15	$13.54	$0.00	$65.95
	03/01/2020	$42.87	$10.40	$13.94	$0.00	$67.21
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) *SHEETMETAL WORKERS LOCAL 17 - B*	10/01/2018	$35.21	$12.20	$16.55	$1.92	$65.88
	04/01/2019	$35.71	$12.20	$16.55	$1.92	$66.38
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) *PLUMBERS & PIPEFITTERS LOCAL 51*	09/01/2018	$42.04	$10.00	$18.20	$0.00	$70.24
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC *PLUMBERS & PIPEFITTERS LOCAL 51*	09/01/2018	$42.04	$10.00	$18.20	$0.00	$70.24
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HYDRAULIC DRILLS *LABORERS - ZONE 2*	12/01/2018	$34.27	$7.85	$14.44	$0.00	$56.56
	06/01/2019	$35.14	$7.85	$14.44	$0.00	$57.43
	12/01/2019	$36.00	$7.85	$14.44	$0.00	$58.29
	06/01/2020	$36.89	$7.85	$14.44	$0.00	$59.18
	12/01/2020	$37.78	$7.85	$14.44	$0.00	$60.07
	06/01/2021	$38.70	$7.85	$14.44	$0.00	$60.99
	12/01/2021	$39.61	$7.85	$14.44	$0.00	$61.90
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (SOUTHERN MASS)*	09/01/2018	$42.38	$12.50	$15.60	$0.00	$70.48
	09/01/2019	$44.63	$12.50	$15.60	$0.00	$72.73

Apprentice - *ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Southern MA*

Effective Date - 09/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.19	$12.50	$11.40	$0.00	$45.09
2	60	$25.43	$12.50	$12.24	$0.00	$50.17
3	70	$29.67	$12.50	$13.08	$0.00	$55.25
4	80	$33.90	$12.50	$13.92	$0.00	$60.32

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$22.32	$12.50	$11.40	$0.00	$46.22
2	60	$26.78	$12.50	$12.24	$0.00	$51.52
3	70	$31.24	$12.50	$13.08	$0.00	$56.82
4	80	$35.70	$12.50	$13.92	$0.00	$62.12

Notes:
Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER *IRONWORKERS LOCAL 37*	09/16/2018	$37.91	$7.70	$17.10	$0.00	$62.71
	03/16/2019	$38.81	$7.70	$17.10	$0.00	$63.61
	09/16/2019	$39.71	$7.70	$17.10	$0.00	$64.51
	03/16/2020	$40.61	$7.70	$17.10	$0.00	$65.41
	09/16/2020	$41.51	$7.70	$17.10	$0.00	$66.31
	03/16/2021	$42.46	$7.70	$17.10	$0.00	$67.26

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *IRONWORKER - Local 37*

Effective Date - 09/16/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	70	$26.54	$7.70	$17.10	$0.00	$51.34
2	75	$28.43	$7.70	$17.10	$0.00	$53.23
3	80	$30.33	$7.70	$17.10	$0.00	$55.13
4	85	$32.22	$7.70	$17.10	$0.00	$57.02
5	90	$34.12	$7.70	$17.10	$0.00	$58.92
6	95	$36.01	$7.70	$17.10	$0.00	$60.81

Effective Date - 03/16/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	70	$27.17	$7.70	$17.10	$0.00	$51.97
2	75	$29.11	$7.70	$17.10	$0.00	$53.91
3	80	$31.05	$7.70	$17.10	$0.00	$55.85
4	85	$32.99	$7.70	$17.10	$0.00	$57.79
5	90	$34.93	$7.70	$17.10	$0.00	$59.73
6	95	$36.87	$7.70	$17.10	$0.00	$61.67

Notes:

Apprentice to Journeyworker Ratio:1:4

JACKHAMMER & PAVING BREAKER OPERATOR *LABORERS - ZONE 2*	12/01/2018	$33.77	$7.85	$14.44	$0.00	$56.06
	06/01/2019	$34.64	$7.85	$14.44	$0.00	$56.93
	12/01/2019	$35.50	$7.85	$14.44	$0.00	$57.79
	06/01/2020	$36.39	$7.85	$14.44	$0.00	$58.68
	12/01/2020	$37.28	$7.85	$14.44	$0.00	$59.57
	06/01/2021	$38.20	$7.85	$14.44	$0.00	$60.49
	12/01/2021	$39.11	$7.85	$14.44	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
LABORER *LABORERS - ZONE 2*	12/01/2018	$33.52	$7.85	$14.44	$0.00	$55.81
	06/01/2019	$34.39	$7.85	$14.44	$0.00	$56.68
	12/01/2019	$35.25	$7.85	$14.44	$0.00	$57.54
	06/01/2020	$36.14	$7.85	$14.44	$0.00	$58.43
	12/01/2020	$37.03	$7.85	$14.44	$0.00	$59.32
	06/01/2021	$37.95	$7.85	$14.44	$0.00	$60.24
	12/01/2021	$38.86	$7.85	$14.44	$0.00	$61.15

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *LABORER - Zone 2*

Effective Date - 12/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$20.11	$7.85	$14.44	$0.00	$42.40
2	70	$23.46	$7.85	$14.44	$0.00	$45.75
3	80	$26.82	$7.85	$14.44	$0.00	$49.11
4	90	$30.17	$7.85	$14.44	$0.00	$52.46

Effective Date - 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$20.63	$7.85	$14.44	$0.00	$42.92
2	70	$24.07	$7.85	$14.44	$0.00	$46.36
3	80	$27.51	$7.85	$14.44	$0.00	$49.80
4	90	$30.95	$7.85	$14.44	$0.00	$53.24

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER *LABORERS - ZONE 2*	12/01/2018	$33.52	$7.85	$14.44	$0.00	$55.81
	06/01/2019	$34.39	$7.85	$14.44	$0.00	$56.68
	12/01/2019	$35.25	$7.85	$14.44	$0.00	$57.54
	06/01/2020	$36.14	$7.85	$14.44	$0.00	$58.43
	12/01/2020	$37.03	$7.85	$14.44	$0.00	$59.32
	06/01/2021	$37.95	$7.85	$14.44	$0.00	$60.24
	12/01/2021	$38.86	$7.85	$14.44	$0.00	$61.15
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER *LABORERS - ZONE 2*	12/01/2018	$33.52	$7.85	$14.44	$0.00	$55.81
	06/01/2019	$34.39	$7.85	$14.44	$0.00	$56.68
	12/01/2019	$35.25	$7.85	$14.44	$0.00	$57.54
	06/01/2020	$36.14	$7.85	$14.44	$0.00	$58.43
	12/01/2020	$37.03	$7.85	$14.44	$0.00	$59.32
	06/01/2021	$37.95	$7.85	$14.44	$0.00	$60.24
	12/01/2021	$38.86	$7.85	$14.44	$0.00	$61.15
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER *LABORERS - ZONE 2*	12/01/2018	$33.72	$7.85	$14.39	$0.00	$55.96
	06/01/2019	$34.59	$7.85	$14.39	$0.00	$56.83
	12/01/2019	$35.45	$7.85	$14.39	$0.00	$57.69
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER *LABORERS - ZONE 2*	12/01/2018	$33.77	$7.85	$14.44	$0.00	$56.06
	06/01/2019	$34.64	$7.85	$14.44	$0.00	$56.93
	12/01/2019	$35.50	$7.85	$14.44	$0.00	$57.79
	06/01/2020	$36.39	$7.85	$14.44	$0.00	$58.68
	12/01/2020	$37.28	$7.85	$14.44	$0.00	$59.57
	06/01/2021	$38.20	$7.85	$14.44	$0.00	$60.49
	12/01/2021	$39.11	$7.85	$14.44	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER *LABORERS - ZONE 2*	12/01/2018	$33.52	$7.85	$14.44	$0.00	$55.81
	06/01/2019	$34.39	$7.85	$14.44	$0.00	$56.68
	12/01/2019	$35.25	$7.85	$14.44	$0.00	$57.54
	06/01/2020	$36.14	$7.85	$14.44	$0.00	$58.43
	12/01/2020	$37.03	$7.85	$14.44	$0.00	$59.32
	06/01/2021	$37.95	$7.85	$14.44	$0.00	$60.24
	12/01/2021	$38.86	$7.85	$14.44	$0.00	$61.15
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER *LABORERS - ZONE 2*	12/01/2018	$33.52	$7.85	$14.44	$0.00	$55.81
	06/01/2019	$34.39	$7.85	$14.44	$0.00	$56.68
	12/01/2019	$35.25	$7.85	$14.44	$0.00	$57.54
	06/01/2020	$36.14	$7.85	$14.44	$0.00	$58.43
	12/01/2020	$37.03	$7.85	$14.44	$0.00	$59.32
	06/01/2021	$37.95	$7.85	$14.44	$0.00	$60.24
	12/01/2021	$38.86	$7.85	$14.44	$0.00	$61.15
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR *LABORERS - ZONE 2*	12/01/2018	$33.77	$7.85	$14.44	$0.00	$56.06
	06/01/2019	$34.64	$7.85	$14.44	$0.00	$56.93
	12/01/2019	$35.50	$7.85	$14.44	$0.00	$57.79
	06/01/2020	$36.39	$7.85	$14.44	$0.00	$58.68
	12/01/2020	$37.28	$7.85	$14.44	$0.00	$59.57
	06/01/2021	$38.20	$7.85	$14.44	$0.00	$60.49
	12/01/2021	$39.11	$7.85	$14.44	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2019	$40.91	$10.75	$18.97	$0.00	$70.63
	08/01/2019	$41.99	$10.75	$19.11	$0.00	$71.85
	02/01/2020	$42.50	$10.75	$19.11	$0.00	$72.36
	08/01/2020	$43.58	$10.75	$19.26	$0.00	$73.59
	02/01/2021	$44.09	$10.75	$19.26	$0.00	$74.10
	08/01/2021	$45.21	$10.75	$19.42	$0.00	$75.38
	02/01/2022	$45.68	$10.75	$19.42	$0.00	$75.85

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MARBLE & TILE FINISHER - Local 3 Marble & Tile*

Effective Date - 02/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.46	$10.75	$18.97	$0.00	$50.18
2	60	$24.55	$10.75	$18.97	$0.00	$54.27
3	70	$28.64	$10.75	$18.97	$0.00	$58.36
4	80	$32.73	$10.75	$18.97	$0.00	$62.45
5	90	$36.82	$10.75	$18.97	$0.00	$66.54

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.00	$10.75	$19.11	$0.00	$50.86
2	60	$25.19	$10.75	$19.11	$0.00	$55.05
3	70	$29.39	$10.75	$19.11	$0.00	$59.25
4	80	$33.59	$10.75	$19.11	$0.00	$63.45
5	90	$37.79	$10.75	$19.11	$0.00	$67.65

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS,TILELAYERS & TERRAZZO MECH *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2019	$53.57	$10.75	$20.66	$0.00	$84.98
	08/01/2019	$54.92	$10.75	$20.80	$0.00	$86.47
	02/01/2020	$55.55	$10.75	$20.80	$0.00	$87.10
	08/01/2020	$56.90	$10.75	$20.95	$0.00	$88.60
	02/01/2021	$57.54	$10.75	$20.95	$0.00	$89.24
	08/01/2021	$58.94	$10.75	$21.11	$0.00	$90.80
	02/01/2022	$59.51	$10.75	$21.11	$0.00	$91.37

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile*

Effective Date - 02/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.79	$10.75	$20.66	$0.00	$58.20
2	60	$32.14	$10.75	$20.66	$0.00	$63.55
3	70	$37.50	$10.75	$20.66	$0.00	$68.91
4	80	$42.86	$10.75	$20.66	$0.00	$74.27
5	90	$48.21	$10.75	$20.66	$0.00	$79.62

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.46	$10.75	$20.80	$0.00	$59.01
2	60	$32.95	$10.75	$20.80	$0.00	$64.50
3	70	$38.44	$10.75	$20.80	$0.00	$69.99
4	80	$43.94	$10.75	$20.80	$0.00	$75.49
5	90	$49.43	$10.75	$20.80	$0.00	$80.98

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$15.60	$0.00	$74.20
	06/01/2019	$48.19	$11.50	$15.60	$0.00	$75.29
	12/01/2019	$49.33	$11.50	$15.60	$0.00	$76.43
	06/01/2020	$50.41	$11.50	$15.60	$0.00	$77.51
	12/01/2020	$51.55	$11.50	$15.60	$0.00	$78.65
	06/01/2021	$52.64	$11.50	$15.60	$0.00	$79.74
	12/01/2021	$53.78	$11.50	$15.60	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$15.60	$0.00	$74.20
	06/01/2019	$48.19	$11.50	$15.60	$0.00	$75.29
	12/01/2019	$49.33	$11.50	$15.60	$0.00	$76.43
	06/01/2020	$50.41	$11.50	$15.60	$0.00	$77.51
	12/01/2020	$51.55	$11.50	$15.60	$0.00	$78.65
	06/01/2021	$52.64	$11.50	$15.60	$0.00	$79.74
	12/01/2021	$53.78	$11.50	$15.60	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 2) *MILLWRIGHTS LOCAL 1121 - Zone 2*	10/01/2018	$38.02	$9.90	$18.50	$0.00	$66.42
	04/01/2019	$38.87	$9.90	$18.50	$0.00	$67.27

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MILLWRIGHT - Local 1121 Zone 2*

Effective Date - 10/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$20.91	$9.90	$5.31	$0.00	$36.12
2	65	$24.71	$9.90	$15.13	$0.00	$49.74
3	75	$28.52	$9.90	$16.10	$0.00	$54.52
4	85	$32.32	$9.90	$17.06	$0.00	$59.28

Effective Date - 04/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$21.38	$9.90	$5.31	$0.00	$36.59
2	65	$25.27	$9.90	$15.13	$0.00	$50.30
3	75	$29.15	$9.90	$16.10	$0.00	$55.15
4	85	$33.04	$9.90	$17.06	$0.00	$60.00

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER *LABORERS - ZONE 2*	12/01/2018	$33.77	$7.85	$14.44	$0.00	$56.06
	06/01/2019	$34.64	$7.85	$14.44	$0.00	$56.93
	12/01/2019	$35.50	$7.85	$14.44	$0.00	$57.79
	06/01/2020	$36.39	$7.85	$14.44	$0.00	$58.68
	12/01/2020	$37.28	$7.85	$14.44	$0.00	$59.57
	06/01/2021	$38.20	$7.85	$14.44	$0.00	$60.49
	12/01/2021	$39.11	$7.85	$14.44	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$23.06	$11.50	$15.60	$0.00	$50.16
	06/01/2019	$23.61	$11.50	$15.60	$0.00	$50.71
	12/01/2019	$24.18	$11.50	$15.60	$0.00	$51.28
	06/01/2020	$24.73	$11.50	$15.60	$0.00	$51.83
	12/01/2020	$25.30	$11.50	$15.60	$0.00	$52.40
	06/01/2021	$25.85	$11.50	$15.60	$0.00	$52.95
	12/01/2021	$26.43	$11.50	$15.60	$0.00	$53.53
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$27.42	$11.50	$15.60	$0.00	$54.52
	06/01/2019	$28.07	$11.50	$15.60	$0.00	$55.17
	12/01/2019	$28.74	$11.50	$15.60	$0.00	$55.84
	06/01/2020	$29.39	$11.50	$15.60	$0.00	$56.49
	12/01/2020	$30.07	$11.50	$15.60	$0.00	$57.17
	06/01/2021	$30.71	$11.50	$15.60	$0.00	$57.81
	12/01/2021	$31.39	$11.50	$15.60	$0.00	$58.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
OTHER POWER DRIVEN EQUIPMENT - CLASS II *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$15.60	$0.00	$74.20
	06/01/2019	$48.19	$11.50	$15.60	$0.00	$75.29
	12/01/2019	$49.33	$11.50	$15.60	$0.00	$76.43
	06/01/2020	$50.41	$11.50	$15.60	$0.00	$77.51
	12/01/2020	$51.55	$11.50	$15.60	$0.00	$78.65
	06/01/2021	$52.64	$11.50	$15.60	$0.00	$79.74
	12/01/2021	$53.78	$11.50	$15.60	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2019	$50.36	$8.15	$20.85	$0.00	$79.36
	07/01/2019	$51.46	$8.15	$20.85	$0.00	$80.46
	01/01/2020	$52.56	$8.15	$20.85	$0.00	$81.56
	07/01/2020	$53.66	$8.15	$20.85	$0.00	$82.66
	01/01/2021	$54.76	$8.15	$20.85	$0.00	$83.76

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.18	$8.15	$0.00	$0.00	$33.33
2	55	$27.70	$8.15	$5.64	$0.00	$41.49
3	60	$30.22	$8.15	$6.15	$0.00	$44.52
4	65	$32.73	$8.15	$6.66	$0.00	$47.54
5	70	$35.25	$8.15	$17.78	$0.00	$61.18
6	75	$37.77	$8.15	$18.29	$0.00	$64.21
7	80	$40.29	$8.15	$18.80	$0.00	$67.24
8	90	$45.32	$8.15	$19.83	$0.00	$73.30

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$25.73	$8.15	$0.00	$0.00	$33.88
2	55	$28.30	$8.15	$5.64	$0.00	$42.09
3	60	$30.88	$8.15	$6.15	$0.00	$45.18
4	65	$33.45	$8.15	$6.66	$0.00	$48.26
5	70	$36.02	$8.15	$17.78	$0.00	$61.95
6	75	$38.60	$8.15	$18.29	$0.00	$65.04
7	80	$41.17	$8.15	$18.80	$0.00	$68.12
8	90	$46.31	$8.15	$19.83	$0.00	$74.29

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2019	$41.26	$8.15	$20.85	$0.00	$70.26
	07/01/2019	$42.36	$8.15	$20.85	$0.00	$71.36
	01/01/2020	$43.46	$8.15	$20.85	$0.00	$72.46
	07/01/2020	$44.56	$8.15	$20.85	$0.00	$73.56
	01/01/2021	$45.66	$8.15	$20.85	$0.00	$74.66

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - New*

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.63	$8.15	$0.00	$0.00	$28.78
2	55	$22.69	$8.15	$5.64	$0.00	$36.48
3	60	$24.76	$8.15	$6.15	$0.00	$39.06
4	65	$26.82	$8.15	$6.66	$0.00	$41.63
5	70	$28.88	$8.15	$17.78	$0.00	$54.81
6	75	$30.95	$8.15	$18.29	$0.00	$57.39
7	80	$33.01	$8.15	$18.80	$0.00	$59.96
8	90	$37.13	$8.15	$19.83	$0.00	$65.11

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.18	$8.15	$0.00	$0.00	$29.33
2	55	$23.30	$8.15	$5.64	$0.00	$37.09
3	60	$25.42	$8.15	$6.15	$0.00	$39.72
4	65	$27.53	$8.15	$6.66	$0.00	$42.34
5	70	$29.65	$8.15	$17.78	$0.00	$55.58
6	75	$31.77	$8.15	$18.29	$0.00	$58.21
7	80	$33.89	$8.15	$18.80	$0.00	$60.84
8	90	$38.12	$8.15	$19.83	$0.00	$66.10

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2019	$39.32	$8.15	$20.85	$0.00	$68.32
	07/01/2019	$40.42	$8.15	$20.85	$0.00	$69.42
	01/01/2020	$41.52	$8.15	$20.85	$0.00	$70.52
	07/01/2020	$42.62	$8.15	$20.85	$0.00	$71.62
	01/01/2021	$43.72	$8.15	$20.85	$0.00	$72.72

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint*

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.66	$8.15	$0.00	$0.00	$27.81
2	55	$21.63	$8.15	$5.64	$0.00	$35.42
3	60	$23.59	$8.15	$6.15	$0.00	$37.89
4	65	$25.56	$8.15	$6.66	$0.00	$40.37
5	70	$27.52	$8.15	$17.78	$0.00	$53.45
6	75	$29.49	$8.15	$18.29	$0.00	$55.93
7	80	$31.46	$8.15	$18.80	$0.00	$58.41
8	90	$35.39	$8.15	$19.83	$0.00	$63.37

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.21	$8.15	$0.00	$0.00	$28.36
2	55	$22.23	$8.15	$5.64	$0.00	$36.02
3	60	$24.25	$8.15	$6.15	$0.00	$38.55
4	65	$26.27	$8.15	$6.66	$0.00	$41.08
5	70	$28.29	$8.15	$17.78	$0.00	$54.22
6	75	$30.32	$8.15	$18.29	$0.00	$56.76
7	80	$32.34	$8.15	$18.80	$0.00	$59.29
8	90	$36.38	$8.15	$19.83	$0.00	$64.36

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS) *LABORERS - ZONE 2*	12/01/2018	$33.52	$7.85	$14.44	$0.00	$55.81
	06/01/2019	$34.39	$7.85	$14.44	$0.00	$56.68
	12/01/2019	$35.25	$7.85	$14.44	$0.00	$57.54
	06/01/2020	$36.14	$7.85	$14.44	$0.00	$58.43
	12/01/2020	$37.03	$7.85	$14.44	$0.00	$59.32
	06/01/2021	$37.95	$7.85	$14.44	$0.00	$60.24
	12/01/2021	$38.86	$7.85	$14.44	$0.00	$61.15
For Apprentice rates see "Apprentice- LABORER"						
PAINTER / TAPER (BRUSH, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2019	$39.86	$8.15	$20.85	$0.00	$68.86
	07/01/2019	$40.96	$8.15	$20.85	$0.00	$69.96
	01/01/2020	$42.06	$8.15	$20.85	$0.00	$71.06
	07/01/2020	$43.16	$8.15	$20.85	$0.00	$72.16
	01/01/2021	$44.25	$8.15	$20.85	$0.00	$73.25

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER - Local 35 Zone 2 - BRUSH NEW*

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.93	$8.15	$0.00	$0.00	$28.08
2	55	$21.92	$8.15	$5.64	$0.00	$35.71
3	60	$23.92	$8.15	$6.15	$0.00	$38.22
4	65	$25.91	$8.15	$6.66	$0.00	$40.72
5	70	$27.90	$8.15	$17.78	$0.00	$53.83
6	75	$29.90	$8.15	$18.29	$0.00	$56.34
7	80	$31.89	$8.15	$18.80	$0.00	$58.84
8	90	$35.87	$8.15	$19.83	$0.00	$63.85

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.48	$8.15	$0.00	$0.00	$28.63
2	55	$22.53	$8.15	$5.64	$0.00	$36.32
3	60	$24.58	$8.15	$6.15	$0.00	$38.88
4	65	$26.62	$8.15	$6.66	$0.00	$41.43
5	70	$28.67	$8.15	$17.78	$0.00	$54.60
6	75	$30.72	$8.15	$18.29	$0.00	$57.16
7	80	$32.77	$8.15	$18.80	$0.00	$59.72
8	90	$36.86	$8.15	$19.83	$0.00	$64.84

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2019	$37.92	$8.15	$20.85	$0.00	$66.92
	07/01/2019	$39.02	$8.15	$20.85	$0.00	$68.02
	01/01/2020	$40.12	$8.15	$20.85	$0.00	$69.12
	07/01/2020	$41.22	$8.15	$20.85	$0.00	$70.22
	01/01/2021	$42.32	$8.15	$20.85	$0.00	$71.32

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - BRUSH REPAINT*

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.96	$8.15	$0.00	$0.00	$27.11
2	55	$20.86	$8.15	$5.64	$0.00	$34.65
3	60	$22.75	$8.15	$6.15	$0.00	$37.05
4	65	$24.65	$8.15	$6.66	$0.00	$39.46
5	70	$26.54	$8.15	$17.78	$0.00	$52.47
6	75	$28.44	$8.15	$18.29	$0.00	$54.88
7	80	$30.34	$8.15	$18.80	$0.00	$57.29
8	90	$34.13	$8.15	$19.83	$0.00	$62.11

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.51	$8.15	$0.00	$0.00	$27.66
2	55	$21.46	$8.15	$5.64	$0.00	$35.25
3	60	$23.41	$8.15	$6.15	$0.00	$37.71
4	65	$25.36	$8.15	$6.66	$0.00	$40.17
5	70	$27.31	$8.15	$17.78	$0.00	$53.24
6	75	$29.27	$8.15	$18.29	$0.00	$55.71
7	80	$31.22	$8.15	$18.80	$0.00	$58.17
8	90	$35.12	$8.15	$19.83	$0.00	$63.10

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.08	$11.91	$12.70	$0.00	$57.69
	06/01/2019	$34.08	$11.91	$12.70	$0.00	$58.69
	08/01/2019	$34.08	$12.41	$12.70	$0.00	$59.19
	12/01/2019	$34.08	$12.41	$13.72	$0.00	$60.21
	06/01/2020	$34.98	$12.41	$13.72	$0.00	$61.11
	08/01/2020	$34.98	$12.91	$13.72	$0.00	$61.61
	12/01/2020	$34.98	$12.91	$14.82	$0.00	$62.71
	06/01/2021	$35.78	$12.91	$14.82	$0.00	$63.51
	08/01/2021	$35.78	$13.41	$14.82	$0.00	$64.01
	12/01/2021	$35.78	$13.41	$16.01	$0.00	$65.20
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) *PILE DRIVER LOCAL 56 (ZONE 1)* For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2018	$46.57	$9.90	$21.15	$0.00	$77.62
	08/01/2019	$48.94	$9.90	$21.15	$0.00	$79.99
PILE DRIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2018	$46.57	$9.90	$21.15	$0.00	$77.62
	08/01/2019	$48.94	$9.90	$21.15	$0.00	$79.99

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PILE DRIVER - Local 56 Zone 1*

Effective Date - 08/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.29	$9.90	$21.15	$0.00	$54.34
2	60	$27.94	$9.90	$21.15	$0.00	$58.99
3	70	$32.60	$9.90	$21.15	$0.00	$63.65
4	75	$34.93	$9.90	$21.15	$0.00	$65.98
5	80	$37.26	$9.90	$21.15	$0.00	$68.31
6	80	$37.26	$9.90	$21.15	$0.00	$68.31
7	90	$41.91	$9.90	$21.15	$0.00	$72.96
8	90	$41.91	$9.90	$21.15	$0.00	$72.96

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.47	$9.90	$21.15	$0.00	$55.52
2	60	$29.36	$9.90	$21.15	$0.00	$60.41
3	70	$34.26	$9.90	$21.15	$0.00	$65.31
4	75	$36.71	$9.90	$21.15	$0.00	$67.76
5	80	$39.15	$9.90	$21.15	$0.00	$70.20
6	80	$39.15	$9.90	$21.15	$0.00	$70.20
7	90	$44.05	$9.90	$21.15	$0.00	$75.10
8	90	$44.05	$9.90	$21.15	$0.00	$75.10

Notes:

Apprentice to Journeyworker Ratio:1:5

PIPELAYER *LABORERS - ZONE 2*	12/01/2018	$33.77	$7.85	$14.44	$0.00	$56.06
	06/01/2019	$34.64	$7.85	$14.44	$0.00	$56.93
	12/01/2019	$35.50	$7.85	$14.44	$0.00	$57.79
	06/01/2020	$36.39	$7.85	$14.44	$0.00	$58.68
	12/01/2020	$37.28	$7.85	$14.44	$0.00	$59.57
	06/01/2021	$38.20	$7.85	$14.44	$0.00	$60.49
	12/01/2021	$39.11	$7.85	$14.44	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
PLUMBER & PIPEFITTER *PLUMBERS & PIPEFITTERS LOCAL 51*	09/01/2018	$42.04	$10.00	$18.20	$0.00	$70.24

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PLUMBER/PIPEFITTER - Local 51*

Effective Date - 09/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$16.82	$10.00	$2.50	$0.00	$29.32
2	50	$21.02	$10.00	$2.50	$0.00	$33.52
3	60	$25.22	$10.00	$7.85	$0.00	$43.07
4	70	$29.43	$10.00	$12.56	$0.00	$51.99
5	80	$33.63	$10.00	$15.70	$0.00	$59.33

Notes:

Steps 2000hrs. Prior 9/1/05; 40/40/45/50/55/60/65/75/80/85

Apprentice to Journeyworker Ratio:1:3

PNEUMATIC CONTROLS (TEMP.) *PLUMBERS & PIPEFITTERS LOCAL 51*	09/01/2018	$42.04	$10.00	$18.20	$0.00	$70.24
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR *LABORERS - ZONE 2*	12/01/2018	$33.77	$7.85	$14.44	$0.00	$56.06
	06/01/2019	$34.64	$7.85	$14.44	$0.00	$56.93
	12/01/2019	$35.50	$7.85	$14.44	$0.00	$57.79
	06/01/2020	$36.39	$7.85	$14.44	$0.00	$58.68
	12/01/2020	$37.28	$7.85	$14.44	$0.00	$59.57
	06/01/2021	$38.20	$7.85	$14.44	$0.00	$60.49
	12/01/2021	$39.11	$7.85	$14.44	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER *LABORERS - ZONE 2*	12/01/2018	$34.52	$7.85	$14.44	$0.00	$56.81
	06/01/2019	$35.39	$7.85	$14.44	$0.00	$57.68
	12/01/2019	$36.25	$7.85	$14.44	$0.00	$58.54
	06/01/2020	$37.14	$7.85	$14.44	$0.00	$59.43
	12/01/2020	$38.03	$7.85	$14.44	$0.00	$60.32
	06/01/2021	$38.95	$7.85	$14.44	$0.00	$61.24
	12/01/2021	$39.86	$7.85	$14.44	$0.00	$62.15
For apprentice rates see "Apprentice- LABORER"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.58	$11.50	$15.60	$0.00	$74.68
	06/01/2019	$48.68	$11.50	$15.60	$0.00	$75.78
	12/01/2019	$49.83	$11.50	$15.60	$0.00	$76.93
	06/01/2020	$50.93	$11.50	$15.60	$0.00	$78.03
	12/01/2020	$52.08	$11.50	$15.60	$0.00	$79.18
	06/01/2021	$53.18	$11.50	$15.60	$0.00	$80.28
	12/01/2021	$54.33	$11.50	$15.60	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PUMP OPERATOR (CONCRETE) *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.58	$11.50	$15.60	$0.00	$74.68
	06/01/2019	$48.68	$11.50	$15.60	$0.00	$75.78
	12/01/2019	$49.83	$11.50	$15.60	$0.00	$76.93
	06/01/2020	$50.93	$11.50	$15.60	$0.00	$78.03
	12/01/2020	$52.08	$11.50	$15.60	$0.00	$79.18
	06/01/2021	$53.18	$11.50	$15.60	$0.00	$80.28
	12/01/2021	$54.33	$11.50	$15.60	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$32.03	$11.50	$15.60	$0.00	$59.13
	06/01/2019	$32.78	$11.50	$15.60	$0.00	$59.88
	12/01/2019	$33.57	$11.50	$15.60	$0.00	$60.67
	06/01/2020	$34.32	$11.50	$15.60	$0.00	$61.42
	12/01/2020	$35.10	$11.50	$15.60	$0.00	$62.20
	06/01/2021	$35.85	$11.50	$15.60	$0.00	$62.95
	12/01/2021	$36.64	$11.50	$15.60	$0.00	$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER *TEAMSTERS LOCAL 59*	06/01/2008	$19.00	$5.10	$4.21	$0.00	$28.31
RECLAIMERS *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$15.60	$0.00	$74.20
	06/01/2019	$48.19	$11.50	$15.60	$0.00	$75.29
	12/01/2019	$49.33	$11.50	$15.60	$0.00	$76.43
	06/01/2020	$50.41	$11.50	$15.60	$0.00	$77.51
	12/01/2020	$51.55	$11.50	$15.60	$0.00	$78.65
	06/01/2021	$52.64	$11.50	$15.60	$0.00	$79.74
	12/01/2021	$53.78	$11.50	$15.60	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR *LABORERS - ZONE 2*	12/01/2018	$33.77	$7.85	$14.44	$0.00	$56.06
	06/01/2019	$34.64	$7.85	$14.44	$0.00	$56.93
	12/01/2019	$35.50	$7.85	$14.44	$0.00	$57.79
	06/01/2020	$36.39	$7.85	$14.44	$0.00	$58.68
	12/01/2020	$37.28	$7.85	$14.44	$0.00	$59.57
	06/01/2021	$38.20	$7.85	$14.44	$0.00	$60.49
	12/01/2021	$39.11	$7.85	$14.44	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$15.60	$0.00	$74.20
	06/01/2019	$48.19	$11.50	$15.60	$0.00	$75.29
	12/01/2019	$49.33	$11.50	$15.60	$0.00	$76.43
	06/01/2020	$50.41	$11.50	$15.60	$0.00	$77.51
	12/01/2020	$51.55	$11.50	$15.60	$0.00	$78.65
	06/01/2021	$52.64	$11.50	$15.60	$0.00	$79.74
	12/01/2021	$53.78	$11.50	$15.60	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) *ROOFERS LOCAL 33*	02/01/2019	$43.36	$11.50	$15.90	$0.00	$70.76

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ROOFER - Local 33*

Effective Date - 02/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.68	$11.50	$3.69	$0.00	$36.87
2	60	$26.02	$11.50	$15.90	$0.00	$53.42
3	65	$28.18	$11.50	$15.90	$0.00	$55.58
4	75	$32.52	$11.50	$15.90	$0.00	$59.92
5	85	$36.86	$11.50	$15.90	$0.00	$64.26

Notes: ** 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.
(Hot Pitch Mechanics' receive $1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE *ROOFERS LOCAL 33*	02/01/2019	$43.61	$11.50	$15.90	$0.00	$71.01
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER *SHEETMETAL WORKERS LOCAL 17 - B*	10/01/2018	$35.21	$12.20	$16.55	$1.92	$65.88
	04/01/2019	$35.71	$12.20	$16.55	$1.92	$66.38

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SHEET METAL WORKER - Local 17-B*

Effective Date - 10/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$14.08	$12.20	$4.02	$0.93	$31.23
2	45	$15.84	$12.20	$4.52	$1.00	$33.56
3	50	$17.61	$12.20	$10.48	$1.23	$41.52
4	55	$19.37	$12.20	$10.48	$1.29	$43.34
5	60	$21.13	$12.20	$13.37	$1.41	$48.11
6	65	$22.89	$12.20	$13.61	$1.47	$50.17
7	70	$24.65	$12.20	$13.85	$1.53	$52.23
8	75	$26.41	$12.20	$14.10	$1.59	$54.30
9	80	$28.17	$12.20	$14.34	$1.65	$56.36
10	85	$29.93	$12.20	$14.58	$1.71	$58.42

Effective Date - 04/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$14.28	$12.20	$4.02	$0.93	$31.43
2	45	$16.07	$12.20	$4.52	$1.00	$33.79
3	50	$17.86	$12.20	$10.48	$1.23	$41.77
4	55	$19.64	$12.20	$10.48	$1.29	$43.61
5	60	$21.43	$12.20	$13.52	$1.41	$48.56
6	65	$23.21	$12.20	$13.78	$1.47	$50.66
7	70	$25.00	$12.20	$14.03	$1.53	$52.76
8	75	$26.78	$12.20	$14.28	$1.59	$54.85
9	80	$28.57	$12.20	$14.54	$1.66	$56.97
10	85	$30.35	$12.20	$14.79	$1.71	$59.05

Notes:

Apprentice to Journeyworker Ratio:1:3

SIGN ERECTOR *PAINTERS LOCAL 35 - ZONE 2*	06/01/2013	$25.81	$7.07	$7.05	$0.00	$39.93

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SIGN ERECTOR - Local 35 Zone 2*

Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$12.91	$7.07	$0.00	$0.00	$19.98
2	55	$14.20	$7.07	$2.45	$0.00	$23.72
3	60	$15.49	$7.07	$2.45	$0.00	$25.01
4	65	$16.78	$7.07	$2.45	$0.00	$26.30
5	70	$18.07	$7.07	$7.05	$0.00	$32.19
6	75	$19.36	$7.07	$7.05	$0.00	$33.48
7	80	$20.65	$7.07	$7.05	$0.00	$34.77
8	85	$21.94	$7.07	$7.05	$0.00	$36.06
9	90	$23.23	$7.07	$7.05	$0.00	$37.35

Notes:
Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

SPECIALIZED EARTH MOVING EQUIP < 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.54	$11.91	$12.70	$0.00	$58.15
	06/01/2019	$34.54	$11.91	$12.70	$0.00	$59.15
	08/01/2019	$34.54	$12.41	$12.70	$0.00	$59.65
	12/01/2019	$34.54	$12.41	$13.72	$0.00	$60.67
	06/01/2020	$35.44	$12.41	$13.72	$0.00	$61.57
	08/01/2020	$35.44	$12.91	$13.72	$0.00	$62.07
	12/01/2020	$35.44	$12.91	$14.82	$0.00	$63.17
	06/01/2021	$36.24	$12.91	$14.82	$0.00	$63.97
	08/01/2021	$36.24	$13.41	$14.82	$0.00	$64.47
	12/01/2021	$36.24	$13.41	$16.01	$0.00	$65.66
SPECIALIZED EARTH MOVING EQUIP > 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.83	$11.91	$12.70	$0.00	$58.44
	06/01/2019	$34.83	$11.91	$12.70	$0.00	$59.44
	08/01/2019	$34.83	$12.41	$12.70	$0.00	$59.94
	12/01/2019	$34.83	$12.41	$13.72	$0.00	$60.96
	06/01/2020	$35.73	$12.41	$13.72	$0.00	$61.86
	08/01/2020	$35.73	$12.91	$13.72	$0.00	$62.36
	12/01/2020	$35.73	$12.91	$14.82	$0.00	$63.46
	06/01/2021	$36.53	$12.91	$14.82	$0.00	$64.26
	08/01/2021	$36.53	$13.41	$14.82	$0.00	$64.76
	12/01/2021	$36.53	$13.41	$16.01	$0.00	$65.95
SPRINKLER FITTER *SPRINKLER FITTERS LOCAL 550 - (Section B) Zone 2*	03/01/2019	$53.08	$9.47	$19.60	$0.00	$82.15
	10/01/2019	$54.43	$9.47	$19.60	$0.00	$83.50
	03/01/2020	$55.78	$9.47	$19.60	$0.00	$84.85
	10/01/2020	$57.13	$9.47	$19.60	$0.00	$86.20
	03/01/2021	$58.48	$9.47	$19.60	$0.00	$87.55

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SPRINKLER FITTER - Local 550 (Section B) Zone 2*

Effective Date - 03/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$18.58	$9.47	$9.10	$0.00	$37.15
2	40	$21.23	$9.47	$9.10	$0.00	$39.80
3	45	$23.89	$9.47	$9.10	$0.00	$42.46
4	50	$26.54	$9.47	$9.10	$0.00	$45.11
5	55	$29.19	$9.47	$9.10	$0.00	$47.76
6	60	$31.85	$9.47	$10.60	$0.00	$51.92
7	65	$34.50	$9.47	$10.60	$0.00	$54.57
8	70	$37.16	$9.47	$10.60	$0.00	$57.23
9	75	$39.81	$9.47	$10.60	$0.00	$59.88
10	80	$42.46	$9.47	$10.60	$0.00	$62.53

Effective Date - 10/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$19.05	$9.47	$9.10	$0.00	$37.62
2	40	$21.77	$9.47	$9.10	$0.00	$40.34
3	45	$24.49	$9.47	$9.10	$0.00	$43.06
4	50	$27.22	$9.47	$9.10	$0.00	$45.79
5	55	$29.94	$9.47	$9.10	$0.00	$48.51
6	60	$32.66	$9.47	$10.60	$0.00	$52.73
7	65	$35.38	$9.47	$10.60	$0.00	$55.45
8	70	$38.10	$9.47	$10.60	$0.00	$58.17
9	75	$40.82	$9.47	$10.60	$0.00	$60.89
10	80	$43.54	$9.47	$10.60	$0.00	$63.61

Notes: Apprentice entered prior 9/30/10:
40/45/50/55/60/65/70/75/80/85
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$15.60	$0.00	$74.20
	06/01/2019	$48.19	$11.50	$15.60	$0.00	$75.29
	12/01/2019	$49.33	$11.50	$15.60	$0.00	$76.43
	06/01/2020	$50.41	$11.50	$15.60	$0.00	$77.51
	12/01/2020	$51.55	$11.50	$15.60	$0.00	$78.65
	06/01/2021	$52.64	$11.50	$15.60	$0.00	$79.74
	12/01/2021	$53.78	$11.50	$15.60	$0.00	$80.88

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$15.60	$0.00	$74.20
	06/01/2019	$48.19	$11.50	$15.60	$0.00	$75.29
	12/01/2019	$49.33	$11.50	$15.60	$0.00	$76.43
	06/01/2020	$50.41	$11.50	$15.60	$0.00	$77.51
	12/01/2020	$51.55	$11.50	$15.60	$0.00	$78.65
	06/01/2021	$52.64	$11.50	$15.60	$0.00	$79.74
	12/01/2021	$53.78	$11.50	$15.60	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN *ELECTRICIANS LOCAL 223*	03/01/2019	$35.25	$9.90	$11.14	$0.00	$56.29
	09/01/2019	$35.78	$10.15	$11.45	$0.00	$57.38
	03/01/2020	$36.27	$10.40	$11.78	$0.00	$58.45

Apprentice - *TELECOMMUNICATION TECHNICIAN - Local 223*

Effective Date - 03/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	$0.00	$0.00	$0.00	$0.00	$0.00

Notes: See Electrician Apprentice Wages
Steps are 750hrs
Telecom Apprentice Wages shall be the same as the Electrician Apprentice Wages

Apprentice to Journeyworker Ratio:2:3***

TERRAZZO FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2019	$52.49	$10.75	$20.66	$0.00	$83.90
	08/01/2019	$53.84	$10.75	$20.80	$0.00	$85.39
	02/01/2020	$54.48	$10.75	$20.80	$0.00	$86.03
	08/01/2020	$55.83	$10.75	$20.95	$0.00	$87.53
	02/01/2021	$56.47	$10.75	$20.95	$0.00	$88.17
	08/01/2021	$57.87	$10.75	$21.11	$0.00	$89.73
	02/01/2022	$58.46	$10.75	$21.11	$0.00	$90.32

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *TERRAZZO FINISHER - Local 3 Marble & Tile*

Effective Date - 02/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.25	$10.75	$20.03	$0.00	$57.03
2	60	$31.49	$10.75	$20.03	$0.00	$62.27
3	70	$36.74	$10.75	$20.03	$0.00	$67.52
4	80	$41.99	$10.75	$20.03	$0.00	$72.77
5	90	$47.24	$10.75	$20.03	$0.00	$78.02

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.92	$10.75	$20.80	$0.00	$58.47
2	60	$32.30	$10.75	$20.80	$0.00	$63.85
3	70	$37.69	$10.75	$20.80	$0.00	$69.24
4	80	$43.07	$10.75	$20.80	$0.00	$74.62
5	90	$48.46	$10.75	$20.80	$0.00	$80.01

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER *LABORERS - FOUNDATION AND MARINE*	12/01/2018	$40.00	$7.85	$15.55	$0.00	$63.40
	06/01/2019	$41.00	$7.85	$15.55	$0.00	$64.40
	12/01/2019	$42.00	$7.85	$15.55	$0.00	$65.40
	06/01/2020	$42.99	$7.85	$15.55	$0.00	$66.39
	12/01/2020	$43.97	$7.85	$15.55	$0.00	$67.37
	06/01/2021	$44.99	$7.85	$15.55	$0.00	$68.39
	12/01/2021	$46.00	$7.85	$15.55	$0.00	$69.40
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER *LABORERS - FOUNDATION AND MARINE*	12/01/2018	$38.72	$7.85	$15.55	$0.00	$62.12
	06/01/2019	$39.72	$7.85	$15.55	$0.00	$63.12
	12/01/2019	$40.72	$7.85	$15.55	$0.00	$64.12
	06/01/2020	$41.71	$7.85	$15.55	$0.00	$65.11
	12/01/2020	$42.69	$7.85	$15.55	$0.00	$66.09
	06/01/2021	$43.71	$7.85	$15.55	$0.00	$67.11
	12/01/2021	$44.72	$7.85	$15.55	$0.00	$68.12
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2018	$38.60	$7.85	$15.55	$0.00	$62.00
	06/01/2019	$39.60	$7.85	$15.55	$0.00	$63.00
	12/01/2019	$40.60	$7.85	$15.55	$0.00	$64.00
	06/01/2020	$41.59	$7.85	$15.55	$0.00	$64.99
	12/01/2020	$42.57	$7.85	$15.55	$0.00	$65.97
	06/01/2021	$43.59	$7.85	$15.55	$0.00	$66.99
	12/01/2021	$44.60	$7.85	$15.55	$0.00	$68.00
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRACTORS/PORTABLE STEAM GENERATORS *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$15.60	$0.00	$74.20
	06/01/2019	$48.19	$11.50	$15.60	$0.00	$75.29
	12/01/2019	$49.33	$11.50	$15.60	$0.00	$76.43
	06/01/2020	$50.41	$11.50	$15.60	$0.00	$77.51
	12/01/2020	$51.55	$11.50	$15.60	$0.00	$78.65
	06/01/2021	$52.64	$11.50	$15.60	$0.00	$79.74
	12/01/2021	$53.78	$11.50	$15.60	$0.00	$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$34.12	$11.91	$12.70	$0.00	$58.73
	06/01/2019	$35.12	$11.91	$12.70	$0.00	$59.73
	08/01/2019	$35.12	$12.41	$12.70	$0.00	$60.23
	12/01/2019	$35.12	$12.41	$13.72	$0.00	$61.25
	06/01/2020	$36.02	$12.41	$13.72	$0.00	$62.15
	08/01/2020	$36.02	$12.91	$13.72	$0.00	$62.65
	12/01/2020	$36.02	$12.91	$14.82	$0.00	$63.75
	06/01/2021	$36.82	$12.91	$14.82	$0.00	$64.55
	08/01/2021	$36.82	$13.41	$14.82	$0.00	$65.05
	12/01/2021	$36.82	$13.41	$16.01	$0.00	$66.24
TUNNEL WORK - COMPRESSED AIR *LABORERS (COMPRESSED AIR)*	12/01/2018	$50.88	$7.85	$15.95	$0.00	$74.68
	06/01/2019	$51.88	$7.85	$15.95	$0.00	$75.68
	12/01/2019	$52.88	$7.85	$15.95	$0.00	$76.68
	06/01/2020	$53.87	$7.85	$15.95	$0.00	$77.67
	12/01/2020	$54.85	$7.85	$15.95	$0.00	$78.65
	06/01/2021	$55.87	$7.85	$15.95	$0.00	$79.67
	12/01/2021	$56.88	$7.85	$15.95	$0.00	$80.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) *LABORERS (COMPRESSED AIR)*	12/01/2018	$52.88	$7.85	$15.95	$0.00	$76.68
	06/01/2019	$53.88	$7.85	$15.95	$0.00	$77.68
	12/01/2019	$54.88	$7.85	$15.95	$0.00	$78.68
	06/01/2020	$55.87	$7.85	$15.95	$0.00	$79.67
	12/01/2020	$56.85	$7.85	$15.95	$0.00	$80.65
	06/01/2021	$57.87	$7.85	$15.95	$0.00	$81.67
	12/01/2021	$58.88	$7.85	$15.95	$0.00	$82.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR *LABORERS (FREE AIR TUNNEL)*	12/01/2018	$42.95	$7.85	$15.95	$0.00	$66.75
	06/01/2019	$43.95	$7.85	$15.95	$0.00	$67.75
	12/01/2019	$44.95	$7.85	$15.95	$0.00	$68.75
	06/01/2020	$45.94	$7.85	$15.95	$0.00	$69.74
	12/01/2020	$46.92	$7.85	$15.95	$0.00	$70.72
	06/01/2021	$47.94	$7.85	$15.95	$0.00	$71.74
	12/01/2021	$48.95	$7.85	$15.95	$0.00	$72.75
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - FREE AIR (HAZ. WASTE) *LABORERS (FREE AIR TUNNEL)*	12/01/2018	$44.95	$7.85	$15.95	$0.00	$68.75
	06/01/2019	$45.95	$7.85	$15.95	$0.00	$69.75
	12/01/2019	$46.95	$7.85	$15.95	$0.00	$70.75
	06/01/2020	$47.94	$7.85	$15.95	$0.00	$71.74
	12/01/2020	$48.92	$7.85	$15.95	$0.00	$72.72
	06/01/2021	$49.94	$7.85	$15.95	$0.00	$73.74
	12/01/2021	$50.95	$7.85	$15.95	$0.00	$74.75
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.54	$11.91	$12.70	$0.00	$58.15
	06/01/2019	$34.54	$11.91	$12.70	$0.00	$59.15
	08/01/2019	$34.54	$12.41	$12.70	$0.00	$59.65
	12/01/2019	$34.54	$12.41	$13.72	$0.00	$60.67
	06/01/2020	$35.44	$12.41	$13.72	$0.00	$61.57
	08/01/2020	$35.44	$12.91	$13.72	$0.00	$62.07
	12/01/2020	$35.44	$12.91	$14.82	$0.00	$63.17
	06/01/2021	$36.24	$12.91	$14.82	$0.00	$63.97
	08/01/2021	$36.24	$13.41	$14.82	$0.00	$64.47
	12/01/2021	$36.24	$13.41	$16.01	$0.00	$65.66
WAGON DRILL OPERATOR *LABORERS - ZONE 2*	12/01/2018	$33.77	$7.85	$14.44	$0.00	$56.06
	06/01/2019	$34.64	$7.85	$14.44	$0.00	$56.93
	12/01/2019	$35.50	$7.85	$14.44	$0.00	$57.79
	06/01/2020	$36.39	$7.85	$14.44	$0.00	$58.68
	12/01/2020	$37.28	$7.85	$14.44	$0.00	$59.57
	06/01/2021	$38.20	$7.85	$14.44	$0.00	$60.49
	12/01/2021	$39.11	$7.85	$14.44	$0.00	$61.40
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.58	$11.50	$15.60	$0.00	$74.68
	06/01/2019	$48.68	$11.50	$15.60	$0.00	$75.78
	12/01/2019	$49.83	$11.50	$15.60	$0.00	$76.93
	06/01/2020	$50.93	$11.50	$15.60	$0.00	$78.03
	12/01/2020	$52.08	$11.50	$15.60	$0.00	$79.18
	06/01/2021	$53.18	$11.50	$15.60	$0.00	$80.28
	12/01/2021	$54.33	$11.50	$15.60	$0.00	$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER *PLUMBERS & PIPEFITTERS LOCAL 51*	09/01/2018	$42.04	$10.00	$18.20	$0.00	$70.24
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/03/2017	$27.14	$7.75	$1.81	$0.00	$36.70
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/03/2017	$38.45	$7.75	$9.53	$0.00	$55.73
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/03/2017	$31.66	$7.75	$9.44	$0.00	$48.85
For apprentice rates see "Apprentice- LINEMAN"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	$24.88	$7.75	$1.75	$0.00	$34.38
EQUIPMENT OPERATOR (Class A CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	$38.45	$7.75	$13.61	$0.00	$59.81
EQUIPMENT OPERATOR (Class B CDL) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	$33.92	$7.75	$10.21	$0.00	$51.88
GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	$24.88	$7.75	$1.75	$0.00	$34.38
GROUNDMAN -Inexperienced (<2000 Hrs.) *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* For apprentice rates see "Apprentice- LINEMAN"	09/03/2017	$20.35	$7.75	$1.61	$0.00	$29.71
JOURNEYMAN LINEMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	09/03/2017	$45.23	$7.75	$16.61	$0.00	$69.59

Apprentice - *LINEMAN (Outside Electrical) - East Local 104*

Effective Date - 09/03/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$27.14	$7.75	$3.31	$0.00	$38.20
2	65	$29.40	$7.75	$3.38	$0.00	$40.53
3	70	$31.66	$7.75	$3.45	$0.00	$42.86
4	75	$33.92	$7.75	$5.02	$0.00	$46.69
5	80	$36.18	$7.75	$5.09	$0.00	$49.02
6	85	$38.45	$7.75	$5.15	$0.00	$51.35
7	90	$40.71	$7.75	$7.22	$0.00	$55.68

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	02/04/2019	$30.73	$4.70	$3.17	$0.00	$38.60
TELEDATA LINEMAN/EQUIPMENT OPERATOR *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	02/04/2019	$28.93	$4.70	$3.14	$0.00	$36.77
TELEDATA WIREMAN/INSTALLER/TECHNICIAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	02/04/2019	$28.93	$4.70	$3.14	$0.00	$36.77
TREE TRIMMER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.	01/31/2016	$18.51	$3.55	$0.00	$0.00	$22.06
TREE TRIMMER GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104* This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.	01/31/2016	$16.32	$3.55	$0.00	$0.00	$19.87

Rental of Equipment - East

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
(2 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.25	$11.91	$0.00	$0.00	$45.16
	06/01/2019	$34.25	$11.91	$0.00	$0.00	$46.16
	08/01/2019	$34.25	$12.41	$0.00	$0.00	$46.66
	12/01/2019	$34.25	$12.41	$0.00	$0.00	$46.66
	06/01/2020	$35.15	$12.41	$0.00	$0.00	$47.56
	08/01/2020	$35.15	$12.91	$0.00	$0.00	$48.06
	12/01/2020	$35.15	$12.91	$0.00	$0.00	$48.06
	06/01/2021	$35.95	$12.91	$0.00	$0.00	$48.86
	08/01/2021	$35.95	$13.41	$0.00	$0.00	$49.36
	12/01/2021	$35.95	$13.41	$0.00	$0.00	$49.36
(3 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.32	$11.91	$0.00	$0.00	$45.23
	06/01/2019	$34.32	$11.91	$0.00	$0.00	$46.23
	08/01/2019	$34.32	$12.41	$0.00	$0.00	$46.73
	12/01/2019	$34.32	$12.41	$0.00	$0.00	$46.73
	06/01/2020	$35.22	$12.41	$0.00	$0.00	$47.63
	08/01/2020	$35.22	$12.91	$0.00	$0.00	$48.13
	12/01/2020	$35.22	$12.91	$0.00	$0.00	$48.13
	06/01/2021	$36.02	$12.91	$0.00	$0.00	$48.93
	08/01/2021	$36.02	$13.41	$0.00	$0.00	$49.43
	12/01/2021	$36.02	$13.41	$0.00	$0.00	$49.43
(4 & 5 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.44	$11.91	$0.00	$0.00	$45.35
	06/01/2019	$34.44	$11.91	$0.00	$0.00	$46.35
	08/01/2019	$34.44	$12.41	$0.00	$0.00	$46.85
	12/01/2019	$34.44	$12.41	$0.00	$0.00	$46.85
	06/01/2020	$35.34	$12.41	$0.00	$0.00	$47.75
	08/01/2020	$35.34	$12.91	$0.00	$0.00	$48.25
	12/01/2020	$35.34	$12.91	$0.00	$0.00	$48.25
	06/01/2021	$36.14	$12.91	$0.00	$0.00	$49.05
	08/01/2021	$36.14	$13.41	$0.00	$0.00	$49.55
	12/01/2021	$36.14	$13.41	$0.00	$0.00	$49.55
ADS/SUBMERSIBLE PILOT *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2018	$97.80	$9.90	$0.00	$0.00	$107.70
	08/01/2019	$102.78	$9.90	$0.00	$0.00	$112.68
For apprentice rates see "Apprentice- PILE DRIVER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.58	$11.50	$0.00	$0.00	$59.08
	06/01/2019	$48.68	$11.50	$0.00	$0.00	$60.18
	12/01/2019	$49.83	$11.50	$0.00	$0.00	$61.33
	06/01/2020	$50.93	$11.50	$0.00	$0.00	$62.43
	12/01/2020	$52.08	$11.50	$0.00	$0.00	$63.58
	06/01/2021	$53.18	$11.50	$0.00	$0.00	$64.68
	12/01/2021	$54.33	$11.50	$0.00	$0.00	$65.83
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BACKHOE/FRONT-END LOADER *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.58	$11.50	$0.00	$0.00	$59.08
	06/01/2019	$48.68	$11.50	$0.00	$0.00	$60.18
	12/01/2019	$49.83	$11.50	$0.00	$0.00	$61.33
	06/01/2020	$50.93	$11.50	$0.00	$0.00	$62.43
	12/01/2020	$52.08	$11.50	$0.00	$0.00	$63.58
	06/01/2021	$53.18	$11.50	$0.00	$0.00	$64.68
	12/01/2021	$54.33	$11.50	$0.00	$0.00	$65.83
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BULLDOZER/GRADER/SCRAPER *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$0.00	$0.00	$58.60
	06/01/2019	$48.19	$11.50	$0.00	$0.00	$59.69
	12/01/2019	$49.33	$11.50	$0.00	$0.00	$60.83
	06/01/2020	$50.41	$11.50	$0.00	$0.00	$61.91
	12/01/2020	$51.55	$11.50	$0.00	$0.00	$63.05
	06/01/2021	$52.64	$11.50	$0.00	$0.00	$64.14
	12/01/2021	$53.78	$11.50	$0.00	$0.00	$65.28
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$48.58	$11.50	$0.00	$0.00	$60.08
	06/01/2019	$49.68	$11.50	$0.00	$0.00	$61.18
	12/01/2019	$50.83	$11.50	$0.00	$0.00	$62.33
	06/01/2020	$51.93	$11.50	$0.00	$0.00	$63.43
	12/01/2020	$53.08	$11.50	$0.00	$0.00	$64.58
	06/01/2021	$54.18	$11.50	$0.00	$0.00	$65.68
	12/01/2021	$55.33	$11.50	$0.00	$0.00	$66.83
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$32.03	$11.50	$0.00	$0.00	$43.53
	06/01/2019	$32.78	$11.50	$0.00	$0.00	$44.28
	12/01/2019	$33.57	$11.50	$0.00	$0.00	$45.07
	06/01/2020	$34.32	$11.50	$0.00	$0.00	$45.82
	12/01/2020	$35.10	$11.50	$0.00	$0.00	$46.60
	06/01/2021	$35.85	$11.50	$0.00	$0.00	$47.35
	12/01/2021	$36.64	$11.50	$0.00	$0.00	$48.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2018	$65.20	$9.90	$0.00	$0.00	$75.10
	08/01/2019	$68.52	$9.90	$0.00	$0.00	$78.42
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2018	$46.57	$9.90	$0.00	$0.00	$56.47
	08/01/2019	$48.94	$9.90	$0.00	$0.00	$58.84
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2018	$69.86	$9.90	$0.00	$0.00	$79.76
	08/01/2019	$73.41	$9.90	$0.00	$0.00	$83.31
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2018	$97.80	$9.90	$0.00	$0.00	$107.70
	08/01/2019	$102.78	$9.90	$0.00	$0.00	$112.68
For apprentice rates see "Apprentice- PILE DRIVER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FLAGGER & SIGNALER *LABORERS - ZONE 2*	12/01/2018	$22.50	$7.85	$0.00	$0.00	$30.35
	06/01/2019	$22.50	$7.85	$0.00	$0.00	$30.35
	12/01/2019	$23.50	$7.85	$0.00	$0.00	$31.35
	06/01/2020	$23.50	$7.85	$0.00	$0.00	$31.35
	12/01/2020	$24.50	$7.85	$0.00	$0.00	$32.35
	06/01/2021	$24.50	$7.85	$0.00	$0.00	$32.35
	12/01/2021	$24.50	$7.85	$0.00	$0.00	$32.35
For apprentice rates see "Apprentice- LABORER"						
FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.58	$11.50	$0.00	$0.00	$59.08
	06/01/2019	$48.68	$11.50	$0.00	$0.00	$60.18
	12/01/2019	$49.83	$11.50	$0.00	$0.00	$61.33
	06/01/2020	$50.93	$11.50	$0.00	$0.00	$62.43
	12/01/2020	$52.08	$11.50	$0.00	$0.00	$63.58
	06/01/2021	$53.18	$11.50	$0.00	$0.00	$64.68
	12/01/2021	$54.33	$11.50	$0.00	$0.00	$65.83
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$32.03	$11.50	$0.00	$0.00	$43.53
	06/01/2019	$32.78	$11.50	$0.00	$0.00	$44.28
	12/01/2019	$33.57	$11.50	$0.00	$0.00	$45.07
	06/01/2020	$34.32	$11.50	$0.00	$0.00	$45.82
	12/01/2020	$35.10	$11.50	$0.00	$0.00	$46.60
	06/01/2021	$35.85	$11.50	$0.00	$0.00	$47.35
	12/01/2021	$36.64	$11.50	$0.00	$0.00	$48.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
HOISTING ENGINEER/CRANES/GRADALLS *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.58	$11.50	$0.00	$0.00	$59.08
	06/01/2019	$48.68	$11.50	$0.00	$0.00	$60.18
	12/01/2019	$49.83	$11.50	$0.00	$0.00	$61.33
	06/01/2020	$50.93	$11.50	$0.00	$0.00	$62.43
	12/01/2020	$52.08	$11.50	$0.00	$0.00	$63.58
	06/01/2021	$53.18	$11.50	$0.00	$0.00	$64.68
	12/01/2021	$54.33	$11.50	$0.00	$0.00	$65.83

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 12/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$26.17	$11.50	$0.00	$0.00	$37.67
2	60	$28.55	$11.50	$0.00	$0.00	$40.05
3	65	$30.93	$11.50	$0.00	$0.00	$42.43
4	70	$33.31	$11.50	$0.00	$0.00	$44.81
5	75	$35.69	$11.50	$0.00	$0.00	$47.19
6	80	$38.06	$11.50	$0.00	$0.00	$49.56
7	85	$40.44	$11.50	$0.00	$0.00	$51.94
8	90	$42.82	$11.50	$0.00	$0.00	$54.32

Effective Date - 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$26.77	$11.50	$0.00	$0.00	$38.27
2	60	$29.21	$11.50	$0.00	$0.00	$40.71
3	65	$31.64	$11.50	$0.00	$0.00	$43.14
4	70	$34.08	$11.50	$0.00	$0.00	$45.58
5	75	$36.51	$11.50	$0.00	$0.00	$48.01
6	80	$38.94	$11.50	$0.00	$0.00	$50.44
7	85	$41.38	$11.50	$0.00	$0.00	$52.88
8	90	$43.81	$11.50	$0.00	$0.00	$55.31

Notes:

Apprentice to Journeyworker Ratio:1:6

LABORER *LABORERS - ZONE 2*	12/01/2018	$33.52	$7.85	$0.00	$0.00	$41.37
	06/01/2019	$34.39	$7.85	$0.00	$0.00	$42.24
	12/01/2019	$35.25	$7.85	$0.00	$0.00	$43.10
	06/01/2020	$36.14	$7.85	$0.00	$0.00	$43.99
	12/01/2020	$37.03	$7.85	$0.00	$0.00	$44.88
	06/01/2021	$37.95	$7.85	$0.00	$0.00	$45.80
	12/01/2021	$38.86	$7.85	$0.00	$0.00	$46.71

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *LABORER - Zone 2*

Effective Date - 12/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$20.11	$7.85	$0.00	$0.00	$27.96
2	70	$23.46	$7.85	$0.00	$0.00	$31.31
3	80	$26.82	$7.85	$0.00	$0.00	$34.67
4	90	$30.17	$7.85	$0.00	$0.00	$38.02

Effective Date - 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$20.63	$7.85	$0.00	$0.00	$28.48
2	70	$24.07	$7.85	$0.00	$0.00	$31.92
3	80	$27.51	$7.85	$0.00	$0.00	$35.36
4	90	$30.95	$7.85	$0.00	$0.00	$38.80

Notes:

Apprentice to Journeyworker Ratio:1:5

OILER (OTHER THAN TRUCK CRANES,GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$23.06	$11.50	$0.00	$0.00	$34.56
	06/01/2019	$23.61	$11.50	$0.00	$0.00	$35.11
	12/01/2019	$24.18	$11.50	$0.00	$0.00	$35.68
	06/01/2020	$24.73	$11.50	$0.00	$0.00	$36.23
	12/01/2020	$25.30	$11.50	$0.00	$0.00	$36.80
	06/01/2021	$25.85	$11.50	$0.00	$0.00	$37.35
	12/01/2021	$26.43	$11.50	$0.00	$0.00	$37.93
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$27.42	$11.50	$0.00	$0.00	$38.92
	06/01/2019	$28.07	$11.50	$0.00	$0.00	$39.57
	12/01/2019	$28.74	$11.50	$0.00	$0.00	$40.24
	06/01/2020	$29.39	$11.50	$0.00	$0.00	$40.89
	12/01/2020	$30.07	$11.50	$0.00	$0.00	$41.57
	06/01/2021	$30.71	$11.50	$0.00	$0.00	$42.21
	12/01/2021	$31.39	$11.50	$0.00	$0.00	$42.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$0.00	$0.00	$58.60
	06/01/2019	$48.19	$11.50	$0.00	$0.00	$59.69
	12/01/2019	$49.33	$11.50	$0.00	$0.00	$60.83
	06/01/2020	$50.41	$11.50	$0.00	$0.00	$61.91
	12/01/2020	$51.55	$11.50	$0.00	$0.00	$63.05
	06/01/2021	$52.64	$11.50	$0.00	$0.00	$64.14
	12/01/2021	$53.78	$11.50	$0.00	$0.00	$65.28
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PANEL & PICKUP TRUCKS DRIVER *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.08	$11.91	$0.00	$0.00	$44.99
	06/01/2019	$34.08	$11.91	$0.00	$0.00	$45.99
	08/01/2019	$34.08	$12.41	$0.00	$0.00	$46.49
	12/01/2019	$34.08	$12.41	$0.00	$0.00	$46.49
	06/01/2020	$34.98	$12.41	$0.00	$0.00	$47.39
	08/01/2020	$34.98	$12.91	$0.00	$0.00	$47.89
	12/01/2020	$34.98	$12.91	$0.00	$0.00	$47.89
	06/01/2021	$35.78	$12.91	$0.00	$0.00	$48.69
	08/01/2021	$35.78	$13.41	$0.00	$0.00	$49.19
	12/01/2021	$35.78	$13.41	$0.00	$0.00	$49.19
POWER SHOVEL/DERRICK/TRENCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.58	$11.50	$0.00	$0.00	$59.08
	06/01/2019	$48.68	$11.50	$0.00	$0.00	$60.18
	12/01/2019	$49.83	$11.50	$0.00	$0.00	$61.33
	06/01/2020	$50.93	$11.50	$0.00	$0.00	$62.43
	12/01/2020	$52.08	$11.50	$0.00	$0.00	$63.58
	06/01/2021	$53.18	$11.50	$0.00	$0.00	$64.68
	12/01/2021	$54.33	$11.50	$0.00	$0.00	$65.83
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.58	$11.50	$0.00	$0.00	$59.08
	06/01/2019	$48.68	$11.50	$0.00	$0.00	$60.18
	12/01/2019	$49.83	$11.50	$0.00	$0.00	$61.33
	06/01/2020	$50.93	$11.50	$0.00	$0.00	$62.43
	12/01/2020	$52.08	$11.50	$0.00	$0.00	$63.58
	06/01/2021	$53.18	$11.50	$0.00	$0.00	$64.68
	12/01/2021	$54.33	$11.50	$0.00	$0.00	$65.83
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$32.03	$11.50	$0.00	$0.00	$43.53
	06/01/2019	$32.78	$11.50	$0.00	$0.00	$44.28
	12/01/2019	$33.57	$11.50	$0.00	$0.00	$45.07
	06/01/2020	$34.32	$11.50	$0.00	$0.00	$45.82
	12/01/2020	$35.10	$11.50	$0.00	$0.00	$46.60
	06/01/2021	$35.85	$11.50	$0.00	$0.00	$47.35
	12/01/2021	$36.64	$11.50	$0.00	$0.00	$48.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROLLER/SPREADER/MULCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$0.00	$0.00	$58.60
	06/01/2019	$48.19	$11.50	$0.00	$0.00	$59.69
	12/01/2019	$49.33	$11.50	$0.00	$0.00	$60.83
	06/01/2020	$50.41	$11.50	$0.00	$0.00	$61.91
	12/01/2020	$51.55	$11.50	$0.00	$0.00	$63.05
	06/01/2021	$52.64	$11.50	$0.00	$0.00	$64.14
	12/01/2021	$53.78	$11.50	$0.00	$0.00	$65.28
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP < 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.54	$11.91	$0.00	$0.00	$45.45
	06/01/2019	$34.54	$11.91	$0.00	$0.00	$46.45
	08/01/2019	$34.54	$12.41	$0.00	$0.00	$46.95
	12/01/2019	$34.54	$12.41	$0.00	$0.00	$46.95
	06/01/2020	$35.44	$12.41	$0.00	$0.00	$47.85
	08/01/2020	$35.44	$12.91	$0.00	$0.00	$48.35
	12/01/2020	$35.44	$12.91	$0.00	$0.00	$48.35
	06/01/2021	$36.24	$12.91	$0.00	$0.00	$49.15
	08/01/2021	$36.24	$13.41	$0.00	$0.00	$49.65
	12/01/2021	$36.24	$13.41	$0.00	$0.00	$49.65
SPECIALIZED EARTH MOVING EQUIP > 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.83	$11.91	$0.00	$0.00	$45.74
	06/01/2019	$34.83	$11.91	$0.00	$0.00	$46.74
	08/01/2019	$34.83	$12.41	$0.00	$0.00	$47.24
	12/01/2019	$34.83	$12.41	$0.00	$0.00	$47.24
	06/01/2020	$35.73	$12.41	$0.00	$0.00	$48.14
	08/01/2020	$35.73	$12.91	$0.00	$0.00	$48.64
	12/01/2020	$35.73	$12.91	$0.00	$0.00	$48.64
	06/01/2021	$36.53	$12.91	$0.00	$0.00	$49.44
	08/01/2021	$36.53	$13.41	$0.00	$0.00	$49.94
	12/01/2021	$36.53	$13.41	$0.00	$0.00	$49.94
TRACTORS/PORTABLE STEAM GENERATORS *OPERATING ENGINEERS LOCAL 4*	12/01/2018	$47.10	$11.50	$0.00	$0.00	$58.60
	06/01/2019	$48.19	$11.50	$0.00	$0.00	$59.69
	12/01/2019	$49.33	$11.50	$0.00	$0.00	$60.83
	06/01/2020	$50.41	$11.50	$0.00	$0.00	$61.91
	12/01/2020	$51.55	$11.50	$0.00	$0.00	$63.05
	06/01/2021	$52.64	$11.50	$0.00	$0.00	$64.14
	12/01/2021	$53.78	$11.50	$0.00	$0.00	$65.28
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$34.12	$11.91	$0.00	$0.00	$46.03
	06/01/2019	$35.12	$11.91	$0.00	$0.00	$47.03
	08/01/2019	$35.12	$12.41	$0.00	$0.00	$47.53
	12/01/2019	$35.12	$12.41	$0.00	$0.00	$47.53
	06/01/2020	$36.02	$12.41	$0.00	$0.00	$48.43
	08/01/2020	$36.02	$12.91	$0.00	$0.00	$48.93
	12/01/2020	$36.02	$12.91	$0.00	$0.00	$48.93
	06/01/2021	$36.82	$12.91	$0.00	$0.00	$49.73
	08/01/2021	$36.82	$13.41	$0.00	$0.00	$50.23
	12/01/2021	$36.82	$13.41	$0.00	$0.00	$50.23
TREE TRIMMER *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/31/2016	$18.51	$3.55	$0.00	$0.00	$22.06
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.						
TREE TRIMMER GROUNDMAN *OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104*	01/31/2016	$16.32	$3.55	$0.00	$0.00	$19.87
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
VAC-HAUL/CATCH BASIN CLEANING *TEAMSTERS JOINT COUNCIL NO. 10 ZONE B*	12/01/2018	$33.54	$11.91	$0.00	$0.00	$45.45
	06/01/2019	$34.54	$11.91	$0.00	$0.00	$46.45
	08/01/2019	$34.54	$12.41	$0.00	$0.00	$46.95
	12/01/2019	$34.54	$12.41	$0.00	$0.00	$46.95
	06/01/2020	$35.44	$12.41	$0.00	$0.00	$47.85
	08/01/2020	$35.44	$12.91	$0.00	$0.00	$48.35
	12/01/2020	$35.44	$12.91	$0.00	$0.00	$48.35
	06/01/2021	$36.24	$12.91	$0.00	$0.00	$49.15
	08/01/2021	$36.24	$13.41	$0.00	$0.00	$49.65
	12/01/2021	$36.24	$13.41	$0.00	$0.00	$49.65

Additional Apprentice 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, ss. 11E-11L.

All steps are six months (1000 hours.)
Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.
*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.
**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

SECTION 01 00 00

GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. All the Contract Documents, including Drawings, General and Supplementary General Conditions and Division 01-General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

A. The Work of this Section applies to all Work performed under the Contract.

B. Any discrepancies found in the Contract Documents after signing of the Owner-Contractor agreement must be brought to the attention of the Architect for resolution. The Architect will determine which document entry governs and his decision will be final. The General Contractor shall not be entitled to a change in the Contract Time or Contract Sum in the basis of discrepancies found after signing of the Owner-Contractor agreement.

C. Should conflict be evident between Contract Documents or within any Contract Document, the General Contractor is deemed to have estimated the more expensive method of doing the Work unless he shall have asked for, and obtained, a written decision prior to submittal of bid or price quote, as to which method or materials shall be required. Should the Work proceed after the discovery of errors, conflict, or omission by the General Contractor and clarification has not been received from the Architect, the General Contractor shall be held fully responsible for replacement or correction, directed by the Architect, at the General Contractor's expense.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all of the Contract Documents for requirements which affect the Work of this Section.

B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following:

1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein.
2. Section 02 41 13.24 – Utility Line Removal
3. DIVISION 31 – EARTHWORK; including all Sections contained therein.

1.04 PROJECT IDENTIFICATION AND BASIS OF DESIGN

A.	Project Identification:	Wareham Elementary School Project Minot Forest Site Preparation Package
B.	Project Location:	63 Minot Avenue, Wareham, MA 02571
C.	Owner:	Town of Wareham Memorial Town Hall 54 Marion Road, Wareham, MA 02571
D.	Architect:	Mount Vernon Group Architects, Inc. 200 Harvard Mill Square Wakefield, MA 01880

E. Owner's Project Manager (OPM): PMA Consultants
35 Braintree Hill Office Park, Suite 300
Braintree, MA 02184

F. Basis of Design:

1. The site preparation of the existing Minot Forest Elementary School shall include shall include, but not limited to, removal of trees and stumps, cutting and capping of all utilities on site, removal of existing utilities on site, removal of all paving, grading to subgrade of the proposed plan, slope stabilization in areas of cut and fill, soil erosion and sediment control.

1.05 SPECIFICATION INFORMATION

A. These specifications are a special form of technical writing edited from master specifications and contain deviations from traditional writing formats. Capitalization, underlining and bold print is only used to assist reader in finding information and no other meaning shall be implied.

B. Except where specifically indicated otherwise, the subject of all imperative statements is the General Contractor.

C. Sections are generally numbered in conformance with Construction Specifications Institute Master Format System. Numbering sequence is not consecutive. Refer to Index of Specification Sections for names and numbers of Sections included in this Project.

D. Pages are numbered separately for each Section. Each Section is noted with "END OF SECTION" to indicate when Section is complete, except Appendices that may be made part thereof.

1.06 DEFINITIONS

A. Provide: means furnish and install, complete with all necessary components and accessories, ready for intended use.

B. Indicated: is a reference to other portions of the Contract Documents.

C. Approved: Except where specifically stated otherwise, the words "approved", "directed", "requested", "selected", "accepted" mean "approved by the Architect", "directed by the Architect" and so on. The words "approved" and "accepted" shall be held to the limitations stated in the General Conditions. In no case shall "approval" or "acceptance" by the Architect be interpreted as a release of General Contractor of his responsibilities to fulfill all of the requirements of the Contract Documents. Where the Contract Documents require General Contractor approval, approval must be submitted in writing using the word "approved" General Contractor "review" only is not an acceptable substitute for General Contractor approval.

D. Observe/Observation: Except as otherwise defined in greater detail, the Architect's observation of the Work shall be held to the limitations stated in the General Conditions and the Owner/Architect agreement. In no case shall observation by the Architect be interpreted as a release of General Contractor of his responsibilities to fulfill all the requirements of the Contract Documents. Observe shall be defined in accordance with the General Conditions of the Contract to include only visiting the site periodically, observing the condition and progress of the Work, and reporting to the Owner.

E. Furnish: Except as otherwise defined in greater detail, furnish means supply, including shop fabrication if applicable, and deliver to project site, ready for unloading, unpacking, assembly, installation and the like as applicable in each instance. For example:

1. The Work of Section 04 20 00 – Unit Masonry shall include the furnishing of certain masonry reinforcing and anchor components for installation under the Work of Section 05 12 00 – Structural Steel Framing.

F. Install: Except as otherwise defined in greater detail, install means operations at project site including, but not limited to, unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, placing in service and similar operations as applicable in each instance. For example:

1. The Work of Section 05 12 00 – Structural Steel Framing shall include the installation of certain masonry reinforcing and anchor components as furnished under the Work of Section 04 20 00 – Unit Masonry

G. Installer: The person or firm engaged by General Contractor or Subcontractor for performance of a specific unit of installation Work at the project site. It is a general requirement that Installers be expert and experienced in the Work they are engaged to perform.

H. Day: Except as otherwise defined in Owner-Contractor Agreement, day means calendar day.

I. Public Areas: All areas other than rooms dedicated solely to central mechanical, electrical, and plumbing equipment.

J. Back-of-House Areas: Rooms not designated as part of a public area.

1.07 INDUSTRY STANDARDS

A. Referenced standards are part of the Contract Documents and have the same force and effect as if bound with these specifications.

B. Except where specifically indicated otherwise, comply with the current standard in effect as of the date of the Owner/Contractor Agreement.

C. Obtain copies of industry standards directly from publisher.

D. The titles of industry standard organizations are commonly abbreviated; full titles may be found in *Encyclopedia of Associations* or consult Architect.

E. Where Workmanship is governed by a referenced standard, submit one copy to Architect and additional copies to fabricators, installers, and others involved in the performance of the Work.

1.08 CONTRACTOR USE OF PREMISES

A. The General Contractor shall not be allowed to use any portion of the existing elementary school for field offices and/or storage areas. Temporary office and storage space shall be provided by the General Contractor in accordance with requirements of Section 01 50 00 - Temporary Facilities and Controls. Owner approval shall be required for all temporary office facilities and storage areas, including their size and location.

B. The General Contractor shall submit a Site Utilization Plan within 10 days of the issuance of the Notice to Proceed for approval. The plan shall include, but not be limited to, proposed locations for General Contractor and Subcontractor laydown and/or material storage areas, field offices, and site access.

1. The Site Utilization Plan shall include provisions for maintaining safe, legal egress from all areas of the existing Minot Forest Elementary School.
2. All General Contractor and Subcontractors are required to use the Minot Avenue to the Construction Site, no exceptions.
3. Contractor shall provide street sweeping on a routine basis and directed by the Architect, while utilizing the drive-in front of the existing Minot Forest Elementary School and at Contractor access to Minot Avenue.

1.09 PERMITS, INSPECTION AND TESTING REQUIRED BY GOVERNING AUTHORITIES

A. If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any portion of the Work to be inspected, tested or approved, the General Contractor shall give the Architect and such Authority timely notice of its readiness so that the Owner's Project Manager and Architect may observe such inspection and testing.

B. Submit copies of all permits, licenses, certifications, inspection reports, releases, notices, judgements, and communications from authorities having jurisdiction.

1.10 CONSTRUCTION SCHEDULES

A. Provide a minimum 50 activity bar chart project schedule within 10 calendar days after award of contract. Update schedule on a weekly basis. Develop schedule in MS Project, MS Excel, or equal.

B. Provide all schedules in accordance with requirements of Section 01 51 11 – Progress Schedule.

1.11 SCHEDULE OF VALUES

A. Prepare Schedule of Values to coordinate with application for payment breakdown. The Schedule of Values shall be broken down into labor and materials for each Work activity with increments no greater than $50,000.00. Submit at least 10 days before first payment application. Update and reissue regularly. The CPM shall be tied into and reflect the Schedule of Values.

1.12 PAYMENT REQUESTS

A. Provide three copies of each request on completely filled out copies of AIA G702 and continuation sheet G703. Substantiate requests with complete documentation; include change orders to date. Provide partial lien waivers for Work in progress and full lien waivers for completed Work. General Contractor shall be required by Law to submit payroll records substantiating payment of wage rates to employees on a weekly basis.

B. Before first payment application, the General Contractor shall provide the following:

1. List of Subcontractors, suppliers and fabricators
2. Schedule of Values
3. Progress Schedule and Submittal Schedule keyed to Progress Schedule
4. List of General Contractor's key project personnel
5. Copies of permits and other communications from authorities
6. Contractor's Certificate of Insurance
7. Performance and Payment Bonds
8. Unit Price Schedule
9. Contractor’s complete submittal log
10. Contractor’s complete submittal schedule
11. Submit all necessary LEED documentation

C. Before final payment application, provide and complete the following:

1. Complete closeout requirements
2. Complete punch list items
3. Settle all claims
4. Transmit Record Documents to Architect
5. Prove that all taxes, fees and similar obligations have been paid
6. Remove of temporary facilities and surplus materials
7. Change lock cylinders or cores
8. Clean the Work
9. Submit Consent of Surety for final payment.

1.13 PROCEDURES & CONTROLS

A. Preconstruction Conference: Require representatives of all major Subcontractors, including all Filed Sub Bidders, and suppliers to attend; notify Owner and Architect at least 72 hours in advance.

B. Progress Meetings: Hold regular weekly meetings with Owner and Architect, and meetings before preparation of payment requests. The General Contractor shall be represented by a principal, project manager, general superintendent or other authorized main office representative, as well as by his own superintendent. An authorized representative of any General Contractor or Subcontractors shall attend such meetings if his presence is requested by the Architect. Such representatives shall be empowered to make binding commitments on all matters to be discussed at such meetings, including costs, payments, change orders, time schedules and manpower. Any notices required under the Contract may be served on such representatives.

1. As a prerequisite for monthly payments, ordering schedules, shop drawing schedule, and coordination meeting schedules shall be prepared and maintained by the General Contractor and shall be reviewed and updated on a monthly basis, and a copy shall be submitted to the Owner's Representative and Architect.

2. In order to expedite construction progress on this project, the General Contractor shall order all materials immediately after the approval of shop drawings and shall obtain a fixed date of delivery to the project site for all materials ordered which shall not impede or otherwise interfere with construction progress.
3. Scheduling shall be discussed with all concerned parties, and methods shall be presented by the General Contractor which shall reflect construction completion not being deferred, at no additional expense to the Owner.
4. Project meetings shall be chaired by the Architect or OPM.
5. Project Meeting Notes: The Owner's Project Manager shall be responsible for recording meeting minutes at each project meeting. The minutes shall incorporate the substance of all issues discussed, noting date of entry of each issue, the resolution, the party responsible for issue resolution, and the date of resolution. The meeting minutes shall be distributed to all attendees and responsible parties at the next scheduled project meeting.

C. Daily Reports: Prepare daily reports recording all important information concerning events at the site for each project site. Submit to Architect and the Owner's project manager weekly. Minimum required information contained in the daily report shall be:
1. Manpower by trade
2. Work activity by trade
3. Equipment by trade
4. Material deliveries by trade
5. Weather conditions
6. Any and all safety violations and accidents
7. Inspections if any

D. Layout: Layout Work and be responsible for all lines, elevations, and measurements of the grading, utilities, and other Work executed under the Contract.

E. Project Limit Line: The boundaries of the site do not limit the responsibility of the General Contractor to perform the Work in its entirety. Make utility connections as indicated. The General Contractor's superintendent must be present whenever any Work is being performed.

F. Matching: Where matching is indicated, the Architect shall be the sole and final judge of what is an acceptable match.

G. Observation: Notify the Architect and authorities having jurisdiction at least thirty-six hours in advance of concealing any Work.

H. Utilities: Prior to interrupting utilities, services or facilities, notify the utility owners and obtain their written approval.

I. Clean-Up: Clean-up all waste at least once a week, remove from site regularly, and legally dispose of off-site.

J. Installer's Acceptance of Conditions: All installers shall inspect substrates and conditions under which Work is to be executed and shall report in writing to the General Contractor all conditions detrimental to the proper execution and completion of the Work. Do not proceed with Work until unsatisfactory conditions are corrected. Beginning Work means installer accepts previous Work and conditions.

K. Documentation: The General Contractor shall be responsible for providing and maintaining filing, reporting, Submittals, RFI's. Payment Requisitions, Schedules, Change Proposals, Change Orders, and the like for the project.

L. Management and Financial Records: Management and financial records shall be maintained by the General Contractor pursuant to M.G.L. c 30 § 39 R.

M. Provide noise and dust control procedures in accordance with requirements of Section 01 50 00 – Temporary Facilities and Controls.

1.14 SPECIAL PROJECT CONDITIONS

A. The General Contractor shall undertake every possible measure to prevent damage of any kind to any portion of existing surrounding properties or areas.

B. The General Contractor is required to exercise all possible care in the conduct of any Work which would affect surrounding properties and occupied areas and to be aware of the potential for damage. The General Contractor shall be prepared to stop any Work immediately which is deemed to cause deleterious effects to adjacent areas.

1. The General Contractor shall be held responsible for any damage to surrounding properties and occupied areas resulting from his failure to exercise care during the course of construction.
2. The General Contractor shall coordinate completion of all Work of this Contract with the Work of Section 31 20 00 – Earth Moving, as it relates to pre and post blasting surveys, preparation of a blast design plan and analysis, and provision of all services in accordance with requirements of 527 CMR 13.00 Explosives and the Contract Documents, for all existing structures and utilities located within 500 feet of the Limit of Work Line (LOW) as indicated on the Drawings.

1.15 PROTECTION OF EXISTING UTILITIES AND STRUCTURES

A. The General Contractor shall schedule, execute and pay all costs associated with implementation of all requirements related to disconnection or interruption of existing public or private utility services in accordance with requirements of local authorities having jurisdiction, including but not limited to the following:

1. Town of Wareham Police Department
2. Town of Wareham Fire Department
3. Town of Wareham Department of Public Works
4. Town of Wareham Water Department
5. Local Telephone Provider
6. Local Cable TV Provider
7. Dig Safe

B. Protect existing utilities which remain from damage due to construction operations. Identify locations of utilities with temporary markers.

C. Excavation around and under existing utilities shall be performed in accordance with requirements of Section 31 20 00 - Earth Moving.

D. Underground water piping temporarily exposed during construction shall be protected from freezing until buried in accordance with requirements of the Contract Documents.

E. The General Contractor shall be responsible for determining locations of existing underground structures and utilities, including but not limited to: water, sewer, gas, electric, telephone, and cable TV. Utility services to adjacent buildings shall be maintained without interruption, unless otherwise authorized in writing by the Architect. Utilities located in public ways surrounding the Project site shall be protected from damage related to the Work of this Section. All costs related to repair or replacement of damage to existing utilities not called for to be altered under the Work of this Contract shall be paid by the General Contractor. No excavation in a public street or way, or in any public or private place, shall take place prior to verification of the location of all underground utilities by DIG SAFE.

1. The Work of this Section shall include performance of pre and post blasting surveys in accordance with requirements of 527 CMR and the Contract Documents for all existing structures within.

F. Place markers to indicate locations of disconnected services and identify service lines and capping locations on Project Record Documents.

G. Erect field samples and mock-ups at the project site at locations acceptable to the Architect. Size and area of mock-ups are specified in individual specification Sections or on drawings. Fabricate each mock-up complete and finished as specified. Remove mock-ups at the conclusion of the Work, or when acceptable to the Architect. When directed demolish mock-ups in their entirety and remove from project site. Acceptable mock-ups shall be maintained as a standard of quality, and may be used in the completed Work when specified in the individual specification Sections, or when approved by the Architect.

H. Schedule provision of mock-ups early in the Project to allow for potential changes in colors, finishes or materials without delaying job progress.

1.16 WARRANTIES

A. The Work of this Contract, including Substantial Completion, shall be completed in one Phase. The General Contractor shall be responsible for providing full manufacturer warranties in accordance with requirements of individual trade Sections for specific product warranty requirements. The General Contractor shall be responsible for providing manufacturer warranties, the Effective Starting Date of which, shall commence upon Substantial Completion of the Work of the Contract, as described in the Contract Documents, and shall run for the warranty period indicated in the respective trade Section.

B. Procurement: Where a warranty is required, do not purchase or subcontract for materials or Work until it has been determined that parties required to countersign warranties as required to do so.

C. Warranty Forms: Submit written warranty to Owner through Architect for approval prior to execution. Furnish 2 copies of executed warranty to Owner for his records; furnish 2 additional conformed copies where required for maintenance manual.

D. Work Covered: General Contractor shall remove and replace other Work of project which has been damaged as a result of failure of warranted Work or equipment, or which must be removed and replaced to provide access to Work under warranty. Unless otherwise specified, warranty shall cover full cost of replacement or repair, and shall not be pro-rated on basis of useful service life.

E. Warranty Extensions: Work repaired or replaced under warranty shall be warranted until the original warranty expiration date or for ninety days whichever is later in time.

1.17 DELIVERY, STORAGE, HANDLING, & INSTALLATION CONDITIONS

A. Manufacturer's Instructions: Strictly comply with manufacturer's instructions and recommendations and prevent damage, deterioration and loss, including theft.

B. Minimize long-term storage of products at the site. Maintain environmental conditions, temperature, ventilation, and humidity within range permitted by manufacturers of materials and products used.

1.18 LABELS

A. Labels, Trademarks, & Trade Names: Locate required labels on inconspicuous surfaces (not typically visible to the public). No manufacturer labels, nameplates, trademarks, or other identifying markings shall be located on surfaces visible to the public. Any such markings shall be removed and damage repaired, or item replaced, at the discretion of the Architect. Provide permanent data plate on each item of mechanical equipment stating manufacturer, model, serial number, capacity, ratings and all other essential data.

1.19 MUNICIPAL POLICE SERVICES

A. The General Contractor shall make all necessary arrangements with the Town of Wareham Police Department in advance of times when regular off-duty, or reserve, police officers shall be needed for traffic control protection, due to operations performed under this Contract. Officers shall be compensated, by the General Contractor, in accordance with Town of Wareham wage rates for such services. Extend the Workman's compensation Insurance and Employer's Liability Insurance, required under the General Contract, to cover police used on the project.

1.20 WELDING, CUTTING, AND BURNING PROCEDURES

A. PURPOSE

1. The purpose of this procedure is to provide minimum standards to prevent loss of life and property from fire during welding, cutting or burning processes involving the use of oxygen-fuel gas and electric arc cutting and welding equipment.

B. GENERAL REQUIREMENTS

1. In the performance of welding, cutting and burning operations, only approved equipment shall be used and the equipment shall be installed and operated in accordance with OSHA standards, the manufacturer's instructions, and nationally recognized good practice.
2. A "Hot Work" permit for welding, cutting, burning or spark producing operations shall not be issued unless the individual in charge of performing such operations is deemed to be capable of doing such work in a safe manner by the General Contractor's Safety Representative. Demonstration of knowledge of fire safety requirements and this welding and cutting procedure in addition to the equipment manufacturer's operational instructions shall constitute acceptable evidence of compliance.
3. A fire watch shall be provided by the General Contractor or the Subcontractor's for their respective work to safeguard against the ignition of any material by the welding, cutting or burning operation, to make use of portable fire extinguishers or fire hose and to perform similar fire prevention and fire protection duties. The fire watch shall remain on the job at least 30 minutes after the "hot-work" including but not limited to welding or cutting operations have been completed to insure that no fire exists. A signed inspection report attesting to that fact shall be filed and available for inspection by the local Fire Department.
4. A record shall be maintained by the responsible General Contractor and Subcontractor Safety Representative of all locations where welding or cutting operations are performed. The record shall state the name of the assigned fire watch or watches and the length of time for which the fire watch standby was continued after work was completed (a minimum of 30 minutes). It shall include the date, time, and specific location at which work was done and describe the work, fire protection provided, and special precautions taken. Individual job authorizations shall be kept available at all times for inspection by the local Fire Department or the Owner's Representative. The assigned fire watch or fire watches shall sign the work authorization attesting to the fact that no fire existed after the work ceased and the standby period had passed.
5. Where welding, cutting or burning is done near walls, partitions, ceiling or roof of combustible construction, fire resistant shields or guards shall be provided to prevent ignition. When welding, cutting or burning is to be done on a metal wall, partition, ceiling, or roof, precautions shall be taken to prevent ignition of combustibles on the other side due to conduction of radiation. A fire watch shall be required on the other side of the exposed wall, partition, ceiling or roof if there is any danger of the welding, cutting or burning on one side to result in ignition of materials or structure on the unexposed side. Welding, cutting or burning shall not be attempted on a metal partition wall or on partitions of combustible sandwich-type panel construction.

1.21 FIRE SAFETY REQUIREMENTS

A. Cutting or welding operations shall be performed only in areas that have been protected against the ignition and spread of fire.

B. Within the confines of a General Contractor and Subcontractor's work area welding, cutting or burning shall be done in specific areas designed and approved for such work as a maintenance shop, an outside location or a detached structure which shall be of noncombustible or fire resistive construction.

C. When work cannot be moved as in most construction or structural modification activity, the area shall be made fire safe by removing all combustible material within a distance of 35 feet and all combustible material from beneath the location where welding, cutting or burning is to be performed.

D. When work cannot be relocated and combustible material cannot be feasibly relocated, all combustible material exposed within 35 feet horizontally or beneath the welding, cutting or burning operation or within 35 feet of exposed floor, ceiling or wall openings shall meet the following requirements:

1. Such combustible construction or material shall be protected from possible sparks or hot metal by fire resistive shields or noncombustible covers in accordance with Town of Wareham Fire Department requirements.
2. Such floor, ceiling or wall openings shall be protected by fire resistive shields and openings or cracks in walls, floors or ducts shall be tightly covered to prevent the passage of sparks or slag to adjacent areas.

E. At least one portable fire extinguisher having a rating of not less than 4-A:60-B:C shall be kept at the location where welding, cutting or burning is done and at least one portable fire extinguisher having a rating of not less than 2-A:10-B:C shall be attached to all portable welding carts.

F. Welding, cutting or burning shall not be done in or near rooms or locations where flammable gases, liquids or vapors, lint dust or loose combustible stocks are present when sparks or hot metal from the welding, cutting or burning operations may cause ignition or explosion of such materials.

G. Welding, cutting or burning shall not be performed in the presence of explosive atmospheres or on containers, equipment or in hollow spaces or cavities which contain or have contained flammable fluids, gases or solids until these containers or equipment have been thoroughly cleaned, inverted or purged.

H. Sprinkler protection shall not be shut off while welding, cutting or burning work is being performed. When welding, cutting or burning work is being done close to automatic sprinkler heads, noncombustible board products or damp cloth guards shall be used to shield the individual heads, but shall be removed when the work is completed.

I. Where a sprinkler system shall be impaired or rendered inoperative for any reason, this shall be noted in the application for permit so that all necessary precautions may be taken in accordance with Town of Wareham Fire Department requirements.

J. Hot tapping of other welding, cutting or burning on a flammable gas or liquid transmission or distribution utility pipe line shall be qualified to perform such work.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

END OF SECTION

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SECTION 01 22 00

UNIT PRICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. All the Contract Documents, including Drawings, General and Supplementary General Conditions and Division 01-General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

A. The Work of this Section shall include, but not be limited to, the following:
   1. Administrative and procedural requirements for inclusion or deletion of certain units of Work into or from the Contract Documents.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all the Contract Documents for requirements which affect the Work of this Section.

B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following:
   1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein.
   2. Section 02 41 13.24 – Utility Line Removal
   3. DIVISION 31 – EARTHWORK; including all Sections contained therein.

1.04 UNIT PRICES

A. General Provisions
   1. Unit prices shall be used to determine adjustments to the Contract Sum for changes in work where the actual quantities of Work defined in the Contract Documents are increased or decreased.
   2. Base conditions or quantities to be carried are identified in the Specifications. No additional compensation shall be considered for the number of occurrences, locations, timeliness, or scheduling of the excavations or other adjustments.
   3. The General Contractor is fully responsible to review the test pit data and borings and become familiar with site conditions.
   4. Materials, methods of installation and definitions of terms set forth under the various unit price items are indicated in the Schedule of Unit Prices and indicated in the Contract Documents.
   5. Performance of work which is not required under the Contract Documents or which is not authorized by Change Order, whether or not such work item is set forth hereunder as a Unit Price Item, shall not be considered cause for any extra payment. The General Contractor shall be held fully responsible for such unauthorized work, including the performance of all corrective measures required by the Architect
   6. For all site related unit price work, quantities for adjustment shall be calculated by a registered Professional Engineer or Surveyor retained by the General Contractor, as agreed to by the Architect. In the case of ledge, boulders, forest mat, and subsoil, the General Contractor's surveyor shall submit profiles of ledge, work sheets, plans and method of calculation shall be submitted to Architect for approval prior to commencement of removal.
   7. Unit prices for excavation, shall include the cost of sheeting, bracing, pumping and dewatering, and all other costs in connection therewith, including labor, equipment, setup and mobilization, and overhead and profit.

B. Methods of Measurement

1. Quantity of site related materials removed from the site and replaced with compacted structural fill, including but not limited to ledge, boulders, and unsuitable fill, shall be measured in place, before and after excavation by use of electronic GPS calculation, to determine the actual cubic yard volume.

C. Schedule of Unit Prices:

As authorized by the Owner, should the quantities of certain classes of Work be increased or decreased, as described below, the Unit Prices shall be the basis of payment to the General Contractor, or credit to the Owner, for such increase or decrease in the Work. The Unit Prices shall represent the exact net amount, per unit, to be paid the General Contractor, in the case of additions, and the exact net amount to be refunded to the Owner, in the case of decreases. No additional adjustment shall be allowed for overhead, profit, insurance, or other direct or indirect expenses, over excavation, or other related work, without prior written approval of the Owner.

1. Unit Price No. 1: Removal of Ledge and Boulders Open Cut Excavation: The proposed price to excavate, remove, and legally dispose of off-site, ledge and boulders two cubic yards and larger in open-cut excavation with unit price for 500 cubic yards.

2. Unit Price No. 2: Strip topsoil at new entrance and exit, location of utilities, and other improvements. It is expected that a backhoe with a flat-bladed bucket will be used by the construction contractor to strip topsoil.

   PAL staff will direct machine assisted archeological investigations. This will include utilizing a backhoe with a flat-bladed bucket to systematically strip the area in 20 cm increments. The surface will be shovel-scraped in order to observe any visible cultural features. Any archeological features visible on the machine stripped surface identified by PAL or a monitor form a Tribal Historic Preservation Office (THPO) will be left intact and documented with the THPO. PAL will photograph these features and map their locations using a Trimble GeoTXT Global Positioning System (GPS) handheld receiver.

   If any human remains or features determined to be unmarked graves in situ or within disturbed soils are identified during the course of machine excavation and monitoring, all work on-site will cease and the area protected. The local police, the Medical Examiner, the project proponent, and the State Archeologist will be notified immediately. The MHC will then consult with the property owner, and the Massachusetts Commission on Indian Affairs, if appropriate, in compliance with the Massachusetts Unmarked Burial Law.

   The proposed price to strip topsoil at archeological areas with unit price for 160 hours.

3. Unit Price No. 3: Asbestos Abatement Quantity. As authorized by the Owner, should the quantities of certain classes of work to be increased or decreased, as described below, the Unit Prices listed below shall be the basis of payment to the General Contractor, or credit to the Owner, for such increase or decrease in the Work. The Unit Prices shall represent the exact net amount, per unit, to be paid to the General Contractor, in the case of additions. The Unit Prices with a 10% reduction shall represent the exact net amount, per unit, to be paid to Owner, in case of decreases. No additional adjustment shall be allowed for overhead, profit, insurance, or other direct or indirect expenses of the General Contractor. No additional adjustments shall be allowed for over excavation, or other related work, without prior written approval of the Owner.

ITEM	CONTRACT DESCRIPTION	QUANTITY	UNIT
1.	Transite Water and Sewer Pipe	500	LF

Both added and deducted prices shall include all equipment, labor, materials, removal, replacement, installation, overhead, profit, insurance, to complete the required Work, in accordance with requirements of the Contract Documents.

Unit prices shall include all equipment, labor, materials, removal, replacement, installation, overhead, profit, insurance, to complete the required Work, in accordance with requirements of the Contract Documents.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

END OF SECTION

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SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART I - GENERAL

1.01 RELATED DOCUMENTS

A. All of the Contract Documents, including Drawings, General Conditions, Supplementary Conditions, and all Sections of Division 01 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

A. The Work of this Section shall include, but not be limited to, the following:

1. Administrative and procedural requirements for handling and processing Contract modifications.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all of the Contract Documents for requirements which affect the Work of this Section.

B. Other Specifications Sections which directly relate to the Work of this Section include, but are not limited to, the following:

1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein.
2. Section 02 41 13.24 – Utility Line Removal
3. DIVISION 31 – EARTHWORK; including all Sections contained therein.

1.04 MINOR CHANGES IN THE WORK

A. Supplemental instructions authorizing minor changes the Work, not involving an adjustment to the Contract Sum or Contract Time, shall be issued by the Architect on AIA form G710, Architects Supplemental Instructions.

1.05 CHANGE ORDER PROPOSAL REQUESTS

A. Prior to issuing instructions for changes in the Work which the Architect judges will require adjustment to the Contract Sum or Contract Time, the Architect may, at its discretion, request the General Contractor to prepare an estimate of the amount of the adjustment.

B. Owner-Initiated Proposal Requests: The Architect will issue a detailed description of the proposed change and supplemental or revised Drawings and Specifications.

1. Respond to the request by submitting a proposal to the Architect and Owner's Project Manager for the Owner's review within 21 calendar days of receipt of the proposal request, unless a shorter time period for response is indicated in the proposal request.
2. Include in the proposal, an estimate of cost necessary to execute the proposed change and a statement indicating the effect the proposed change, in the Work shall have on the Contract time. Include the supporting data listed in paragraph F, below.
3. Proposal requests are not an instruction either to stop Work in progress, or to execute the proposed change. Continue with Work in progress that is not affected by the proposed change.

C. General Contractor-Initiated Change Order Requests: When latent or other unforeseen conditions require modifications to the Contract, the General Contractor may propose changes by submitting a request for a change to the Architect.

1. Notify the Architect in writing of proposed changes within 21 calendar days after the occurrence of the event of observance of the condition giving rise to the change proposal request.

2. Submit the change-order proposal request to the Architect and Owner's Project Manager within 21 calendar days after delivering such notification to the Architect.
3. Include a statement outlining the masons for the charge and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time. Include the supporting data listed in paragraph F, below.
4. Comply with requirements in Section 'Product Substitutions" if the proposed change in the Work requires the substitution of one product or system for a product or system specified.

D. No extensions of Contract Time nor increase in the Contract Sum shall be considered if the additional time or additional cost is a consequence of the General Contractor's failure to submit a proposal within the time stipulated, regardless of whether the proposal request or change order request was initiated by the Owner or the General Contractor.

E. Proposal Request Form: Use AIA Document G709 for Change Order Proposal Requests.

F. The following requirements will apply to both Owner-initiated proposal requests and General Contractor-initiated Change Order request.
1. Submit a complete and accurate Price to the Architect and the Construction Manager for review. Incomplete proposals will be returned to the General Contractor without review, and shall be completed by the General Contractor and returned to the Architect and the Construction Manager within the same time: period specified above for submittal of proposals; there shall be no extension of time for such re-submittals.
2. The Architect and the Owner's Project Manager shall review and act on the General Contractor's Proposal within a reasonable time period. The Architect's review, at the Architects discretion, may include consideration of Costs listed in Means "Construction Cost Data" or a similar data base, and/or on conversations with local manufacturers and suppliers.
3. Include applicable taxes, delivery charges, equipment rental, and amounts of trade, discounts.
4. Itemize Work which is to be performed by employees of the General Contractor.
5. For Work which is not to be performed by employees of the General Contractor, submit pricing on the letterhead of the proposed Subcontractor, fabricator or supplier.
6. Itemize General Conditions Work included in the proposed cost of the change; a lump sum or percentage of the cost shall not be accepted.
7. Prices shall remain valid for a minimum of 90 days from the date of the initial pricing approval to execution of the Change Order by the Owner.

G. Consideration and Acceptance of Price Proposal: The following procedures will apply to both Owner-Initiated proposal requests and General Contractor-initiated Change Order requests:
1. Submit a complete and accurate Price to the Architect for review. Incomplete proposals shall be returned to the General Contractor without review, and shall be completed by the General Contractor and returned to the Architect within the same time: period specified above for submittal of proposals; there shall be no extension of time for such resubmittals.
2. The Architect will review and act on the General Contractor's Proposal within a reasonable time period. The Architect's review, at the Architects discretion, may include consideration of Costs listed in Means "Construction Cost Data" or a similar database, and/or on conversations with local manufacturers and suppliers.
3. Within 10 calendar days after receipt of the Architect's comments, make changes to the cost proposal in response to the Architects comments and resubmit for approval.
4. The Architect will promptly notify the General Contractor whether the pricing is accepted or will direct the General Contractor to make additional changes.
5. When the General Contractor's proposal is approved by the Architect. The Architect will prepare a Change Order for execution by the Owner, the Architect and the General Contractor.

1.06 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: When the Owner and General Contractor are not in total agreement on the terms of a Change Order Proposal, the Architect may issue a Construction Change Directive on AIA Form G714, instructing the General Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. The Construction Change Directive shall contain a description of the change in the Work and designate the method to be followed to determine change in the Contract Sum or Contract Time, in accordance with Article 7.3 of the General Conditions.

B. Documentation: If the Construction Change Directive is for Work which is to be compensated on the basis of Time and Materials, the General Contractor shall maintain detailed daily records, verified and agreed upon daily with the Architect and Owner's Project Manager, on a time and material basis of Work required by the Construction Change Directive.

1. After completion of the change, the General Contractor shall submit an itemized account, including supporting data, as may be required by the Architect and Construction Manager, to substantiate cost and time adjustments to the Contract.
2. Payment for Time & Material Work performed shall only be made once the itemized accounts is approved by the Architect and incorporated within a Change Order and such Change Order is fully executed in accordance with requirements of the Contract Documents.

1.07 CHANGE ORDER PROCEDURES

A. Upon the Owner's approval of a Change Order Proposal Request, the Architect will issue a Change Order for signatures of the Owner and General Contractor on AIA Form G701, as provided in the Conditions of the Contract.

B. The General Contractor shall promptly execute the Change Order.

C. The Architect will present the Change Order to the Owner's Project Manager for review and approval. Upon OPM approval, the Change Order shall then be forwarded by the Architect to the Town of Wareham for approval during its next regularly scheduled meeting subsequent to the date of the Change Order. A copy of the fully approved and executed Change Order shall then be forwarded to all parties for the record.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

END OF SECTION

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SECTION 01 29 00

PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. All of the Contract Documents, including Drawings, General and Supplementary General Conditions and Division 01-General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

A. The Work of this Section shall include, but not be limited to, the following:
   1. Schedule of values
   2. Projected applications for payment report
   3. Applications for payment

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all of the contract documents for requirements which affect the Work of this Section.

B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following:
   1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein.
   2. Section 02 41 13.24 – Utility Line Removal
   3. DIVISION 31 – EARTHWORK; including all Sections contained therein.

1.04 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of General Contractor's construction schedule.
   1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
      a. Application for Payment forms with continuation sheets
      b. Submittal schedule
      c. Items required to be indicated as separate activities in General Contractor's construction schedule
   2. Submit the schedule of values to Architect within 15 calendar days after receipt of a Notice to Proceed but no later than 20 days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
   1. Identification: Include the following Project identification on the schedule of values:
      a. Project name and location
      b. Name of Architect
      c. Architect's project number
      d. General Contractor's name and address
      e. Date of submittal
   2. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
      a. Related Specification Section or Division.
      b. Description of the Work.

c. Name of Subcontractor.
d. Name of manufacturer or fabricator.
e. Name of supplier.
f. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
    1) Labor
    2) Materials
    3) Equipment.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents.
    a. No single line item shall exceed $50,000.
    b. Provide multiple line items for principal subcontract amounts.
    c. Include separate line items under General Contractor and principal subcontracts for LEEDv4 documentation, commissioning, and other project closeout requirements.
    d. Include separate line items for site work and each major area, floor, or wing of building.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
    a. Differentiate between items stored on-site and items stored off-site. When requesting payment for stored materials, include evidence of insurance, bill of sale, and photographs.
6. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
    a. Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items. Include the following:
        1) Bonds
        2) Insurance premiums
        3) Testing and performance reports
        4) Project mobilization
        5) Project demobilization
        6) Construction fence erection and maintenance
        7) Temporary utilities
        8) Site dust control
        9) Street sweeping
        10) Hoisting
        11) Scaffolding
        12) Waste removal
        13) Temporary heat and enclosure
        14) Construction Indoor Air Quality (IAQ) management
        15) Temporary signage
        16) General Contractor's project
        17) Staff
        18) Field offices, initial construction and installation
        19) Field offices, rental and maintenance
        20) Temporary toilets
        21) General Contractor's Construction Schedule and monthly construction schedule updates
        22) Superintendent's daily reports
        23) Coordination drawings
        24) Progress photographs
        25) Record Drawings, monthly progress
        26) Record Drawings, submittal and approval at time of project closeout
        27) Daily clean-up

28) Cleaning at the time of Substantial Completion
29) General Contractor's list of incomplete work at the time of Substantial Completion by portion of the Work.
30) Submission and approval of operation and maintenance manuals
31) Submission and approval of bound warranties
32) Final Cleaning
33) Completion of work on the list of exceptions to Substantial Completion ("punch list" work), by portion of the Work.
34) Training of Owner's personnel

7. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.05 PROJECTED APPLICATIONS FOR PAYMENT REPORT

A. Submit a report indicating projected Applications for Payment to the Architect concurrent with submittal of the General Contractor's initial construction schedule and prior to submitting the initial Application for Payment. Refer to Division 01 Section "Construction Progress Documentation" for requirements for preparation cost-loaded construction schedule.

1. Update the Application for Payment projection each month, concurrent with updates to the General Contractor's construction schedule.

B. Indicate anticipated amount of Application for Payment for each month, and the cumulative total, through entire construction period. Base the projection on the approved General Contractor's construction schedule; indicate early start and early finish activity values and late start and late finish schedule activity values for each month.

C. Applications for Payment shall correlate with overall schedule performance. Where amounts of Applications for Payment, and amounts on projection of Applications for Payment and cost-loaded construction schedule do not agree, provide written explanation of the reason for disagreement and revise the construction schedule and Application for Payment projection so amounts correlate.

1.06 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and General Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: The period covered by each Application for Payment is one month, ending on the last day of the month.

1. At least 14 calendar days before submitting the Application for Payment, prepare and submit to Architect a draft Application for Payment reflecting anticipated percentages completed for each activity. The Architect and Project Manager will review and transmit comments to General Contractor. Make changes or adjustments to the percentages of completion reported in the Application for Payment to reconcile with the assessment of the actual progress of the Work as determined by the Architect sign the Application, and submit it for payment.

a. Make changes or adjustments required by the Architect and Project Manager and submit the Application for Payment in a form that will be approved by the Architect in order to receive Payment for the amount not in dispute. If General Contractor disagrees with the percentages accepted by Architect, General Contractor may, in a separate letter or accounting, identify disparities and explain reasons for disagreement and transmit to Architect.

D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of General Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the schedule of values and General Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Amounts of Change Orders executed (signed by all parties) before last day of construction period covered by the Application may be included, to the extent work under that Change Order was performed during the period covered by the Application for Payment. Do not include amounts of Construction Change Directives until they have been included in an executed Change Order; do not include amounts for Change Orders which have been issued but not executed.
4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:
    a. Materials previously stored and included in previous Applications for Payment.
    b. Work completed for this Application utilizing previously stored materials.
    c. Additional materials stored with this Application.
    d. Total materials remaining stored, including materials with this Application.
4. Materials Stored Off Project Site:
    a. Provide transportation and housing costs for Architect or Owner to storage location to verify stored materials.
    b. Payment shall not be made for materials stored outside of the continental United States.

G. Transmittal: Submit six signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

H. Attachments: With each Application for Payment, submit the following documentation.

1. Certification of receipt of payment from Subcontractors, Sub-subcontractors and suppliers for the construction period covered by the previous Application for Payment, in accordance with the General Conditions. Submit these certifications in a form acceptable to the Owner.
2. Updated General Contractor's Construction Schedule.
3. Wage rate report for previous Application for Payment period, correct, and in statutory form approved by the Owner.

I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of Subcontractors.
2. List of General Contractor's staff assignments.
3. Schedule of values.
4. General Contractor's construction schedule (preliminary) according to Section 01 00 00 – General Requirements.
5. Submittal schedule (preliminary).
6. Copies of building permits.
7. Site utilization plan, in accordance with Section 01 50 00 - Temporary Facilities and Controls.
8. General Contractor’s construction traffic and site utilization plan in accordance with Section 01 50 00 -Temporary Facilities and Controls.

9. General Contractors site dust control plan in accordance with Section 01 50 00 - Temporary Facilities and Controls.
10. General Contractor's waste management plan, required by Section 01 74 19 - Construction Waste Management and Disposal.

J. Second Application for Payment: Provide the following additional start-up information.

1. General Contractor's weather protection plan, in accordance with Section 01 50 00 - Temporary Facilities and Controls.
2. General Contractor's plan for temporary heating during the months of November through March, in accordance with Section 01 50 00 - Temporary Facilities and Controls.
3. Full CPM schedule, accepted by the Architect and Owner's Project Manager.

K. Application for Payment at Substantial Completion: After the Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for each Phase of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Substantial Completion for each phase of the Work.

L. Final Payment Application: After completing project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. General Contractor's certifications and releases required by the General Conditions.
2. Evidence of completion of Project closeout requirements.
3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
4. Updated final statement, accounting for final changes to the Contract Sum.
5. AIA Document G706, "General Contractor's Affidavit of Payment of Debts and Claims."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

END OF SECTION

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SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. All the Contract Documents, including Drawings, General and Supplementary General Conditions and Division 01-General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

A. The Work of this Section includes, but is not limited to, the following:
   1. Administrative and procedural requirements for submittal of Shop Drawings, Product Data, Samples, and other required submittals as called for in the Contract Documents.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all the Contract Documents for requirements which affect the Work of this Section.

B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following:
   1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein.
   2. Section 02 41 13.24 – Utility Line Removal
   3. DIVISION 31 – EARTHWORK; including all Sections contained therein.

1.04 GENERAL REQUIREMENTS

A. Electronic Submittal Procedures
   1. General Requirements
      a. Shop Drawings and Product Data submittals shall be transmitted to the Architect in electronic (PDF) format using Submittal Exchange, a website service designed specifically for transmitting submittals between construction team members.
      b. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
      c. The electronic submittal process is not intended for submittal of color samples, color charts, or physical material samples.
   2. Submittal Procedures
      a. The General Contractor shall use any or all the following options for submittal preparation:
         1) Subcontractors and suppliers provide PDF submittals to the General Contractor via the Submittal Exchange website.
         2) Subcontractors and suppliers provide paper submittals to the General Contractor who electronically scans and converts to PDF format.
         3) Subcontractors and suppliers provide paper submittals to the Submittal Exchange website which electronically scans and converts to PDF format.
      b. The General Contractor shall review and apply electronic stamp certifying that the submittal complies with requirements of the Contract Documents, including verification of manufacturer and product, dimensions, and coordination of information required for integration into all related components of the Work.

c. The General Contractor shall transmit each submittal to the Architect using the Submittal Exchange website: www.submittal exchange.com.

d. The Architect/Engineer will notify the General Contractor by e-mail of completed review and shall make review comments available on the Submittal Exchange website.

e. The General Contractor is responsible for distribution of reviewed submittals to all Subcontractors and suppliers.

f. The General Contractor shall submit paper copies of reviewed submittals at Project closeout in accordance with requirements of Section 01 77 00 – Contract Closeout Procedures, Section 01 78 39 – Project Record Documents.

3. Service Cost

a. The General Contractor shall include the full cost of Submittal Exchange subscription in their submitted General Bid.

b. The Contactor's cost shall include costs for all personnel training, including Owner's Project Manager, and Architect.

c. The General Contractor shall provide the following Internet Service and Equipment Requirements:

1) E-mail address and Internet access through all Project Site trailers and the General Contractor's main office.

2) Adobe Acrobat, Bluebeam PDF Revu, or other similar PDF review software for applying electronic stamps and review comments shall be provided on all computers provided for Project use in accordance with requirements of Section 01 50 00 – Temporary Facilities and Controls.

B. Prior to submittal of any shop drawings, product data or samples the General Contractor shall submit to the Architect for approval, within 15 business days after being awarded the Contract, a complete submittal log and a schedule of submissions of shop drawings and miscellaneous Work-related submittals which corresponds to the requirements of the CPM schedule and the General Contract. No Submittals shall be processed prior to the receipt of such schedule for the school. The schedules shall indicate, by trade, the date by which final approval of each item must be obtained, and shall be revised to reflect actual conditions of the Work, subject to approval by the Architect. The Architects review period, including those of his consultants, shall not exceed 30 days from the established date of each submission of shop drawings, product data, and samples, plus the additional time, if any, for distribution by the General Contractor and receipt of submissions by the Architect. The General Contractor shall be required to strictly adhere to the dates established in the schedule. The information in this submittal schedule shall also be included in the General Contractor's CPM schedule for the project submitted in accordance with Section 01 51 11 - Progress Schedule.

C. Following approval of submittal log and schedule, submit to the Architect and Owner's Project Manager, shop drawings, product data and samples required by each specification Section.

D. When the phrase "By Others" (or similar expression) appears on a submittal and refers to any of the Contract Work, it shall be interpreted to mean "by the General Contractor or another Subcontractor". The Architect's and the Owner's Project Manager's review of any submittal containing such phrase shall not be considered permission to delete any Work from the Contract.

E. Review and approval of shop drawings by the Architect and Owner's Project Manager does not indicate approval of changes in the Contract, Time or Cost

1.05 SHOP DRAWINGS

A. Original drawings, prepared by The General Contractor, Subcontractor, Supplier or distributor which illustrate some portion of the Work; showing fabrication, layout, setting or erection details.

1. Prepare drawings in a clear and thorough manner.
2. Identify details by reference to sheet and detail numbers shown on Contract Drawings

B. Provide layout verification plans for ceramic tile, resilient floor tile, and carpet. Plans shall indicate changes in material color and pattern in accordance with requirements of the Contract Documents.

1.06 PRODUCT DATA

A. Manufacturer's standard schematic drawings:
   1. Modify drawings to delete information which is not applicable to project.
   2. Supplement standard information to provide additional information applicable to project.

B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
   1. Clearly mark each copy to identify pertinent materials, products or models.
   2. Show dimensions and clearances required.
   3. Show performance characteristics and capacities.
   4. Show wiring diagrams and controls.

C. Submittal of color samples, color charts, or physical material samples requiring color selection and approval by the Architect and Owner's Project Manager, respectively, shall be submitted no later than six (6) months after the Owner's Notice to Proceed. The Architects review period for samples requiring color selection and approval will not exceed sixty (60) days from the established date of the last sample or material submitted, as listed in this Section. Failure by the General Contractor to comply with the requirements of this Section shall not be cause for delay of the Project or additional cost to the Owner.

1.07 SAMPLES

A. Physical examples to illustrate materials, products, units of Work, equipment or Workmanship, and to establish standards by which completed Work is to be judged.
   1. Office samples: Of sufficient size and quality to clearly illustrate:
      a. Functional characteristics of product or material, with integrally related parts and attachment devices.
      b. Full range of color, texture and pattern.

B. Mock-Ups: Sample installation in field and similar items specified in individual Work Sections are processed as special types of samples.

1.08 GENERAL CONTRACTOR'S RESPONSIBILITIES

A. Review Shop Drawings, Project Data and Samples prior to submission.

B. Verify:
   1. Field measurements
   2. Field construction criteria
   3. Catalog numbers and similar data

C. Coordinate each submittal with requirements of Work and of Contract Documents.

D. General Contractor's responsibility for errors and omissions in submittals is not relieved by Architect or Owner's Project Manager review of submittals.

E. General Contractor's responsibility for deviation in submittals is not relieved by Architect or Owner's Project Manager review of submittals, unless the Architect gives written acceptance of specific deviations.

F. Notify Architect/Engineer, in writing at time of submission, of deviations in submittals from requirements of Contract Documents.

G. Furnish miscellaneous submittals (non-administrative) including, but not limited to warranties, maintenance agreements, Workmanship bonds, project photographs, survey data and reports, physical Work records, quality testing and certifying reports, copies of industry standards, record Documents, field measurement data, operating and maintenance materials, overrun stock, and similar information, devices and materials applicable to the Work.

1.09 SUBMISSION REQUIREMENTS

A. Schedule submissions to permit time for review and resubmission

B. Submit number of Samples specified in each of specification Sections.

C. Accompany submittals with transmittal letter, in duplicate, containing:

1. Date
2. Project title and number
3. General Contractor's name and address
4. Specification Section number, paragraph and item number
5. The number of each Shop Drawing, Product Datum and Sample submitted
6. Notification of deviations from Contract Documents
7. Manufacturer's name or source of supply
8. Trade name
9. Catalog number
10. General Contractor's certification that he has checked all samples for compliance with Contract requirements and availability of material
11. Name and address of Architect, Subcontractor, and supplier
12. Other pertinent data

D. Submittals shall include:

1. Date and revision dates
2. Project title and number
3. The names of:
    a. Architect
    b. General Contractor
    c. Subcontractor
    d. Supplier
    e. Manufacturer
    f. Separate detailer when permitted
4. Identification of product or material.
5. Relation to adjacent structure or materials.
6. Field Dimensions, clearly identified as such.
7. Specification Section number, paragraph and item number.
8. Applicable standards, such as ASTM number or Federal Specification.
9. A blank space, 3" x 6", for Architect/Engineer's stamp.
10. Identification of deviations from Contract Documents.
11. General Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.

E. The Architect will complete the review and return the record sepias and product data to the General Contractor.

F. The General Contractor shall be fully responsible for delay in the delivery of materials or progress of Work caused by late review of shop drawings due to failure of the General Contractor to submit, revise, or resubmit shop drawings in adequate time to allow the Architect reasonable time (up to 30 calendar days) for normal checking and processing of each submission or resubmission.

G. The General Contractor shall assume full liability for delay attributed to insufficient time for delivery and/or installation of material or performance of the Work when approval of pertinent shop drawings and product data is withheld due to failure of the General Contractor to submit, revise, or resubmit items in adequate time to allow the Architect reasonable time, not to exceed thirty (30) calendar days, for normal checking and processing of each submission or resubmission.

1.10 COORDINATION DRAWINGS - ALL MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION

A. Mechanical coordination drawings of the building shall be collated, checked and coordinated by the General Contractor, who shall send them to the Architect. The General Contractor shall be fully responsible for coordinating all trades, coordinating construction sequences and schedules, and coordinating the actual installed location and interface of all Work. Areas of conflict shall be clearly noted and clearly encircled on the drawings for review of the conflicts and as an aid to inspection. All heating, ventilating, air conditioning, plumbing, fire protection and electrical Work shall be shown on a single set of drawings. Items of conflict, impossibility, or request for variance shall be called to the Architect's attention for resolution. Existing conditions that effect Work must be indicated to the extent that any conflicts can be resolved. Coordination Drawings are intended to assist the General Contractor during construction and shall not be used for "shop drawings", "record drawings", or any other required submittal.

B. The submission procedure shall be as follows:

1. Base Sheets: The General Contractor shall prepare and provide one accurately scaled set of building coordination drawing "base sheets" on reproducible transparencies showing all architectural and structural Work. Base sheets shall be at appropriate scale; congested areas and Sections through vertical shafts shall be at larger scale.
2. HVAC: The General Contractor shall circulate the coordination drawing base sheets to the HVAC Subcontractor and require the HVAC Subcontractor to accurately and neatly show the actual size and location of all HVAC equipment and Work. The HVAC Subcontractor shall note any apparent conflicts, suggest alternate solutions, and return the Coordination Drawings to the General Contractor.
3. Plumbing: The General Contractor shall circulate the Coordination Drawings to the plumbing Subcontractor and require the plumbing Subcontractor to accurately and neatly show the actual size and location of all plumbing equipment and Work. The plumbing Subcontractor shall note any apparent conflicts, suggest alternate solutions, and return the Coordination Drawings to the General Contractor.
4. Fire Protection: The General Contractor shall circulate the Coordination Drawings to the fire protection/sprinkler Subcontractor and require the fire protection/sprinkler Subcontractor to accurately and neatly show the actual size and location of all piping, sprinkler, and alarm equipment and Work. The plumbing Subcontractor shall note any apparent conflicts, suggest alternate solutions, and return the Coordination Drawings to the General Contractor.
5. Electrical: The General Contractor shall circulate the Coordination Drawings to the electrical Subcontractor and require the electrical Subcontractor to accurately and neatly show the actual size and location of all electrical equipment and Work. The electrical Subcontractor shall note any apparent conflicts, suggest alternate solutions, and return the Coordination Drawings to the General Contractor.
6. Other Subcontractors: The General Contractor shall circulate the Coordination Drawings to other Subcontractors whose Work might conflict with other Work and require these Subcontractors to accurately and neatly show the actual size and location of all their equipment and Work. These Subcontractors shall note any apparent conflicts, suggest alternate solutions, and return the Coordination Drawings to the General Contractor.
7. General Contractor Review and Submission: The General Contractor shall carefully review, modify and approve the Coordination Drawings in cooperation with the Subcontractors to assure that conflicts, if any, are resolved before Work in the field is begun and to ensure that the location of Work exposed to view is as indicated or approved by Architect. The General Contractor shall stamp, sign and submit the coordination drawing originals to the Architect for review following the specified procedures and policies for "Submittals". No Work in these areas shall be commenced until Coordination Drawings have been received and reviewed by the Architect. The Architect's review is only for conformance of the design concept of the Work and with information given in the Construction Documents.
8. Work commenced prior to submittal, review, and approval of the Coordination Drawings by the General Contractor and Architect, which requires removal, replacement, relocation, modification, or alteration, resulting from conflict with other Work provided and installed under the Work of this Contract, shall be removed, replaced, relocated, modified, or altered, at no additional cost to the Owner.

1.11 ARCHITECTS REVIEW ACTIONS

A. Submittals Marked "Reviewed as Required by Construction Contract Documents and Approved":

1. Submittals which require no corrections by the Architect will be marked "Reviewed as Required by Contract Documents and Approved". Reviewed as required by Contract Documents and approved, but only for conformance to the design concept of the Work, and subject to further limitations and requirements contained in the Construction Documents.

B. Submittals Marked "Furnish as Corrected":

1. Submittals which require only a minor amount of correcting shall be marked "Furnish as Corrected". This mark means that checking is complete and all corrections are obvious without ambiguity. Fabrication shall be allowed on Work "Furnish as Corrected", provided such action shall expedite construction and noted corrections are adhered to. If fabrication is not made strictly in accordance with corrections noted, the item shall be rejected in the field and the General Contractor shall be required to replace such Work and that of other General Contractor's, in accordance with corrected submittals, at his own expense.

C. Submittals Marked "Revise and Resubmit":

1. When submittals are marked "Revise and Resubmit" details of items noted by Architect will be further clarified before full approval can be given and noted items must not be fabricated until corrected and approved.

D. Submittals Marked "Rejected":

1. When submittals are contrary to Contract requirements or too many corrections are required, they shall be marked "Rejected". No Work shall be fabricated under this mark. The Architect will list his reasons for non-approval on the submittal or in a transmittal letter accompanying their return. The submittals must be corrected and resubmitted for approval.

E. Submittals Marked "Review":

1. Submittals sent for information only shall be marked "Reviewed". No approval or disapproval is given unless requested by General Contractor.

F. Return of Submittals to General Contractor Unchecked:

1. The Architect may return submittals to the General Contractor unchecked for any of the following reasons, in which case the submission shall not be considered official:
   a. Submittal in violation of specified procedure or product
   b. Inadequately checked by General Contractor
   c. Inaccurate and in substantial error

1.12 RESUBMISSION REQUIREMENTS

A. Shop Drawings:

1. Revise initial drawings to accurately reflect all comments and mark-ups, and resubmit as specified for initial submittal.
2. Indicate on drawings any changes which have been made other than those requested by Architect/Engineer.

B. Product Data and Samples: Submit new data and samples to fully respond to all comments and mark-ups for initial submittal.

1.13 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

A. Distribute “hard” copies of Shop Drawings and Product Data which carry Architect/Engineer's stamp, to:

1. General Contractor's Job site file
2. Record Documents file
3. Subcontractors and/or suppliers
4. Owner
5. Testing Agency (where applicable)

6. Owner's Project Manager (OPM)/Clerk of Works

B. The General Contractor shall distribute hard copies of all approved Shop Drawings and Samples within three (3) working days following receipt of same from the Architect in accordance with requirements of the Contract Documents.

1.14 ARCHITECT/ENGINEER'S DUTIES

A. Review submittals with reasonable promptness.

B. Review for:

1. Design concept of project
2. Information given in Contract Documents

C. Review of separate item does not constitute review of an assembly in which item functions.

D. Affix stamp and initials or signature certifying to review of submittal.

E. Return submittals to General Contractor for distribution.

1.15 DAILY CONSTRUCTION REPORTS

A. Prepare daily construction reports, recording the following information concerning events at the site and submit copies to the Architect at weekly intervals.

1. List of Subcontractors at the site
2. Approximate count of personnel at the site
3. High/low temperatures, general weather conditions
4. Accidents and unusual events
5. Meeting and significant events
6. Stoppages and delays, shortages, losses
7. Meter readings and similar recordings
8. Emergency procedures
9. Orders and requests of governing authorities
10. Job modifications received and implemented
11. Services connected, disconnected
12. Equipment or system tests and start-ups
13. Partial completion, occupancies
14. Substantial completion authorization

1.16 EMERGENCY ADDRESSES

A. Within 15 days of Notice to Proceed, submit to the Owner's Project Manager and the Architect, in writing, the name, addresses and telephone numbers of key members of their organization including Superintendent and personnel at the site, to be contacted in the event of emergencies at the building site, which may occur during non-Working hours.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

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SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. All the Contract Documents, including Drawings, General Conditions, Supplementary Conditions, and all Sections of Division 01 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

A. The Work of this Section includes, but is not limited to, the following:
   1. Administrative and procedural requirements for quality assurance and quality control.
   2. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve General Contractor of responsibility for compliance with requirements of the Contract Document.
      a. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
      b. Specified tests, inspections, and related actions do not limit General Contractor's other quality-assurance and -control procedures that facilitate compliance with requirements of the Contract Documents.
      c. Requirements for General Contractor to provide quality assurance and control services required by the Owner, the Owner's Project Manager, Architect, or authorities having jurisdiction are not limited by provisions of this Section.
      d. Specific test and inspection requirements are not specified in this Section.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all the Contract Documents for requirements which affect the Work of this Section.

B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following:
   1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein.
   2. Section 02 41 13.24 – Utility Line Removal
   3. DIVISION 31 – EARTHWORK; including all Sections contained therein.

1.04 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction shall comply with requirements.

B. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

C. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

D. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

E. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

F. Installer/Applicator/Erector: General Contractor or another entity engaged by General Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a construction operation, including installation, erection, application, and similar operations.

G. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trades.

1.05 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.06 REPORTS AND DOCUMENTS

A. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation shall affect warranty.
7. Other required items indicated in individual Specification Sections.

B. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.07 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

G. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.08 QUALITY CONTROL

A. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00 - Submittal Procedures.

B. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in pre-installation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were General Contractor's responsibility, provide quality-control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

1. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
    a. Access to the Work.
    b. Incidental labor and facilities necessary to facilitate tests and inspections
    c. Adequate quantities of representative samples of materials that require testing and inspecting.
    d. Assist agency in obtaining samples
    e. Facilities for storage and field curing of test samples
    f. Delivery of samples to testing agencies
    g. Preliminary design mix proposed for use for material mixes that require control by testing agency. Security and protection for samples and for testing and inspecting equipment at Project site.
    h. Security and protection for samples and for testing and inspecting equipment at Project site.
2. Coordination: Coordinate sequence of activities to accommodate required quality assurance and control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
    a. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.09 SUBMITTALS

A. Provide submittals in accordance with requirements of Section 01 33 00 – Submittal Procedures, Section 01 74 19 – Construction Waste Management and Disposal, and in accordance with requirements of the Contract Documents.

PART 2 - PRODUCTS NOT USED

PART 3 – EXECUTION NOT USED

END OF SECTION

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SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART I - GENERAL

1.01 RELATED DOCUMENTS

A. All the Contract Documents, including Drawings, General Conditions, Supplementary Conditions, and all Sections of Division 01 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

A. Provide, maintain, remove, and pay all costs related thereto, all temporary facilities included under the Work of this Section, or as otherwise required for progress and completion of the Work in accordance with requirements of the Contract Documents.

B. Coordinating and scheduling among all trades and Subcontractors, the furnishing and use of all temporary facilities for the Work in accordance with all Federal, State, and local governing rules and regulations.

C. Maintain temporary construction fencing installed by the General Contractor of Minot Forest Abatement & Demolition Package 1 in good condition. Notify the Owner if the temporary fencing can be removed.

D. Provide temporary fencing around the existing site and archaeological protected area. The temporary fencing shall remain until three months after Final Completion and/or extend through the Wareham Elementary School Project (Construction Duration: August 7, 2019 - February 12, 2020).

1. Remove temporary fencing after receiving notification from the Owner.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all the Contract Documents for requirements which affect the Work of this Section.

B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following:

1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein.
2. Section 02 41 13.24 – Utility Line Removal
3. DIVISION 31 – EARTHWORK; including all Sections contained therein.

C. Nothing in this Section is intended to limit types and amounts of temporary Work required, and no omission from this Section shall be recognized as an indication by the Architect that such temporary activity is not required for successful completion of the Work or compliance with requirements of the Contract Documents.

1.04 REQUIREMENTS OF REGULATORY AGENCIES

A. Provide and maintain all temporary facilities in compliance with governing rules, regulations, codes, ordinances and laws of agencies and utility companies having jurisdiction over Work involved in the project.

B. Be responsible for all temporary Work provided and obtain any necessary permits and inspections for such Work.

C. Do not interfere with normal use of streets in vicinity of project site accept as indicated on drawings and/or as necessary to execute required Work, and then only after proper arrangement has been made with applicable authorities, including traffic control.

1.05 JOB CONDITIONS

A. Establish and initiate use of each temporary facility at time first reasonably required for proper performance of the Work. Terminate use and remove facilities at earliest reasonable time, when no longer needed or when permanent facilities have, with authorized use, replaced the need.

B. Install, operate, maintain, and protect temporary facilities in a manner and at locations which shall be safe, non-hazardous, sanitary and protective of persons and property, and free of deleterious effects.

C. Notify the Owner, Architect, and other affected parties no less than 10 days in advance of shutting down, starting up, interrupting utilities or service of facilities which may affect the neighboring homes or businesses. Allow sufficient time for protective measures to be taken.

1.06 FIELD OFFICES AND STORAGE SHEDS

A. Provide and maintain field offices on site throughout construction period. The type and placement of temporary office facilities shall require Owner approval.

1. General Contractor's Office: Provide size required for general use and to provide space for project meetings. Maintain a complete set of current project drawings and specifications at this office at all times. Maintain a file with all approved shop drawings, permits and other data pertinent to the Work. Provide equivalent space for use by the Owner's Project Manager or desk space for use by the Owner's Project Manager within the General Contractor's trailer.

B. The General Contractor shall provide such storage sheds, temporary buildings, or trailers as may be required for the performance of the Contract. Storage of construction materials at the site shall be permitted, depending on the type of materials and the duration of expected storage, as determined by the Architect and Owner. All temporary structures shall be removed at Substantial Completion.

1. Materials shall be handled, stored, and protected in accordance with best industry practice, and except where otherwise specified in the Contract Documents, in accordance with manufacturer's specifications and directions. Protect all construction materials from damage due to moisture, wind, cold, vandalism, or any other source in accordance with requirements of applicable Sections of the Contract Documents. Any damage to construction materials shall be at the expense of the General Contractor.

C. All temporary structures shall be removed at Substantial Completion.

D. Materials shall be handled, stored, and protected in accordance with the best practice in the industry, and except where otherwise specified in the Contract Documents, in accordance with manufacturer's specifications and directions

1.07 TEMPORARY SERVICES

A. Provide temporary water service, including required piping and hoses of sizes and pressure adequate for construction. All connections for temporary water service to receive a backflow preventer and the General Contractor is to apply for all permits in accordance with Town of Wareham Water Department requirements.

B. Provide temporary sanitary facilities, including temporary toilets, wash facilities, and drinking water facilities. Comply with regulations and health codes for type, number, location, operation and maintenance of fixtures and facilities. The toilets and wash facilities shall be installed in a location approved by the Owner. Include toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.

1. Provide self-contained chemical type toilet units, including periodic maintenance. Shield toilets to ensure privacy, and do not lift while occupied.

2. Provide facilities supplied with potable water for personnel involved in handling materials that require wash-up. Dispose of drainage properly.

C. The General Contractor shall remove all snow and ice which may impair the progress of the Work, be detrimental to Workmen, or impair trucking, delivery or moving of materials, or prevent adequate drainage at site or adjoining areas.

D. Removal:
   1. Completely remove temporary materials and equipment when their use is no longer required.
   2. Clean and repair damage caused by temporary installations or used for temporary facilities.
   3. Restore permanent facilities used for temporary services to specified condition.
      a. 14 days prior to Substantial Completion, remove temporary lamps and install new lamps in all permanent light fixtures.
      b. Replace filters in HVAC system used for temporary service. At the time of Substantial Completion, all filters are to be new and clean.

1.08 TEMPORARY FENCE & GATES

A. The Manufacturer of all chain link fence material for the fence and gates shall be subject to the Architect's approval.

B. Fabric shall be steel wire, hot-dipped galvanized, two in. mesh. The zinc coating shall weight two ounces per square foot of surface. Fabric gauge: No. nine; height: 72 inches.

C. Posts and gate frames shall be A.S.A. Schedule 40 galvanized steel conforming to A.S.T.M. 120. The pipe shall be galvanized to withstand 12, one-minute immersions in the Preece Test and shall be the following size and weight:

	Outside Diameter (In inches)	Weight in Pounds (Per Linear Foot)
Corner Braces	1.660	2.27
Line posts	1.9	2.72
Corner & Terminal Posts	2.375	3.65
Gate posts	3.0	5.79
Internal gate bracing	1.660	2.27

D. Truss rods shall be 3/8 in. diameter galvanized steel.

E. Fittings and other appurtenances shall be pressed steel, malleable or cast steel, galvanized to withstand six, one-minute immersions in the Preece Test.

F. Tension bars shall be 3/16 in. by 5/8 in. steel, galvanized to withstand six, one-minute immersions in the Preece Test.

G. Tie wires shall be No. 9 gauge wires, galvanized to withstand six, one-minute immersions in the Preece Test.

H. Post caps shall be heavy malleable iron or pressed steel and galvanized to withstand six, one-minute immersions in the Preece Test.

I. Gates shall have all latches, stops, keepers and hinges necessary for proper functioning.

J. Submit complete shop drawings of gates, hinges, drop bar locking devices, for the Architect's review prior to fabrication.

1.09 VEHICLE AND CONTRACTOR ACCESS AND TRAFFIC CONTROL

A. The General Contractor shall be responsible for all traffic control, including municipal police services, at streets adjacent to the Project site, as may be required to provide safe access and egress for Owner and construction related vehicles. Provide and maintain a suitable means of access to the Contract Work areas as necessary for vehicles and equipment of all trades requiring such access.

B. Arrival and departure of all General Contractor and Subcontractor deliveries shall be scheduled to occur between the hours of 7:00 AM and 3:00 PM only. No deliveries shall be allowed to occur between 3:00 PM and 7:00 PM.

C. The General Contractor shall cooperate with the Owner and be responsible for all measures necessary to maintain public access at all times to existing School Department property, and not impede normal operating procedures of the Town of Wareham.

D. The General Contractor shall provide and maintain permanent signage for the duration of the Contract as necessary to inform and direct all General Contractor and Subcontractor deliveries in accordance with requirements of this Paragraph 1.09.

1.10 TEMPORARY PARKING

A. Parking for vehicles belonging to the General Contractor, Subcontractors, or other personnel providing services included under the Work of this Contract shall be limited to within the Limit of Work line of this Project. Vehicle parking for all personnel providing services included under the Work of this Contract shall not be allowed elsewhere in the Town of Wareham, including but not limited to, School District property and public streets or parking areas, without prior written authorization of the Owner.

1.11 TEMPORARY BARRICADES

E. Provide protection at all time against rain, snow, wind, storms, and at the end of each day's Work cover all new Work subject to damage. Work damaged by failure to provide such protection shall be removed and replaced at no additional cost to the Owner.

F. Provide barricades for traffic control at streets adjacent to the Project site, as may be required or necessary to provide safe access and egress for Owner and construction related vehicles.

G. Provide protection to prevent flooding of existing site.

1.12 SECURITY AND PROTECTION PROVISIONS

A. Temporary security and protection provisions required shall include, but not be limited to, guard rails, fire protection, barricades, warning signs/lights, enclosed fence, sidewalk bridges, building enclosure/lockup, theft protection, environmental protection, and similar provisions intended to minimize property loses, personal injuries and claims for damages at project site. Provide security and protection services and systems in coordination with activities and in such a manner to achieve 24 hour, 7-day-per week effectiveness.

1. Provide types, sizes, numbers and locations of fire extinguishers, as would be reasonably effective in extinguishing fires during early stages, by personnel at project site. Provide type A extinguishers at locations of low-potential for either electrical or grease-oil-flammable liquids fires; provide Type ABC dry chemical extinguishers at other locations; comply with recommendations of NFPA No. 10 “Standard for Portable Fire Extinguishers” and NFPA 241 “Standard for Safeguarding Construction, Alterations and Demolition Operations. Post warning and quick-instructions at each extinguisher location, and instruct all personnel at project site, at time of their first arrival, on proper use of extinguishers and other available facilities at project site. Post local fire department call number on each telephone instrument at project site.

1.13 HAZARDOUS MATERIALS

A. The Contractor is solely responsible for all matters relating to hazardous or toxic materials and lawful removal of same from the site. If hazardous or toxic materials are indicated or discovered, properly inform governing authorities and abide by their requirements.

1.14 DUST AND NOISE CONTROL

A. Provide and maintain throughout the conduct of the Work of this Project, the following measures necessary to control and reduce emission of airborne dust and prevent contamination of exterior surfaces at adjacent public and private properties, or otherwise creating a nuisance to the Owner or adjacent properties.

1. Periodic dosing with water or other approved dust control materials of site access roads during periods of extended heat or dry weather, as determined by the Architect

a. Sufficiently wet construction materials with a fine spray or sprinkling of water during removal, cutting or other handling to reduce the emission of airborne dust. On Workdays this is to be done a minimum of four (4) times per day. On Sundays and Saturdays, it is to be one (1) time per day, 24 hours maximum after last Workday watering and 24 hours between each weekend watering.

2. Covering with heavy duty tarps, or other approved protection, of all on-site stockpiles of loam and fill
3. Installation of crushed rock dust traps at all transition points from dirt to asphalt
4. Street sweeping of existing access drives and parking lots within a distance of 500 feet from the Limit of Work line, as may be required to maintain all areas clean and free of dirt, mud, and debris at all times.
5. The General Contractor shall include the cost to comply with the above requirements in a separate line item included in the Schedule of Values provided in accordance with the Contract Documents.

B. The General Contractor shall use every effort and every means possible to minimize noise caused by his operations, which the Architect, the Owner's Representative, Owner, or governing authorities may consider objectionable. The noise levels on the construction site shall be controlled so that at no time shall the noise level measured at the Limit of Work line shall exceed 100dB. The General Contractor shall provide Working machinery and equipment equipped with suitable mufflers and sound-deadening panels in accordance with the latest edition of the OSHA regulations. Compressors shall be equipped with silencers or mufflers on intake and exhaust lines. Wherever practical electricity shall be used for power to reduce noise. Dumping bins, hoppers and trucks used for disposal shall be lined with wood or other sound deadening material if required. Where required agencies have jurisdiction, certain noise-producing Work may have to be performed during specified periods only, further; the General Contractor and Subcontractors are required to comply with all applicable regulations.

1. Prior to the start of construction, the General Contractor shall submit to the Owner, the Owner's Representative and the Architect, a Noise Control Program for review where Work with high level of noise is anticipated to Work out plans to mitigate the noise impact, especially for Work anticipated to be done during normal school hours.

1.15 PROJECT SIGNAGE

A. Provide project identification sign at visible location from the primary roadway adjoining the site. Sign shall be fabricated from 1 in. thick medium density overlay exterior plywood laminated with waterproof glue. All edges of the sign shall be banded with 1 in. by 1/2 in. pine banding. Sign shall be 32 square feet in area and supported by two 4 in. by 4 in. post supports set in 12 in. diameter concrete footings to a depth of four feet, so that the bottom edge of the sign is raised a minimum of four feet above grade. All nails, nuts, bolts and other connecting hardware shall be galvanized. Project sign shall include the following text located at the top of the sign; 'This Project funded in part by the Massachusetts School Building Authority'. The sign shall also include the following information: name of the Project, the Owner, the Owner's Project Manager, the Architect, and the General Contractor. All signs must be approved by the Owner's Project Manager and comply with requirements of local authorities having jurisdiction.

B. Provide other signs required or necessary to provide directional information to construction personnel, No Trespass signage at Archeological Sensitive Area on all sides of Fence enclosure, visitors and school personnel. Construct signs in an attractive manner utilizing rigid materials and crisp graphic lettering and pictorials acceptable to Architect. Install signs at appropriate locations.

1.16 SAFETY AND COOPERATION

A. This project is subject to compliance with Public Law 91-596, "Occupied Safety and Health Act of 1970" (OSHA) and all amendments thereto, with respect to all rules and regulations pertinent to construction.

1. The Work of this Contract shall be performed between the hours of 7:00 AM and 5:00 PM, Monday through Friday, and 9:00 AM and 4:00 PM on Saturday. Performance of the Work of this Contract shall not be allowed on Sunday or Holidays. Exceptions to the specified hours of Work shall be allowed in the event of an emergency, in coordination with the Owner.

B. The Contractor shall coordinate all Work and extend full cooperation to Owner's personnel and the Work of other trades.

C. The following rules and regulations will be required of all personnel providing services included under the Work of this Contract. No deviation or exception will be permitted without the express written approval of the Owner. The Contractor shall take responsibility for ensuring all construction personnel adhere to and cooperate with the Owner in enforcing these responsibilities.

1. All Workers must be properly, permanently and visually identified.
2. All Workers shall maintain their actions in a professional and workmanlike manner while at the Project site. Failure to comply with the following restrictions shall be grounds for permanent removal from the list of authorized workers, as described above. Worker restrictions include, but are not limited to, the following:
    a. No abusive language
    b. No littering
    c. No lewd behavior
    d. No conduct otherwise deemed unacceptable by the Owner or Architect
    e. No smoking on Owner's property, in accordance with State of Massachusetts law
    f. Consumption of alcoholic beverages on the job, or coming to Work in an intoxicated condition
    g. Possessing or consuming illegal drugs or any other illegal substance while working on the Project
    h. Using or removing Owner's or Subcontractors' possessions from the property without prior written authorization
    i. Violating any state, federal or city statues, rules, regulations, and the like while working on the Project
    j. Possessing firearms or explosives while Working on the Project
    k. Using Project facilities for jobs other than specific assignments directly related to the Work of this Project
    l. Physically abusing or harming an individual who Works at or visits the Project
    m. Duplication of any keys used in the existing site without prior written authorization by the Owner
    n. Providing site access at any time to anyone not directly working for the Contractor
    o. Abusing, defacing, or destroying existing or new property of the Owner
    p. Preventing access to all areas of the Project by the Owner, Architect and the Owner's Consultants.

1.17 PRE-INSTALLATION MEETING

A. The General Contractor shall schedule a pre-installation meeting to establish compliance and expectation of Work, maintain optimum working conditions, determine acceptable mock-ups, and coordinate the Work of this Section with related and adjacent Work. The meeting shall be attended by the General Contractor, Owner's Project Manager, and Architect.

1.18 RUBBISH REMOVAL

A. All waste and debris caused by the Work of this Contract shall be removed and legally disposed of off-site, daily, by the General Contractor, or as otherwise required to avoid large accumulations. The General Contractor shall be responsible for providing all labor, materials, and equipment, including dumpsters, required for removal from all parts of the site, and other Contract areas caused by the Work of this Contract.

B. Burning or on-site disposal of waste and debris caused by the Work of this Contract shall not be allowed.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

END OF SECTION

SECTION 01 51 11

PROGRESS SCHEDULE

PART I - GENERAL

1.01 RELATED DOCUMENTS

A. All the Contract Documents, including Drawings, General Conditions, Supplementary Conditions, and all Sections of Division 01 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

A. The Work of this Section shall include, but not be limited to, the following:

1. Administrative and procedural requirements for the General Contractor's Progress Schedule, which is required to be in a Gantt Chart format.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all the Contract Documents for requirements which affect the Work of this Section.

B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following:

1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein.
2. Section 02 41 13.24 – Utility Line Removal
3. DIVISION 31 – EARTHWORK; including all Sections contained therein.

1.04 PRELIMINARY SCHEDULE

A. Preliminary Submittal: Submit, within 10 calendar days following receipt of the Notice to Proceed, a detailed Project Schedule, in Gantt Chart format.

1.05 PROGRESS SCHEDULE, SUBMITTALS

A. Prepare the Progress Schedule required by the General Conditions in the form of a Gantt Chart, to control work of this Contract and to provide a definitive basis for determining job progress. Require each principal Subcontractor to provide detailed information about their own portion of the Work; include this information in the Gantt Chart.

B. Use commercially available Gantt Chart software to develop and maintain the schedule and to prepare and print spreadsheets, schedules, and reports for the Project. The General Contractor shall coordinate the required scheduling software with the Owner's designated representative. Prepare a spreadsheet listing activities, a network schedule showing the connections between activities, and in accordance with requirements of this Section.

C. Within 10 business days following receipt of the Notice to Proceed, submit the following to the Architect and the Owner's Project Manager for review:

1. An illustration of a feasible Gantt Chart schedule for completion of the Work of the Contract within the time limits specified.
2. Sample format to be utilized for the detailed Gantt Chart in accordance with requirements of the Contract Documents.
3. Milestone dates

D. Upon approval of the draft submittal, prepare and submit the Gantt Chart; prepare the schedule with spreadsheet information.
   1. Correlate the Progress Schedule with the Schedule of Values required under Section 01 00 00 – General Requirements, so that the value of the Work in place at any time can be definitively determined.
   2. Submit the full detailed schedule to the Architect and Owner for review and approval within 10 days following receipt of the Notice to Proceed, and at least 25 working days before the first Application for Payment is submitted. The Architect will not review any Application for Payment until the Gantt Chart has been submitted and approved.

E. Submit 3 color copies, and electronic file, of the schedule for review by Architect and Owner. Make changes directed by the Architect and resubmit within 10 calendar days.
   1. Acceptance of the Construction Schedule by the Owner and Architect is a prerequisite to certification of each Application for Payment.
   2. The Architect's acceptance of the Construction Schedule shall not relieve the General Contractor of responsibility for timing, planning and scheduling of the Work, nor impose any duty on the Architect or Owner with respect to the timing, planning or scheduling of the Work.

F. After the initial schedule has been accepted, print, and distribute colored copies of the approved schedule to the Architect, Owner, Subcontractors, and other parties required to comply with scheduled dates. Place one copy in the job site file and post copies in the Project meeting room and temporary field office.
   1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities,

1.06 PROGRESS SCHEDULE, CONTENT AND FORMAT

A. The start date for the Gantt Chart shall be the date of the Notice to Proceed. The date for Final Completion, shall be 10 days after the date scheduled for Substantial Completion.

B. Classes of Work: List as separate classes of work on the spreadsheet and schedules:
   1. Each category of work listed in the Schedule of Values
   2. Activities to be coordinated with General Contractor's work, such as:
      a. Inspections by the Owner's Testing and Inspection Agency.
      b. Work by separate General Contractors.
      c. Architect's inspection at the time of Partial Completions and at the time of Substantial Completion.
      d. Additional subdivisions of work as the General Contractor deems necessary to control the progress of the Work, or as requested by the Owner or Architect.

C. Input from Subcontractors: Require each Subcontractor to provide detailed information about their own Portion of the Work; include this information in the Progress Schedule.

D. Spreadsheet: On the spreadsheet for the Project, for each activity included in the spreadsheet, as a minimum the following information:
   1. A code number for the activity.
   2. Description of the activity
   3. Early and late start dates. These dates may not be changed after the activity has commenced and the actual start date has been inserted.
   4. Duration
   5. Early and late finish dates. These dates may not be changed after the activity has bow
   6. Completed, and the actual finish date has been inserted.
   7. Activity float
   8. Percentage completion
   9. Remaining duration
   10. Predecessor activities and successor activities, including start constraints for activities with no predecessor.

11. Blank columns for Actual Start and Actual Finish dates, to be filled in with each monthly submission.
12. Dollar amount for the activity.
13. Number of tradesmen and laborers required for each activity ("manpower loading")

E. On the Gantt Chat schedule for the Project, show the order and interdependence of activities and the sequence in which work is to be accomplished, as planned by the General Contractor. Show predecessor and successor activities; show the start of a given activity is dependent on completion of preceding activities and how its completion is necessary for the start of following activities.

1. Provide a path for each trade or significant type of work. Use the same breakdown of units of the Work as indicated for the spreadsheet.
2. Arrange schedule to show graphically major sequences for Coordinating work; lead times required; float time allowed; all major categories of work and critical minor work units affecting overall work sequences. Show phased completion dates. Show dates when Owner will be moving in equipment, furniture, and fixtures.
3. Break each trade or class of Work into specific activities, each of duration no longer than 20 calendar days, and structured by Work area, i.e., floors, wings. Selection and number of activities shall be subject to Architect's approval. Non-construction activities (such as procurement and delivery) and such other activities which the Architect may approve, may be of longer duration. At a minimum, break out the following as separate activities, where they apply to a type of Work.
    a. Construction activities
    b. Fabrication
    c. Delivery
    d. Installation
    e. Testing
    f. Start-up
    g. Instruction of Owner's Personnel

F. Utilization of Float Time: It is intended by the Awarding Authority that the Work should progress as expeditiously as possible. To this end, the General Contractor shall proceed with the start of each activity promptly upon the completion of the previous activity or activities on which it depends. If the General Contractor completes an activity on the scheduled "early finish date" or sooner, the General Contractor shall not expend the "float time" for that activity (if any) but rather reserve it as a safeguard against possible impediments or delays which may occur later in the progress of the Work. Float time is to be expended judiciously, for the benefit of the Project as a whole, and not for the convenience of the General Contractor or the Owner. Neither the General Contractor nor the Owner "owns" the project float time: the float time belongs to the Project.

1.07 MONTHLY REPORTS

A. Report progress for the Project on a bi-weekly basis. Evaluate the status of the work as of the 25th of each month to show actual progress and identify, problem areas. With each General Contractor Application for Payment, submit one (1) electronic copy, and three (3) colored copies of the complete update schedule, accompanied by a written narrative.

1.08 SUBMITTALS

A. Provide submittals in accordance with requirements of Section 01 33 00 – Submittal Procedures, Section 01 74 19 – Construction Waste Management and Disposal, and in accordance with requirements of the Contract Documents.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

END OF SECTION

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SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. All the Contract Documents, including Drawings, General Conditions, Supplementary Conditions, and all Sections of Division 01 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

A. Products, which include materials, equipment, and systems of assemblies of materials and equipment, shall conform to the requirements listed in each of Section of the Specifications. Provide connections, fasteners, accessory materials, trim, finish and other accessories needed for proper use, function and appearance.

1. Where available, provide standard products of types which have been produced and used previously and successfully on other projects and in similar applications.
2. Where additional amounts of a product, by nature of its application, are likely to be needed by Owner at a later date for maintenance and repair or replacement Work, provide a standard, domestically produced product which is likely to be available to Owner at such later date.

B. Name Plates: Except as otherwise indicated for required approval labels, and operating data, do not permanently attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which shall be exposed in occupied spaces or on exterior of the Work.

1. Labels: Locate required labels and stamps on a concealed surface, or where required for observation after installation, on an accessible surface which, in occupied spaces, is not conspicuous.
2. Equipment Nameplates: Provide permanent nameplate on each item of service-connected or power operated equipment. Indicate manufacturer, product name, model number, serial number, capacity, speed, ratings, and similar essential operating data. Locate nameplates on an easily accessed surface which in occupied spaces, is not conspicuous.

C. Products are specified by:

1. The descriptive method: Listing qualities that they must posses
2. The reference standard method: Listing published product standards
3. The proprietary method: Listing one or more source names, which may include such information as name of manufacturer or fabricator, trade name, or catalog number
4. A combination of the above three.

D. Where a reference standard is specified, the edition of the standard in the current governing building code shall be followed. Where the standard is not listed in the building code, follow the edition current with the issue date of these Specifications.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all of the Contract Documents for requirements which affect the Work of this Section.

B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following:

1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein.
2. Section 02 41 13.24 – Utility Line Removal
3. DIVISION 31 – EARTHWORK; including all Sections contained therein.

1.04 PRECEDENCE: QUALITY, REFERENCE STANDARD, AND SOURCE

A. Qualities

1. For the products specified by stated qualities or by the description, as well as by the reference standard or by the source, the specified qualities or description shall take precedence.
2. For a product specified only by stated qualities or by the description, provide materials, equipment or fabrications conforming to those qualities and description, suitable for the uses shown on the Drawings.

B. Reference Standards:

1. For product specified by reference to a published standard, as well as buy the source, the reference standard shall take precedence over the source.
2. For a product described only by reference standard, provide material, equipment or fabrications conforming to that reference standard, suitable for the use shown on the Drawings.

C. Procedures for Selecting Products: General Contractor's options for selecting products are limited to Contract document requirements and governing regulations and are not controlled by industry traditions or procedures experienced by General Contractor on previous construction projects. Required procedures include, but are not limited to, the following for various methods of specifying:

1. For a product described by manufacturer, manufacturer's brand name, or origin, with or without catalog number or model number, provide a product that conforms to the specified qualities and reference standards.
2. For a product specified by source and "no substitution", provide only that product specified. No request for substitution shall be considered.
3. For a product specified by one or more names, provide any one of the products specified. Where two or more sources are named, the choice is the General Contractor's. Any other product shall be considered only if requested as substitution.
4. For a product specified by one or more source names and "or approved substitute", provide one of the specified products, or, submit a request for substitution for a product not named which the General Contractor can demonstrate to be of equal or higher quality.
5. Provide materials mined or manufactured in Massachusetts first and the United States of America second whenever possible.
6. Performance Requirements: Provide products which comply with specific performances indicated, and which are recommended by manufacturer for overall application indicated. Overall performance of a product is implied where product is specified with only certain specific performance requirements.
7. Prescriptive Requirements: Provide products which have been produced in accordance with prescriptive requirements, using specified ingredients and components, and complying with specified requirements for mixing, fabricating, curing, finishing, testing and similar operations in manufacturing process.
8. Visual Matching: Where matching with an existing product or established sample is required, final judgement of whether a product proposed by the General Contractor matches sample satisfactorily is the Architect's judgement. Where no product within specified cost category is available, which matches sample satisfactorily and complies with requirements, comply with Contract document provisions concerning, "Substitutions" and "Change Orders" for selection of a matching product outside established cost category or a product not complying with requirements.

1.05 GENERAL CONTRACTOR'S OPTION

A. Where an option (or choice) is specified, provide one or the other of the options. The choice of an option is the General Contractor's. Where submittals are required, GC shall state which option has been chosen by GC.

B. For economy of drawing, only one option is usually shown on the Drawings. If another option is elected by the General Contractor, he shall adjust details, dimensions and physical settings to conform. The General Contractor shall review adjustments and details with the Architect before implementation.

1.06 SPECIAL WARRANTIES AND SERVICE

A. In addition to the warranty and correction Work provisions of the General Conditions, provide the following as specified:

1. Special Warranties: A warranty or guarantee provide by the manufacturer, fabricator, supplier or installer and the General Contractor providing specific representation of quality and fitness for a specific period of time. When also specified, a special warranty lists the actions the General Contractor, his installer, supplier or manufacturer shall take to correct defective Work.
2. Service: Specific programs of service that a manufacturer, fabricator, supplier or installer and the General Contractor shall provide for a specific period of time. Service programs shall, as, specified, provide such Work as inspections, reports, parts, materials, and other products or Work needed to render the services.

B. The Architect and Owner reserve the right to not accept unrequested warranties and guarantees offered by the General Contractor, his installers or suppliers.

C. Special warranties shall not be required to cover failure from:

1. Hurricane, floods or acts of God;
2. Misuse or improper maintenance by the Owner;
3. Vandalism or misuse by the public after time of Substantial Completion.

D. When defective Work is corrected under the special warranty provisions, the warranty period shall be extended by the period of time between Substantial Completion and the correction of the Work.

1.07 CERTIFICATION BY MANUFACTURERS OR INSTALLERS

A. Provide where specified, as a submittal, certification by the manufacturer or installer that the product and its method of installation are suitable for:

1. The type of construction and use of this product
2. For the New England climate
3. For the design intent expressed in the Contract Documents

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver handle and store products in accordance with manufacturer's recommendations and by methods which prevent damage, deterioration and loss, including theft.

B. Control delivery schedule to minimize long term storage of products at site and overcrowding of construction spaces. Provide delivery/installation coordination to ensure minimum holding or storage times for products that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other sources of loss.

1.09 SUBSTITUTION REQUEST PROCEDURE

A. For a period of 60 days after the start of Contract Time, the Architect will review written requests from the General Contractor for changes in products, materials and methods of construction required by Contract Documents. These changes are considered request for "substitutions", and are subject to requirements hereof. Substitutions received after the 60-day commencement of Work may be considered rejected at the discretion of the Architect.

1. Work not defined as Substitutions: The requirements for substitutions do not apply to the following:
    a. Specified General Contractor options on products and construction methods.
    b. Revisions to Contract Documents requested by Owner or Architect are "changes" not "substitutions".
    c. Requested substitutions during bidding period, which have been accepted prior to Contract Date and included in Contract Documents.
    d. General Contractor's determination of and compliance with governing regulations and orders issued by governing authorities do not constitute "substitutions" and do not constitute a basis for change orders, except as provided for in Contract Documents.

B. Requests for Substitutions: Submit 3 copies of substitution request form provided herein, fully identified for product or method being replaced by substitution, including related specification Section and drawing number(s), and fully documented to show compliance with requirements for substitutions. Include product data/drawings, description of methods, samples where applicable, General Contractor's detailed comparison of significant qualities between specified item and proposed substitution, statement of effect on construction time and coordination with other affected Work, cost information or, proposal, fabrication and installation procedures and General Contractor's statement to the overall Work as a substitute to or -better-than Work originally indicated.

C. Conditions: General Contractor's request for substitution shall be received and considered when extensive revisions to Contract Documents are not required and changes are in keeping with the general intent of Contract Documents; when timely, fully documented and properly submitted; and when one or more of the following conditions is satisfied, all as judged by the Architect. The review of substitution requests is an extra service of the Architect and the Owner's Project Manager to the Owner, limited by the Owner's authorization of the Architect and the Owner's Project Manager to perform such services. The Owner will charge the General Contractor for the Architect's and the Owner's Project Manager's processing of substitution requests, except when the General Contractor can demonstrate that one of the following cases applies. Otherwise, requests shall be returned without action except to record non-compliance with these requirements.

1. When the indicated product or method cannot be provided within the approved progress schedule, but not as the result of the General Contractor's failure to Contract, order, purchase, fabricate, prepare other Work, or coordinate the Work well in advance of need.
2. When the indicated product or method is not compatible with other products or Work, cannot be coordinated or fit into Work, or shall demonstrably have adverse effect on permanence, function or use of the Work.
3. When the indicated product or method is not approved by public authorities.
4. When the substitute request is made in response to a source specified as "Architect approved substitute".
5. Compliance with requirements needed to obtain LEEDv4 prerequisites and credits may be used as one criterion to evaluate substitution requests.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

SUBSTITUTION REQUEST

Project:	Wareham Elementary School Project Minot Forest Site Preparation Package	Project No. 02017.06
Owner:	Town of Wareham	
To:		From:
Architects	Mount Vernon Group Architects, Inc. 35 Center Street, 2nd Floor Chicopee, MA 01013	

GENERAL CONTRACTOR'S REQUEST, WITH SUPPORTING DATA

1. Section of Specifications to which this request applies: _____
   Section number

   ___ Product data for proposed substitution is attached (description of product, reference standards, performance and test data).

   ___ Sample is attached ___ Sample shall be sent if requested by Architect

2. Itemized comparison of proposed substitution with product specified.

	ORIGINAL PRODUCT	SUBSTITUTION
Name, brand:		
Catalog No.:		
Manufacturer:		
Significant Variation:		

3. Unit cost of original product and proposed substitution. State whether cost is for _____ material only, or _____ material installed.

   Original Product: $ _____per _____ Substitution: $_____ per _____

4. Proposed change in Contract Sum:

   Credit to Owner: _____Additional cost to Owner:

5. Proposed change in Contract Time:

   Reduce/Increase Contract time by: _____days.

6. Effect of the proposed substitute on other parts of the Work, or on other Contracts:

7. Reason for requesting substitution:

GENERAL CONTRACTOR'S STATEMENT OF CONFORMANCE OF PROPOSED SUBSTITUTION TO CONTRACT REQUIREMENTS:

I/we have investigated the proposed substitution. I/we

1. believe that it is equal or superior in all respects to the originally specified product, except as stated in 2. above;
2. shall provide the same warranty in accordance with General Conditions 4.1.5.;
3. shall provide the same special warranty or guaranty as specified;
4. have included all cost data and cost implications of the proposed substitution;
5. shall pay redesign and special inspection costs caused by the use of this product;
6. shall pay additional costs to other General Contractors caused by substitution;
7. shall coordinate the incorporation of the proposed substitution in the Work;
8. shall modify other parts of the Work as needed, to make all parts of the Work complete and functioning.
9. waive further claims for added cost to General Contractor caused by the proposed substitution.

General Contractor: _____ Date: _____

ARCHITECT REVIEW AND ACTION

A. Provide more information in the following categories. Resubmit.

B. Sign General Contractor's Statement of Conformance. Resubmit.

C. The proposed substitution is approved, with the following conditions:

D. The following changes shall be made by change order:
   1. Addition/Deduction from the Contract Sum:
   2. Addition/Deduction from Contract Time:

Mount Vernon Group Architects, Inc.: _____

Date: _____

END OF SECTION

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. All the Contract Documents, including Drawings, General Conditions, Supplementary Conditions, and all Sections of Division 1 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

A. The Work of this Section includes, but is not limited to, provision of all procedures, labor, and materials necessary to complete the following:

1. Divert 90% of non-hazardous underground utility pipes, asphalt concrete, rocks, gravel, soil, tree stumps, vegetation, and other demolition waste into recycling facilities. Calculations can be by weight or volume, but calculations must be consistent throughout.
2. Submit construction waste management plan within twenty-one (21) days following Notice to Proceed for approval by the Owner's Representative.
3. Complete and submit Appendix C – Construction and Demolition Waste Summary Form at each application of payment. Failure to submit Appendix C or similar form shall render the application for progress payment to be incomplete.
4. Submit legible copies of waste tickets as supporting documents for construction waste summary forms. The waste tickets shall come from a licensed solid waste disposal facility, in accordance with requirements of MGL Chapter 111, Section 150A.
5. Prior to Final Completion, submit a final construction waste summary report to include total construction and demolition waste produced by the Project and the total waste diverted.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all the Contract Documents for requirements which affect the Work of this Section.

B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following Divisions:

1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein.
2. Section 02 41 13.24 – Utility Line Removal
3. DIVISION 31 – EARTHWORK; including all Sections contained therein.

1.04 INTENT

A. The Owner has established that this Project shall generate the least amount of waste practical and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors shall be employed.

B. Of the waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized to the greatest extent practical.

C. The General Contractor shall be responsible for segregating all debris caused by the Work of this Project into separate dumpsters and ensuring that such debris shall be disposed of at a licensed solid waste disposal facility.

D. If hazardous materials are encountered and disposed of, landfill records indicating receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.05 SUBMITTALS

A. Provide submittals in accordance with requirements of Section 01 33 00 – Submittal Procedures and in accordance with requirements of the Contract Documents.

B. The Construction Waste Management Plan shall include, but not be limited to, the following:

1. Identify demolition waste material stream for diversion from landfill.
2. Identify the Project's total construction waste diversion goal to be 90%
3. Lists all materials, including land-clearing debris, anticipated to be used for Alternative Daily Cover (ADC), These materials shall not be included in the diverted waste total.
4. Describe the safe removal and disposal of hazardous materials. Hazardous materials shall be tracked separately but not included in the Project's total waste.
5. Describe the waste-sorting strategies and technologies used by the waste hauler and facility.

C. Complete and submit the Appendix C – Construction and Demolition Waste Summary Form located at the end of this Section.

1. Indicate the beginning and ending date of the construction waste summary report, name of General Contractor completing the form, CSI Section, and submittal number.
2. Select material type of the following: underground utility pipes, asphalt concrete, rocks, gravel, soil, tree stumps, vegetation, others (specify).
3. Select material stream of the following: commingled-recycled, donated, recycled-source separated, reused, salvaged, landfill waste, others (specify).
4. Indicate the average percentage of Alternative Daily Cover (ADC) produced by the sorting facility.
5. Indicate the total construction and demolition waste (tons), total construction waste diverted (tons); and percentage of construction waste diverted from landfill (%).

D. Submit legible copies of waste tickets, receipts, or invoices that specifically identify the project generating the material. The waste tickets shall come from recyclers and/or disposal site operators that can legally accept the materials for the purpose of re-use, recycling, or disposal.

1.06 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Engage a licensed demolition General Contractor and an experienced firm that has successfully completed demolition Work similar to that indicated for this Project.

B. Regulatory Requirements: Comply with governing EPA notification regulations before starting demolition. Comply with hauling and disposal regulations of authorities having jurisdiction. Obtain and pay for all permits required.

C. The General Contractor shall schedule a Pre-Demolition Meeting at the Project site to review the environmental goals during construction. The General Contractor shall invite Waste Subcontractors, waste hauler representative, Architect and Owner's Project Manager. The Pre-Demolition Meeting shall establish responsibilities of all parties, and provide a proactive effort to increase awareness of the environmental goals during construction.

1.07 DEFINITIONS

A. Alternative Daily Cover (ADC): Cover material placed on the surface of the active surface of a municipal solid waste landfill at the end of each operating day to control vectors, fires, odors, blowing litter, and scavenging. alternative se materials and other materials not contributing to diversion but not included in the diverted waste total.

B. Remove: Remove and legally dispose of items, except those identified for use in recycling, re-use, and salvage programs.

C. Environmental Pollution and Damage: The presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human or animal life; affect other species of importance to humanity; or degrade the utility of the environment for aesthetic, cultural or historical purposes.

D. Inert Fill: A permitted facility that accepts inert waste such as asphalt and concrete exclusively for the purpose of disposal.

1. Inert Solids/Inert Waste: Non-liquid solid waste including, but not limited to, soil and concrete, that does not contain hazardous substances or soluble pollutants at concentrations in excess of water-quality standards established by a regional water board and does not contain significant quantities of decomposable solid waste.

E. Class III Landfill: A landfill that accepts non-hazardous materials such as household, commercial, and industrial waste, resulting from construction, remodeling, repair, and demolition operations. A Class III landfill must have a solid waste facility permit from the Commonwealth of Massachusetts.

F. Demolition Waste: site waste resulting from cleanup and demolition operations that are not hazardous. This term includes, but is not limited to, asphalt concrete, underground utility pipes, rocks, gravel, and soil. The materials may include tree stumps, and other vegetative matter resulting from land clearing and landscaping for construction or land development projects.

G. Chemical Waste: Includes petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals and inorganic wastes.

H. Recycling: The process of sorting, cleansing, treating and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.

I. Reuse: The use, in the same or similar form as it was produced, of a material which might otherwise be discarded.

J. Solid Waste: All putrescible and non-putrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction waste, abandoned vehicles and parts thereof, discarded home and industrial appliances, dewatered, treated, or chemically fixed sewage sludge which is not hazardous waste, manure, vegetable or animal solid and semisolid wastes, and other discarded solid and semisolid wastes. "Solid waste" does not include hazardous waste, radioactive waste, or medical waste as defined or regulated by State law.

1.08 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain property of the Town of Wareham, demolished materials shall become the General Contractor's property and shall be removed, recycled, or disposed from Project site in an appropriate and legal manner.

1. Arrange a meeting no less than ten days prior to demolition with the Owner’s representative and Architect to review any salvageable items to determine if the Owner wants to retain ownership, and discuss Construction Waste Management Plan.

1.09 WASTE MANAGEMENT GENERAL CONTRACTOR

A. The General Contractor may subcontract the Work of this Section to a Subcontractor specializing in salvaging and recycling of construction waste.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION

3.01 IMPLEMENTATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of demolition and recycling required.

C. Perform surveys as the Work progresses to detect hazards resulting from demolition activities.

3.02 PREPARATION

A. As part of the project scope, the General Contractor shall prepare all drawings, documents, and applications and shall obtain all government agency approvals and permits required for demolition activities.

B. Conduct demolition operations and remove C&D materials to ensure minimum interference with roads, streets, walks, and other adjacent occupied and utilized facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or utilized facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

C. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around demolition area.

1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
2. Protect existing site improvements, appurtenances, and landscaping that are designated to remain in place.

3.03 EXPLOSIVES

A. Use of explosives shall not be permitted without prior express written authorization by the Owner, Architect, Engineer, and State and Local authorities having jurisdiction.

3.04 ENVIRONMENTAL CONTROLS

A. Comply with federal, state and local regulations pertaining to water, air, solid waste, recycling, chemical waste, sanitary waste, sediment and noise pollution.

B. Protection of Natural Resources: Preserve the natural resources within the project boundaries or restore to an equivalent condition.

1. Confine demolition activities to areas defined by public roads, easements, and work area limits indicated on the drawings.
    a. Temporary Construction: Remove indications of temporary construction facilities, such as haul roads, work areas, structures, stockpiles or waste areas.
2. Water Resources: Comply with applicable regulations concerning the direct or indirect discharge of pollutants to underground and natural surface waters.
    a. Oily Substances: Prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water in such quantities as to affect normal use, aesthetics, or produce a measurable ecological impact on the area.
        1) Store and service construction equipment at areas designated for collection of oil wastes.
3. Dust Control, Air Pollution, and Odor Control: Prevent creation of dust, air pollution and odors.
    a. Use temporary enclosures and other appropriate methods to limit dust and dirt rising and scattering in air to lowest practical level.
    b. Store volatile liquids, including fuels and solvents, in closed containers.

c. Properly maintain equipment to reduce gaseous pollutant emissions.

4. Perform demolition operations to minimize noise.
   a. Repetitive, high level impact noise shall be permitted only between the hours of The Work of this Contract shall be performed between the hours of 7:00 AM and 5:00 PM, Monday through Friday, and 9:00 AM and 4:00 PM on Saturday. Performance of the Work of this Contract shall not be allowed on Sunday or Holidays. Exceptions to the specified hours of Work shall be allowed in the event of an emergency, in coordination with the Owner.
   b. . Repetitive impact noise on the property shall not exceed the following dB limitations:

Sound Level in dB	Time Duration of Impact Noise
70	More than 12 minutes in any hour
80	More than 3 minutes in any hour
100	More than 3 minutes in any hour

   c. Provide equipment, sound-deadening devices, and take noise abatement measures that are necessary to comply with the requirements of this Contract.
      1) At least once every five successive working days while work is being performed above 55 dB noise level, measure sound level for noise exposure due to the demolition. Measure sound levels on the 'A' weighing network of a general purpose sound level meter at slow response. To minimize the effect of reflective sound waves at buildings, measurements may be taken three to six feet in front of any building face. Submit the recorded information to the State noting any problems and the alternatives before mitigating actions.

5. Salvage, Re-Use, and Recycling Procedures
   a. Identify re-use, salvage, and recycling facilities: Contact the Owner's Representative to obtain a list of local reuse organizations and C&D recycling companies.
   b. Develop and implement procedures to re-use, salvage, and recycle demolition materials, based on the Contract Documents, the General Contractor's Waste Management Plan, estimated quantities of available materials, and availability of recycling facilities. Procedures may include on-site recycling, source-separated recycling, salvage, and/or mixed debris recycling efforts.
   c. Identify materials that are feasible for salvage, determine requirements for site storage, and transportation of materials to a salvage facility.
   d. Source-separate new construction, excavation and demolition materials including, but not limited to the following types:
      1) Bituminous Concrete
      2) Soil
      3) Other materials as appropriate
         a. Develop and implement a program to transport loads of mixed (commingled) demolition materials that cannot be feasibly source separated to a mixed materials recycling facility [whenever available].

6. Disposal Practices and Waste Hauling
   a. Legally transport and dispose of materials that cannot be delivered to a source-separated or mixed recycling facility to a transfer station or disposal facility that can legally accept the materials for the purpose of disposal.
   b. Use a permitted waste hauler or General Contractor's trucking services and personnel. To confirm valid permitted status of waste haulers, contact the state or local authority having jurisdiction.
   c. Become familiar with the conditions for acceptance of new construction, excavation and demolition materials at recycling facilities, prior to delivering materials.
   d. Deliver to facilities that can legally accept new construction, excavation and demolition materials for purpose of re-use, recycling, composting, or disposal.
   e. Do not burn, bury or otherwise dispose of rubbish and waste materials on project site.

7. Re-Use and Donation Options
    a. Implement a re-use program to the greatest extent feasible.
8. Revenue
    a. Revenues or other savings obtained from recycled, re-used, or salvaged materials shall accrue to the General Contractor unless otherwise noted in the Contract Documents.
    b. Remove and legally transport all demolition and waste materials in a manner that shall prevent spillage on adjacent surfaces, streets, and areas or dust being emitted into the atmosphere.
    c. Clean adjacent streets of dust, dirt, and C&D materials caused by demolition operations. At the end of each work day, return adjacent areas to condition existing before start of demolition.

3.05 HANDLING OF DEMOLISHED MATERIALS

A. Promptly re-use, salvage, recycle, or dispose of demolished materials. Do not allow demolished materials to accumulate or be stored on-site for more than five (5) days.

B. No burning of demolished materials shall be allowed.

C. Transport demolished materials off the Project site and legally reuse, salvage, recycle, or dispose of materials in accordance with requirements of the Contract Documents.

END OF SECTION

Appendix C - Construction Waste Summary Form

LEEDv4 For Schools New Construciton and Major Renovations

Project: **WAREHAM ELEMENTARY SCHOOL**
MINOT FOREST SITE PREPARATION PACKAGE

Date:

Architect: Mount Vernon Group Architects, Inc.
200 Harvard Mill Square,
Wakefield, MA 01880

Contractor:

CSI Section:

Tel./Fax: (781) 213-5030 / (781) 213-5040

Submittal No:

Date of Load Disposal	Hauler or Location	Ticket Number	Type of Debris (Concrete, Wood, Metal, etc.)	Number of Loads	Percentage Diverted [%]	Total Waste Diverted from Landfill [Tons]
					Total Construction Waste [Tons]:	

Notes:
1. For Material that is removed from site, and does not generate a waste ticket, provide an estimate of the weight and volume of materials removed.
2. Refer to Section 017419 - Construction Waste Management and Disposal for additional requirements.

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SECTION 01 77 00

CONTRACT CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. All the Contract Documents, including Drawings, General Conditions, Supplementary Conditions, and all Sections of Division 01 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

A. The Work of this Section includes, but is not limited to, the following:

1. Supplementary instructions regarding preparation for Contract closeout, including Punch-List, prerequisites to Substantial Completion and Final Inspection, Affidavit in regard to liens, submittals of guarantees and other Documents and instruction to Owner's personnel.
2. Specific requirements for individual units of Work are specified in Sections of Division 2 through 32. Time of closeout is directly related to "Substantial Completion" for all phases of the Work and therefore shall be a series of time periods for the individual phases of the Work which have been certified as substantially complete at different dates.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all of the Contract Documents for requirements which affect the Work of this Section.

B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following:

1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein.
2. Section 02 41 13.24 – Utility Line Removal
3. DIVISION 31 – EARTHWORK; including all Sections contained therein.

1.04 PUNCH-LIST AND FINAL INSPECTION

A. In accordance with requirements of the General Conditions, when the General Contractor considers the Work to be substantially complete, for either entire Work or specified phases thereof, he shall notify the Owner and the Architect in writing that the Work shall be ready for final inspection on a definite date which shall be stated in the notice. Such notice shall be given at least 10 days prior to the date stated for final inspection.

1. Written notice shall also be given to Owner and Architect by the General Contractor upon completion of any Work which was determined during the above referenced final inspection, to be incomplete, incorrect or unsatisfactory.
2. On receipt of such notice from the General Contractor, additional inspection(s) shall be made until completion of all Contract requirements is complete, as determined by the Architect.

B. The Architect will review the General Contractor's punchlist and verify Substantial Completion for individual specified phases of the Work and the entire Work. Verification of Substantial Completion by the Architect is intended to be a final inspection of the Work to determine that the Work has been executed in accordance with requirements of the Contract Documents. Requests to the Architect by the General Contractor for verification of Substantial Completion of incomplete Work, or prior to receipt by the Architect of the General Contractor's punchlist, shall not be honored.

1.05 SUBSTANTIAL COMPLETION

A. Upon determination of Substantial Completion for individual specified phases of the Work and the entire Work, the Architect will prepare a Certification of Substantial Completion in accordance with requirements of the Contract Documents.

1. Upon written declaration of Substantial Completion by the General Contractor, the General Contractor shall show 100% completion for the specified individual phase of the Work claimed as substantially complete. The General Contractor shall include supporting documentation of Substantial Completion in accordance with requirements of the Contract Documents, and a statement showing an accounting of changes to the Contract Sum.
    a. If 100% completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.

1.06 SUBMITTAL OF DOCUMENTS AND PROCEDURAL REQUIREMENTS

A. At the "Substantial Completion Stage" of the Contract, the General Contractor shall submit the following items to the Architect for transmission to the Owner:

1. Application for reduction in retainage, and consent of surety.
2. List of incomplete Work, which is to be attached to the Architects Certificate of Substantial Completion as a clarification.

B. Remove construction facilities and temporary controls, except those that are required to complete punch-list Work.

C. At “Final Completion” the General Contractor shall prepare closeout submittals and submit to the Architect prior to “Final Completion”, allowing at least 15 Working days time for review.

1. Project record Documents marked with changes made during construction.
2. Copy of approved shop drawings or installed drawings for all phases of the Work.
3. Final construction photographs.
4. Certificate of insurance for completed operations.
5. Consent of Surety to Final Payment.
6. An affidavit that all bills and indebtedness connected with the Work has been paid.
7. Typed list of major Material Suppliers. (Shall include address, telephone number and name of individual to Contract regarding this project.
8. Waivers of lien from suppliers, or bond satisfactory to the Owner indemnifying Owner against all liens or other claims.
9. Proof that all taxes, fees and similar obligations have been paid.
10. Additional change over information which may be required by Owner’s lender and Owner’s property insurer.
11. Deliver tools, spare parts, extra stock, and similar items.

D. Complete punch list items or, if acceptable to the Owner, furnish proposed schedule for completion and assurances that Work not completed and accepted shall be completed without undue delay. The Architect will re-inspect the Work to determine whether it is complete.

E. The General Contractor shall complete all the items stated in the Closeout Procedures within 45 days of date of the Certificate of Substantial Completion. Failure to complete the closeout requirements within the allowed time frame will require the Owner to charge back all costs of the Architect, Project Manager and other Consultants which the Owner requires for the completion of the project closeout. The Architect will process this by preparing a Final Change Order, reflecting adjustments to the Contract Sum not previously made by other Change Orders.

1.07 AFFIDAVIT IN REGARD TO LIENS

A. A valid "Contractor's Affidavit in regard to Liens", which certifies the following, must be submitted with "Request For Final Payment".

1. The undersigned hereby certifies that all Work required under the above Contract has been performed in accordance with the terms thereof, that all material, men, Subcontractors, mechanics and laborers have been paid and satisfied in full and that there are no outstanding claims of any character arising out of the performance of the Contract which have been paid and satisfied in full.
2. The undersigned further certifies that to the best of his knowledge or belief, there are no unsatisfied claims for damages resulting from injury or death to any employees, Subcontractors or the public at large arising out of the performance of the Contract, or any suits or claims for any other damage of any kind, nature or description which might constitute a lien upon the property of the Owner.
3. General Contractor shall provide a written guarantee in a form acceptable to the Owner and Architect at Substantial Completion.

1.08 FINAL INSPECTION

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following: List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and complete operations where required.
2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
3. Submit a certified copy of the Architects final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Architect.
4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for correcting elements of the Work.
5. Submit consent of surety to final payment.
6. Submit final liquidated damages settlement statement.
7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

END OF SECTION

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SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. All the Contract Documents, including Drawings, General and Supplementary General Conditions and Division 01-General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

A. The Work of this Section shall include, but not be limited to, maintaining at the site for the Building Superintendent one record copy of the following:

1. Drawings
2. Specifications
3. Addenda
4. Change Orders and other Modifications to the Contract
5. Architect's Field Orders or written instructions
6. Approved Shop Drawings, Product Data and Samples
7. Field Test Records

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all the Contract Documents for requirements which affect the Work of this Section.

B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following:

1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein.
2. Section 02 41 13.24 – Utility Line Removal
3. DIVISION 31 – EARTHWORK; including all Sections contained therein.

1.04 GENERAL REQUIREMENTS

A. Provide all necessary equipment, including but not limited to, lockable files, racks, and secure storage required to maintain storage of documents and samples in a clean, dry, legible condition and in good order.

B. Documents and samples shall be filed in accordance with data Filing Format of the Uniform Construction Index.

C. Record Documents shall not be used for construction purposes.

D. Make Documents and samples available at all times for inspection by Architect/Engineer.

E. Provide felt tip marking pens for recording information in the color code designated by the Architect.

1.05 RECORDING

A. Label each document "PROJECT RECORD" in neat large printed letters located in the bottom right hand corner.

B. Record information concurrently with construction progress.

1. Do not conceal any Work until required information is recorded.

C. Drawings shall be legibly mark daily to record actual construction, as follows:
   1. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   2. Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the structure.
   3. Field changes of dimensions and detail.
   4. Changes made by Field Order or by Change Order.
   5. Details not on original Contract drawings.
   6. Record Drawings shall be updated each Working day. Monthly pay requisitions shall not be processed if record drawings are not up to date.

D. Individual Specification Sections and Contract Document Addenda shall be legibly marked to record the following:
   1. Manufacturer, trade name, catalogue number, and supplier of each product and item of equipment actually installed.
   2. Changes made by Field Order or by Change Order.

1.06 SUBMITTALS

A. Provide submittals in accordance with requirements of Section 01 33 00 – Submittal Procedures, Section 01 74 19 – Construction Waste Management and Disposal, and in accordance with requirements of the Contract Documents.

B. Prior to General Contractor claim of Substantial Completion for specified phases of the Work and the entire Work, the General Contractor shall deliver Record Documents to the Architect for review and approval.

C. Upon receipt of approval of Record Documents from the Architect, the General Contractor and Subcontractors shall transfer the as-built information shown on the Record Drawings onto compact disc, in a format compatible with equipment and programs provided under the Work of Section 01 50 00 – Temporary Facilities and Controls, or as otherwise required by the Owner.

D. Submission of accurate record drawings and their approval shall be a condition precedent to final payment.

E. Submittals of Record Documents shall be accompanied with transmittal letter in duplicate, containing the following information:
   1. Date
   2. Title and number of each Record Document
   3. Signature of the General Contractor or his authorized representative

PART 2 - PRODUCTS NOT USED

PART 3 - EXECUTION NOT USED

END OF SECTION

SECTION 02 41 13. 23

UTILITY LINE REMOVAL

PART 1 **–** GENERAL

1.01 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

B. Examine all other Sections of the Specifications and drawings for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section or implied on the drawings.

C. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 RELATED DOCUMENTS

A. The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”

B. Section 31 00 00 – EARTHWORK

C. Section 31 10 00 – SITE PREPARATION

D. Section 31 25 00 – EROSION AND SEDIMENTATION CONTROLS

1.03 SUMMARY

A. Section includes:
1. Provide all labor, materials, equipment, services and transportation required to complete all site preparation work as shown on Drawings, as specified herein, or both.
2. Adjusting frame, grate and rim elevations of existing storm drainage, sanitary sewer, gas, electrical, and water utilities to remain.

B. Related sections:
1. Division 01 Section “General Commissioning Requirements.”
2. Division 01 Section “Exterior Enclosure Commissioning Requirements.”
3. Section 31 00 00, EARTHWORK
4. Section 31 10 00, SITE PREPERATION
5. Section 31 25 00, EROSION & SEDIMENTATION CONTROLS

1.04 PERMITS AND CODES

A. All work shall comply with applicable codes, ordinances, rules, regulations and laws of all local, municipal, and state authorities having jurisdiction. All work necessary to make site preparation comply with such requirements shall be provided without additional cost to the Owner.

B. Procure and pay for all permits and licenses required for work under this Section. Give all required notices.

C. Do not close or obstruct any roads, sidewalks, alleys, or passageways, unless approved by the Town of Wareham. No materials whatsoever shall be placed or stored within the site without approval of the Owner. Conduct all operations to interfere as little as possible with the use ordinarily made of roads, driveways, alleys, sidewalks, and other facilities near enough to the Work to be affected.

1.05 PROJECT CONDITIONS

D. Locate, protect, and maintain benchmarks, monuments, control points and project engineering reference points. Re-establish disturbed or destroyed items at no additional expense to the Owner.

E. Perform site utilities work operations and the removal of debris and waste materials to assure minimum interference with streets, walks, and other adjacent facilities.

F. Obtain written permission from the Town when required to close or obstruct roads, walks and adjacent facilities. Provide alternate routes around closed or obstructed traffic ways.

G. Control dust caused by the work. Dampen surfaces as required. Comply with pollution control regulations of governing authorities.

H. Protect existing buildings, paving, and other services or facilities adjacent to the site from damage caused by site work operations. Cost of repair and restoration of damaged items shall be at no additional expense to the Owner.

I. Remove all lights, utility poles and services, valves and other services, unless otherwise noted. Provide for temporary relocation when required to maintain facilities and services in operation during construction work.

J. Adjust rim elevations on utility access structures such as manholes, clean outs, etc. to be flush with new grade elevations, unless otherwise indicated on drawings

K. When uncharted or incorrectly charted underground piping or other utilities and services are encountered during site work operations, notify the applicable utility company, the Engineer immediately to obtain procedure directions. Cooperate with the applicable utility company in maintaining active services in operation.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

3.01 SITE CONDITIONS

A. Perform site utilities preparation work before commencing construction.

B. Locate, protect, and maintain active utilities and site improvements to remain. Consult the records and drawings of adjacent work and of existing services and utilities which may affect site work operations.

C. Provide necessary barricades, coverings, and protection to prevent damage to existing improvements to remain.

D. Restore to original grades and conditions, areas adjacent to site disturbed or damaged as a result of site utilities preparation work.

E. Examine the areas and conditions under which site work is performed. Do not proceed with the work until unsatisfactory conditions are corrected.

3.02 REMOVAL/ABANDONMENT OF EXISTING SITE UTILITIES IMPROVEMENTS.

A. Remove and/or abandon existing site utilities improvements within the limit of work line as indicated. Include the following:

1. Miscellaneous utilities (electric, telephone, gas, etc.)
2. Water service and their appurtenances.
3. Storm drainage and their appurtenances.
4. Sanitary sewer and their appurtenances.

B. Existing Utilities: Information on the Drawings relating to existing utility lines and services is from the best sources presently available. All such information is furnished only for information and is not guaranteed. Excavate test pits as required to determine exact locations of existing utilities. No change orders shall be approved for unanticipated subsurface conditions.

C. Remove existing paving, including base material, as required to accommodate new construction. Saw cut existing paving in neat, straight lines to provide uniform, even transition from new to adjacent existing work.

D. Coordinate with local utilities as appropriate to remove two existing pverhead low voltage lines on Poles 610-P1 and 610-P2. Remove and properly dispose of all existing utility poles unless otherwise noted.

3.03 FRAMES, GRATE, AND COVERS TO BE SALVAGED

A. Existing frames, grates and covers shall be carefully removed from existing structures.

B. Existing frames, grates and covers shall be cleaned and be free of any concrete, soil or deleterious material.

C. Existing frames, grates and covers shall be stored and protected until they are used.

D. Surplus frames, grates and covers shall become property of the Contractor and shall be dispose of at the Contractor's expense.

3.04 UTILITIES STRUCTURES AND PIPES TO BE REMOVED

A. Utilities structures and pipes to be removed shall be completely removed.

B. Drainage, sanitary sewer and water pipes sections to be removed shall be cut and completely removed. Remaining, abandoned pipes should be capped.

C. The base material for the structures shall be removed to a point 6 inches below the top of the existing subgrade. The cavity shall be completely filled in accordance with the applicable material for the specific area as described in the earthwork specifications.

3.05 UTILITIES STRUCTURES TO BE RESET

A. When the line or grade, or both the line and grade of the structure require a change of 6-inches or less, the structure shall be adjusted to line and grade. The masonry shall be removed to such a depth as directed by the Architect and new masonry shall be constructed to conform to the proposed design.

B. When the line and grade, or both the line and grade of the structure require a change greater than 6-inches, the structure shall be removed to such depths as directed by the Architect, and new masonry shall be constructed to conform to the new design.

3.06 DISPOSAL OF WASTE MATERIALS

A. Remove, haul from site, and legally dispose of all waste materials and debris not required to be saved. Accumulation is not permitted.

B. Maintain disposal routes clear, clean, and free of debris.

C. On-site burning of combustible cleared materials is not permitted.

D. Cover trucks used for hauling, follow approved routes, obtain disposal permits required and pay all fees in connection with disposal of materials removed.

E. Upon completion of site preparation work, clean areas of work, remove tools and equipment. Provide site clear, clean, and free of materials and debris and suitable for site construction operations.

3.07 SALVAGEABLE MATERIALS

A. Remove and stockpile all materials indicated to be salvaged.

B. Salvaged items shall include granite curbing, suitable topsoil, and fill materials and other materials indicated to be saved and/or re-used.

C. All removed materials, items, and equipment not indicated to be saved or returned to the Town of Wareham Department of Public Works (DPW) shall be the property of the Contractor and shall be removed from the site and legally disposed of.

D. Remove non-salvage materials from site as work progresses. Storage and sale of Contractor's salvage items on site is not permitted.

END OF SECTION

SECTION 31 09 00

SUBSURFACE INVESTIGATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. All the Contract Documents, including Drawings, General Conditions, Supplementary Conditions, and all Sections of Division 01 - General Requirements, apply to the Work of this Section.

1.02 DESCRIPTION OF WORK

A. The Work of this Section includes, but is not limited to, furnishing and installation of the following:

1. All materials, equipment, labor and services required for all Subsurface Investigation work, including all items incidental thereto, as specified herein and as shown on the Drawings.

1.03 SOIL REPORTS

A. The Geotechnical Report dated April 9, 2019 and Phase I – Environmental Site Assessment with Soil Sampling dated March 9, 2018 are attached hereto, and hereby made a part of the Contract Documents.

B. The Owner assumes no responsibility for the Contractor's failure to make his own site investigation and makes no representation other than the soils reports regarding the character of the soil or subsurface conditions which may be encountered during the performance of the work. The Contractor shall refer to Section 31 09 00 - Subsurface Investigation, and attached soil Reports. Failure by the Contractor to be aware of existing site conditions shall not be cause for additional cost to the Owner.

C. Information on subsurface conditions is made available for the convenience of the Bidders. The Owner does not represent to the Contractor that the information is either an accurate or a comprehensive indication of subsurface conditions. Bidders are invited to review the information to apprise themselves of the information available, and also to make additional investigations at their own expense.

D. No claim for extra cost or extension of time resulting from reliance by the Contractor on information presented herein shall be allowed, except as provided in the Contract Documents.

E. The Owner assumes no responsibility for the Contractor's failure to make his own site investigation and makes no representation other than the soils reports regarding the character of the soil or subsurface conditions which may be encountered during the performance of the work. The Contractor shall refer to Section 31 09 00 - Subsurface Investigation and attached soil Reports. Failure by the Contractor to be aware of existing site conditions shall not be cause for additional cost to the Owner.

F. Information on subsurface conditions is made available for the convenience of the Bidders. The Owner does not represent to the Contractor that the information is either an accurate or a comprehensive indication of subsurface conditions. Bidders are invited to review the information to apprise themselves of the information available, and also to make additional investigations at their own expense.

G. No claim for extra cost or extension of time resulting from reliance by the Contractor on information presented herein shall be allowed, except as provided in the Contract Documents.

H. Large boulders are present onsite which will require full size excavators and may require hydraulic hammer attachments. No claim for extra cost or extension of time will be permitted for removal of large boulders.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all of the Contract Documents for requirements which affect the Work of this Section.

B. Other Specification Sections which directly relate to the Work of this Section include, but are not limited to, the following Divisions:

1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein.
2. Section 02 41 13.24 – Utility Line Removal
3. DIVISION 31 – EARTHWORK; including all Sections contained therein.

1.05 QUALITY ASSURANCE

A. A soil engineer will be retained by the Owner to observe performance of work in connection with excavating, trenching, filling, backfilling, and grading, and to perform compaction tests.

B. Re-adjust work performed that does not meet technical or design requirements, but make no deviation from the Contract Documents without specific and written approval from the Architect.

1.06 SUBMITTALS

A. Provide submittals in accordance with requirements of Section 01 33 00 – Submittal Procedures and in accordance with requirements of the Contract Documents.

PART 2 – PRODUCTS NOT USED

PART 3 – EXECUTION NOT USED

END OF SECTION

LGCI
Lahlaf Geotechnical Consulting, Inc.

April 9, 2019

Mr. Luis Ascensao
Mount Vernon Group Architects, Inc.
200 Harvard Mill Square
Suite 140
Wakefield, MA 01880
Tel: (781) 213-5030
Fax: (781) 213-5040
E-mail: lascensao@mvgarchitects.com

Re: Geotechnical Report
Proposed Wareham Elementary School
Wareham, Massachusetts
LGCI Project No. 1816

Dear Mr. Ascensao:

Lahlaf Geotechnical Consulting, Inc. (LGCI) has completed subsurface explorations at the site of the proposed Wareham Elementary School in Wareham, Massachusetts. This report contains the results of our subsurface explorations and our foundation design and construction recommendations. We are submitting our report electronically. Please notify us if you require a hard copy.

The soil samples from our explorations are currently stored at LGCI for further analysis, if requested. Unless notified otherwise, we will dispose of the soil samples after three months.

Thank you for choosing LGCI as your geotechnical engineer.

Very truly yours,

Lahlaf Geotechnical Consulting, Inc.

Abdelmadjid M. Lahlaf, Ph.D., P.E.
Principal Engineer

LGCI
Lahlaf Geotechnical Consulting, Inc.

GEOTECHNICAL REPORT
PROPOSED WAREHAM ELEMENTARY SCHOOL
WAREHAM, MASSACHUSETTS

LGCI Project No. 1816
April 9, 2019

Prepared for:

MOUNT VERNON GROUP ARCHITECTS, INC.
200 Harvard Mill Square
Suite 140
Wakefield, MA 01880
Tel: (781) 213-5030
Fax: (781) 213-5040

GEOTECHNICAL REPORT
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Abdelmadjid M. Lahlaf, Ph.D., P.E.
Principal Engineer

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1. PROJECT INFORMATION

1.1 Project Authorization

This geotechnical report presents the results of subsurface explorations and a geotechnical evaluation performed by Lahlaf Geotechnical Consulting, Inc. (LGCI) for the proposed Wareham Elementary School in Wareham, Massachusetts. We performed our services in general accordance with the scope described in our proposals Nos. 18022 and 19011 dated March 2, 2018 and February 15, 2019, and signed by Mr. Frank Tedesco of Mount Vernon Group Architects, Inc. (MVG) on March 6, 2018 and February 21, 2019, respectively.

1.2 Purpose and Scope of Services

The purpose of this study was to obtain subsurface information at the site and to provide recommendations for foundation design and construction.

LGCI performed our explorations in two phases: a preliminary phase in 2018 and a design development (DD) phase in 2019. LGCI issued a preliminary geotechnical report as part of the preliminary explorations phase dated May 18, 2018. The present report includes the results from both of our exploration phases and supersedes the previous preliminary geotechnical report dated May 18, 2018.

To date, LGCI has performed the following services:

- Marked the boring locations at the site and called Dig Safe Systems Inc. (Dig Safe) and the Town of Wareham for utility clearance.

- Engaged a drilling subcontractor to advance six (6) soil borings as part of our preliminary explorations phase and seventeen (17) soil borings during the DD phase explorations.

- Installed one (1) groundwater observation well in one (1) boring in the DD phase explorations.

- Engaged an excavation subcontractor to excavate twenty-seven (27) test pits during the DD phase explorations.

- Provided a geotechnical engineer at the site to coordinate and observe borings and test pits, collect soil samples, and prepare field logs.

- Submitted two (2) soil samples during the preliminary explorations phase and ten (10) soil samples during the DD explorations phase for grain-size analyses.

- Prepared this geotechnical report containing the results of our subsurface explorations and our recommendations for foundation design and construction.

Our scope also includes attending meetings, reviewing foundation drawings, preparing Earth Moving Specifications, performing contract document review, and providing construction services. LGCI will perform these services during the construction document (CD) phase and during construction.

LGCI did not perform environmental services for this project. LGCI did not perform an assessment to evaluate the presence or absence of hazardous or toxic materials above or below the ground surface at or around the site. Any statement about the color, odor, or the presence of suspicious materials included in our boring logs or report were made by LGCI for information only and to support our geotechnical services. No environmental recommendations and/or opinions are included in this report.

Recommendations for stormwater management, erosion control, pavement design, slope stability analyses, and detailed cost or quantity estimates are not included in our scope of work.

1.3 Site Description

Our understanding of the existing conditions is based on our field observations, our discussions with MVG, and on the following drawing:

- "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," (Existing Conditions Plan) prepared by Samiotes Consultants Inc. and dated May 9, 2018.

The existing Minot Forest Elementary School is located at 63 Minot Avenue in Wareham, Massachusetts as shown in Figure 1. The site is bordered by Minot Avenue on the northern side, and by wooded land on the other three sides.

The existing elementary school consists of a building with a generally rectangular shape. A paved driveway and drop-off loop as well as a parking lot are located on the northern side of the existing building. Additional paved parking lots are available near the northwestern corner of the existing building and on the western and southern sides of the existing building. A large paved area used for bus parking is located on the eastern side of the existing building.

Two athletic fields separated by a strip of wooded land are located on the southern side of the site. The field adjacent to the existing building is a practice field. The field on the southern side of the practice field is the larger of the two fields and includes two baseball fields and a soccer field. A dirt path extending through the strip of wooded land connects the two athletic fields.

The Existing Conditions Plan indicates that the existing grades range between El. 64 near the northwestern corner, El. 76 near the southwestern corner, El. 68 near the northeastern corner, and El. 82 near the southeastern corner of the existing building.

The grades within the practice field range between El. 80 near the northeastern corner and El. 83 near the southeastern corner. The grades are higher in the athletic field south of the existing practice field and range between El. 87 near the eastern edge and El. 91 near the western edge. The grades within the wooded area on the western side of the existing building range between El. 44 on the northern side near Minot Avenue and El. 96 on the southern side of the site.

The grades in the northern parking lot range between El. 49 near the northwestern corner and El. 54 near the southeastern corner. The grades in the parking lot near the northwestern corner of the existing building range between El. 53 near the northwestern corner and El. 58 near the southeastern corner. The grades in the western/southern parking lot range between El. 64 near the northwestern corner and El. 75 feet near the southwestern corner. The paved area to the east of the existing building is generally level, with the grades ranging between El. 67 and El. 68.

1.4 Project Description

Our understanding of the proposed construction is based on our discussions with MVG, the Existing Conditions Plan listed in Section 1.3, and on the following drawing:

- "Grading Plan, Wareham Elementary School Project, 63 Minot Avenue, Wareham, MA 02571," (Grading Plan) prepared by Samiotes Consultants Inc. and dated March 25, 2019.

Based on the Grading Plan, we understand the proposed school building will have an L-shape that will wrap around the eastern and southern sides of the existing building. The proposed building footprint will extend over the paved area on the eastern side of the existing building, the practice field south of the existing building, and the wooded area on the western side of the existing building. The proposed building will have a footprint of about 79,000 square feet. We understand that the proposed building will be designed with finished floor elevations (FFEs) matching the existing grades. We understand that the eastern portion of the proposed building will be lower in elevation and will have an FFE of El. 65. The southern portion of the proposed building will be higher and will have an FFE of El. 79.

Based on the existing grades and proposed FFEs, cuts of up to 7 feet will be required on the eastern side of the proposed building. For the southcentral and southeastern portions of the proposed building, little fill will be required within the existing southern parking lot and cuts of up to 3 feet will be required within the existing practice field to achieve the proposed FFEs. Cuts of up to 12 feet will be required in the wooded area on the western side of the proposed building.

The proposed construction will include an access road that will loop around the proposed building and a parking lot on the northern side of the proposed building. The proposed access

road will start at Minot Avenue near the northwestern corner of the site. It will extend in a southerly direction to the proposed parking lot, will continue south, and will loop around the proposed building.

The grades of the proposed access road will range between El. 43 feet on the northern side and El. 80 on the southern side. The proposed access road will require minor cuts on the northern side and cuts of up to 17 feet on the southern side. The proposed parking lots will require cuts of about 5 feet on the northern side and cuts of up to 13 feet on the southern side.

Based on the Grading Plan, retaining walls will be required around the two proposed softball fields on the northern side of the proposed building. These walls will have exposed heights of up to 13 feet. Up to 5 feet of fill will be required to achieve the proposed softball field grades.

Other retaining walls are proposed at the western and eastern sides of the site. The proposed retaining walls will have exposed heights of up to 17 feet. The proposed grading will require cutting slopes inclined at about 2.5H:1V on the southern and western limits of the site. These slopes will require cuts of up to 18 feet.

1.5 Elevation Data

We understand that the elevations shown in the Existing Conditions Plans and the Grading Plan are referenced to the National American Vertical Datum of 1988 (NAVD 88). Elevations are in feet.

2. SITE AND SUBSURFACE CONDITIONS

2.1 Surficial Geology

LGCI reviewed the following surficial geological map: "Surficial Geologic Map of the Wareham Quadrangle, Massachusetts," prepared by Stone, B.D., Stone, J.R., DiGiacomo-Cohen, M.L., and Kincare, K.A. for the U.S. Geological Survey, Open-File Report 2006-1260-F (2011).

The surficial geologic map indicates that the natural soils at the site are mostly thick glacial till deposits consisting of a non-sorted, non-stratified matrix of sand, some silt, and little clay, containing scattered pebbles, cobbles, and boulders in the shallow subsurface. At greater depths the natural soil consists of compact, non-sorted matrix of silt, very fine sand, and some clay containing scattered gravel clasts. The surficial geologic map of the site is shown in Figure 2.

2.2 LGCI's Borings

LGCI performed explorations at the site in two (2) phases as describes below.

Preliminary Phase Explorations - LGCI marked the boring locations in the field and notified Dig Safe and the Town of Wareham for utility clearance prior to performing the explorations at the site.

LGCI engaged Crawford Drilling Services, LLC of Westminster, Massachusetts to advance six (6) borings (B-3, B-5, and B-9 to B-12) at the site on April 2 to April 4, 2018. The borings were advanced with a CME 55 ATV-mounted track rig using 4-inch drive and wash techniques or 3 ¼-inch hollow stem augers, as noted in the boring logs. Borings B-1, B-2, B-4, and B-6 to B-8 were not performed.

DD Phase Explorations - The DD Phase explorations were staked in the field by Samiotes Consultants Inc. of Framingham, Massachusetts (Samiotes), the project surveyor. An LGCI representative visited the site on February 12, 2019 to assess the accessibility to the boring and pit locations and relocated a few borings and test pits to accessible locations. LGCI notified Dig Safe and the Town of Wareham for utility clearance prior to performing the explorations at the site.

LGCI engaged Northern Drill Service, Inc. (NDS) of Northborough, Massachusetts to advance seventeen (17) soil borings (B-101, B-102, B-104, B-106, B-108, B-110 to B-118, B-121, B-123 and B-124) at the site between February 25 and March 6, 2019. The borings were advanced with a Mobile B-48 ATV Rig using 4-inch drive and wash techniques or 3 ¼ -inch hollow stem augers, as noted in the boring logs. Borings B-103, B-105, B-107, B-109, B-122, B-125 and B-126 were converted into test pits. Borings B-119 and B-120 were not performed as time did not allow for completing these borings.

As part of the DD phase, one (1) groundwater observation well was installed in soil boring B-111-OW.

LGCI provided a field engineer to observe the borings in the field during the preliminary and DD Phase explorations. The borings extended to depths ranging between 11 and 26 feet beneath the ground surface. The drilling subcontractors performed Standard Penetration Tests (SPT) and obtained split spoon samples with an automatic or safety hammer semi-continuously or at five-foot intervals as noted in the boring logs in general accordance with ASTM D-1586. Unless notified otherwise, we will dispose of the soil samples after three months.

Upon completion, the boreholes were backfilled with drill cuttings. In paved areas, the ground surface was restored with asphalt cold patch.

Appendix A contains LGCI's boring logs and the groundwater observation well installation report, and Figures 3A and 3B show the boring locations. Tables 1 and 2 contain summaries of the borings.

The ground surface elevations shown in the boring logs were interpolated to the nearest foot from the Existing Conditions Plan.

2.3 LGCI's Test Pits

During the DD phase, LGCI engaged NDS to excavate twenty-seven (27) test pits (TP-1 to TP-15, TP-A, TP-B, TP-C, TP-D, TP-B103, TP-B105, TP-B107, TP-B109, TP-B121, TP-B122, TP-B125, TP-B126) at the site between February 22 and 27, 2019. Test pits TP-B103, TP-B105, TP-B107, TP-B109, TP-B122, TP-B125 and TP-B126 were converted from borings into test pits. Test pits TP-1 to TP-15 were requested by Samiotes. Test pits TP-A, TP-B, TP-C, and TP-D were requested by the landscape architect.

An LGCI engineer observed and logged the test pits in the field. The test pits were excavated with a Komatsu PC-120 excavator. Upon completion, the test pits were backfilled with the excavated materials which were placed and tamped with the excavator bucket in 1 to 2 feet lifts.

Appendix B contains LGCI's test pit logs, Figures 3A and 3B show the test pit locations. Table 3 contains the summary of all the test pits.

The ground surface elevations shown in the test pit logs were interpolated to the nearest foot from the Existing Conditions Plan.

2.4 Subsurface Conditions

The subsurface description in this report is based on a limited number of borings and test pits and is intended to highlight the major soil strata encountered during our borings and test pits. The

subsurface conditions are known only at the actual boring and test pit locations. Variations may occur and should be expected between boring and test pit locations. Boring and test pit logs represent conditions that we observed at the time of our explorations and are edited based on the results of the laboratory test data as appropriate. The strata boundaries shown in our boring and test pit logs are based on our interpretations and the actual transition may be gradual. Graphic soil symbols are for illustration only.

The soil strata encountered in our borings were as follows, starting from the ground surface.

Asphalt – Asphalt was encountered at the ground surface in borings B-5, B-102, B-104, B-114, and B-115. Asphalt was also encountered at the ground surface in test pits TP-1, TP-2, TP-6, and TP-B122. The asphalt was 4 to 6 inches thick.

Topsoil/Subsoil – A layer of surficial organic soil was encountered at the ground surface in borings B-3, B-9 to B-12, B-101, B-106, B-108, B-110 to B-113, B-116 to B-118, B-121, and B-123. This layer was also encountered in test pits TP-3 to TP-5, TP-7 to TP-13, TP-15, TP-A, TP-B, TP-B103, TP-B105, TP-B107, TP-B109, TP-B121, TP-B125, TP-B126, TP-C, and TP-D. This layer was 0.3 to 3.5 feet thick.

Fill – A layer of fill was encountered underneath the asphalt or topsoil/subsoil layer in borings B-3, B-5, B-9, B-10 to B-12, B-101, B-102, B-104, B-106, B-108, B-110 to B-116, B-118, B-121, B-123, and B-124. This layer was also encountered in test pits TP-1, TP-2, TP-4 to TP-9, TP-12, TP-14, TP-15, TP-A, TP-B, TP-B103, TP-B109, TP-B122, TP-C, and TP-D. The fill extended to depths ranging between 0.8 and 14 feet beneath the ground surface. The fill consisted mostly of poorly graded sand with silt and gravel and silty sand with gravel, and occasionally as well graded sand with silt and gravel. The fines content in the fill ranged up to 35 percent and the gravel content in the fill ranged up to 30 percent. The fill contained traces of organic fines, roots, and wood.

The SPT N-values recorded in the fill ranged between 2 and 84 blows per foot (bpf), with most values lower than 27 bpf, indicating very loose to medium dense material.

Buried Organic Soil – A layer of buried organic soil/buried subsoil was observed below the fill in test pits TP-14, TP-15, TP-A, TP-B, TP-C, TP-B122, and boring B-111-OW. This layer extended to depths ranging between 3.5 and 11 feet beneath the ground surface. The buried organics typically consisted of silty sand with traces of organic fines and roots.

Sand – A layer of sand was encountered beneath the fill or buried organic soil in all borings and test pits, except in TP-6 and TP-B. The sand extended to the boring termination depths. The samples in this layer were mostly described as well graded sand with silt and gravel, and occasionally as silty sand or poorly graded sand. The fines content in the sand ranged up to 35 percent and the gravel content ranged up to 40 percent. Boulders up to 8 feet in diameter were encountered in the sand.

The SPT N-values in this layer ranged between 8 and more than 100 bpf, with most values higher than 30 bpf, indicating dense to very dense sand. The very high SPT N-values could be caused by obstructions and are indicative of the presence of cobbles in the sand layer.

2.5 Groundwater

Groundwater was not observed in borings B-3, B-5, B-10, B-112, B-118, B-123, and B-124. Groundwater was also not observed in test pits TP-1 to TP-6, TP-9 to TP-15, TP-A, TP-B103, TP-B105, TP-B107, TP-B109, TP-B121, TP-B122, TP-B125, TP-B126, and TP-C. Groundwater was observed in borings B-9, B-11, B-12, B-101, B-102, B-104, B-106, B-108, B-110, B-111-OW, B-113 to B-117, and B-121 at depths ranging between 2.5 and 19.6 feet beneath the ground surface. Groundwater was also observed in test pits TP-7, TP-8, TP-B, and TP-D at depths ranging between 4 and 13 feet beneath the ground surface.

Groundwater observation well B-111-OW was monitored on March 1, 2019, i.e., three (3) days after it was installed, and it was dry.

The groundwater data reported in this report is based on observations made during or shortly after the completion of our explorations and may not represent the actual groundwater levels, as additional time may be required for the groundwater levels to stabilize. Water was introduced into the boreholes during drilling, and the groundwater levels measured at the end of drilling in the borings may not be representative of the actual groundwater conditions. The groundwater levels presented in this report only represent the conditions encountered at the time and location of our explorations. Seasonal fluctuation should be anticipated.

2.6 Laboratory Test Data

LGCI submitted twelve (12) soil samples obtained from the borings and test pits for grain-size analysis. The laboratory data sheets are included in Appendix C and the results are summarized below.

Boring	Sample ID	Sample Depth (ft)	Material	Percent Gravel	Percent Sand	Percent Fines
B-9	S2	2 – 4	Fill	15.2	63.4	21.4
B-10	S2	2 – 4	Natural Sand	23.1	54.3	22.6
B-101	S3	4 – 6	Natural Sand	9.6	58.2	32.2
B-102	S3	4 – 6	Fill	7.4	72.8	19.8
B-108	S2	2 – 4	Natural Sand	40.6	51.8	7.6
B-111	S5	8 – 10	Natural Sand	16.2	59.1	24.7
B-111	S7	14 – 16	Natural Sand	10.7	71.9	17.4
B-113	S5	14 – 16	Natural Sand	26.3	54.1	19.6
B-114	S2	2 – 4	Natural Sand	17.0	56.3	26.7
B-114	S4	6 – 8	Natural Sand	25.8	52.5	21.7
B-118	S2	2 – 4	Fill	13.9	67.2	18.9
TP-B103	-	4 – 12	Natural Sand	17.0	70.6	12.4

3. EVALUATION AND RECOMMENDATIONS

3.1 Foundation Recommendations

3.1.1 General

Based on our field observations, our understanding of the proposed construction, our observation of our borings and test pits, and the results of our laboratory testing, there are a few issues that we would like to highlight for consideration and discussion.

Removal of Topsoil/Subsoil – The topsoil and the subsoil are not suitable to support the proposed building and should be entirely removed from within the proposed building footprint. The topsoil and the subsoil should also be removed from within the footprint of the paved areas. Based on our explorations, the topsoil/subsoil removal is in general anticipated to extend to depths of up to 2 feet. In a few locations, the removal of the surficial topsoil/subsoil layer is anticipated to extend to depths of up to 3.5 feet. The topsoil/subsoil layer may be thicker in areas not explored by LGCI.

Existing Fill – The existing fill is not suitable to support the proposed building and should be entirely removed from within the proposed building footprint. The removal should extend beyond the limits of the proposed building a distance equal to the distance between the bottom of the proposed footings and the bottom of the fill or 5 feet, whichever is greater. The proposed building foundations should bear on Structural Fill placed directly on top of the natural sand. Based on our borings, the excavation to achieve the proposed FFEs will terminate in the natural sand or will in general require the removal of 2 to 3 feet of existing fill; except near the northern side of the higher level and the northern side of the lower level, where the removal of the existing fill will extend to depths of about 6 feet. The removal may extend to greater depths in areas not explored by LGCI. Our recommendations for footing design are presented in Section 3.2.

Based on our explorations, the existing fill does not need to be removed from beneath proposed paved areas but should be improved in accordance with the recommendations in Section 4.1.

3.1.2 Footing Design

- We recommend supporting the proposed building on spread and continuous footings bearing on Structural Fill placed directly over the natural sand.

- For footing design, we recommend using a net allowable bearing pressure of 4,000 pounds per square foot (psf).

- The subgrade of footings should be prepared in accordance with the recommendations in Section 4.1.

- All foundations should be designed in accordance with *The Commonwealth of Massachusetts State Building Code 780 CMR, Ninth Edition* (MSBC 9th Edition).

- Exterior footings and footings in unheated areas that are placed on the natural soil should be placed at a minimum depth of 4 feet below the final exterior grade to provide adequate frost cover protection. Interior footings in heated areas may be designed and constructed at a minimum depth of 2 feet below finished floor grades.

- We recommend that wall footings have a minimum width of 2 feet, and that column footings have a minimum width of 3 feet. For foundations with a least lateral dimension smaller than 3 feet, the allowable bearing pressure should be reduced to 1/3 of the recommended allowable bearing pressure times the least dimension in feet.

- Wall footings should be designed and constructed with continuous, longitudinal steel reinforcement for greater bending strength to span across small areas of loose or soft soils that may go undetected during construction.

- A representative of LGCI should observe the subgrade of footings to verify that the footing subgrade has been prepared in accordance with our recommendations.

3.1.3 Settlement

We estimate for foundations constructed in accordance with the recommendations contained in this report, that the total post-construction settlement will be less than about 1 inch and that the differential settlement will be 3/4 inch or less over a distance of 25 feet. Total and differential settlements of these magnitudes are usually considered tolerable for the anticipated construction. However, the tolerance of the proposed structure to the predicted total and differential settlements should be assessed by the structural engineer.

3.2 Concrete Slab Considerations

- The proposed floor slabs can be constructed as slabs-on-grade.

- The proposed floor slabs should be supported on a minimum of 12 inches of Structural Fill placed directly over the natural sand.

- Exposed boulders should be removed from the subgrade of the slab and the resulting excavation should be backfilled with Structural Fill.

- A vapor retarder membrane with a minimum thickness of 15 mils could be used beneath the slab. The need for such a membrane should be determined by the architect. The membrane should be protected from puncture during placement of the steel mesh and construction of the slabs.

- For the design of the floor slabs bearing on the materials described above, we recommend using a modulus of subgrade reaction, k_{s1}, of 100 tons per cubic foot (tcf) (116 pci). Please note that the values of k_{s1} are for a 1 x 1 square foot area. These values should be adjusted for larger areas using the following expression:

$$Modulus\ of\ Subgrade\,\mathrm{Re}action\,(k_s) = k_{s1} * \left(\frac{B+1}{2B}\right)^2$$

where:

k_s = Coefficient of vertical subgrade reaction for loaded area,
k_{s1} = Coefficient of vertical subgrade reaction for 1 x 1 square foot area, and
B = Width of area loaded, in feet.

Please note that cracking of slabs-on-grade can occur as a result of heaving or compression of the underlying soil, but also as a result of concrete curing stresses. To reduce the potential for cracking, the precautions listed below should be closely followed for construction of all slabs-on-grade:

- Construction joints should be provided between the floor slab and the walls and columns in accordance with the American Concrete Institute (ACI) requirements, or other applicable code.

- Backfill in interior and exterior utility trenches should be properly compacted.

- In order for the movement of exterior slabs not to be transmitted to the building foundation or superstructure, exterior slabs such as approach slabs and sidewalks, should be isolated from the building superstructure.

3.3 Under-slab Drains

Based on the groundwater levels observed in our borings and test pits, we believe that an under-slab drainage system is not required for the upper level of the proposed building (FFE of 79 feet). We recommend installing an under-slab drainage system on the southern half of the lower level (FFE of 65 feet).

The under-slab drainage system should consist of 1) a minimum of 9 inches of ¾-inch crushed stone placed below the concrete slab, and 2) 6-inch-diameter slotted PVC pipes installed with their inverts at least 9 inches below the bottom of the slab. The pipes should be installed in

trenches with a maximum spacing of 20 feet. The trenches should be at least 12 inches wide and 12 inches deep to allow for placing crushed stone around the PVC pipes.

A non-woven filter fabric should be installed between the crushed stone and the underlying soil. The slots on the PVC pipe should be placed facing downward to allow for entry of water at the bottom of the pipe. Clean-outs should be included at the end of each branch and at all changes in direction.

If possible, the water from the under-slab drain should be channeled to flow by gravity to a discharge area or to the Town storm drainage system. If the water from the drainage system is channeled to the Town storm drainage system, the owner should apply for a discharge permit and should perform analytical tests as required by the permits.

3.4 Seismic Design Criteria

In accordance with Section 1613 of MSBC 9th Edition, the seismic criteria for the site are as follows:

- Site Class: D
- Spectral Response Acceleration at short period (S_s): 0.173 g
- Spectral Response Acceleration at 1 sec. (S_1): 0.059g
- Site Coefficient F_a (Table 9.4.1.2.4a): 1.6
- Site Coefficient F_v (Table 9.4.1.2.4b): 2.4
- Adjusted spectral response S_{ms}: 0.277 g
- Adjusted spectral responses S_{m1}: 0.142 g

Based on the results of the borings, the natural soil layer at the site is not susceptible to liquefaction during a seismic event.

3.5 Lateral Pressures for Wall Design and Perimeter Drains

3.5.1 Lateral Earth Pressures

We recommend using the following values for the design of retaining walls:

Coefficient of Active Earth Pressure, K_A:	0.31
Coefficient of At-Rest Earth Pressure, K_o:	0.5
Coefficient of Passive Earth Pressure, K_p:	3.3
Total Unit Weight, γ:	125 pounds per cubic foot

Note: The values in the table are based on a friction angle for the backfill of 32 degrees and neglecting friction between the backfill and the wall. The design active and passive coefficients are based on horizontal surfaces (non-sloping backfill) on both the active and passive sides, and a vertical wall face.

- Exterior walls of below-ground spaces and the wall separating the two slab levels should be designed using the "at-rest" pressure coefficient.

- Site retaining walls should be designed using the active earth pressure coefficient described above.

- Passive earth pressures should only be used at the toe of the wall where special measures or provisions are taken to prevent disturbance or future removal of the soil on the passive side of the wall, or in areas where the wall design includes a key. We recommend neglecting the passive pressure in the top 2 feet.

- Where a permanent vertical uniform load will be applied on the active side immediately adjacent to the wall, a horizontal surcharge load equal to half of the uniform vertical load should be applied over the height of the wall. At a minimum, a temporary construction surcharge of 100 psf should be applied uniformly over the height of the wall.

- We recommend using an ultimate friction factor of 0.50 between the natural soil and the bottom of the retaining wall. Retaining walls should be designed for minimum factors of safety of 1.5 for sliding and 2.0 for overturning.

3.5.2 Seismic Pressure

- In accordance with the *Massachusetts State Building Code, 9th Edition*, Section 1610, a lateral earthquake force equal to $0.100*(S_s)*(F_a)*\gamma*H^2$ should be included in the design of the wall (for horizontal backfill), where S_s is the maximum considered earthquake spectral response acceleration (defined in Section 3.4), F_a is the site coefficient (defined in Section 3.4), γ is the total unit weight of the soil backfill, and H is the height of the wall.

  The earthquake force should be distributed as an inverted triangle over the height of the wall. In accordance with MSBC 9th Edition, Section 1610.2, a load factor of 1.43 shall be applied to the earthquake force for wall strength design.

- Temporary surcharges should not be included when designing for earthquake loads. Surcharge loads applied for extended periods of time shall be included in the total static lateral soil pressure and their earthquake lateral force shall be computed and added to the force determined above.

3.5.3 Perimeter Drains

- We recommend that free-draining material be placed within 3 feet of the exterior of walls of below-ground spaces and behind the wall separating the two slab levels. To reduce the

potential for dampness in below-ground spaces, proposed below-ground walls should be damp-proofed.

- We recommend that drains be provided behind the exterior of walls of below-ground spaces, behind the wall separating the two slab levels, and behind site retaining walls. The drains should consist of 6-inch perforated PVC pipes installed with the slots facing down. Perimeter drains should be installed at the bottom of the wall in 18 inches of crushed stone wrapped in a geotextile for separation and filtration.

- Groundwater collected by the wall drains could be discharged in a lower area if gravity flow is possible. Alternatively, it should be discharged into the street drains. A permit would be required for discharge into street drains. For site retaining walls, the water collected from the drains could be discharged through weep holes. If wetness on the face of the wall is not desirable, the wall drains should be connected to the street drains.

3.6 Parking Lots, Driveways, and Sidewalks

3.6.1 General

The subsurface conditions encountered at the site are generally suitable to support the proposed driveways and parking lots after preparation of the subgrade as described in Section 4.1.

- The proposed driveways and parking areas should be constructed with minimum asphalt and subbase thicknesses in accordance with the recommendations and details prepared by the project civil engineer. We recommend improving the subgrade of parking lots and driveways beneath the subbase layer as described in Section 4.1. At a minimum, the pavement sections should comply with the thicknesses shown in Section 3.6.2.

- We recommend removing the topsoil and subsoil from within the footprint of the proposed driveways and parking lots.

- Cobbles and boulders should be removed to at least 18 inches below the bottom of the pavement.

3.6.2 Typical Pavement Sections

A typical, minimum, standard-duty pavement section that could be used for parking areas is as follows:

1.5"	Asphalt "Top Course"
2.0"	Asphalt "Base Course"
8"	Compacted Graded Crushed Stone Sub-Base (MassDOT M1.03.1).

A typical, minimum, heavy-duty pavement section that could be used in access roads and for areas of heavy traffic is as follows:

2.0"	Asphalt "Top Course"
2.5"	Asphalt "Base Course"
12"	Compacted Graded Crushed Stone Sub-Base (MassDOT M1.03.1).

The pavement sections shown above represent minimum thicknesses representative of typical local construction practices for similar use. Periodic maintenance should be anticipated.

Pavement material types and construction procedures should conform to specifications of the "Standard Specifications for Highways and Bridges," prepared by the Commonwealth of Massachusetts Department of Public works and dated 1988 (with the latest Supplemental Specifications).

Areas to receive relatively highly concentrated, sustained loads such as dumpsters, loading areas, and storage bins are typically installed over a rigid pavement section to distribute concentrated loads and reduce the possibility of high stress concentrations to the subgrade. Typical rigid pavement sections consist of 6 inches of concrete placed over a minimum of 6 inches of subbase material.

3.6.3 Sidewalks

- Sidewalks should be placed on a minimum of 12 inches of Structural Fill with less than 5 percent fines.

- To reduce the potential for heave caused by surface water penetrating under the sidewalk, the sidewalk concrete sections should be sealed with a waterproof compound. The sidewalks should be sloped away from the building or other vertical surfaces to promote the flow of water. To the extent possible, roof leaders should not discharge onto sidewalk surfaces.

4. CONSTRUCTION CONSIDERATIONS

4.1 Subgrade Preparation

- The topsoil/subsoil layer, root balls, where encountered, organic soil, the existing fill, and other deleterious matter should be entirely removed from within the proposed building footprint.

- Topsoil/subsoil, organic material, root balls, where encountered, and other deleterious material should be entirely removed from within the paved areas.

- Cobbles and boulders should be removed at least 6 inches from beneath footings, i.e., 4.5 feet beneath the proposed FFE within the entire building footprint, and 18 inches beneath the bottom of pavement. The resulting excavations should be backfilled with compacted Structural Fill under the building and with compacted Ordinary Fill under the subbase of paved areas.

- The base of the footing excavations in the natural soil should be compacted with a dynamic vibratory compactor weighing at least 200 pounds and imparting a minimum of 4 kips of force to the subgrade, before placing concrete.

- The subgrades of slabs and paved areas in the natural soil should be compacted with a vibratory roller compactor imparting a dynamic effort of at least 40 kips. Where soft materials are encountered, they should be removed and replaced with Structural Fill within the footprint of the proposed building and with Ordinary Fill within the proposed paved areas.

- Where paved areas are located in existing fill areas, the existing fill should be improved in paved areas after the surficial topsoil and subsoil are removed by compacting it using at least six (6) passes of a vibratory roller compactor imparting a dynamic effort of at least 40 kips. Where soft zones are revealed by the compaction effort and where organic soil is exposed, the soft materials or organic soil should be removed and replaced with Ordinary Fill to the bottom of the subbase layer.

- Due to the susceptibility of the natural soil for disturbance under foot and vehicular traffic, we recommend placing a minimum of 6 inches of Structural Fill or crushed stone under footings on top of the natural soil to provide a firm working surface during placement of formwork and rebar.

- Fill placed within the footprint of the proposed building should meet the gradation and compaction requirements of Structural Fill shown in Section 4.3.

- Fill placed under the subbase of paved areas, should meet the gradation and compaction requirements of Ordinary Fill shown in Section 4.3.

- Fill placed in the top 12 inches beneath sidewalks should consist of Structural Fill with less than 5 percent fines.

- When crushed stone is required in the drawings or it is used for the convenience of the contractor, it should be wrapped in a geotextile fabric for separation.

- An LGCI geotechnical engineer or his representative should observe the exposed subgrades prior to fill and concrete placement to verify that the exposed bearing materials are suitable for the design soil bearing pressure. If soft or loose pockets are encountered in the footing excavations, the soft or loose materials should be removed, and the bottom of the footing should be placed at a lower elevation on firm soil, or the resulting excavation should be backfilled with Structural Fill or crushed stone wrapped in geotextile for separation.

4.2 Subgrade Protection

The onsite sand may be frost susceptible. If construction takes place during freezing weather, special measures should be taken to prevent the subgrade from freezing. Such measures should include the use of heat blankets or excavating the final six inches of soil just before pouring concrete. Footings should be backfilled as soon as possible after footing construction. Soil used as backfill should be free of frozen material, as should the ground on which it is placed. Filling operations should be halted in freezing weather.

Materials with high fines contents are typically difficult to handle when wet as they are sensitive to moisture content variations. Subgrade support capacities may deteriorate when such soils become wet and/or disturbed. The contractor should keep exposed subgrades properly drained and free of ponded water. Subgrades should be protected from machine and foot traffic to reduce disturbance.

4.3 Fill Materials

Structural Fill and Ordinary Fill should consist of inert, hard, durable sand and gravel, free from organic matter, clay, surface coatings and deleterious materials, and should conform to the gradation requirements shown below.

4.3.1 Structural Fill

The Structural Fill should have a plasticity index of less than 6 and should meet the gradation requirements shown below. Structural Fill should be compacted in maximum 9-inch loose lifts to at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557), with moisture contents within ±2 percentage points of optimum moisture content.

Sieve Size	Percent Passing by Weight
3 inches	100
1 ½ inch	80 - 100
½ inch	50 – 100
No. 4	30 – 85
No. 20	15 – 60
No. 60	5 – 35
No. 200*	0 – 10

* 0 – 5 Under sidewalks

4.3.2 Ordinary Fill

Ordinary Fill should have a plasticity index of less than 6 and should meet the gradation requirements shown below. Ordinary Fill should be compacted in maximum 9-inch loose lifts to at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557), with moisture contents within ±2 percentage points of optimum moisture content.

Sieve Size	Percent Passing by Weight
6 inches	100
1 inch	50 - 100
No. 4	20 – 100
No. 20	10 - 70
No. 60	5 – 45
No. 200	0 – 20

4.4 Reuse of Onsite Materials

Based on the grain-size analyses and our field observations, the existing fill and the natural soil at the site do not meet the gradation requirements for Structural Fill. Some of the onsite materials may meet the gradation requirements of Ordinary Fill.

Materials to be used as fill should first be tested for compliance with the applicable gradation specifications.

Soils with more than 20 percent fines content are generally very sensitive to moisture content variations and are susceptible to frost. Such soils are very difficult to compact at moisture contents that are much higher or much lower than the optimum moisture content determined from the laboratory compaction test. Therefore, strict moisture control should be implemented during stockpiling, placement, and compaction of the onsite soils.

To reduce the amount of soils disposed of offsite, the contractor may consider mobilizing a rock crusher to the site. Boulders and imported blasted rock can be processed by blending them with the existing fill and natural soil and crushing them to produce a well graded material. Processed material obtained by crushing blasted rock, boulders, and soil should meet the gradation requirements of Ordinary Fill and Structural Fill. Material produced by the crushing operation should be well graded so as to reduce the potential for formation of honey-combs during its placement and compaction.

The reuse of the onsite materials as described in this section should be coordinated with the project environmental engineer.

4.5 Groundwater Control Procedures

Based on the groundwater levels encountered in our explorations, we anticipate that no major groundwater control procedures will be needed for footing and utility excavations. We anticipate that filtered sump pumps installed in pits located at least three feet below the bottom of the excavation may be sufficient to handle surface runoff that may enter the excavation. Where deep trenches are required for utilities, multiple sump pumps would be required to maintain a dry excavation subgrade.

The contractor should be permitted to employ whatever commonly accepted means and practices as necessary to maintain the groundwater level below the bottom of the excavation, and to maintain a dry excavation during wet weather. Groundwater levels should be maintained at a minimum of 1-foot below the bottom of excavations during construction. Placement of reinforcing steel or concrete in standing water should not be permitted.

Proper permits should be obtained from authorities having jurisdiction over the work. At a minimum, the water collected from excavations should be filtered for fines in sedimentation basins before being discharged. The sedimentation basins could be constructed of hay bales wrapped in a geotextile fabric.

To reduce the potential for sinkholes developing over sump pump pits after the sump pumps are removed, the crushed stone placed in the sump pump pits should be wrapped in a geotextile for separation. Alternatively, the crushed stone should be entirely removed after the sump pump is no longer in use and the sump pump pit should be restored with suitable backfill.

4.6 Temporary Excavations

All excavations to receive human traffic, including utility trenches, basement or footing excavations, or others (i.e. underground storage tanks, etc.), should be constructed in accordance with the OSHA guidelines.

The site soils should generally be considered Type "C" and should have a maximum allowable slope of 1.5 Horizontal to 1 Vertical (1.5H:1V) for excavations less than 20 feet deep. Deeper excavations, if needed, should have shoring designed by a professional engineer.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of the excavation sides and bottom.

5. REPORT LIMITATIONS

Our analysis and recommendations are based on project information provided to us at the time of this report. If changes to the type, size, and location of the proposed structures or to the site grading are made, the recommendations contained in this report shall not be considered valid unless the changes are reviewed, and the conclusions and recommendations modified in writing by LGCI. LGCI cannot accept responsibility for designs based on our recommendations unless we are engaged to review the final plans and specifications to determine whether any changes in the project affect the validity of our recommendations and whether our recommendations have been properly implemented in the design.

It is not part of our scope to perform a more detailed site history; therefore, we have not explored for or researched the locations of buried utilities or other structures in the area of the proposed construction. Our scope did not include environmental services or services related to moisture, mold, or other biological contaminates in or around the site.

The recommendations in this report are based in part on the data obtained from the subsurface explorations. The nature and extent of variations between explorations may not become evident until construction. If variations from anticipated conditions are encountered, it may be necessary to revise the recommendations in this report. We cannot accept responsibility for designs based on recommendations in this report unless we are engaged to 1) make site visits during construction to check that the subsurface conditions exposed during construction are in general conformance with our design assumptions and 2) ascertain that, in general, the work is being performed in compliance with the contract documents.

Our report has been prepared in accordance with generally accepted engineering practices and in accordance with the terms and conditions set forth in our agreement. No other warranty, expressed or implied, is made. This report has been prepared for the exclusive use of Mount Vernon Group Architects, Inc. for the specific application to the proposed Wareham Elementary School in Wareham, Massachusetts as conceived at this time.

6. REFERENCES

The Commonwealth of Massachusetts (2017), "The Massachusetts State Building Code, 780 CMR, Ninth Edition."

The Department of Labor, Occupational Safety and Health Administration (1989), "Occupational Safety and Health Standards - Excavations; Final Rule," 20 CFR Part 1926, Subpart P.

Massachusetts Highway Department (1988), "Standard Specifications for Highways and Bridges."

Massachusetts Highway Department (2013), "Supplemental Specification to the 1988 Standard Specifications for Highways and Bridges."

USGS - Wareham, MA topographic map from www.digital-topo-maps.com

Table 1 - Summary of LGCI's 2018 Borings
Proposed Wareham Elementary School
Wareham, Massachusetts
LGCI Project No. 1816

Boring No.	Ground Surface Elevation (ft.)[1]	Groundwater Depth / El. (ft.)[2]	Bottom of Asphalt Depth (ft.)	Bottom of Topsoil Depth (ft.)	Bottom of Fill Depth (ft.)	Bottom of Boring (ft.)
B-3	67.0	- / **-**	- / **-**	0.8 / **66.2**	4.0 / **63.0**	22.0 / **45.0**
B-5	70.0	- / **-**	0.3 / **69.7**	- / **-**	2.0 / **68.0**	20.0 / **50.0**
B-9	87.5	7.6 / **79.9**	- / **-**	0.3 / **87.2**	14.0 / **73.5**	18.8 / **68.7**
B-10	81.5	- / **-**	- / **-**	0.6 / **80.9**	2.0 / **79.5**	17.0 / **64.5**
B-11	82.0	15.5 / **66.5**	- / **-**	0.7 / **81.3**	2.0 / **80.0**	39.4 / **42.6**
B-12	68.5	4.0 / **64.5**	- / **-**	0.5 / **68.0**	2.0 / **66.5**	20.3 / **48.2**

1. The ground surface elevation interpolated to the nearest 1/2 foot from a plan titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. and dated May, 9, 2018.
2. Groundwater was measured during or at the end of drilling, or is based on sample moisture, as indicated in the boring logs.
3. "-" means layer not encountered.
4. Borings B-1, B-2, B-4, and B-6 to B-8 were not performed.

Table 2 - Summary of LGCI's 2019 Borings
Proposed Wareham Elementary School
Wareham, MA
LGCI Project No. 1816

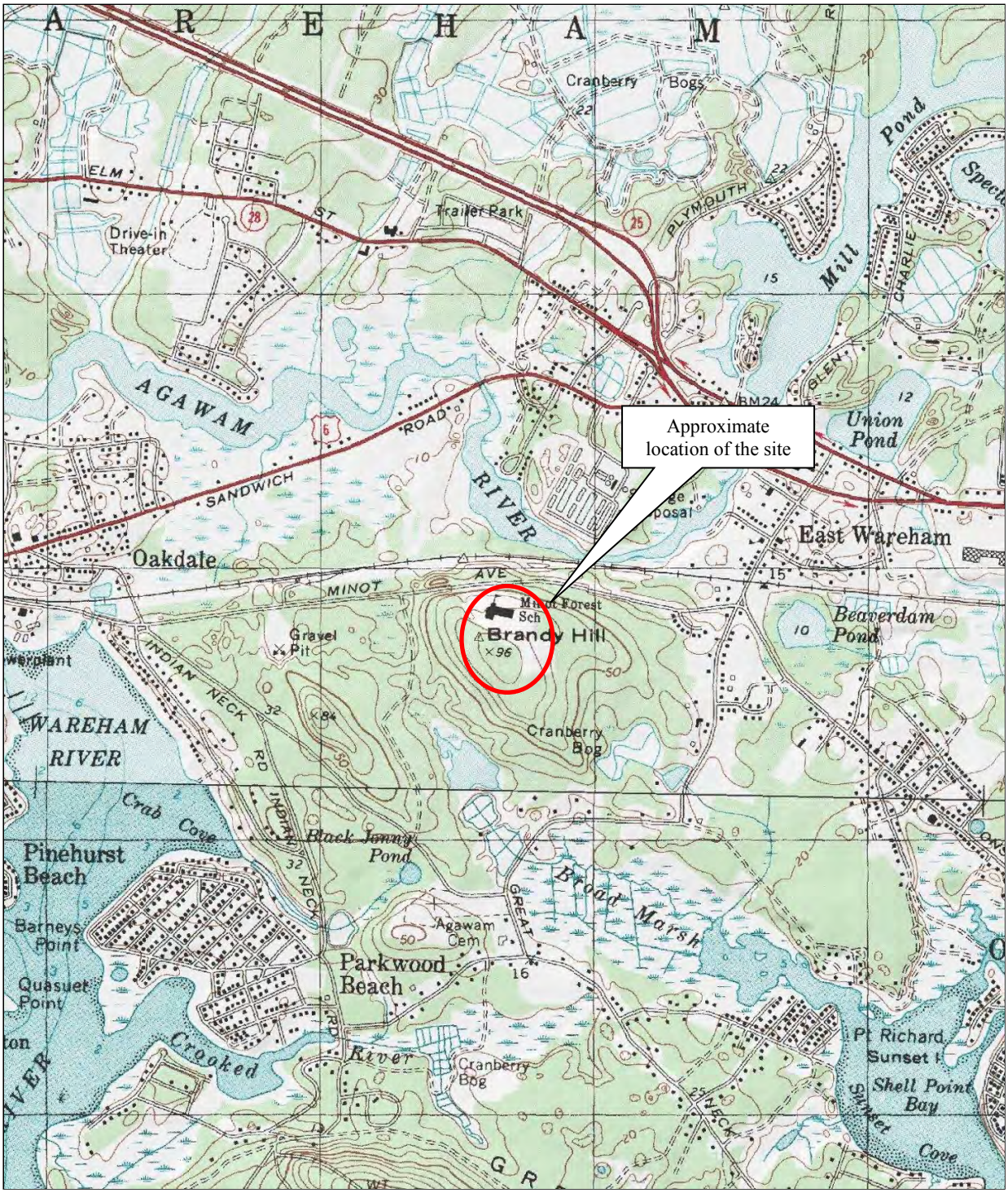
Boring No.	Ground Surface Elevation (ft.)[1]	Groundwater Depth / El. (ft.)[2]	Bottom of Topsoil/Subsoil/ Asphalt Depth / El. (ft.)	Bottom of Fill Depth / El. (ft.)	Bottom of Buried Organic Soil Depth / El. (ft.)	Refusal Depth / El. (ft.)	Bottom of Boring Depth / El. (ft.)
B-101	88.0	7.2 / 80.8	2.0 / 86.0	4.0 / 84.0	- / -	- / -	20.6 / 67.4
B-102	79.0	13.0 / 66.0	0.3 / 78.7	8.0 / 71.0	- / -	- / -	16.0 / 63.0
B-103	89.0	- / -	- / -	- / -	- / -	- / -	- / -
B-104	74.0	3.9 / 70.1	0.3 / 73.7	2.0 / 72.0	- / -	- / -	15.0 / 59.0
B-105	82.0	- / -	- / -	- / -	- / -	- / -	- / -
B-106	83.0	4.0 / 79.0	0.3 / 82.7	2.0 / 81.0	- / -	- / -	20.4 / 62.6
B-107	82.0	- / -	- / -	- / -	- / -	- / -	- / -
B-108	82.0	6.9 / 75.1	0.2 / 81.8	2.0 / 80.0	- / -	- / -	19.3 / 62.8
B-109	82.0	- / -	- / -	- / -	- / -	- / -	- / -
B-110	82.0	6.5 / 75.5	0.3 / 81.7	8.5 / 73.5	- / -	- / -	20.4 / 61.6
B-111-OW	82.0	19.6 / 62.4	0.2 / 81.8	4.0 / 78.0	6.0 / 76.0	- / -	26.0 / 56.0
B-112	82.0	- / -	0.3 / 81.7	4.7 / 77.3	- / -	- / -	16.0 / 66.0
B-113	82.0	9.7 / 72.3	0.1 / 81.9	7.5 / 74.5	- / -	- / -	26.0 / 56.0
B-114	70.0	6.2 / 63.8	0.3 / 69.7	2.0 / 68.0	- / -	- / -	19.8 / 50.2
B-115	68.0	5.4 / 62.6	0.5 / 67.5	4.0 / 64.0	- / -	- / -	21.0 / 47.0
B-116	67.0	9.5 / 57.5	0.8 / 66.2	7.8 / 59.2	- / -	- / -	19.0 / 48.0
B-117	65.0	5.4 / 59.6	5.0 / 60.0	- / -	- / -	- / -	19.7 / 45.3
B-118	64.0	- / -	0.5 / 63.5	4.5 / 59.5	- / -	13.5 / 50.5	13.5 / 50.5
B-119	-	- / -	- / -	- / -	- / -	- / -	- / -
B-120	-	- / -	- / -	- / -	- / -	- / -	- / -
B-121	67.0	2.5 / 64.5	0.5 / 66.5	2.0 / 65.0	- / -	- / -	11.0 / 56.0
B-122	52.0	- / -	- / -	- / -	- / -	- / -	- / -
B-123	59.0	- / -	0.1 / 58.9	4.5 / 54.5	- / -	- / -	22.0 / 37.0
B-124	71.0	- / -	- / -	2.0 / 69.0	- / -	- / -	21.0 / 50.0
B-125	92.0	- / -	- / -	- / -	- / -	- / -	- / -
B-126	66.0	- / -	- / -	- / -	- / -	- / -	- / -

1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.
2. Groundwater observed after the end of drilling or based on sample moisture, whichever was measured last, as indicated on the boring logs.
3. Borings B-103, B-105, B-107, B-109, B-122, B-125 and B-126 were converted into test pits.
4. Borings B-119 and B-120 were not performed.
5. "-" means layer not encountered.

Table 3 - Summary of LGCI's Test Pits
Proposed Wareham Elementary School
Wareham, MA
LGCI Project No. 1816

Boring No.	Ground Surface Elevation (ft.)[1]	Groundwater Depth / El. (ft.)[2]	Bottom of Topsoil/Subsoil/ Forest Mat [7] Depth / El. (ft.)	Bottom of Fill Depth / El. (ft.)	Bottom of Buried Organic Soil Depth / El. (ft.)	Bottom of Test Pit Depth / El. (ft.)
TP-1	65.0	- / -	- / -	0.8 / 64.2	- / -	12.0 / 53.0
TP-2	67.0	- / -	- / -	0.8 / 66.2	- / -	12.0 / 55.0
TP-3	55.0	- / -	1.0 / 54.0	- / -	- / -	10.0 / 45.0
TP-4	54.0	- / -	0.3 / 53.7	1.3 / 52.7	- / -	10.0 / 44.0
TP-5	52.0	- / -	0.7 / 51.3	2.0 / 50.0	- / -	12.0 / 40.0
TP-6	50.0	- / -	- / -	2.5 / 47.5	- / -	2.5 / 47.5
TP-7	59.0	5.0 / 54.0	0.7 / 58.3	4.5 / 54.5	- / -	10.0 / 49.0
TP-8	57.0	5.5 / 51.5	0.7 / 56.3	3.9 / 53.1	- / -	12.0 / 45.0
TP-9	49.0	- / -	0.7 / 48.3	3.5 / 45.5	- / -	10.0 / 39.0
TP-10	60.0	- / -	3.5 / 56.5	- / -	- / -	10.0 / 50.0
TP-11	61.0	- / -	2.0 / 59.0	- / -	- / -	10.0 / 51.0
TP-12	55.0	- / -	2.5 / 52.5	- / -	- / -	10.0 / 45.0
TP-13	58.0	- / -	3.0 / 55.0	- / -	- / -	10.0 / 48.0
TP-14	78.0	- / -	- / -	2.0 / 76.0	3.5 / 74.5	8.0 / 70.0
TP-15	80.0	- / -	0.5 / 79.5	4.5 / 75.5	6.5 / 73.5	10.0 / 70.0
TP-A	89.0	- / -	0.5 / 88.5	3.0 / 86.0	7.5 / 81.5	12.0 / 77.0
TP-B[8]	87.0	13.0 / 74.0	0.5 / 86.5	10.0 / 77.0	13.0 / 74.0	13.0 / 74.0
TP-C	89.0	- / -	1.0 / 88.0	3.0 / 86.0	7.0 / 82.0	11.5 / 77.5
TP-D	90.0	4.0 / 86.0	0.5 / 89.5	2.0 / 88.0	- / -	12.0 / 78.0
TP-B103	91.0	- / -	0.3 / 90.7	2.4 / 88.6	- / -	12.0 / 79.0
TP-B105	79.0	- / -	0.2 / 78.8	- / -	- / -	12.0 / 67.0
TP-B107	81.0	- / -	0.2 / 80.8	- / -	- / -	12.0 / 69.0
TP-B109	82.0	- / -	0.5 / 81.5	2.0 / 80.0	- / -	12.0 / 70.0
TP-B121	63.0	- / -	1.0 / 62.0	- / -	- / -	11.0 / 52.0
TP-B122[9]	52.0	- / -	0.3 / 51.7	5.5 / 46.5	- / -	11.0 / 41.0
TP-B125	93.0	- / -	2.0 / 91.0	- / -	- / -	12.0 / 81.0
TP-B126	80.0	- / -	0.8 / 79.2	- / -	- / -	12.0 / 68.0

1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.
2. Groundwater observed during excavation as indicated on the test pit logs.
3. Test pit TP-6 terminated in fill.
4. Test pits TP1-TP15 were proposed by Samiotes Consultants Inc. of Framingham, MA and observed by LGCI.
5. Test pits TP-B103, TP-B105, TP-B107, TP-B109, TP-B122, TP-B125 and TP-B126 were originally borings and were converted to test pits.
6. "-" means layer not encountered.
7. In test pits TP-1, TP-2, and TP-6, asphalt was encountered at the ground surface.
8. TP-B terminated in the organic soil layer.
9. The fill at TP-B102 contained buried topsoil.

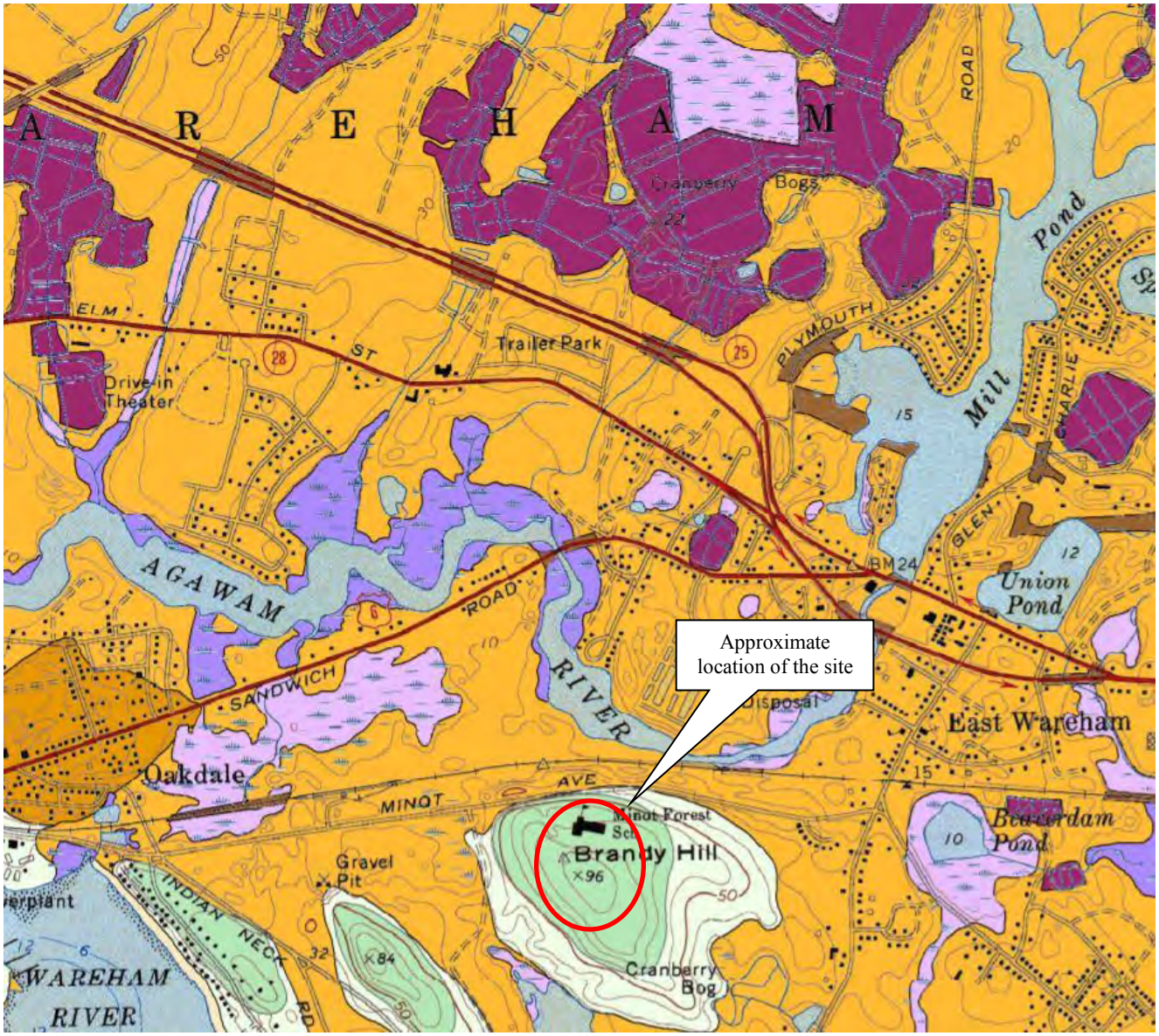


Map provided by MyTopo.com

Contour Intervals: 10 feet

Figure based on USGS topographic map of Wareham, MA obtained from www.mytopo.com/maps

Client:	Project:	Figure 1 – Site Location Map	
Mount Vernon Group Architects, Inc.	Proposed Wareham Elementary School		
LGCI Lahlaf Geotechnical Consulting, Inc.	Project Location: Wareham, MA	LGCI Project No.: 1816	Date: April 2019

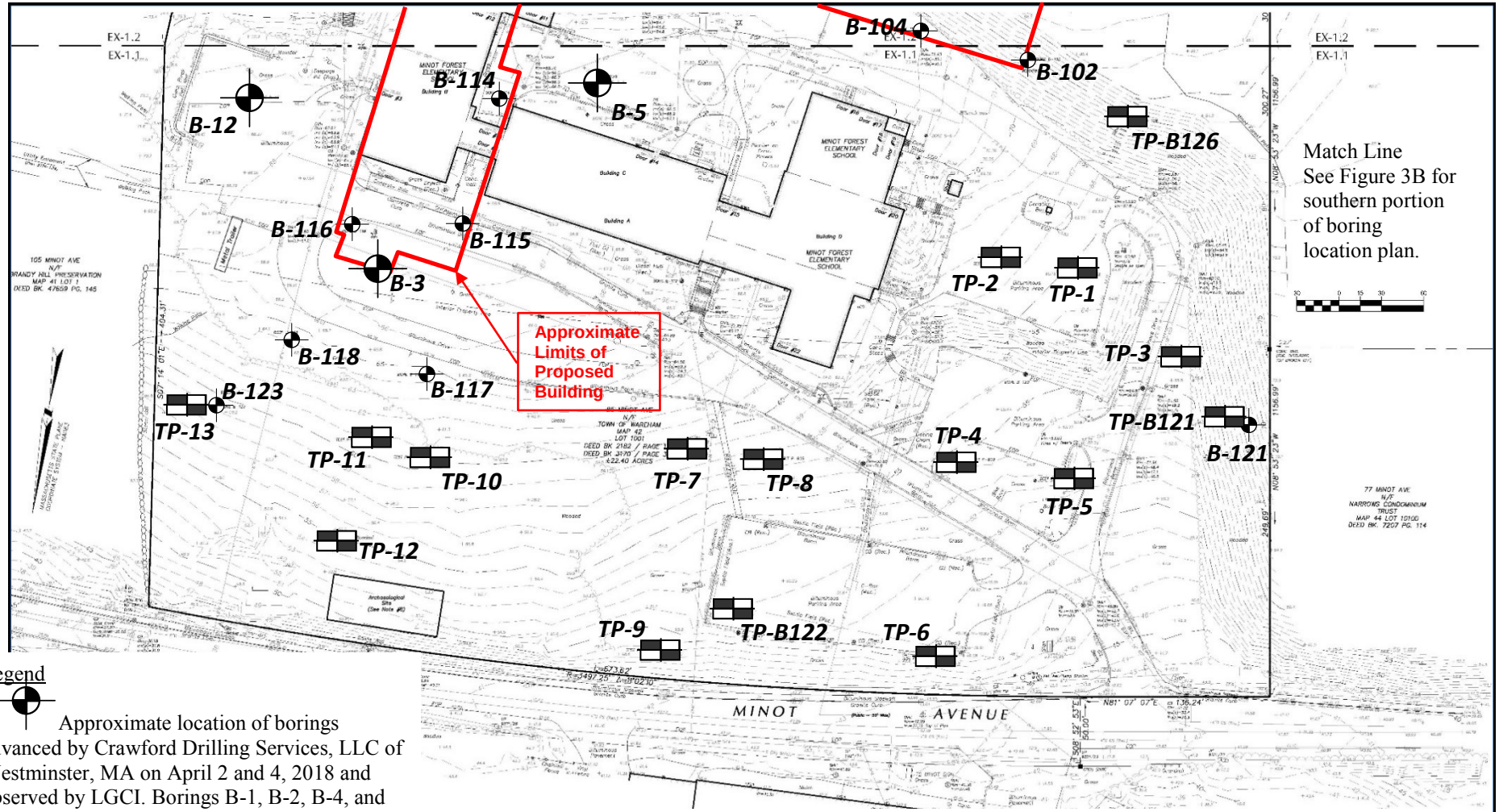


N

Thick till—Nonsorted, nonstratified matrix of sand, some silt, and little clay containing scattered pebbles, cobbles, and boulders in the shallow subsurface; at greater depths consists of compact, nonsorted matrix of silt, very fine sand, and some clay containing scattered small gravel clasts. Mapped in areas where till is greater than 10 to 15 ft thick, chiefly in drumlin landforms in which till thickness commonly exceeds 100 ft (maximum recorded thickness is 230 ft). Although upper till is the surface deposit, the lower till constitutes the bulk of the material in these areas. Lower till is moderately to very compact and is commonly finer grained and less stony than upper till. An oxidized zone, the lower part of a soil profile formed during a period of interglacial weathering, is generally present in the upper part of the lower till. This zone commonly shows closely spaced joints that are stained with iron and manganese oxides

Figure based on map titled: "Surficial Geologic Map of the Wareham Quadrangle, Massachusetts," prepared by Stone, B.D., Stone, J.R., DiGiacomo-Cohen, M.L., and Kincare, K.A., for U.S. Geological Survey, Open-File Report 2006-1260-F, 2011.

Client:	Project:	Figure 2 – Surficial Geologic Map	
Mount Vernon Group Architects, Inc.	Proposed Wareham Elementary School		
LGCI Lahlaf Geotechnical Consulting, Inc.	Project Location: Wareham, MA	LGCI Project No.: 1816	Date: April 2019



Legend

Approximate location of borings advanced by Crawford Drilling Services, LLC of Westminster, MA on April 2 and 4, 2018 and observed by LGCI. Borings B-1, B-2, B-4, and B-6 to B-8 were not performed.

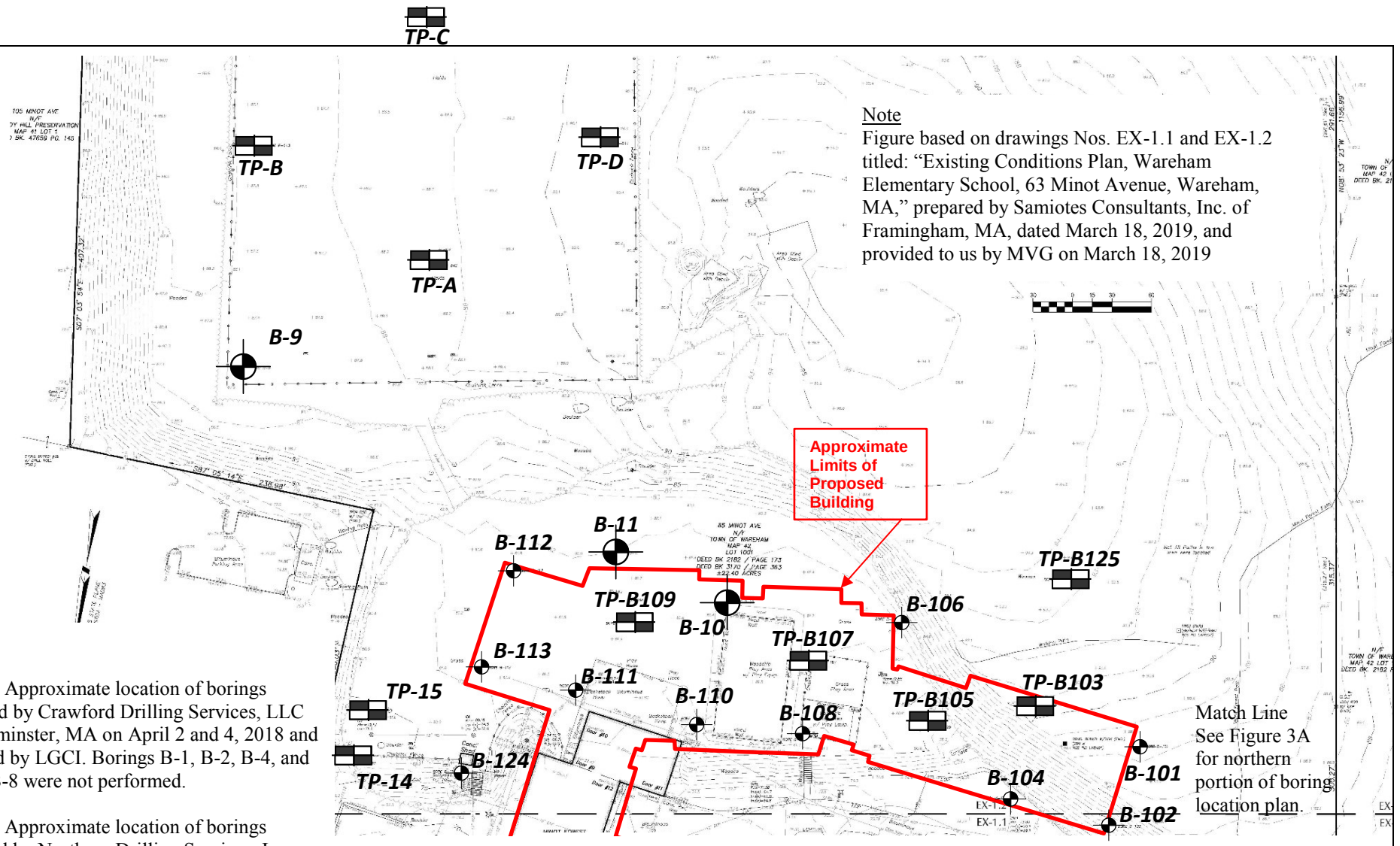
Approximate location of borings advanced by Northern Drilling Services, Inc (NDS) of Northborough, MA between February 25 and March 6, 2019 and observed by LGCI. Borings B-119 and B-120 were not performed. Borings B-122 were converted into test pits.

Approximate location of test pits excavated by NDS between February 22 and 27, 2019 and observed by LGCI.

Note

Figure based on drawings Nos. EX-1.1 and EX-1.2 titled: "Existing Conditions Plan, Wareham Elementary School, 63 Minot Avenue, Wareham, MA," prepared by Samiotes Consultants, Inc. of Framingham, MA, dated March 18, 2019, and provided to us by MVG on March 18, 2019.

Client:	Project:	Figure 3A – Boring and Test Pit Location Plan (North)	
Mount Vernon Group Architects, Inc.	Proposed Wareham Elementary School		
LGCI Lahlaf Geotechnical Consulting, Inc.	Project Location: Wareham, MA	LGCI Project No.: 1816	Date: April 2019



Legend

Approximate location of borings advanced by Crawford Drilling Services, LLC of Westminster, MA on April 2 and 4, 2018 and observed by LGCI. Borings B-1, B-2, B-4, and B-6 to B-8 were not performed.

Approximate location of borings advanced by Northern Drilling Services, Inc (NDS) of Northborough, MA between February 25 and March 6, 2019 and observed by LGCI. Borings B-119 and B-120 were not performed. Borings B-122 were converted into test pits.

Approximate location of test pits excavated by NDS between February 22 and 27, 2019 and observed by LGCI.

Client: Mount Vernon Group Architects, Inc.	Project: Proposed Wareham Elementary School	Figure 3B – Boring and Test Pit Location Plan (South)	
LGCI Lahlaf Geotechnical Consulting, Inc.	Project Location: Wareham, MA	LGCI Project No.: 1816	Date: April 2019

LGCI
Lahlaf Geotechnical Consulting, Inc.

BORING LOG

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PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, Massachusetts

DATE STARTED: 4/4/18 **DATE COMPLETED:** 4/4/18
BORING LOCATION: Island north of existing school
DRILLING SUBCONTRACTOR: Crawford Drilling Services, LLC
COORDINATES: NA
DRILLING FOREMAN: Joe Martinelli
SURFACE EI.: 67 ft. NAVD 1988 (see note 1) **TOTAL DEPTH:** 22 ft.
DRILLING METHOD: Hollow Stem Auger 3-1/4" ID
WEATHER: 30s / Cloudy
DRILL RIG TYPE/MODEL: CME 55 Track ATV
GROUNDWATER LEVELS:
HAMMER TYPE: Automatic
▽ **DURING DRILLING:** NA
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
▼ **AT END OF DRILLING:** -
SPLIT SPOON DIA.: I.D. - 1.375", O.D. - 2"
▼ **OTHER:** -
CORE BARREL SIZE: NA
LOGGED BY: T.S. **CHECKED BY:** M.C.

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Material Description
		0	S1	1-3-7-10 (10)	24/13		Topsoil	S1 - Top 9": Silty SAND (SM), fine, trace medium, ~20% fines, ~5% fine angular gravel, trace organic fines, trace roots, dark brown, moist
	65.0	2	S2	6-11-7-10 (18)	24/19		Fill	Bot. 4": Poorly Graded SAND (SP), fine, trace medium, 0-5% fines, ~5% fine subangular gravel, brown, moist S2 - Poorly Graded SAND with Silt (SP-SM), fine, trace medium, ~10% fines, 5-10% fine subangular gravel, tan to brown, moist
		4	S3	11-15-20-21 (35)	24/6			S3 - Well Graded SAND with Silt and Gravel (SW-SM), fine to medium, trace coarse, 5-10% fines, ~20% fine to coarse subrounded gravel, light brown, moist
5	60.0	6	S4	20-22-24-22 (46)	24/20			S4 - Well Graded SAND with Silt (SW-SM), fine to coarse, 5-10% fines, 5-10% fine subrounded gravel, light brown, moist
		8						
10		10	S5	6-14-16-20 (30)	24/14			S5 - Well Graded SAND with Silt (SW-SM), fine to medium, 10-15% fines, ~10% fine subrounded gravel, light brown, moist
	55.0	12						
		13.5	S6	86-33-23-17 (56)	24/4	1	Sand	S6 - Angular stone fragments REMARK 1: Auger chattered at 13.5 feet due to possible boulder.
15		15.5	S7	11-16-71-49/4"	22/13			S7 - Well Graded SAND with Silt (SW-SM), fine to medium, 10-15% fines, 10-15% fine subrounded gravel, light brown, moist
	50.0	17.3						
20		20	S8	12-22-33-37 (55)	24/17			S8 - Similar to S7, trace coarse
	45.0	22						Bottom of borehole at 22.0 feet. Backfilled borehole with drill cuttings.
25								

GENERAL NOTES:

1. Ground surface elevation interpolated to the nearest 1/2 foot from a plan titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. and dated May 9, 2018.

APPENDIX A - Logs of LGCI's Borings and Groundwater Observation Well Installation Report

LGCI
Lahlaf Geotechnical Consulting, Inc.

BORING LOG

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PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, Massachusetts

DATE STARTED: 4/2/18 **DATE COMPLETED:** 4/2/18
BORING LOCATION: Rear courtyard
DRILLING SUBCONTRACTOR: Crawford Drilling Services, LLC
COORDINATES: NA
DRILLING FOREMAN: Joe Martinelli
SURFACE El.: 70 ft. NAVD 1988 (see note 1) **TOTAL DEPTH:** 20 ft.
DRILLING METHOD: Hollow Stem Auger 3-1/4" ID
WEATHER: 30s / Cloudy
DRILL RIG TYPE/MODEL: CME 55 Track ATV
GROUNDWATER LEVELS:
HAMMER TYPE: Automatic
DURING DRILLING: NA
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
AT END OF DRILLING: -
SPLIT SPOON DIA.: I.D. - 1.375", O.D. - 2"
OTHER: -
CORE BARREL SIZE: NA
LOGGED BY: A.J. **CHECKED BY:** M.C.

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Material Description
		0	S1	25-8-8-12 (16)	24/13		Asphalt / Fill	S1 - Top 4": Asphalt Bot. 9": Silty SAND (SM), fine to coarse, 15-20% fines, 5-10% fine gravel, light brown, moist
		2	S2	12-18-24-25 (42)	24/18		Sand	S2 - Silty SAND (SM), fine to coarse, ~15% fines, 5-10% fine gravel, light brown, moist
5	65.0	4	S3	13-18-18-19 (36)	24/12			S3 - Well Graded SAND with Silt (SW-SM), fine to medium, trace coarse, 5-10% fines, ~10% fine gravel, light brown, moist
		6						
		9	S4	16-16-33-43 (49)	24/22	1		S4 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 20-25% fine to coarse gravel, light brown, moist REMARK 1: Auger chattered due to possible boulder.
10	60.0	11				2	Boulder	Boulder REMARK 2: Switched to 4-inch casing at 12 feet.
		14	S5	15-26-28-55 (54)	24/22		Sand	S5 - Similar to S4, ~10% fines
15	55.0	16						
		19	S6	42-38-75/0"	12/12			S6 - Similar to S4, ~10% fines
20	50.0	20						Bottom of borehole at 20.0 feet. Backfilled borehole with drill cuttings. Restored ground surface with asphalt cold patch.
25	45.0							

GENERAL NOTES:

1. Ground surface elevation interpolated to the nearest 1/2 foot from a plan titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. and dated May 9, 2018.

LGCI
Lahlaf Geotechnical Consulting, Inc.

BORING LOG

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PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, Massachusetts

DATE STARTED: 4/4/18 **DATE COMPLETED:** 4/4/18
DRILLING SUBCONTRACTOR: Crawford Drilling Services, LLC
DRILLING FOREMAN: Joe Martinelli
DRILLING METHOD: Hollow Stem Auger 3-1/4" ID
DRILL RIG TYPE/MODEL: CME 55 Track ATV
HAMMER TYPE: Automatic
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: I.D. - 1.375", O.D. - 2"
CORE BARREL SIZE: NA

BORING LOCATION: Northwestern corner of athletic field
COORDINATES: NA
SURFACE El.: 87.5 ft. NAVD 1988 (see note 1) **TOTAL DEPTH:** 18.8 ft.
WEATHER: 40s / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: 7.6 ft. / El. 79.9 ft. (Based on sample moisture)
AT END OF DRILLING: -
OTHER: -
LOGGED BY: T.S. **CHECKED BY:** M.C.

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Material Description
		0	S1	2-6-13-8 (19)	24/16		Topsoil	S1 - Top 4": Silty SAND (SM), fine, ~20% fines, trace organic fines, trace roots, trace grass, dark brown, moist
	85.0	2	S2	6-6-5-7 (11)	24/15			Bot. 12": Poorly Graded SAND with Silt (SP-SM), fine, trace medium, trace coarse, 5-10% fines, 10-15% fine to coarse subangular gravel, trace roots, trace angular stone fragments, light brown, moist S2 - Silty SAND with Gravel (SM), fine to coarse, 20-25% fines, 15-20% fine subrounded gravel, light brown, moist
5		4	S3	12-12-5-4 (17)	24/5			S3 - Poorly Graded SAND with Silt (SP-SM), fine, trace medium, trace coarse, 10-15% fines, 5-10% fine subrounded gravel, light brown, moist
	80.0	6	S4	5-8-7-8 (15)	24/24		Fill	S4 - Top 19": Silty SAND (SM), fine to medium, trace coarse, ~20% fines, trace fine subrounded gravel, light brown, moist
		8	S5	15-13-15-11 (28)	24/12			Bot. 5": Poorly Graded SAND with Silt and Gravel (SP-SM), fine to medium, trace coarse, 10-15% fines, 15-20% fine to coarse subangular gravel, brown, wet S5 - Top 8": Silty SAND (SM), fine to medium, trace coarse, ~15% fines, 5-10% fine gravel, trace roots, brown, wet Bot. 4": Silty SAND (SM), fine, trace medium, ~15% fines, trace organic fines, dark brown, wet
10		10	S6	35-29-25-26 (54)	24/5			S6 - Angular stone fragments
	75.0	12	S7	8-13-11-13 (24)	24/14			S7 - Poorly Graded SAND with Silt (SP-SM), fine, 10-15% fines, ~10% fine gravel, trace organic fines, trace wood, brown, wet
		14	S8	32-53-30-30 (83)	24/6		Sand	S8 - Angular stone fragments
15		16	S9	12-8-5-6 (13)	24/14			S9 - Poorly Graded SAND (SP), fine, ~5% fines, brown to light brown, moist
	70.0	18	S10	44-76/3"	9/8			S10 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, ~20% fine subrounded gravel, light brown, moist
		18.8						Bottom of borehole at 18.8 feet. Backfilled borehole with drill cuttings.
20								
	65.0							
25								

GENERAL NOTES:

1. Ground surface elevation interpolated to the nearest 1/2 foot from a plan titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. and dated May 9, 2018.

LGCI
Lahlaf Geotechnical Consulting, Inc.

BORING LOG

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PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, Massachusetts

DATE STARTED: 4/4/18 **DATE COMPLETED:** 4/4/18
BORING LOCATION: Southeastern corner of playground
DRILLING SUBCONTRACTOR: Crawford Drilling Services, LLC
COORDINATES: NA
DRILLING FOREMAN: Joe Martinelli
SURFACE EI.: 81.5 ft. NAVD 1988 (see note 1) **TOTAL DEPTH:** 17 ft.
DRILLING METHOD: Hollow Stem Auger 3-1/4" ID
WEATHER: 40s / Cloudy
DRILL RIG TYPE/MODEL: CME 55 Track ATV
GROUNDWATER LEVELS:
HAMMER TYPE: Automatic
DURING DRILLING: NA
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
AT END OF DRILLING: -
SPLIT SPOON DIA.: I.D. - 1.375", O.D. - 2"
OTHER: -
CORE BARREL SIZE: NA
LOGGED BY: T.S. **CHECKED BY:** M.C.

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Material Description
	80.0	0	S1	1-4-10-14 (14)	24/13		Topsoil / Fill	S1 - Top 7": Silty SAND (SM), fine, 15-20% fines, 5-10% fine to coarse subangular gravel, trace organic fines, trace roots, dark brown, moist Bot. 6": Poorly Graded SAND with Silt and Gravel (SP-SM), fine to medium, ~10% fines, ~25% fine to coarse angular gravel, brown, moist
		2	S2	13-24-27-23 (51)	24/19			S2 - Silty SAND with Gravel (SM), fine to coarse, 20-25% fines, 20-25% fine subrounded gravel, light brown, moist
5		4	S3	6-15-57-46 (72)	24/11			S3 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, ~10% fines, 20-25% fine subrounded gravel, light brown, moist
	75.0	6	S4	27-22-29-38 (51)	24/14			S4 - Similar to S3, trace angular stone fragments
		8						
10		10	S5	27-51-37-44 (88)	24/9		Sand	S5 - Similar to S3, trace angular stone fragments
	70.0	12						
15		15	S6	39-18-23-53 (41)	24/18			S6 - Well Graded SAND with Silt (SW-SM), fine to medium, trace coarse, 10-15% fines, 5-10% subrounded gravel, angular stone fragments, light brown, moist
	65.0	17				1		REMARK 1: Auger refusal at 17 feet. Bottom of borehole at 17.0 feet. Backfilled borehole with drill cuttings.
20								
	60.0							
25								

GENERAL NOTES:

1. Ground surface elevation interpolated to the nearest 1/2 foot from a plan titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. and dated May 9, 2018.

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BORING LOG

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PAGE 1 OF 2

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, Massachusetts

DATE STARTED: 4/2/18 **DATE COMPLETED:** 4/3/18
DRILLING SUBCONTRACTOR: Crawford Drilling Services, LLC
DRILLING FOREMAN: Joe Martinelli
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: CME 55 Track ATV
HAMMER TYPE: Automatic
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: I.D. - 1.375", O.D. - 2"
CORE BARREL SIZE: NA

BORING LOCATION: Southern practice field
COORDINATES: NA
SURFACE El.: 82 ft. NAVD 1988 (see note 1) **TOTAL DEPTH:** 39.4 ft.
WEATHER: 40s / Rainy
GROUNDWATER LEVELS:
DURING DRILLING: 19.0 ft. / El. 63.0 ft. (Based on sample moisture)
AT END OF DRILLING: 15.5 ft. / El. 66.5 ft.
OTHER: -
LOGGED BY: A.J. / T.S. **CHECKED BY:** M.C.

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Material Description
		0	S1	1-2-4-4 (6)	24/18		Topsoil	S1 - Top 8": Silty SAND (SM), fine, trace medium, 25-30% fines, trace organic fines, trace roots, trace grass, dark brown, moist
	80.0	2					Fill	Bot. 10": Poorly Graded SAND with Gravel (SP), fine, trace medium, 0-5% fines, 15-20% fine gravel, trace organic fines, light brown, moist (re-worked)
			S2	4-8-16-15 (24)	24/17			S2 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 20-25% fine rounded gravel, light brown, moist
		4						
5			S3	16-24-24-26 (48)	24/16			S3 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 20-25% fine to coarse subangular gravel, light brown, moist
		6						
	75.0							
		9	S4	28-25-45-35 (70)	24/10			S4 - Similar to S3
10								
		11						
	70.0							
		14					Sand	
			S5	20-29-91/5"	17/10			S5 - Similar to S3, fine to medium, trace coarse, ~15% fine gravel
15		15.4				1		REMARK 1: Drill chattered from 15.5 to 16 feet due to possible boulder.
	65.0							
		19				2		
			S6	36-43-56-63 (99)	24/16			S6 - Poorly Graded SAND with Silt and Gravel (SP-SM), fine, trace medium, trace coarse, ~10% fines, 15-20% fine gravel, light brown, wet REMARK 2: Open hole drive and wash techniques used at 19 feet.
20		21						
	60.0							
		24	S7	35-85/4"	10/7			S7 - Silty SAND with Gravel (SM), fine, trace medium, trace coarse, ~15% fines, ~20% fine to coarse gravel, light brown, wet
25		24.8						

GENERAL NOTES:

1. Ground surface elevation interpolated to the nearest 1/2 foot from a plan titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. and dated May 9, 2018.

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BORING LOG

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PAGE 2 OF 2

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, Massachusetts

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Material Description
	55.0					3		REMARK 3: Drill chattered from 27.5 to 28.5 feet due to possible boulder.
		29						
		29.5	S8	120	6/4			S8 - Silty SAND (SM), fine, trace medium, trace coarse, 15-20% fines, ~5% fine gravel, light brown, wet
30								
	50.0						Sand	
		34						
		34.5	S9	120	6/5			S9 - Similar to S8
35								
	45.0							
		39						
		39.4	S10	120/5"	5/5			S10 - Similar to S8
40								Bottom of borehole at 39.4 feet. Backfilled borehole with drill cuttings.
	40.0							
45								
	35.0							
50								
	30.0							
55								
	25.0							
60								

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BORING LOG

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PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, Massachusetts

DATE STARTED: 4/3/18 **DATE COMPLETED:** 4/3/18
DRILLING SUBCONTRACTOR: Crawford Drilling Services, LLC
DRILLING FOREMAN: Joe Martinelli
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: CME 55 Track ATV
HAMMER TYPE: Automatic
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: I.D. - 1.375", O.D. - 2"
CORE BARREL SIZE: NA

BORING LOCATION: Northwestern corner of existing school
COORDINATES: NA
SURFACE El.: 68.5 ft. NAVD 1988 (see note 1) **TOTAL DEPTH:** 20.3 ft.
WEATHER: 40s / Rainy
GROUNDWATER LEVELS:
DURING DRILLING: 4.0 ft. / El. 64.5 ft. (Based on sample moisture)
AT END OF DRILLING: 8.3 ft. / El. 60.2 ft.
OTHER: -
LOGGED BY: T.S. **CHECKED BY:** M.C.

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Material Description
		0	S1	2-4-10-20 (14)	24/14		Topsoil / Fill	S1 - Top 6": Silty SAND (SM), fine, 15-20% fines, 5-10% fine angular gravel, trace organic fines, trace roots, dark brown, moist Bot. 8": Poorly Graded SAND with Silt and Gravel (SP-SM), fine, 5-10% fines, 15-20% fine to coarse angular gravel, angular stone fragments, brown, moist
	65.0	2	S2	25-19-23-22 (42)	24/17			S2 - Poorly Graded SAND with Silt and Gravel (SP-SM), fine, trace medium, trace coarse, 10-15% fines, ~20% fine subangular gravel, light brown, moist
5		4	S3	16-21-26-21 (47)	24/6			S3 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 30-35% fine subrounded gravel, light brown, wet
		6	S4	18-51-50-23 (101)	24/19			S4 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 20-25% fine subrounded gravel, angular stone fragments, light brown, wet
	60.0	8						
		9	S5	14-15-17-33 (32)	24/10			S5 - Well Graded SAND with Silt (SW-SM), fine to coarse, 5-10% fines, ~10% fine subrounded gravel, light brown, wet
10		11				1	Sand	
	55.0							REMARK 1: Drill chattered from 13 to 14 feet due to possible boulder.
		14	S6	21-44-66-55 (110)	24/18	2		S6 - Similar to S5, 10-15% fine gravel REMARK 2: Open hole drive and wash techniques used at 14 feet.
15		16						
	50.0							
		19	S7	35-60-60/3"	15/12			S7 - Silty SAND with Gravel (SM), fine to coarse, ~15% fines, ~20% fine subrounded gravel, light brown, wet
20		20.3						Bottom of borehole at 20.3 feet. Backfiled borehole with drill cuttings.
	45.0							
25								

GENERAL NOTES:

1. Ground surface elevation interpolated to the nearest 1/2 foot from a plan titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. and dated May 9, 2018.

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BORING LOG

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PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/28/19 **DATE COMPLETED:** 3/1/19
BORING LOCATION: Forest south of existing school
COORDINATES: NA
SURFACE El.: 88 ft. (see note 1) **TOTAL DEPTH:** 20.6 ft.
WEATHER: 30's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: 7.2 ft. / El. 80.8 ft. Measured after end of drilling.

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
		0					Topsoil	87.9	S1 - Top 1": Topsoil
		2	S1	6-12-11-29 (23)	24/10		Subsoil	2.0	Bot. 9": Silty SAND (SM), fine to medium, 15-20% fines, ~5% fine gravel, trace organic soil, rust brown, moist
	85.0		S2	0-1-1-4 (2)	24/13		Fill	86.0	S2 - Poorly Graded SAND with Silt(SP-SM), fine to medium, 5-10% fines, 5-10% fine to coarse gravel, light gray, moist
		4				1		4.0	REMARK 1: Change of soil strata based on SPT N values.
5			S3	16-27-38-60 (65)	24/17			84.0	S3 - Silty SAND (SM), fine to coarse, 30-35% fines, 5-10% fine gravel, light gray, moist
		6							
	80.0								
		9	S4	15-49-51-58 (100)	24/11				S4 - Well Graded SAND (SW), fine to coarse, 0-5% fines, 10-15% fine gravel, gray, wet
10		11					Sand		
	75.0								
		14	S5	23-60-67-100/1" (127)	19/17				S5 - Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, 5-10% fines, 5-10% fine gravel, gray, moist
15		15.6							
	70.0								
		19	S6	31-49-70-100/1" (119)	19/10				S6 - Poorly Graded SAND with Gravel (SP), fine to medium, ~5% fines, 15-20% fine gravel, gray, moist
20		20.6						20.6	Bottom of borehole at 20.6 feet. Backfilled boring with drill cuttings.
	65.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

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PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 3/5/19 **DATE COMPLETED:** 3/5/19
BORING LOCATION: Parking lot south of existing school
COORDINATES: NA
SURFACE El.: 79 ft. (see note 1) **TOTAL DEPTH:** 16 ft.
WEATHER: 30's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: 13.0 ft. / El. 66.0 ft. Measured after end of drilling.

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
							Asphalt	0.3	
		0.5	S1	8-8-8	18/3		Fill	78.7	S1 - Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, 10-15% fines, ~10% fine gravel, trace organic soil, brown, wet
		2	S2	12-17-5-5 (22)	24/10				S2 - Silty SAND(SM), fine to medium, trace coarse, ~15% fines, 5-10% fine gravel, trace organic soil, brown, moist
	75.0	4	S3	6-4-2-1 (6)	24/6				S3 - Silty SAND (SM), fine to coarse, 15-20% fines, 5-10% fine gravel, light gray, moist
5		6	S4	3-3-2-2 (5)	24/9				S4 - Well Graded SAND with Silt (SW-SM), fine to coarse, ~10% fines, ~10% fine to coarse gravel, trace organic soil, gray, moist
		8	S5	3-2-10-0 (12)	24/5	1	Sand	8.0 71.0	S5 - Well Graded SAND with Silt (SW-SM), fine to coarse, ~10% fines, ~5% fine gravel, gray, moist (possible reworked natural soil) REMARK 1: Encountered boulder, advanced through 6" of boulder and continued drilling.
	70.0	10	S6	18-53-100/4"	16/14				S6 - Well Graded SAND (SW), fine to coarse, ~5% fines, 5-10% fine subangular to subrounded gravel, light brown, moist
10		11.3							
	65.0	14	S7	50-53-81-66 (134)	24/14				S7 - Well Graded SAND with Gravel (SW), fine to coarse, 0-5% fines, 5-10% fine subrounded gravel, gray, moist
15		16						16.0	Bottom of borehole at 16.0 feet. Backfilled boring with drill cuttings and restored ground surface with asphalt cold patch.
	60.0								
20									
	55.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-103

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: _____ **DATE COMPLETED:** _____
BORING LOCATION: Southern portion of proposed school
COORDINATES: NA
SURFACE El.: 89 ft. (see note 1) **TOTAL DEPTH:** 0 ft.
WEATHER: _____
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: -

DRILLING SUBCONTRACTOR: _____
DRILLING FOREMAN: _____
DRILLING METHOD: _____
DRILL RIG TYPE/MODEL: _____
HAMMER TYPE: _____
HAMMER WEIGHT: lb. **HAMMER DROP:** in.
SPLIT SPOON DIA.: _____
CORE BARREL SIZE: _____
LOGGED BY: _____ **CHECKED BY:** _____

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
						1			REMARK 1: Boring B-103 was converted into a test pit. Refer to TP-B103 in LGCI's test pit logs. Bottom of borehole at 0.0 feet.
	85.0								
5									
	80.0								
10									
	75.0								
15									
	70.0								
20									
	65.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

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PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 3/1/19 **DATE COMPLETED:** 3/6/19
BORING LOCATION: Parking lot south of existing school
COORDINATES: NA
SURFACE El.: 74 ft. (see note 1) **TOTAL DEPTH:** 15 ft.
WEATHER: 20's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: 3.9 ft. / El. 70.1 ft. Measured after end of drilling.

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
							Asphalt	0.3	
		0.5	S1	3-5-7	18/9		Fill	73.7	S1 - Silty SAND (SM), fine to medium, trace coarse, ~15% fines, 5-10% fine gravel, trace organic soil, gray, moist
		2	S2	14-25-23-46 (48)	24/13			2.0 72.0	S2 - Well Graded SAND with Silt (SW-SM), fine to coarse, 5-10% fines, 5-10% fine gravel, gray, moist
	70.0	4	S3	27-49-70-70 (119)	24/19				S3 - Well Graded SAND (SW), fine to coarse, ~5% fines, 5-10% fine to coarse subrounded gravel, gray, moist
5		6	S4	100	6/6				S4 - Well Graded SAND (SW), fine to coarse, ~5% fines, ~5% fine subrounded gravel, light brown, moist to wet
	65.0	6.5					Sand		
		9	S5	28-53-100/3"	15/10				S5 - Poorly Graded SAND (SP), fine to medium, trace coarse, ~5% fines, 5-10% fine subangular gravel, gray, wet
10		10.3							
	60.0	14	S6	39-100	12/9			15.0	S6 - Well Graded SAND (SW), fine to coarse, ~5% fines, 5-10% fine gravel, brown, wet
15		15							Bottom of borehole at 15.0 feet. Backfilled boring with drill cuttings and restored ground surface with asphalt cold patch.
	55.0								
20									
	50.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-105

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: _____ **DATE COMPLETED:** _____
BORING LOCATION: Southern portion of proposed school
COORDINATES: NA
SURFACE El.: 82 ft. (see note 1) **TOTAL DEPTH:** 0 ft.
WEATHER: _____
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: -

DRILLING SUBCONTRACTOR: _____
DRILLING FOREMAN: _____
DRILLING METHOD: _____
DRILL RIG TYPE/MODEL: _____
HAMMER TYPE: _____
HAMMER WEIGHT: lb. **HAMMER DROP:** in.
SPLIT SPOON DIA.: _____
CORE BARREL SIZE: _____
LOGGED BY: _____ **CHECKED BY:** _____

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
						1			REMARK 1: Boring B-105 was converted into a test pit. Refer to TP-B105 in LGCI's test pit logs. Bottom of borehole at 0.0 feet.
	80.0								
5									
	75.0								
10									
	70.0								
15									
	65.0								
20									
	60.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

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PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 3/1/19 **DATE COMPLETED:** 3/1/19
BORING LOCATION: Southern portion of proposed school
COORDINATES: NA
SURFACE El.: 83 ft. (see note 1) **TOTAL DEPTH:** 20.4 ft.
WEATHER: 20's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: 4.0 ft. / El. 79.0 ft. Measured after end of drilling.

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
		0	S1	13-29-12-12 (41)	24/24		Topsoil / Fill	0.3 / 82.7	S1 - Top 4": Silty SAND (SM), fine to medium, 20-25% fines, 0-5% fine gravel, trace organic soil, black, frozen Bot. 13": Silty SAND (SM), fine to medium, trace coarse, 15-20% fines, 5-10% fine gravel, trace roots, light gray, moist
		2						2.0 / 81.0	
	80.0		S2	12-28-41-38 (69)	24/14				S2 - Well Graded SAND (SW), fine to coarse, 0-5% fines, 10-15% fine gravel, light brown, moist
		4	S3	24-51-46-37 (97)	24/1				S3 - Poorly Graded SAND (SP), medium to coarse, trace fine, 0-5% fines, 10-15% fine gravel, light brown, moist
5		6							
	75.0								
		9 / 9.4	S4	100/5"	5/1				S4 - Angular rock fragments
10									
		11 / 11.8	S5	28-100/3"	9/3		Sand		S5 - Well Graded SAND (SW), fine to coarse, 0-5% fines, 10-15% fine gravel, light brown, moist
	70.0								
		14 / 14.7	S6	53-100/2"	8/1				S6 - Well Graded SAND with Silt (SW-SM), fine to coarse, 5-10% fines, 10-15% fine gravel, light brown, wet
15									
	65.0								
		19 / 20.4	S7	18-33-100/5"	17/6			20.4	S7 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, ~10% fines, ~15% fine gravel, brown, moist
20									
	60.0								Bottom of borehole at 20.4 feet. Backfilled boring with drill cuttings.
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-107
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: _____ **DATE COMPLETED:** _____
BORING LOCATION: Southern portion of proposed school
COORDINATES: NA
SURFACE El.: 82 ft. (see note 1) **TOTAL DEPTH:** 0 ft.
WEATHER: _____
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: -

DRILLING SUBCONTRACTOR: _____
DRILLING FOREMAN: _____
DRILLING METHOD: _____
DRILL RIG TYPE/MODEL: _____
HAMMER TYPE: _____
HAMMER WEIGHT: lb. **HAMMER DROP:** in.
SPLIT SPOON DIA.: _____
CORE BARREL SIZE: _____
LOGGED BY: _____ **CHECKED BY:** _____

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
						1			REMARK 1: Boring B-107 was converted into a test pit. Refer to TP-B107 in LGCI's test pit logs. Bottom of borehole at 0.0 feet.
	80.0								
5									
	75.0								
10									
	70.0								
15									
	65.0								
20									
	60.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-108
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/27/19 **DATE COMPLETED:** 2/27/19
BORING LOCATION: Athletic field south of existing school
COORDINATES: NA
SURFACE El.: 82 ft. (see note 1) **TOTAL DEPTH:** 19.3 ft.
WEATHER: 30's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: 6.9 ft. / El. 75.1 ft. Measured after end of drilling.

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
		0	S1	2-4-3-4 (7)	24/18		Topsoil / Fill	0.2 / 81.8	S1 - Top 1.5": Topsoil Bot. 16.5": Silty SAND (SM), fine to medium, trace coarse, ~15% fines, 0-5% fine gravel, trace organic soil, trace roots, light brown, moist
	80.0	2	S2	20-16-12-14 (28)	24/13			2.0 / 80.0	S2 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 40-45% fine to coarse subangular gravel, brown, moist (possible reworked natural soil)
5		4	S3	13-34-55-60 (89)	24/16				S3 - Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, 5-10% fines, 5-10% fine gravel, trace organic soil, light brown, moist
	75.0	6 7.3	S4	59-81-100/3"	15/15				S4 - Poorly Graded SAND with Silt (SP-SM), fine to medium, 10-15% fines, 0-5% fine gravel, dark brown, moist
10		9 9.6	S5	11-50/1"	7/3		Sand		S5 - Well Graded SAND with Silt (SW-SM), fine to coarse, 5-10% fines, 5-10% fine gravel, light gray, moist
	70.0								
15		14	S6	32-66-45-60 (111)	24/6				S6 - Poorly Graded GRAVEL with Silt and Sand (GP-GM), 5-10% fines, 25-30% fine to coarse sand, gray, moist
	65.0	16							
		19 19.3	S7	100/3"	3/2			19.3	S7 - Poorly Graded SAND with Silt and Gravel (SP-SM), fine to medium, trace coarse, ~10% fines, 15-20% fine to coarse subangular to subrounded gravel, light gray, wet Bottom of borehole at 19.3 feet. Backfilled boring with drill cuttings.
20									
	60.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-109
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: _____ **DATE COMPLETED:** _____
BORING LOCATION: SW of existing school
COORDINATES: NA
SURFACE El.: 82 ft. (see note 1) **TOTAL DEPTH:** 0 ft.
WEATHER: _____
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: -

DRILLING SUBCONTRACTOR: _____
DRILLING FOREMAN: _____
DRILLING METHOD: _____
DRILL RIG TYPE/MODEL: _____
HAMMER TYPE: _____
HAMMER WEIGHT: lb. **HAMMER DROP:** in.
SPLIT SPOON DIA.: _____
CORE BARREL SIZE: _____
LOGGED BY: _____ **CHECKED BY:** _____

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
						1			REMARK 1: Boring B-109 was converted into a test pit. Refer to TP-B109 in LGCI's test pit logs. Bottom of borehole at 0.0 feet.
	80.0								
5									
	75.0								
10									
	70.0								
15									
	65.0								
20									
	60.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-110
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/27/19 **DATE COMPLETED:** 2/27/19
BORING LOCATION: Athletic field south of existing school
COORDINATES: NA
SURFACE El.: 82 ft. (see note 1) **TOTAL DEPTH:** 20.4 ft.
WEATHER: 30's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: 6.5 ft. / El. 75.5 ft. Measured after end of drilling.

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
		0					Topsoil	0.3 / 81.7	S1 - Top 4": Silty SAND (SM), fine, trace medium, ~25% fines, trace organic soil, dark brown, moist
	80.0	2	S1	4-4-5-7 (9)	24/14				Bot. 10": Silty SAND (SM), fine to medium, trace coarse, 10-15% fines, 0-5% fine gravel, trace organic soil, brown, moist
			S2	10-12-13-10 (25)	24/3				S2 - Silty SAND (SM), fine to medium, trace coarse, ~15% fines, 0-5% fine to coarse subangular gravel, trace organic soil, light brown, moist
		4					Fill		
5			S3	35-41-23-16 (64)	24/6				S3 - Silty SAND with Gravel (SM), fine to medium, trace coarse, 15-20% fines, ~20% fine to coarse subangular gravel, trace organic soil, brown, wet
		6							
	75.0		S4	17-12-14-20 (26)	24/12				S4 - Well Graded SAND (SW), fine to coarse, 0-5% fines, 0-5% fine subangular gravel, trace organic soil, light brown, moist
		8							
						1		8.5 / 73.5	REMARK 1: Change of soil strata assumed.
		9							
10			S5	29-61-43-44 (104)	24/17				S5 - Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, 10-15% fines, 5-10% fine gravel, brown, wet
		11							
	70.0		S6	48-56-67-43 (123)	24/24				S6 - Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, 10-15% fines, 5-10% fine gravel, trace organic soil, brown, wet
		13	S7	100/2"	2/2				S7 - Poorly Graded SAND with Silt and Gravel (SP-SM), fine to medium, trace coarse, 10-15% fines, 15-20% fine to coarse subangular gravel, trace organic soil, brown, moist
		13.2					Sand		
15		15	S8		0/0	2			REMARK 2: Encountered boulder. S8 - No recovery
		15							
	65.0								
		19	S9	23-33-70/5"	17/9				S9 - Poorly Graded SAND (SP), fine to medium, trace coarse, 0-5% fines, 0-5% fine to coarse subrounded gravel, light brown, moist
20		20.4						20.4	Bottom of borehole at 20.4 feet. Backfilled broing with drill cuttings.
	60.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-111-OW

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
BORING LOCATION: Athletic field south of existing school
COORDINATES: NA
SURFACE El.: 82 ft. (see note 1) **TOTAL DEPTH:** 26 ft.
WEATHER: 20's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: 19.6 ft. / El. 62.4 ft. Measured after end of drilling.

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
		0	S1	6-8-11-11 (19)	24/18		Topsoil	0.2 / 81.8	S1 - Top 1.5": Topsoil Mid. 11.5": Poorly Graded SAND (SP), fine to medium, trace coarse, 0-5% fines, 0-5% fine gravel, trace organic soil, brown, moist Bot. 5": Poorly Graded SAND (SP), fine to medium, trace coarse, 0-5% fines, ~5% fine gravel, gray, moist
	80.0	2	S2	9-19-12-12 (31)	24/20		Fill		S2 - Poorly Graded SAND (SP), fine to medium, trace coarse, ~5% fines, 5-10% fine subrounded gravel, light gray, moist
		4	S3	12-12-10-11 (22)	24/9		Buried Subsoil	4.0 / 78.0	S3 - Silty SAND (SM), fine to medium, ~20% fines, 0-5% fine gravel, rust brown, moist
5		6	S4	12-9-6-30 (15)	24/15			6.0 / 76.0	S4 - Poorly Graded SAND with Silt (SP-SM), fine to medium, 10-15% fines, ~5% fine gravel, brown, moist (possible reworked natural soil)
	75.0	8	S5	44-46-50-60 (96)	24/10				S5 - Silty SAND with Gravel (SM), fine to coarse, 20-25% fines, 15-20% fine subrounded gravel, brown, moist
10		10	S6	42-58-71-62 (129)	24/2				S6 - Poorly Graded GRAVEL with Silt (GP-GM), coarse, subangular, 10-15% fines, 10-15% fine to coarse sand, gray, moist
	70.0	12							
		14	S7	21-19-37-38 (56)	24/14		Sand		S7 - Silty SAND (SM), fine to coarse, 15-20% fines, 10-15% fine subrounded gravel, light brown, moist
15		16							
	65.0								
		19	S8	46-100	12/8				S8 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 10-15% fines, 20-25% fine gravel, light brown, moist
20		20				1			REMARK 1: Encountered boulder, advanced through 4' of boulder.
	60.0								
		24				2			REMARK 2: Installed groundwater observation well.
25				18-27-61-64					S9 - Poorly Graded SAND (SP), fine to medium, trace coarse, 0-5% fines, ~5%

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-111-OW

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
		24	S9	(88)	24/12		Sand	76.0	fine subangular gravel, light brown, moist
		26						26.0	Bottom of borehole at 26.0 feet. Backfilled boring with drill cuttings.
	55.0								
30									
	50.0								
35									
	45.0								
40									
	40.0								
45									
	35.0								
50									
	30.0								
55									
	25.0								
60									

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BORING LOG

B-112
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
BORING LOCATION: Athletic field SE of existing school
COORDINATES: NA
SURFACE El.: 82 ft. (see note 1) **TOTAL DEPTH:** 16 ft.
WEATHER: 20's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: -

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
		0	S1	24-29-15-20 (44)	24/24		Topsoil	0.3	S1 - Top 3": Topsoil Bot. 21": Poorly Graded SAND with Silt (SP-SM), fine to medium, 5-10% fines, 5-10% fine gravel, light gray, moist
	80.0	2	S2	17-17-10-32 (27)	24/22		Fill		S2 - Top 20": Poorly Graded SAND (SP), fine to medium, trace coarse, ~5% fines, 0-5% fine gravel, brown, moist
		4	S3	7-7-8-6 (15)	24/16			4.7	Bot 2": Silty SAND (SM), fine to medium, ~25% fines, black, moist (buried topsoil) S3 - Top 8": Silty SAND (SM), fine to medium, trace coarse, ~20% fines, trace organic soil, trace roots, dark brown, moist
5		6	S4	6-9-25-38 (34)	24/12				Bot. 8": Well Graded SAND (SW), fine to coarse, 0-5% fines, 0-5% fine gravel brown, moist S4 - Well Graded SAND (SW), fine to coarse, ~5% fines, 5-10% fine gravel, brown, moist
	75.0	8							
		9	S5	33-38-33-31 (71)	24/8		Sand		S5 - Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, ~10% fines, ~5% fine subangular to subrounded gravel, brown, moist
10		11							
	70.0								
		14	S6	13-36-31-25 (67)	24/7				S6 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 15-20% fine gravel, light gray, wet
15		16						16.0	
	65.0								Bottom of borehole at 16.0 feet. Backfilled boring with drill cuttings.
20									
	60.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-113

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
BORING LOCATION: Athletic field SE of existing school
COORDINATES: NA
SURFACE EI.: 82 ft. (see note 1) **TOTAL DEPTH:** 26 ft.
WEATHER: 20's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: 9.7 ft. / El. 72.3 ft. Measured after end of drilling.

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Material Description
		0	S1	1-6-10-19 (16)	24/11		Topsoil (Depth/El. (ft.) 0 / 81.9)	S1 - Top 1": Topsoil Bot. 10": Poorly Graded SAND (SP), fine to medium, trace coarse, 0-5% fines, 0-5% fine gravel, light brown, moist
	80.0	2	S2	17-25-26-23 (51)	24/3		Fill	S2 - Well Graded SAND (SW), fine to coarse, 0-5% fines, ~5% fine to coarse gravel, trace organic soil, brown, moist
		4	S3	12-16-24-24 (40)	24/11			S3 - Poorly Graded SAND with Silt (SP-SM), fine to medium, 5-10% fines, 0-5% fine gravel, trace organic soil, brown, moist
5		6						
	75.0					1	7.5 / 74.5	REMARK 1: Change of soil strata assumed.
		9	S4	42-60-48-39 (108)	24/14			S4 - Well Graded SAND with Gravel (SW), fine to coarse, 0-5% fines, 15-20% fine to coarse subangular gravel, brown, moist
10		11						
	70.0							
		14	S5	23-41-66-46 (107)	24/13			S5 - Silty SAND with Gravel (SM), fine to coarse, 15-20% fines, 25-30% fine to coarse subangular gravel, brown, moist
15		16					Sand	
	65.0							
		19	S6	30-45-38-51 (83)	24/12			S6 - Well Graded SAND (SW), fine to coarse, 0-5% fines, 5-10% fine to coarse subangular gravel, light gray, moist
20		21						
	60.0							
		24		14-12-31-65				S7 - Well Graded SAND (SW), fine to coarse, ~5% fines, ~5% fine subangular gravel, light gray, moist
25								

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-113

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Material Description
		24	S7	(43)	24/13		Sand (Depth El.(ft.) 74.5)	
		26					(Depth El.(ft.) 26.0)	Bottom of borehole at 26.0 feet. Backfilled boring with drill cuttings.
	55.0							
30								
	50.0							
35								
	45.0							
40								
	40.0							
45								
	35.0							
50								
	30.0							
55								
	25.0							
60								

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BORING LOG

B-114
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 3/1/19 **DATE COMPLETED:** 3/1/19
BORING LOCATION: Paved area south of existing school
COORDINATES: NA
SURFACE El.: 70 ft. (see note 1) **TOTAL DEPTH:** 19.75 ft.
WEATHER: 20's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: 6.2 ft. / El. 63.8 ft. Measured after end of drilling.

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Material Description
		0.5	S1	11-17-32	18/9		Asphalt / Fill	S1 - Silty SAND (SM), fine to medium, 30-35% slightly plastic fines, ~5% fine gravel, brown, moist
		2	S2	29-41-48-44 (89)	24/13			S2 - Silty SAND with Gravel (SM), fine to coarse, 25-30% fines, 15-20% fine to coarse subrounded gravel, brown, moist
		4	S3	22-38-39-35 (77)	24/12			S3 - Well Graded SAND with Silt (SW-SM), fine to coarse, 5-10% fines, 5-10% fine gravel, light gray, moist to wet
5	65.0	6	S4	37-41-33-34 (74)	24/2			S4 - Silty SAND with Gravel (SM), fine to coarse, 20-25% fines, 25-30% fine to coarse subrounded gravel, light gray, moist
		8						
		9	S5	11-25-31-44 (56)	24/12		Sand	S5 - Poorly Graded SAND (SP), fine to medium, trace coarse, ~5% fines, 10-15% fine gravel, light gray, moist
10	60.0	11						
		14	S6	14-29-36-46 (65)	24/9			S6 - Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, 5-10% fines, ~10% fine gravel, light gray, moist
15	55.0	16				1		REMARK 1: Encountered boulder.
		19	S7	39-100/3"	9/9	2		REMARK 2: Encountered boulder.
20	50.0	19.8						S7 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 25-30% fine subangular gravel, gray, wet
								Bottom of borehole at 19.8 feet. Backfilled boring with drill cuttings and restored ground surface with asphalt cold patch.
25	45.0							

Depth El.(ft.): 0.5 (Asphalt/Fill); 2.0 (Fill/Sand); 19.8 (Sand/S7)

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

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PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
BORING LOCATION: Paved area north of existing school
COORDINATES: NA
SURFACE El.: 68 ft. (see note 1) **TOTAL DEPTH:** 21 ft.
WEATHER: 20's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: 5.4 ft. / El. 62.6 ft. Measured after end of drilling.

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
							Asphalt	0.5	
		0.5	S1	15-17-15	18/13		Fill	67.5	S1 - Silty SAND (SM), fine to medium, trace coarse, ~15% fines, 10-15% fine to coarse angular to subrounded gravel, brown, moist
	65.0	2	S2	21-36-48-30 (84)	24/14				S2 - Poorly Graded SAND with Silt and Gravel (SP-SM), fine to medium, 10-15% fines, ~30% fine to coarse subangular gravel, trace organic soil, light gray, moist
		4						4.0	
5			S3	40-56-47-51 (103)	24/18		Sand	64.0	S3 - Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, ~10% fines, 10-15% fine subrounded gravel, brown, moist
		6							
	60.0								
		9	S4	20-53-50	18/5				S4 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 10-15% fines, 15-20% fine to coarse subangular gravel, brown, moist to wet
10		10.5							
	55.0								
		14	S5	44-33-50/3"	15/12				S5 - Well Graded SAND with Silt (SW-SM), fine to coarse, 10-15% fines, 5-10% fine to coarse subrounded gravel, brown, wet
15		15.3							
	50.0								
		19	S6	42-60-58-100/0" (118)	18/10				S6 - Similar to S5
20		20.5						21.0	
	45.0								Bottom of borehole at 21.0 feet. Backfilled boring with drill cuttings and restored ground surface with asphalt cold patch.
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

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PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
BORING LOCATION: North of existing school
COORDINATES: NA
SURFACE El.: 67 ft. (see note 1) **TOTAL DEPTH:** 19 ft.
WEATHER: 20's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: 9.5 ft. / El. 57.5 ft. Based on sample moisture.

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
							Topsoil	0.8 / 66.2	Top 9": Silty SAND (SM), fine, trace medium, 20-25% fines, 0-5% fine gravel, trace organic soil, trace roots, dark brown, moist
	65.0	2							Bot. 9": Poorly Graded SAND with Silt (SP-SM), fine to medium, 5-10% fines, 0-5% fine gravel, trace organic soil, brown, moist
			S2	3-5-6-12 (11)	24/8				S2 - Poorly Graded SAND with Gravel (SP), fine to medium, 0-5% fines, 15-20% fine to coarse subangular gravel, trace roots, brown, moist
		4					Fill		
5			S3	39-12-3-4 (15)	24/0				S3 - No recovery (recovered angular rock fragments in 3" spoon. Rock coated with organic soil)
		6							
	60.0							7.8 / 59.3	
						1			REMARK 1: Change of soil strata assumed.
10		9.5	S4	13-25-35-53 (60)	24/14				S4 - Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, 5-10% fines, 0-5% fine subrounded gravel, brown, wet
	55.0	11.5					Sand		
		14	S5	15-50/5"	11/9				S5 - Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, 5-10% fines, ~5% fine subrounded gravel, brown, wet
15		14.9							
	50.0							19.0	
									Bottom of borehole at 19.0 feet. Backfilled boring with drill cuttings.
20									
	45.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

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PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
BORING LOCATION: North of existing school
COORDINATES: NA
SURFACE El.: 65 ft. (see note 1) **TOTAL DEPTH:** 19.7 ft.
WEATHER: 20's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: 5.4 ft. / El. 59.6 ft. Measured after end of drilling.

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: HSA (3-1/4" I.D.) then 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
		0							
			S1	1-2-1-6 (3)	24/10		Topsoil		S1 - Top 7": Silty SAND (SM), fine to medium, ~25% fines, trace organic soil, black, moist Bot 3": Silty SAND (SM), fine to medium, ~20% fines, 0-5% fine gravel, trace roots, trace organic soil, brown to dark brown, moist
		2						2.0	
			S2	4-11-8-8 (19)	24/20		Subsoil	63.0	S2 - Silty SAND (SM), fine to medium, ~20% fines, brown, moist
		4							
5	60.0	5						5.0	
			S3	4-4-4-5 (8)	24/18			60.0	S3 - Poorly Graded SAND (SP), fine to medium, 0-5% fines, ~5% fine to coarse subangular gravel, brown, moist (possible reworked natural soil)
		7							
10	55.0	10							
			S4	10-49-53-50/3" (102)	21/19		Sand		S4 - Well Graded SAND (SW), fine to coarse, ~5% fines, ~5% fine to coarse subangular gravel, light brown, moist
		11.8				1			REMARK 1: Auger refusal, driller switched to 4" casing.
		14							
15	50.0		S5	28-38-37-25 (75)	24/12				S5 - Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, ~15% fine gravel, light brown, wet
		16							
		19							
			S6	47-50/1"	7/6				S6 - Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, ~20% fine subangular gravel, light brown, wet
20	45.0	19.6						19.7	Bottom of borehole at 19.7 feet. Backfilled boring with drill cuttings.
25	40.0								

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

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PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
BORING LOCATION: North of existing school
COORDINATES: NA
SURFACE El.: 64 ft. (see note 1) **TOTAL DEPTH:** 13.5 ft.
WEATHER: 20's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: -

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Hollow Stem Auger (3-1/4" I.D.)
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
		0					Topsoil	0.5 / 63.5	S1 - Top 6": Silty SAND (SM), fine to medium, ~25% fines, trace roots, trace organic soil, black, moist
			S1	0-4-13-12 (17)	24/12				Bot. 6": Silty SAND (SM), fine to medium, trace coarse, ~15% fines, ~5% fine gravel, trace organic soil, brown, moist
		2					Fill		S2 - Silty SAND (SM), fine to coarse, 15-20% fines, 10-15% fine to coarse subangular gravel, trace organic soil, brown, moist
	60.0		S2	7-4-3-6 (7)	24/13				
		4				1		4.5 / 59.5	REMARK 1: Change of soil strata assumed.
5		5							S3 - Well Graded SAND (SW), fine to coarse, ~5% fines, ~10% fine to coarse gravel, brown, moist
			S3	2-5-26-34 (31)	24/11				
		7					Sand		
	55.0								
10		10	S4	24-50/1"	7/5				S4 - Well Graded SAND with Silt (SW-SM), fine to coarse, 10-15% fines, ~5% fine gravel, trace organic soil light brown, moist
		10.6				2			REMARK 2: Auger chattering.
	50.0					3		13.5	REMARK 3: Auger refusal.
15									Bottom of borehole at 13.5 feet. Backfilled boring with drill cuttings.
	45.0								
20									
	40.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-119

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: _____ **DATE COMPLETED:** _____
BORING LOCATION: West of existing school
COORDINATES: NA
SURFACE El.: (see note 1) **TOTAL DEPTH:** 0 ft.
WEATHER: _____
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: -

DRILLING SUBCONTRACTOR: _____
DRILLING FOREMAN: _____
DRILLING METHOD: _____
DRILL RIG TYPE/MODEL: _____
HAMMER TYPE: _____
HAMMER WEIGHT: lb. **HAMMER DROP:** in.
SPLIT SPOON DIA.: _____
CORE BARREL SIZE: _____
LOGGED BY: _____ **CHECKED BY:** _____

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
						1			REMARK 1: Boring B-119 was not performed. Bottom of borehole at 0.0 feet.

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-120
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: _____ **DATE COMPLETED:** _____
BORING LOCATION: West of existing school
COORDINATES: NA
SURFACE El.: (see note 1) **TOTAL DEPTH:** 0 ft.
WEATHER: _____
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: -

DRILLING SUBCONTRACTOR: _____
DRILLING FOREMAN: _____
DRILLING METHOD: _____
DRILL RIG TYPE/MODEL: _____
HAMMER TYPE: _____
HAMMER WEIGHT: lb. **HAMMER DROP:** in.
SPLIT SPOON DIA.: _____
CORE BARREL SIZE: _____
LOGGED BY: _____ **CHECKED BY:** _____

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
						1			REMARK 1: Boring B-120 was not performed. Bottom of borehole at 0.0 feet.
5									
10									
15									
20									
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-121

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 3/6/19 **DATE COMPLETED:** 3/6/19
BORING LOCATION: West of existing school
COORDINATES: NA
SURFACE EI.: 67 ft. (see note 1) **TOTAL DEPTH:** 11 ft.
WEATHER: 30's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: 2.5 ft. / El. 64.5 ft. Measured after end of drilling.

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
		0	S1	2-4-6-12 (10)	24/14		Topsoil	0.5 / 66.5	S1 - Top 6": Silty SAND (SM), fine to medium, ~25% fines, grass, trace roots, dark brown, moist
	65.0	2					Fill	2.0 / 65.0	Bot. 8": Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, 5-10% fines, 0-5% fine gravel, trace roots, light gray, moist
			S2	21-30-28-33 (58)	24/15				S2 - Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, 5-10% fines, 0-5% fine gravel, light gray, moist
		4							
5			S3	41-64-66-43 (130)	24/11				S3 - Poorly Graded SAND (SP), fine to medium, trace coarse, 0-5% fines, 0-5% fine gravel, light gray, moist
		6					Sand		
	60.0								
		9							
10			S4	26-33-37-60 (70)	24/16				S4 - Poorly Graded SAND with Silt (SP-SM), fine to medium, trace coarse, 5-10% fines, 0-5% fine gravel, light gray, moist
		11						11.0	
	55.0								Bottom of borehole at 11.0 feet. Backfilled boring with drill cuttings.
15									
	50.0								
20									
	45.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-122
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: _____ **DATE COMPLETED:** _____
BORING LOCATION: North of existing school
COORDINATES: NA
SURFACE El.: 52 ft. (see note 1) **TOTAL DEPTH:** 0 ft.
WEATHER: _____
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: -

DRILLING SUBCONTRACTOR: _____
DRILLING FOREMAN: _____
DRILLING METHOD: _____
DRILL RIG TYPE/MODEL: _____
HAMMER TYPE: _____
HAMMER WEIGHT: lb. **HAMMER DROP:** in.
SPLIT SPOON DIA.: _____
CORE BARREL SIZE: _____
LOGGED BY: _____ **CHECKED BY:** _____

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
						1			REMARK 1: Boring B-122 was converted into a test pit. Refer to TP-B122 in LGCI's test pit logs. Bottom of borehole at 0.0 feet.
	50.0								
5									
	45.0								
10									
	40.0								
15									
	35.0								
20									
	30.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-123

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
BORING LOCATION: North of existing school
COORDINATES: NA
SURFACE El.: 59 ft. (see note 1) **TOTAL DEPTH:** 22 ft.
WEATHER: 20's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: -

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Hollow Stem Auger (3-1/4" I.D.)
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth / El. (ft.)	Material Description
0		0–2	S1	0-1-2-4 (3)	24/8		Topsoil	0.1 / 58.9	S1 - Top 1": Topsoil Bot. 7": Silty SAND (SM), fine to medium, ~20% fines, 0-5% fine gravel, brown, moist
	55.0	2–4	S2	4-8-9-11 (17)	24/11		Fill		S2 - Poorly Graded SAND with Silt (SP-SM), fine to medium, 5-10% fines, 5-10% fine to coarse subangular gravel, trace roots, brown, moist
5						1		4.5 / 54.5	REMARK 1: Change of soil strata assumed.
	50.0	5–7	S3	17-48-53-47 (101)	24/17		Sand		S3 - Well Graded SAND with Gravel (SW), fine to coarse, 0-5% fines, ~20% fine to coarse subangular gravel, brown, moist
10		10–12	S4	17-29-24-26 (53)	24/16				S4 - Well Graded SAND (SW), fine to coarse,~5% fines, 5-10% fine to coarse subrounded gravel, brown, moist
15	45.0	15–16.2	S5	28-55-50/2"	14/9				S5 - Well Graded SAND (SW), fine to coarse, ~5% fines, 5-10% fine subrounded gravel, gray, moist
20	40.0	20–22	S6	14-19-49-53 (68)	24/15			22.0	S6 - Well Graded SAND (SW), fine to coarse, ~5% fines, ~5% fine to coarse subangular gravel, brown, moist
									Bottom of borehole at 22.0 feet. Backfilled boring with drill cuttings.
25	35.0								

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-124
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
BORING LOCATION: East of existing school
COORDINATES: NA
SURFACE El.: 71 ft. (see note 1) **TOTAL DEPTH:** 21 ft.
WEATHER: 20's / Cloudy
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: -

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tim Tucker
DRILLING METHOD: Hollow Stem Auger (3-1/4" I.D.)
DRILL RIG TYPE/MODEL: Mobile B-48 ATV Rig
HAMMER TYPE: Safety
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
	70.0	0	S1	47-21-7-20 (28)	24/24		Fill		S1 - Silty SAND (SM), fine to medium, ~15% fines, 0-5% fine gravel, trace roots, brown, moist
		2	S2	19-27-22-36 (49)	24/24			2.0 / 69.0	S2 - Well Graded SAND (SW), fine to coarse, 0-5% fines, 0-5% fine gravel, light brown, moist
		4 / 4.3	S3	76/3"	3/0				S3 - No recovery (angular rock fragments encountered in shoe of split spoon sample)
5		5	S4	15-14-16-25 (30)	24/20				S4 - Well Graded SAND (SW), fine to coarse, 0-5% fine gravel, light brown, moist
	65.0	7							
10		10	S5	28-50/1"	7/6				S5 - Well Graded SAND (SW), fine to coarse, ~5% fines, 10-15% fine subrounded gravel, light brown, moist
	60.0	10.6				1	Sand		REMARK 1: Encountered boulder, advanced 1.5' through boulder and continued drilling.
		14	S6	22-32-56-58 (88)	24/14				S6 - Well Graded SAND (SW), fine to coarse, ~5% fines, 0-5% fine to coarse subrounded gravel, light gray, moist
15	55.0	16							
		19	S7	31-50/2"	8/6				S7 - Similar to S6
20		19.7						21.0	
	50.0								Bottom of borehole at 21.0 feet. Backfilled boirng with drill cuttings.
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-125

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: _____ **DATE COMPLETED:** _____
BORING LOCATION: SW of existing school
COORDINATES: NA
SURFACE El.: 92 ft. (see note 1) **TOTAL DEPTH:** 0 ft.
WEATHER: _____
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: -

DRILLING SUBCONTRACTOR: _____
DRILLING FOREMAN: _____
DRILLING METHOD: _____
DRILL RIG TYPE/MODEL: _____
HAMMER TYPE: _____
HAMMER WEIGHT: lb. **HAMMER DROP:** in.
SPLIT SPOON DIA.: _____
CORE BARREL SIZE: _____
LOGGED BY: _____ **CHECKED BY:** _____

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
	90.0					1			REMARK 1: Boring B-125 was converted into a test pit. Refer to TP-B125 in LGCI's test pit logs. Bottom of borehole at 0.0 feet.
5	85.0								
10	80.0								
15	75.0								
20	70.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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BORING LOG

B-126
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: _____ **DATE COMPLETED:** _____
BORING LOCATION: West of existing school
COORDINATES: NA
SURFACE EI.: 66 ft. (see note 1) **TOTAL DEPTH:** 0 ft.
WEATHER: _____
GROUNDWATER LEVELS:
DURING DRILLING: -
AT END OF DRILLING: -
OTHER: -

DRILLING SUBCONTRACTOR: _____
DRILLING FOREMAN: _____
DRILLING METHOD: _____
DRILL RIG TYPE/MODEL: _____
HAMMER TYPE: _____
HAMMER WEIGHT: lb. **HAMMER DROP:** in.
SPLIT SPOON DIA.: _____
CORE BARREL SIZE: _____
LOGGED BY: _____ **CHECKED BY:** _____

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
	65.0					1			REMARK 1: Boring B-126 was converted into a test pit. Refer to TP-B126 in LGCI's test pit logs. Bottom of borehole at 0.0 feet.
5	60.0								
10	55.0								
15	50.0								
20	45.0								
25									

GENERAL NOTES:

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

LGCI
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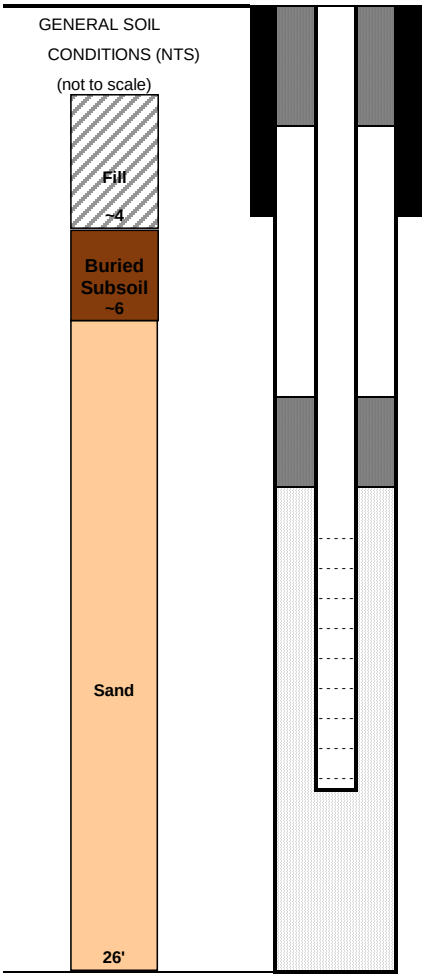
GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

Boring No. : **B-111-OW**

Project Name:	**Proposed Wareham Elementary School**		
LGCI Project Number:	**1816**		
Client:	**Mount Vernon Group Architects, Inc.**		
Drilling Subcontractor:	Northern Drill Service, Inc.	Date Started:	2/26/19
Drilling Foreman:	Tim Tucker	Date Completed:	2/26/19
LGCI Engineer:	John Cozens	Location:	Athletic field South of existing school
Ground Surface Elevation:	~82 feet	Total Depth of Boring:	26 feet
Groundwater Depth:	19.6' at completion of installation Dry on 3/1/2019	Drill Rig Type: Drilling Method:	Mobile B-48 ATV Rig Drive & wash (4" ID casing)



THICKNESS OF SURFACE SEAL	NA
TYPE OF SURFACE SEAL	Mortar
TYPE OF SURFACE CASING	Roadway box
ID OF SURFACE CASING	6-inches
DEPTH TO BOTTOM OF CASING	NA
ID OF RISER PIPE	2"
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	Soil Cuttings
DEPTH TO TOP OF SEAL	10.5 feet
TYPE OF SEAL	Bentonite Chips
DEPTH TO BOTTOM OF SEAL	12 feet
DEPTH TO TOP OF PERVIOUS SECTION	14 feet
TYPE OF PERVIOUS SECTION	PVC
DESCRIBE OPENINGS	Slotted
ID OF PERVIOUS SECTION	2"
TYPE OF BACKFILL AROUND PERVIOUS SECTION	Sand
DEPTH TO BOTTOM OF PERVIOUS SECTION	24 feet
DEPTH TO BOTTOM OF SAND COLUMN	26 feet
TYPE OF BACKFILL BELOW PERVIOUS SECTION	Sand
DIAMETER OF BOREHOLE	4"
DEPTH TO BOTTOM OF BOREHOLE	26 feet

APPENDIX B – Logs of LGCI's Test Pit

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TEST PIT LOG

TP-1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
TEST PIT LOCATION: Parking lot West of existing school
COORDINATES: NA
SURFACE EL.: 65 ft. (see note 1) **TOTAL DEPTH:** 12 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 12'
LOGGED BY: NP **CHECKED BY:** CS

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Asphalt	0.3	0 ft. - 0.33 ft.: Asphalt
		M		Fill	0.8 64.2	0.33 ft. - 0.83 ft.: Silty SAND (SM), fine to medium, trace coarse, ~25% fines, 10-15% fine to coarse angular to subrounded gravel, brown, moist
2.5	62.5	M		Sand		0.83 ft. - 12 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, ~25% fine subrounded gravel, 10-15% cobbles, light brown, moist
5.0	60.0	M/D				
7.5	57.5	D				
10.0	55.0				12.0	Bottom of test pit at 12.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-2

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
TEST PIT LOCATION: Parking lot West of existing school
COORDINATES: NA
SURFACE EL.: 67 ft. (see note 1) **TOTAL DEPTH:** 12 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 12'
LOGGED BY: NP **CHECKED BY:** CS

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Asphalt	0.3	0 ft. - 0.33 ft.: Asphalt
		M		Fill	0.8	0.33 ft. - 0.83 ft.: Silty SAND (SM), fine to medium, trace coarse, ~25% fines, 10-15% fine to coarse angular to subrounded gravel, brown, moist
	65.0				66.2	0.83 ft. - 12 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, ~25% fine subrounded gravel, 10-15% cobbles, light brown, moist
2.5		M				
	62.5	M/D				
5.0						
				Sand		
	60.0					
7.5		D				
	57.5					
10.0						
	55.0				12.0	
						Bottom of test pit at 12.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-3

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
TEST PIT LOCATION: Parking lot NW of exisitng school
COORDINATES: NA
SURFACE EL.: 55 ft. (see note 1) **TOTAL DEPTH:** 10 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 5' x 8'
LOGGED BY: FR **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	1.0	0 ft. - 1 ft.: Silty SAND (SM), fine, trace medium, ~25% fines, roots, grass, dark brown, moist
2.5	52.5				54.0	1 ft. - 10 ft.: Silty SAND with Gravel (SM), fine to medium, trace coarse, ~15% fines, 15-20% fine to coarse subrounded to angular gravel, cobbles and boulders ranging in size from 6" to 2' in diameter, tan to brown, moist
5.0	50.0	M		Sand		
7.5	47.5					
10.0	45.0				10.0	
						Bottom of test pit at 10.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-4

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
TEST PIT LOCATION: Island NW of existing school
COORDINATES: NA
SURFACE EL.: 54 ft. (see note 1) **TOTAL DEPTH:** 10 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 12'
LOGGED BY: FR **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	0.3	0 ft. - 0.33 ft.: Silty SAND (SM), fine to medium, trace coarse, ~25% fines, grass, roots, dark brown, moist
		M		Fill	1.3	0.33 ft. - 1.33 ft.: Silty SAND with Gravel (SM), fine to medium, trace coarse, 15-20% fines, 20-25% fine subrounded gravel, tan to brown, moist
	52.5				52.7	
2.5						1.33 ft. - 10 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 10-15% fines, 20-25% fine subrounded gravel, tan to brown, moist
	50.0					
5.0		M		Sand		
	47.5					
7.5						
	45.0					
10.0					10.0	
						Bottom of test pit at 10.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-5

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
TEST PIT LOCATION: Island NW of existing school
COORDINATES: NA
SURFACE EL.: 52 ft. (see note 1) **TOTAL DEPTH:** 12 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 5' x 12'
LOGGED BY: NP **CHECKED BY:** CS

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	0.7 / 51.3	0 ft. - 0.67 ft.: Silty SAND (SM), fine, trace medium, 20-25% fines, trace fine gravel, dark brown, moist
	50.0	M		Fill	2.0 / 50.0	0.67 ft. - 2 ft.: Silty SAND (SM), fine to coarse, ~15% fines, 10-15% fine subrounded gravel, trace roots, brown, moist
2.5		M		Sand		2 ft. - 12 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, ~25% fine subrounded gravel, 5-10% cobbles, boulders ranging in size from 1' to about 2' in diameter, light brown, moist
	47.5					
5.0		M/D				
	45.0					
7.5		D				
	42.5					
10.0						
	40.0				12.0	Bottom of test pit at 12.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-6

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
TEST PIT LOCATION: Parking lot NW of existing school
COORDINATES: NA
SURFACE EL.: 50 ft. (see note 1) **TOTAL DEPTH:** 2.5 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 11'
LOGGED BY: FR **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Asphalt	0.3 / 49.7	0 ft. - 0.33 ft.: Asphalt
		M		Fill		0.33 ft. - 0.75 ft.: Well Graded SAND with Gravel (SW), fine to coarse, <5% fines, tan, moist
		M	1			0.75 ft. - 2.5 ft.: Silty SAND (SM), fine to medium, trace coarse, 15-20% fines, ~20% fine to coarse subrounded gravel, ~5% cobbles ranging in size from 6" to 1' in diameter, brown, moist REMARK 1: Encountered clay pipe that was about 5.5" in diameter with a 1/4" pea stone cover over the top of the clay pipe and a 1.5" crushed stone bedding underneath the clay pipe.
2.5	47.5				2.5	Bottom of test pit at 2.5 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-7

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
TEST PIT LOCATION: North of existing school
COORDINATES: NA
SURFACE EL.: 59 ft. (see note 1) **TOTAL DEPTH:** 10 ft.
GROUNDWATER LEVELS:
▽ **DURING EXCAVATION:** 5.0 ft. / El. 54.0 ft.
▼ **AT END OF EXCAVATION:** -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 11'
LOGGED BY: NP **CHECKED BY:** CS

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	0.7 / 58.3	0 ft. - 0.67 ft.: Silty SAND (SM), fine, trace medium, ~25% fines, trace fine gravel, roots, grass, dark brown, moist
	57.5	M		Fill		0.67 ft. - 4.5 ft.: Silty SAND (SM), fine, trace medium to coarse, 20-25% fines, 5-10% fine gravel, 0-5% cobbles, 1 boulder about 3' in diameter, brown, moist
2.5						
	55.0	M/D			4.5 / 54.5	
5.0		M/D		Sand		▽ 4.5 ft. - 10 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, ~20% fine to coarse subrounded gravel, 5-10% cobbles, boulders ranging in size from 1' to about 8' in diameter, light brown, moist to wet
	52.5	D				
7.5						
	50.0					
10.0					10.0	Bottom of test pit at 10.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-8

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
TEST PIT LOCATION: North of existing school
COORDINATES: NA
SURFACE EL.: 57 ft. (see note 1) **TOTAL DEPTH:** 12 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: 5.5 ft. / El. 51.5 ft.
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 12'
LOGGED BY: NP **CHECKED BY:** CS

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	0.7 / 56.3	0 ft. - 0.67 ft.: Silty SAND (SM), fine, trace medium, ~25% fines, trace fine gravel, roots, grass, dark brown, moist
	55.0	M		Fill		0.67 ft. - 3.9 ft.: Silty SAND (SM), fine to medium, trace coarse, ~20% fines, 10-15% fine subrounded gravel, trace roots, brown, moist
2.5		M/D			3.9 / 53.1	
	52.5	M/D		Sand		3.9 ft. - 12 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 20-25% fine subrounded gravel, 5-10% cobbles, boulders ranging in size from 1' to about 3' in diameter, light brown, moist to wet
5.0		D				▽
	50.0	D/V				
7.5		V				
	47.5	V				
10.0						
	45.0				12.0	Bottom of test pit at 12.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-9

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
TEST PIT LOCATION: North of existing school
COORDINATES: NA
SURFACE EL.: 49 ft. (see note 1) **TOTAL DEPTH:** 10 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 12'
LOGGED BY: NP **CHECKED BY:** CS

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	0.7	0 ft. - 0.67 ft.: Silty SAND (SM), fine, trace medium, ~25% fines, roots, grass, dark brown, moist
	47.5	M		Fill	48.3	0.67 ft. - 3.5 ft.: Silty SAND (SM), fine to medium, trace coarse, ~15% fines, 10-15% fine to coarse subrounded gravel, 5-10% cobbles, boulders ranging in size from 1' to about 2' in diameter, brown, moist
2.5					3.5	
	45.0	M		Sand	45.5	3.5 ft. - 10 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 25-30% fine to coarse subrounded gravel, 0-5% cobbles, boulders ranging in size from 1' to about 2' in diameter, light brown, moist
5.0		M/D				
	42.5	D				
7.5						
	40.0					
10.0					10.0	Bottom of test pit at 10.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-10

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
TEST PIT LOCATION: Wooded area North of existing school
COORDINATES: NA
SURFACE EL.: 60 ft. (see note 1) **TOTAL DEPTH:** 10 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 11'
LOGGED BY: NP **CHECKED BY:** CS

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	1.0	0 ft. - 1 ft.: Silty SAND (SM), fine, trace medium, ~25% fines, trace fine gravel, roots, pine needles, dark brown, moist
2.5	57.5	M		Subsoil	59.0 3.5	1 ft. - 3.5 ft.: Silty SAND (SM), fine to medium, ~20% fines, 5-10% fine gravel, roots, brown, moist
5.0	55.0	M		Sand	56.5	3.5 ft. - 10 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, ~10% fines, 15-20% fine to coarse subrounded gravel, 5-10% cobbles, light brown, moist
7.5	52.5	M/D				
10.0	50.0	D			10.0	
						Bottom of test pit at 10.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-11

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
TEST PIT LOCATION: North of existing school
COORDINATES: NA
SURFACE EL.: 61 ft. (see note 1) **TOTAL DEPTH:** 10 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 5' x 12'
LOGGED BY: FR **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
	60.0	M		Topsoil	1.0	0 ft. - 1 ft.: Silty SAND (SM), fine to medium, trace coarse, ~25% fines, roots, leaves, pine needles, dark brown, moist
		M/D		Subsoil	2.0	1 ft. - 2 ft.: Silty SAND (SM), fine to medium, trace coarse, ~20% fines, ~25% fine to coarse subrounded gravel, trace organic soil, roots, rust brown, moist
2.5	57.5	M		Sand	59.0	2 ft. - 10 ft.: Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, 15-20% fine to coarse subrounded gravel, tan, moist
5.0	55.0					
7.5	52.5					
10.0					10.0	Bottom of test pit at 10.0 feet. Backfilled tets pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-12

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
TEST PIT LOCATION: North of existing school
COORDINATES: NA
SURFACE EL.: 55 ft. (see note 1) **TOTAL DEPTH:** 10 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 5' x 11'
LOGGED BY: FR **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	0.5 / 54.5	0 ft. - 0.5 ft.: Silty SAND (SM), fine, trace medium to coarse, 25-30% fines, roots, leaves, pine needles, dark brown, moist
		M		Subsoil		0.5 ft. - 2.5 ft.: Silty SAND with Gravel (SM), fine to medium, trace coarse, 20-25% fines, 20-25% fine to coarse subrounded gravel, trace organic fines, rust brown, moist
2.5	52.5				2.5 / 52.5	
		M		Sand		2.5 ft. - 10 ft.: Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, 15-20% fine to coarse subrounded gravel, 5-10% cobbles, boulders ranging in size from 1' to 1.5' in diameter, tan, moist
5.0	50.0					
7.5	47.5					
10.0	45.0				10.0	
						Bottom of test pit at 10.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-13

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
TEST PIT LOCATION: NE of existing school
COORDINATES: NA
SURFACE EL.: 58 ft. (see note 1) **TOTAL DEPTH:** 10 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloiudy
TEST PIT DIMENSIONS: 5' x 10'
LOGGED BY: FR **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
	57.5	M		Topsoil	1.0	0 ft. - 1 ft.: Silty SAND (SM), fine, trace medium to coarse, ~25% fines, trace roots, leaves, pine needles, black, moist
2.5	55.0	M		Subsoil	57.0 3.0	1 ft. - 3 ft.: Silty SAND with Gravel (SM), fine to medium, trace coarse, 20-25% fines, 15-20% fine to coarse subrounded gravel, 10-15% cobbles, boulders ranging in size from 1' to 2' in diameter, trace roots, rust brown, moist
5.0	52.5	M		Sand	55.0	3 ft. - 10 ft.: Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, 25-30% fine to coarse subrounded gravel, 10-15% cobbles, boulders ranging in size from 1' to 2' in diameter, brown, moist
7.5	50.0					
10.0					10.0	Bottom of test pit at 10.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-14

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
TEST PIT LOCATION: West of existing school
COORDINATES: NA
SURFACE EL.: 78 ft. (see note 1) **TOTAL DEPTH:** 8 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 12'
LOGGED BY: NP **CHECKED BY:** CS

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
	77.5	M		Fill	2.0	0 ft. - 2 ft.: Silty SAND with Gravel (SM), fine to coarse, 15-20% fines, 15-20% fine angular to subrounded gravel, light brown, moist
2.5		M		Buried Organic Soil	2.5	2 ft. - 2.5 ft.: Silty SAND (SM), fine to medium, ~25% fines, roots, dark brown, moist
	75.0	M		Buried Subsoil	3.5	2.5 ft. - 3.5 ft.: Silty SAND (SM), fine to medium, trace coarse, 15-20% fines, 10-15% fine subrounded gravel, brown, moist
5.0		M		Sand	74.5	3.5 ft. - 8 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 15-20% fine to coarse subrounded gravel, 0-5% cobbles, light brown, moist
	72.5	M/D				
7.5		D				
	70.0				8.0	Bottom of test pit at 8.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-15

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/25/19 **DATE COMPLETED:** 2/25/19
TEST PIT LOCATION: West of existing school
COORDINATES: NA
SURFACE EL.: 80 ft. (see note 1) **TOTAL DEPTH:** 10 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 13'
LOGGED BY: NP **CHECKED BY:** CS

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	0.5 / 79.5	0 ft. - 0.5 ft.: Silty SAND (SM), fine, trace medium, ~25% fines, roots, grass, dark brown, moist
2.5	77.5	M		Fill	4.5	0.5 ft. - 4.5 ft.: SIlty SAND with Gravel (SM), fine to coarse, 15-20% fines, ~15% fine to coarse subrounded gravel, light brown, moist
5.0	75.0	M		Buried Organic Soil	5.0	4.5 ft. - 5 ft.: Silty SAND (SM), fine, trace medium, ~25% fines, roots, dark brown, moist
		M		Fill	6.0	5 ft. - 6 ft.: Silty SAND with Gravel (SM), fine to coarse, ~15% fines, ~20% fine subrounded gravel, light brown, moist
		M		Buried Organic Soil	6.5	6 ft. - 6.5 ft.: Silty SAND (SM), fine, trace medium, ~25% fines, roots, dark brown, moist
7.5	72.5	M M/D		Sand	73.5	6.5 ft. - 10 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 20-25% fine to coarse subrounded gravel, 0-5% cobbles, light brown, moist
10.0	70.0	D			10.0	
						Bottom of test pit at 10.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-A

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
TEST PIT LOCATION: SE of existing school
COORDINATES: NA
SURFACE EL.: 89 ft. (see note 1) **TOTAL DEPTH:** 12 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 12'
LOGGED BY: FR **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	0.5 / 88.5	0 ft. - 0.5 ft.: Silty SAND with Gravel (SM), fine, trace medium to coarse, ~25% fines, 10-15% fine to coarse subrounded gravel, roots, grass, black, moist
	87.5	M		Fill	3.0	0.5 ft. - 3 ft.: Silty SAND with Gravel (SM), fine to medium, trace coarse, 15-20% fines, ~20% fine to coarse subrounded gravel, trace organic fines, brown, moist
2.5						
	85.0	M		Buried Organic Soil	86.0 / 5.5	3 ft. - 5.5 ft.: Silty SAND (SM), fine, trace medium to coarse, 20-25% fines, roots, tree stumps, black, moist
5.0						
	82.5	M		Subsoil	83.5 / 7.5	5.5 ft. - 7.5 ft.: Silty SAND (SM), fine, trace medium to coarse, ~20% fines, ~5% fine gravel, roots, trace organic soil, rust brown, moist
7.5						
		M		Sand	81.5	7.5 ft. - 12 ft.: Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, 20-25% fine to coarse subrounded gravel, ~5% cobbles, boulders ranging in size from 1' to 2' in diameter, tan, moist
	80.0	M/D				
10.0						
		M				
	77.5				12.0	
						Bottom of test pit at 12.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-B

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
TEST PIT LOCATION: SE of existing school
COORDINATES: NA
SURFACE EL.: 87 ft. (see note 1) **TOTAL DEPTH:** 13 ft.
GROUNDWATER LEVELS:
▽ **DURING EXCAVATION:** 13.0 ft. / El. 74.0 ft.
▼ **AT END OF EXCAVATION:** -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 12'
LOGGED BY: FR **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	0.5 / 86.5	0 ft. - 0.5 ft.: Silty SAND (SM), fine, trace medium to coarse, ~20% fines, 10-15% fine to coarse subrounded gravel, organic fines, roots, grass, pine needles, black, moist
		M		Fill		0.5 ft. - 1.5 ft.: Silty SAND with Gravel (SM), fine, trace medium to coarse, ~15% fines, 25-30% fine to coarse subrounded gravel, brown, moist
2.5	85.0	M				1.5 ft. - 10 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, ~10% fines, ~15% fine to coarse subrounded gravel, 5-10% cobbles, boulders ranging in size from 1' to 3' in diameter, tan, moist
5.0	82.5					
7.5	80.0	M/D				
10.0	77.5	M		Buried Organic Soil	10.0 / 11.0	10 ft. - 11 ft.: Silty SAND (SM), fine, trace medium to coarse, ~20% fines, 10-15% fine to coarse subrounded gravel, organic fines, trace roots, black, moist
12.5	75.0	M/D		Subsoil	11.0 / 76.0	11 ft. - 13 ft.: Silty SAND with Gravel (SM), fine, trace medium to coarse, 15-20% fines, 15-20% fine to coarse subrounded gravel, trace organic fines, trace roots, orange brown, moist
					13.0 ▽	Bottom of test pit at 13.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-B103

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/22/19 **DATE COMPLETED:** 2/22/19
TEST PIT LOCATION: South of existing school
COORDINATES: NA
SURFACE EL.: 91 ft. (see note 1) **TOTAL DEPTH:** 12 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 3' x 10'
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		D		Topsoil	0.3 / 90.8	0 ft. - 0.25 ft.: Topsoil
	90.0	D		Fill		0.25 ft. - 2.4 ft.: Silty SAND (SM), fine to medium, trace coarse, 15-20% fines, 0-5% fine gravel, brown, moist
2.5					2.4 / 88.6	
	87.5	D		Sand		2.4 ft. - 4 ft.: Silty SAND (SM)
5.0						4 ft. - 12 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 10-15% fines, 15-20% fine to coarse subrounded gravel, 10-15% cobbles, light gray, moist
	85.0					
7.5		D				
	82.5					
10.0						
	80.0				12.0	
						Bottom of test pit at 12.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-B105
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/22/19 **DATE COMPLETED:** 2/22/19
TEST PIT LOCATION: Athletic field South of existing school
COORDINATES: NA
SURFACE EL.: 79 ft. (see note 1) **TOTAL DEPTH:** 12 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 3.5' x 9'
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		D		Topsoil	0.2 78.8	0 ft. - 0.2 ft.: Topsoil
						0.2 ft. - 5 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 15-20% fine to coarse subrounded gravel, 10-15% cobbles and boulders, brown, moist
	77.5					
2.5		D				
	75.0					
5.0						5 ft. - 12 ft.: Poorly Graded SAND with Silt (SP-SM), fine to medium, 10-15% fines, 10-15% fine to coarse subrounded gravel, 10-15% cobbles and boulders, light gray, moist
	72.5			Sand		
7.5		D				
	70.0					
10.0		V				
	67.5				12.0	
						Bottom of test pit at 12.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-B107

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/22/19 **DATE COMPLETED:** 2/22/19
TEST PIT LOCATION: Athletic field South of existing school
COORDINATES: NA
SURFACE EL.: 81 ft. (see note 1) **TOTAL DEPTH:** 12 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 2.5' x 10'
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		D		Topsoil	0.2 / 80.8	0 ft. - 0.2 ft.: Topsoil
	80.0					0.2 ft. - 12 ft.: Well Graded SAND (SW), fine to coarse, ~5% fines, 10-15% fine to coarse subrounded gravel, 10-15% cobbles, light gray, moist
2.5						
	77.5					
5.0						
	75.0	D		Sand		
7.5						
	72.5					
10.0						
	70.0				12.0	
						Bottom of test pit at 12.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-B109
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/22/19 **DATE COMPLETED:** 2/22/19
TEST PIT LOCATION: Athletic field South of existing school
COORDINATES: NA
SURFACE EL.: 82 ft. (see note 1) **TOTAL DEPTH:** 12 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 3' x 11'
LOGGED BY: JC **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		D		Topsoil	0.5 / 81.5	0 ft. - 0.5 ft.: Topsoil
	80.0	D		Fill	2.0 / 80.0	0.5 ft. - 2 ft.: Silty SAND (SM), light gray, moist
2.5		D				2 ft. - 3 ft.: Silty SAND (SM), brown, moist
	77.5					3 ft. - 12 ft.: Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, 15-20% fine to coarse subrounded gravel, brown, moist
5.0						
	75.0			Sand		
7.5		D				
	72.5					
10.0						
	70.0				12.0	Bottom of test pit at 12.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-B121
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/27/19 **DATE COMPLETED:** 2/27/19
TEST PIT LOCATION: West of existing school
COORDINATES: NA
SURFACE EL.: 63 ft. (see note 1) **TOTAL DEPTH:** 11 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 30's / Cloudy
TEST PIT DIMENSIONS: 5' x 12'
LOGGED BY: FR **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
	62.5	M		Topsoil	0.5	0 ft. - 0.5 ft.: Silty SAND with Gravel (SM), fine to medium, trace coarse, ~20% fines, 20-25% fine to coarse subrounded gravel, roots, leaves, grass, pine needles, black, moist
		M		Subsoil	1.0	0.5 ft. - 1 ft.: Silty SAND (SM), fine, trace medium to coarse, ~20% fines, ~10% fine to coarse subrounded gravel, trace organic soil, roots, rust brown, moist
		M			62.0	1 ft. - 11 ft.: Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, 30-35% fine to coarse subrounded gravel, 15-20% cobbles, boulders ranging in size from 6" to 1.5' in diameter, tan, moist
2.5	60.0					
5.0	57.5			Sand		
		D				
7.5	55.0					
10.0	52.5				11.0	
						Bottom of test pit at 11.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-B122
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/27/19 **DATE COMPLETED:** 2/27/19
TEST PIT LOCATION: North of existing school
COORDINATES: NA
SURFACE EL.: 52 ft. (see note 1) **TOTAL DEPTH:** 11 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 30's / Cloudy
TEST PIT DIMENSIONS: 5' x 11'
LOGGED BY: FR **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Asphalt	0.3	0 ft. - 0.33 ft.: Asphalt
		M		Fill	51.7	0.33 ft. - 2 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 10-15% fines, 25-30% fine to coarse subrunded gravel, 5-10% cobbles, brown, moist
	50.0				2.0	
2.5		M		Buried Organic Soil	2.5	2 ft. - 2.5 ft.: Silty SAND (SM), fine, trace medium to coarse, ~20% fines, roots, black, moist
		M		Subsoil	49.5	2.5 ft. - 5.5 ft.: Silty SAND with Gravel (SM), fine to medium, trace coarse, ~20% fines, 20-25% fine to coarse subrounded gravel, 5-10% cobbles, trace organic fines, rust brown, moist
		M/D				
	47.5				4.5	
5.0		M	1	Fill	5.5	REMARK 1: Clay pipe encountered.
				Sand	46.5	5.5 ft. - 9 ft.: Poorly Graded SAND (SP), fine, trace medium to coarse, <5% fines, tan, moist
	45.0	E				
7.5						
	42.5					9 ft. - 11 ft.: Well Graded SAND with Gravel (SW), fine to coarse, <5% fines, 25-30% fine to coarse subrounded gravel, ~10% cobbles, tan, moist
10.0		M			11.0	
						Bottom of test pit at 11.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-B125
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/27/19 **DATE COMPLETED:** 2/27/19
TEST PIT LOCATION: SW of existing school
COORDINATES: NA
SURFACE EL.: 93 ft. (see note 1) **TOTAL DEPTH:** 12 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 30's / Cloudy
TEST PIT DIMENSIONS: 5' x 13'
LOGGED BY: FR **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
	92.5	M		Topsoil	0.5 / 92.5	0 ft. - 0.5 ft.: Silty SAND (SM), fine, trace medium to coarse, ~25% fines, roots, leaves, pine needles, black, moist
		M		Subsoil	2.0	0.5 ft. - 2 ft.: Silty SAND with Gravel (SM), fine to medium, trace coarse, ~20% fines, 25-30% fine to coarse subrounded gravel, 1 boulder about 3' in diameter, trace organic fines, rust brown, moist
2.5	90.0	M		Sand	91.0	2 ft. - 12 ft.: Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, 30-35% fine to coarse subrounded gravel, 25-30% cobbles, boulders ranging in size from 1' to 2' in diameter, tan, moist
5.0	87.5	D/V				
7.5	85.0	V				
10.0	82.5				12.0	Bottom of test pit at 12.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-B126

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/27/19 **DATE COMPLETED:** 2/27/19
TEST PIT LOCATION: SW of existing school
COORDINATES: NA
SURFACE EL.: 80 ft. (see note 1) **TOTAL DEPTH:** 12 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 30's / Cloudy
TEST PIT DIMENSIONS: 6' x 10'
LOGGED BY: FR **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	0.8	0 ft. - 0.75 ft.: Silty SAND (SM), fine, trace medium to coarse, ~25% fines, 10-15% fine to medium subrounded gravel, roots, leaves, pine needles, black, moist
		M			79.3	0.75 ft. - 12 ft.: Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, 30-35% fine to coarse subrounded gravel, 15-20% cobbles, tan, moist
2.5	77.5	D				
5.0	75.0			Sand		
7.5	72.5	V				
10.0	70.0				12.0	Bottom of test pit at 12.0 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-C

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
TEST PIT LOCATION: SE of existing school
COORDINATES: NA
SURFACE EL.: 89 ft. (see note 1) **TOTAL DEPTH:** 11.5 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: -
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 11'
LOGGED BY: FR **CHECKED BY:** NP

Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	1.0	0 ft. - 1 ft.: Silty SAND with Gravel (SM), fine to medium, trace coarse, 20-25% fines, 15-20% fine to coarse subrounded gravel, organic fines, grass, black, moist
	87.5	M		Fill	88.0 3.0	1 ft. - 3 ft.: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 30-35% fine to coarse subrounded gravel, tan, moist
2.5						
	85.0	M		Buried Organic Soil	4.0	3 ft. - 4 ft.: Silty SAND (SM), fine to medium, trace coarse, 20-25% fines, <5% fine subrounded gravel, organic fines, roots, black, moist
		M		Subsoil	85.0	4 ft. - 7 ft.: Silty SAND (SM), fine to medium, trace coarse, ~20% fines, 10-15% fine to coarse subrounded gravel, roots, rust brown, moist
5.0						
	82.5	M/D			7.0	
7.5					82.0	7 ft. - 11.5 ft.: Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, 25-30% fine to coarse subrounded gravel, ~5% cobbles, 1 boulder 3' in diameter, tan, moist
	80.0	M/D		Sand		
10.0						
	77.5				11.5	
						Bottom of test pit at 11.5 feet. Backfilled test pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

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TEST PIT LOG

TP-D

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Proposed Wareham Elementary School
LGCI PROJECT NUMBER: 1816
PROJECT LOCATION: Wareham, MA

DATE STARTED: 2/26/19 **DATE COMPLETED:** 2/26/19
TEST PIT LOCATION: SE of existing school
COORDINATES: NA
SURFACE EL.: 90 ft. (see note 1) **TOTAL DEPTH:** 12 ft.
GROUNDWATER LEVELS:
DURING EXCAVATION: 4.0 ft. / El. 86.0 ft.
AT END OF EXCAVATION: -

EXCAVATION SUBCONTRACTOR: Northern Drill Service, Inc.
EXCAVATION FOREMAN: Dave Edilberti
EXCAVATOR TYPE/MODEL: Komatsu PC 120
WEATHER: 20's / Cloudy
TEST PIT DIMENSIONS: 6' x 12'
LOGGED BY: FR **CHECKED BY:** NP

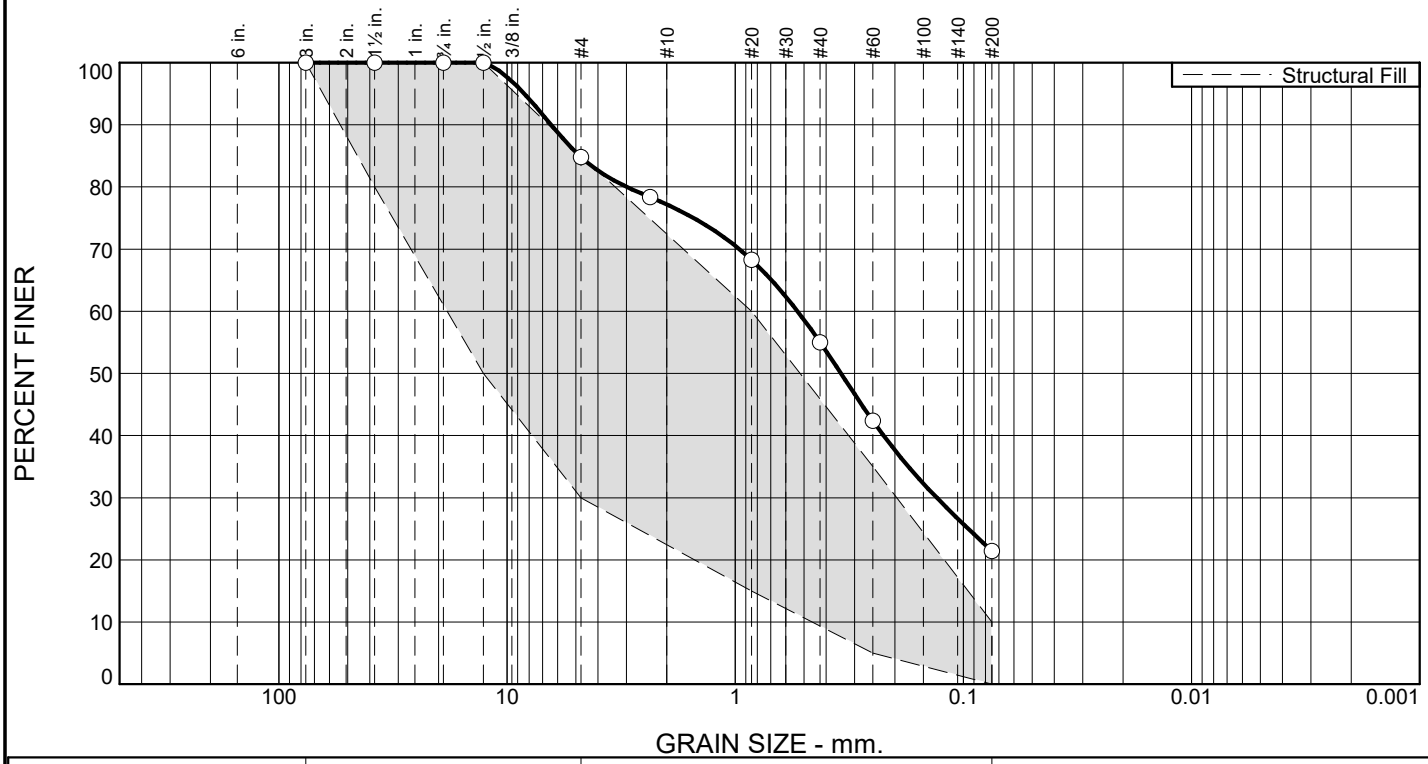
Depth (ft)	El. (ft)	Excavation Effort	Remark	Strata	Depth El.(ft.)	Material Description
		M		Topsoil	0.5 / 89.5	0 ft. - 0.5 ft.: Silty SAND (SM), fine to medium, trace coarse, 20-25% fines, 10-15% fine to coarse subrounded gravel, organic fines, grass, roots, black, moist
		M		Fill	2.0 / 88.0	0.5 ft. - 2 ft.: Silty SAND (SM), fine to medium, trace coarse, ~15% fines, 10-15% fine to coarse subrounded gravel, trace roots, trace organic fines, tan, to brown, moist
2.5	87.5	M/D	1	Sand		2 ft. - 12 ft.: Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, 25-30% fine to coarse subrounded gravel, 10-15% cobbles, boulders ranging in size from 1' to 2' in diameter, tan, moist
5.0	85.0					▽ REMARK 1: Water entered test pit, possible perched water as excavated material was dry.
7.5	82.5					
10.0	80.0	D			12.0	
						Bottom of test pit at 12.0 feet. Backfilled tets pit with excavator bucket.

GENERAL COMMENTS: **E = Easy, M - Moderate, D = Difficult, V = Very Difficult**

1. Ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions Plan, Wareham Elementary School Project, Wareham, Massachusetts," prepared by Samiotes Consultants Inc. of Framingham, MA and dated May 9, 2018.

APPENDIX C – Laboratory Test Results

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
0.0	0.0	15.2	7.6	22.2	33.6	21.4

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3	100.0	100.0	
1.5	100.0	80.0 - 100.0	
0.75	100.0		
0.5	100.0	50.0 - 100.0	
#4	84.8	30.0 - 85.0	
#8	78.4		
#20	68.3	15.0 - 60.0	X
#40	55.0		
#60	42.4	5.0 - 35.0	X
#200	21.4	0.0 - 10.0	X

* Structural Fill

Material Description

ASTM (D 2488) Classification: Silty SAND with Gravel (SM), fine to coarse, 20-25% fines, 15-20% fine subrounded gravel, light brown, moist

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 6.4206 D_{85}= 4.8109 D_{60}= 0.5338
D_{50}= 0.3444 D_{30}= 0.1309 D_{15}=
D_{10}= C_u= C_c=

Remarks

Fill sample.

Date Received: 4/5/2018 **Date Tested:** 4/12/2018

Tested By: TS

Checked By: MC

Source of Sample: Boring B-9 **Depth:** 2' - 4'
Sample Number: S2

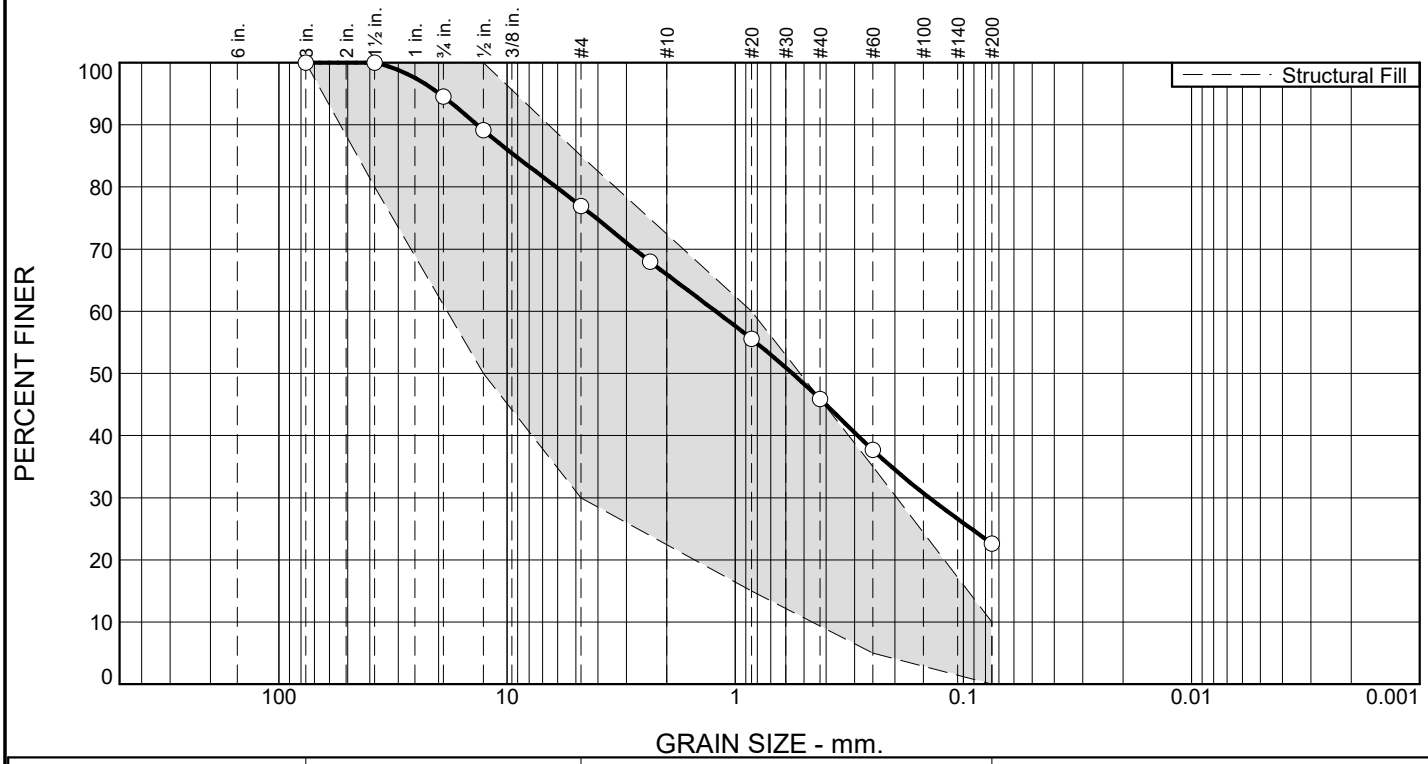
Date Sampled: 4/4/2018

LGCI
Lahlaf Geotechnical Consulting, Inc.

Client: Mount Vernon Group Architects, Inc.
Project: Proposed Wareham Elementary School, Wareham, Massachusetts

Project No: 1816

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines
	Coarse	Fine	Coarse	Medium	Fine	
0.0	5.5	17.6	11.0	20.0	23.3	22.6

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3	100.0	100.0	
1.5	100.0	80.0 - 100.0	
0.75	94.5		
0.5	89.1	50.0 - 100.0	
#4	76.9	30.0 - 85.0	
#8	68.0		
#20	55.6	15.0 - 60.0	
#40	45.9		
#60	37.7	5.0 - 35.0	X
#200	22.6	0.0 - 10.0	X

* Structural Fill

Material Description

ASTM (D 2488) Classification: Silty SAND with Gravel (SM), fine to coarse, 20-25% fines, 20-25% fine to coarse subrounded gravel, light brown, moist

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 13.5383 D_{85}= 9.2172 D_{60}= 1.2185
D_{50}= 0.5619 D_{30}= 0.1410 D_{15}=
D_{10}= C_u= C_c=

Remarks

Natural sand sample.

Date Received: 4/5/2018 **Date Tested:** 4/12/2018

Tested By: TS

Checked By: MC

Source of Sample: Boring B-10 **Depth:** 2' - 4'

Sample Number: S2 **Date Sampled:** 4/4/2018

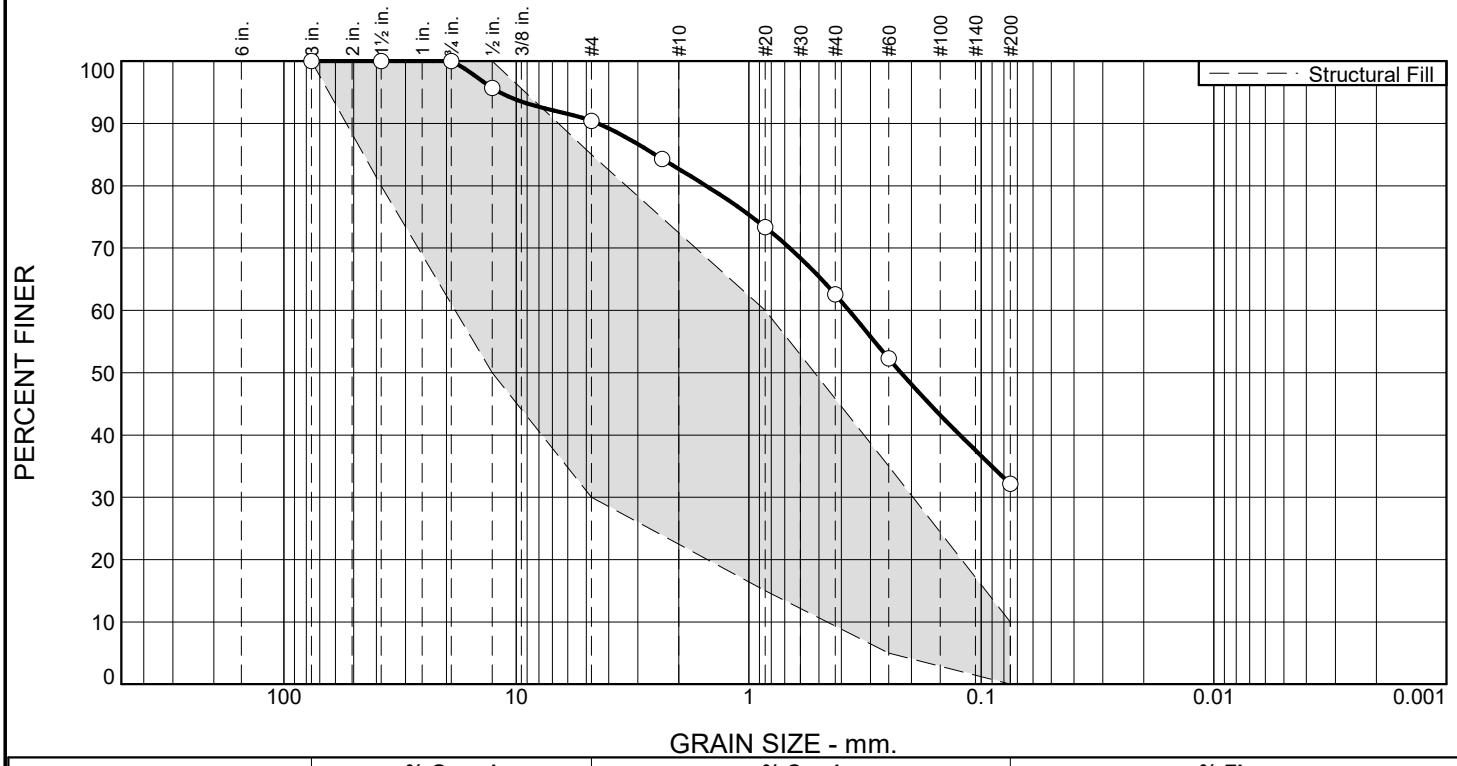
LGCI
Lahlaf Geotechnical Consulting, Inc.

Client: Mount Vernon Group Architects, Inc.

Project: Proposed Wareham Elementary School, Wareham, Massachusetts

Project No: 1816

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	9.6	7.7	20.1	30.4	32.2	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0	100.0	
1.5"	100.0	80.0 - 100.0	
0.75"	100.0		
0.5"	95.7	50.0 - 100.0	
#4	90.4	30.0 - 85.0	X
#8	84.3		
#20	73.4	15.0 - 60.0	X
#40	62.6		
#60	52.3	5.0 - 35.0	X
#200	32.2	0.0 - 10.0	X

* Structural Fill

Material Description

ASTM (D 2488) Classification: Silty SAND (SM), fine to coarse, 30-35% fines, 5-10% fine gravel, light gray, moist

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 4.4525 D_{85}= 2.5257 D_{60}= 0.3708
D_{50}= 0.2212 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Natural sand sample.

Date Received: 3/1/19 **Date Tested:** 3/13/19

Tested By: NP

Checked By: AML

Location: Boring B-101
Sample Number: S3 **Depth:** 4'-6'

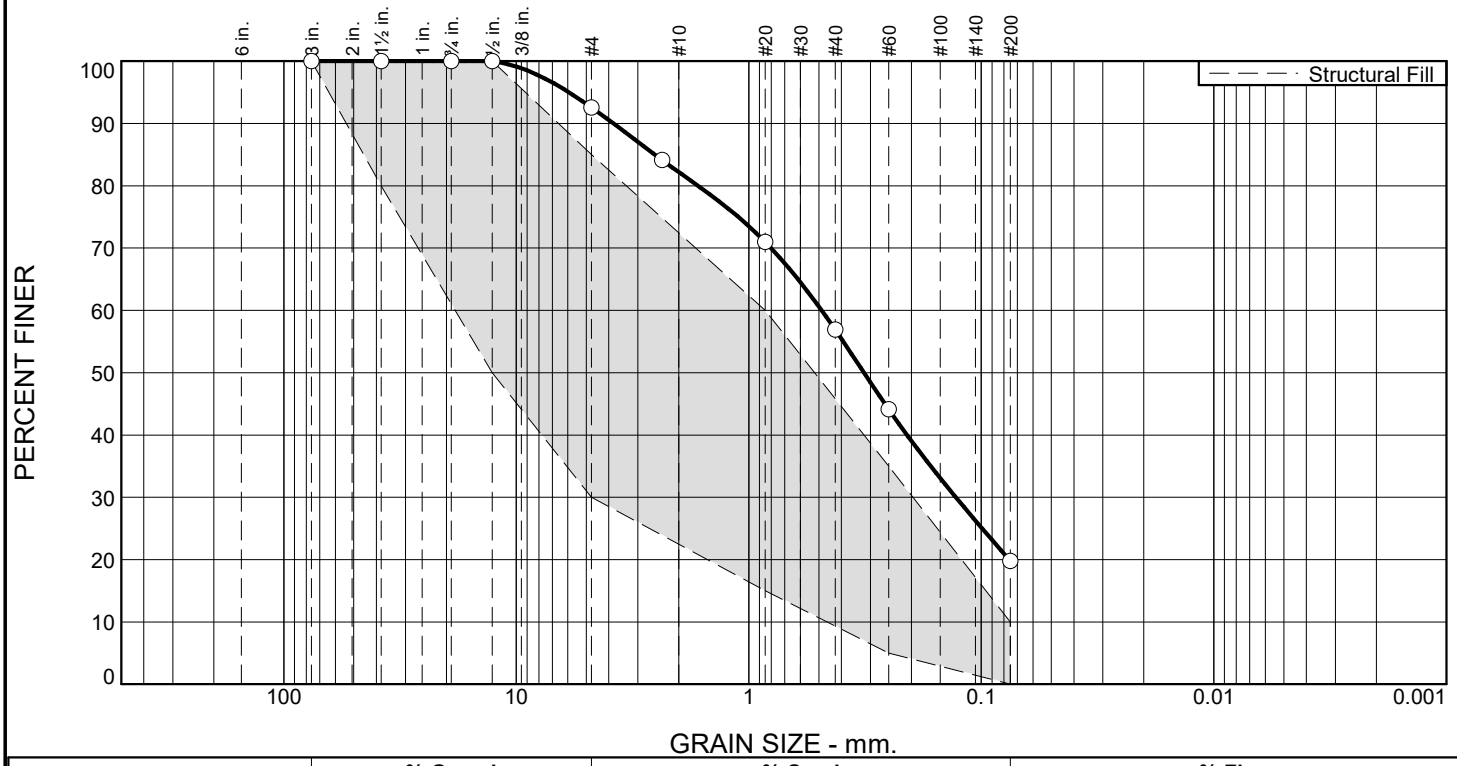
Date Sampled: 2/28/19

LGCI
Lahlaf Geotechnical Consulting, Inc.

Client: Mount Vernon Group Architects, Inc.
Project: Proposed Wareham Elementary School, Wareham, MA

Project No: 1816 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.4	10.4	25.3	37.1	19.8	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0	100.0	
1.5"	100.0	80.0 - 100.0	
0.75"	100.0		
0.5"	100.0	50.0 - 100.0	
#4	92.6	30.0 - 85.0	X
#8	84.1		
#20	71.0	15.0 - 60.0	X
#40	56.9		
#60	44.1	5.0 - 35.0	X
#200	19.8	0.0 - 10.0	X

* Structural Fill

Material Description

ASTM (D 2488) Classification: Silty SAND (SM), fine to coarse, 15-20% fines, 5-10% fine gravel, light gray, moist

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 3.8174 D_{85}= 2.5359 D_{60}= 0.4864
D_{50}= 0.3193 D_{30}= 0.1286 D_{15}=
D_{10}= C_u= C_c=

Remarks

Fill sample.

Date Received: 3/5/19 **Date Tested:** 3/13/19

Tested By: NP

Checked By: AML

Location: Boring B-102
Sample Number: S3 **Depth:** 4'-6'

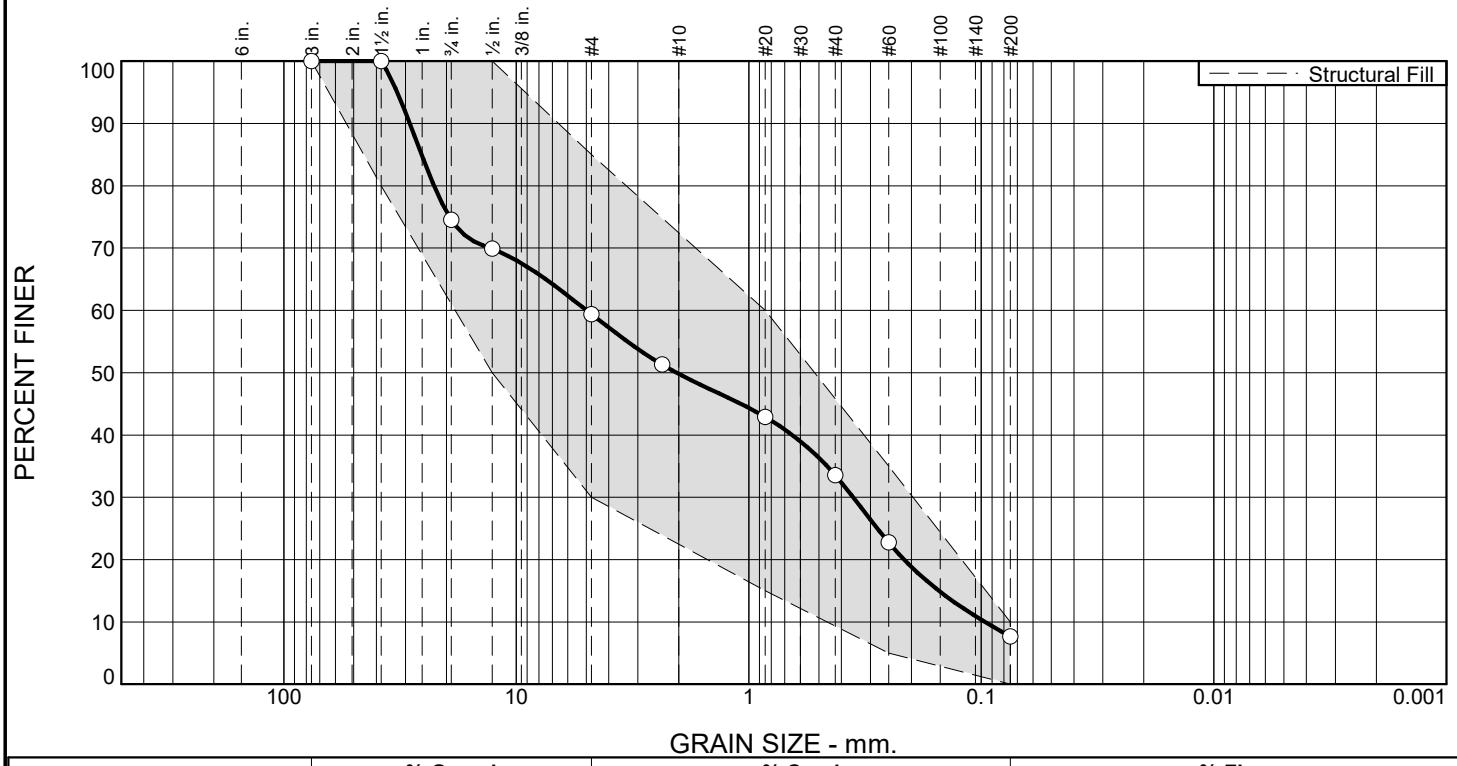
Date Sampled: 3/5/19

LGCI
Lahlaf Geotechnical Consulting, Inc.

Client: Mount Vernon Group Architects, Inc.
Project: Proposed Wareham Elementary School, Wareham, MA

Project No: 1816 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	25.5	15.1	9.6	16.2	26.0	7.6	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0	100.0	
1.5"	100.0	80.0 - 100.0	
0.75"	74.5		
0.5"	69.9	50.0 - 100.0	
#4	59.4	30.0 - 85.0	
#8	51.3		
#20	42.9	15.0 - 60.0	
#40	33.6		
#60	22.7	5.0 - 35.0	
#200	7.6	0.0 - 10.0	

* Structural Fill

Material Description

ASTM (D 2488) Classification: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 40-45% fine to coarse subangular gravel, brown, moist (possible reworked natural soil)

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 28.7123 D_{85}= 25.5364 D_{60}= 4.9835
D_{50}= 2.0445 D_{30}= 0.3554 D_{15}= 0.1521
D_{10}= 0.0963 C_u= 51.74 C_c= 0.26

Remarks

Natural sand sample.

Date Received: 2/27/19 **Date Tested:** 3/13/19

Tested By: NP

Checked By: AML

Location: Boring B-108
Sample Number: S2 **Depth:** 2'-4'

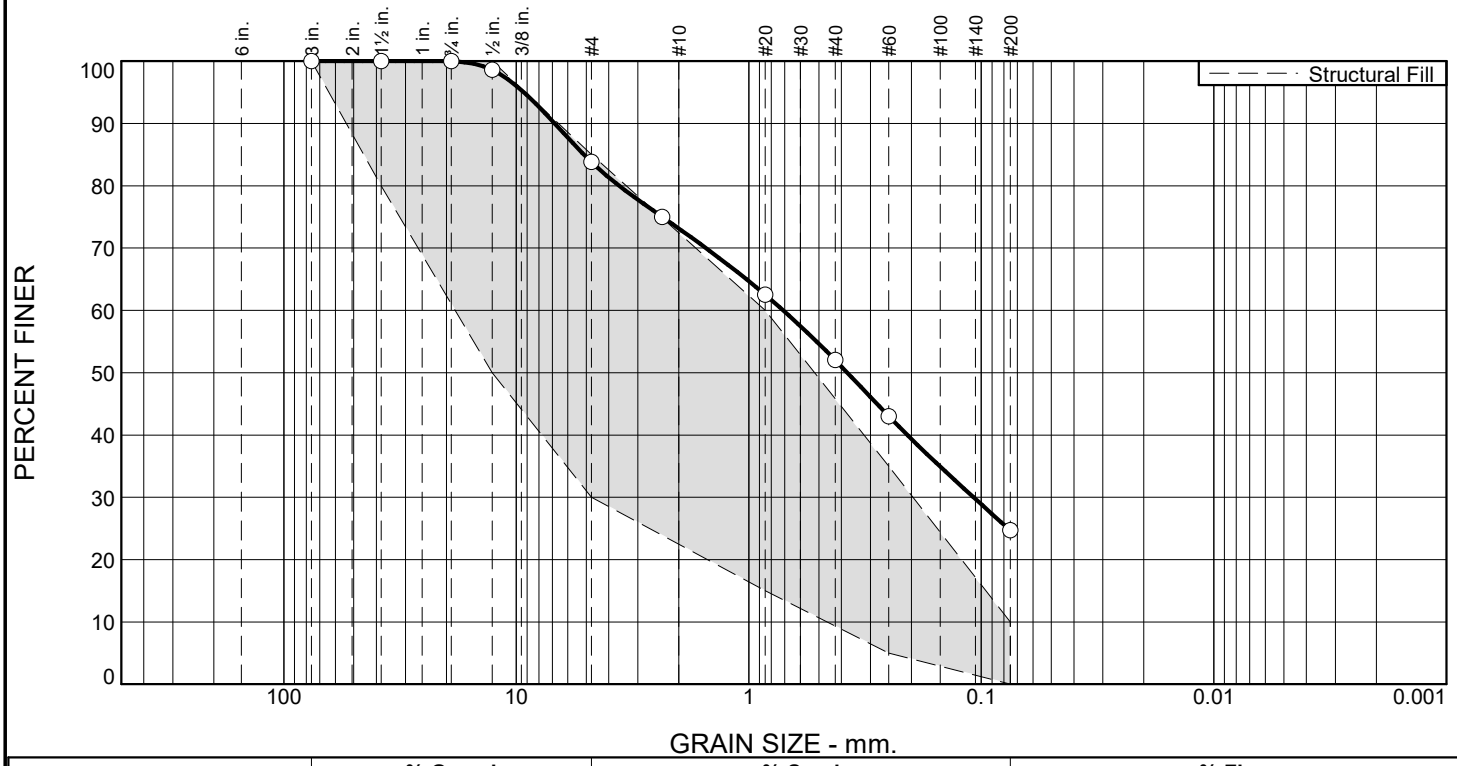
Date Sampled: 2/27/19

LGCI
Lahlaf Geotechnical Consulting, Inc.

Client: Mount Vernon Group Architects, Inc.
Project: Proposed Wareham Elementary School, Wareham, MA

Project No: 1816 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	16.2	10.7	21.1	27.3	24.7	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0	100.0	
1.5"	100.0	80.0 - 100.0	
0.75"	100.0		
0.5"	98.6	50.0 - 100.0	
#4	83.8	30.0 - 85.0	
#8	75.0		
#20	62.5	15.0 - 60.0	X
#40	52.0		
#60	43.0	5.0 - 35.0	X
#200	24.7	0.0 - 10.0	X

* Structural Fill

Material Description

ASTM (D 2488) Classification: Silty SAND with Gravel (SM), fine to coarse, 20-25% fines, 15-20% fine subrounded gravel, brown, moist

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 6.8350 D_{85}= 5.1129 D_{60}= 0.7116
D_{50}= 0.3767 D_{30}= 0.1079 D_{15}=
D_{10}= C_u= C_c=

Remarks

Natural sand sample.

Date Received: 2/26/19 **Date Tested:** 3/13/19

Tested By: NP

Checked By: AML

Location: Boring B-111
Sample Number: S5 **Depth:** 8'-10'

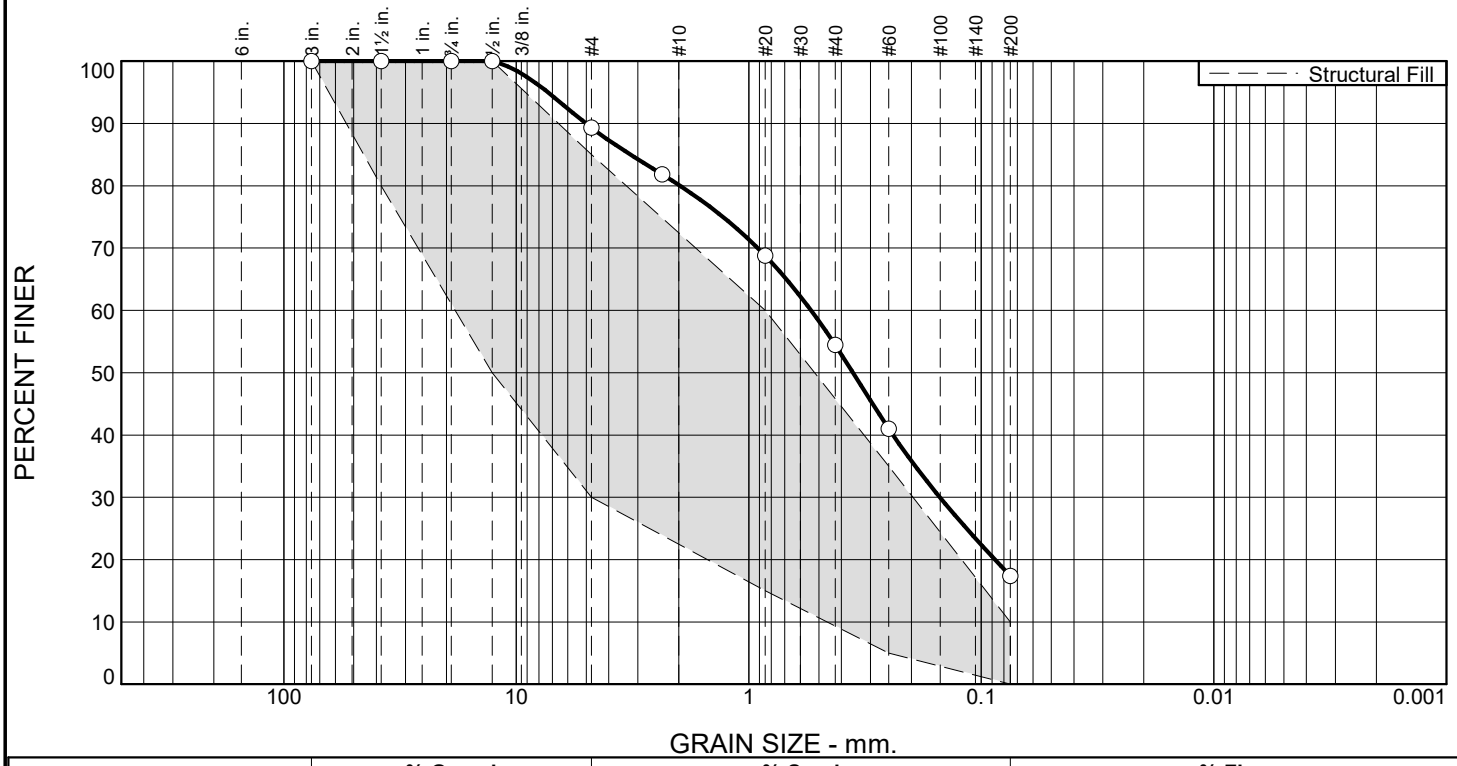
Date Sampled: 2/26/19

LGCI
Lahlaf Geotechnical Consulting, Inc.

Client: Mount Vernon Group Architects, Inc.
Project: Proposed Wareham Elementary School, Wareham, MA

Project No: 1816 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.7	9.2	25.7	37.0	17.4	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0	100.0	
1.5"	100.0	80.0 - 100.0	
0.75"	100.0		
0.5"	100.0	50.0 - 100.0	
#4	89.3	30.0 - 85.0	X
#8	81.9		
#20	68.8	15.0 - 60.0	X
#40	54.4		
#60	41.0	5.0 - 35.0	X
#200	17.4	0.0 - 10.0	X

* Structural Fill

Material Description

ASTM (D 2488) Classification: Silty SAND (SM), fine to coarse, 15-20% fines, 10-15% fine subrounded gravel, light brown, moist

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 5.0128 D_{85}= 3.2259 D_{60}= 0.5403
D_{50}= 0.3561 D_{30}= 0.1506 D_{15}=
D_{10}= C_u= C_c=

Remarks

Natural sand sample.

Date Received: 2/26/19 **Date Tested:** 3/14/19

Tested By: NP

Checked By: AML

Location: Boring B-111
Sample Number: S7 **Depth:** 14'-16'

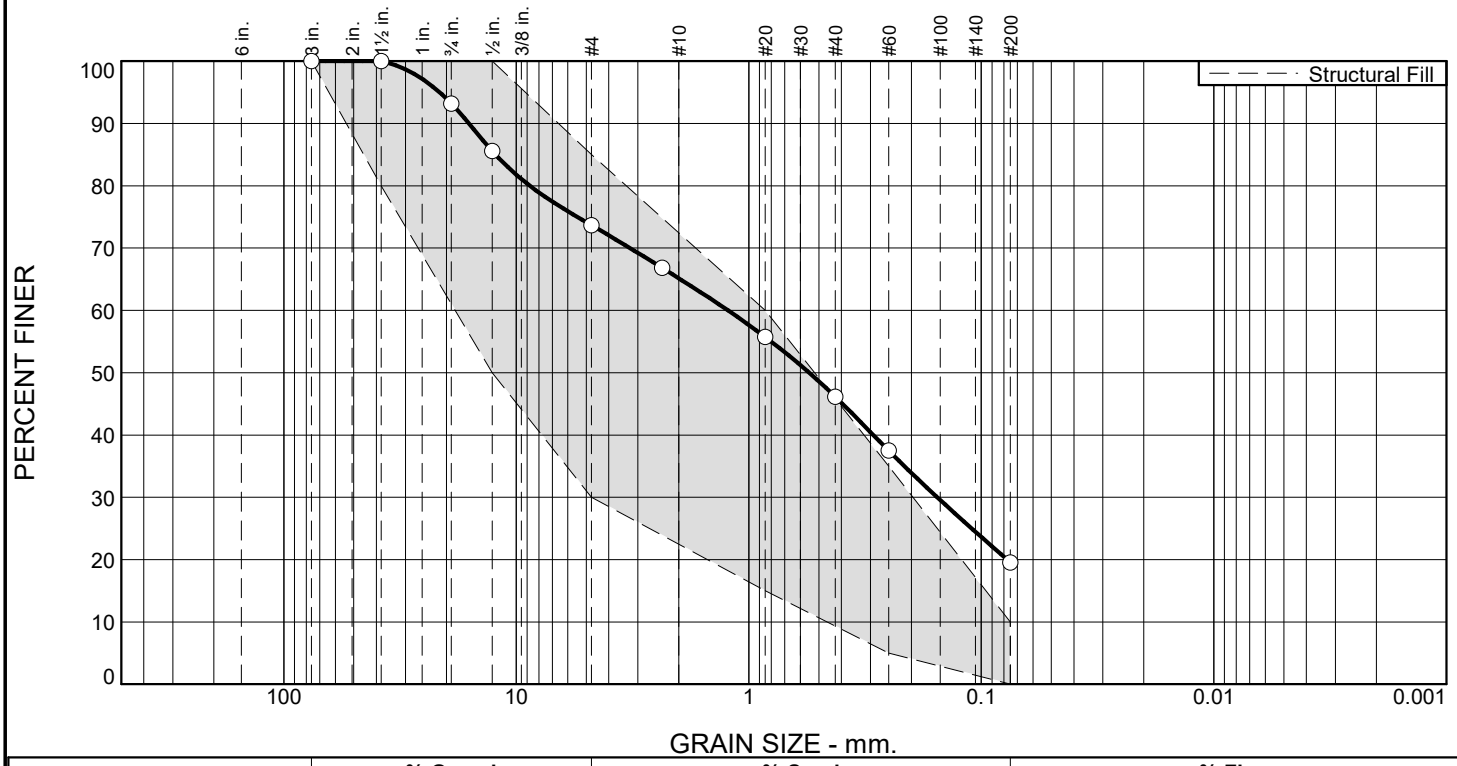
Date Sampled: 2/26/19

LGCI
Lahlaf Geotechnical Consulting, Inc.

Client: Mount Vernon Group Architects, Inc.
Project: Proposed Wareham Elementary School, Wareham, MA

Project No: 1816 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.8	19.5	8.5	19.0	26.6	19.6	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0	100.0	
1.5"	100.0	80.0 - 100.0	
0.75"	93.2		
0.5"	85.6	50.0 - 100.0	
#4	73.7	30.0 - 85.0	
#8	66.8		
#20	55.7	15.0 - 60.0	
#40	46.2		
#60	37.5	5.0 - 35.0	X
#200	19.6	0.0 - 10.0	X

* Structural Fill

Material Description

ASTM (D 2488) Classification: Silty SAND with Gravel (SM), fine to coarse, 15-20% fines, 25-30% fine to coarse subangular gravel, brown, moist

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 16.0011 D_{85}= 12.2796 D_{60}= 1.2281
D_{50}= 0.5503 D_{30}= 0.1545 D_{15}=
D_{10}= C_u= C_c=

Remarks

Natural sand sample.

Date Received: 2/25/19 **Date Tested:** 3/13/19

Tested By: NP

Checked By: AML

Location: Boring B-113
Sample Number: S5 **Depth:** 14'-16'

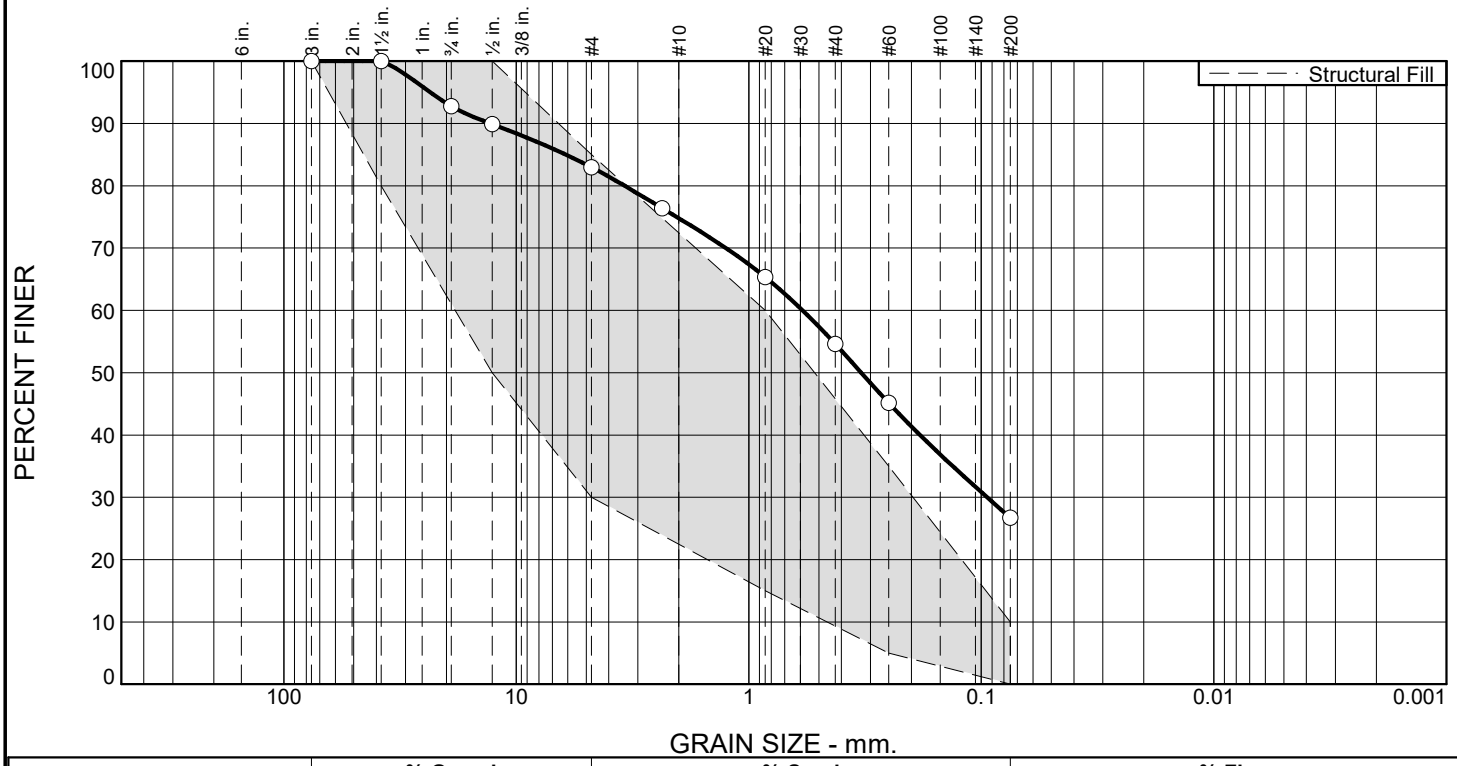
Date Sampled: 2/25/19

LGCI
Lahlaf Geotechnical Consulting, Inc.

Client: Mount Vernon Group Architects, Inc.
Project: Proposed Wareham Elementary School, Wareham, MA

Project No: 1816 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.2	9.8	8.2	20.2	27.9	26.7	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0	100.0	
1.5"	100.0	80.0 - 100.0	
0.75"	92.8		
0.5"	89.9	50.0 - 100.0	
#4	83.0	30.0 - 85.0	
#8	76.4		
#20	65.3	15.0 - 60.0	X
#40	54.6		
#60	45.2	5.0 - 35.0	X
#200	26.7	0.0 - 10.0	X

* Structural Fill

Material Description

ASTM (D 2488) Classification: Silty SAND with Gravel (SM), fine to coarse, 25-30% fines, 15-20% fine to coarse subrounded gravel, brown, moist

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 12.9283 D_{85}= 6.1105 D_{60}= 0.5883
D_{50}= 0.3281 D_{30}= 0.0943 D_{15}=
D_{10}= C_u= C_c=

Remarks

Natural sand sample.

Date Received: 3/1/19 **Date Tested:** 3/13/19

Tested By: NP

Checked By: AML

Location: Boring B-114
Sample Number: S2 **Depth:** 2'-4'

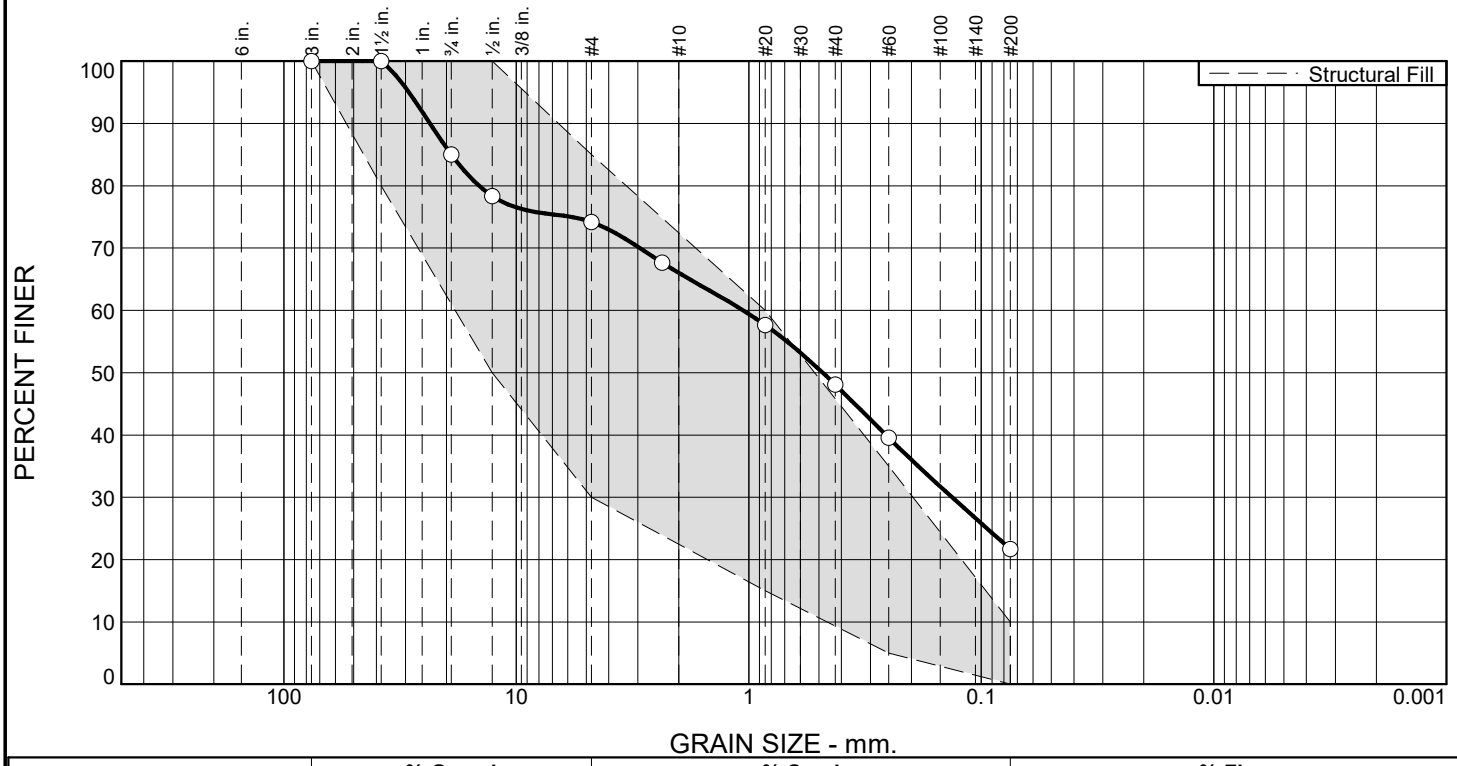
Date Sampled: 3/1/19

LGCI
Lahlaf Geotechnical Consulting, Inc.

Client: Mount Vernon Group Architects, Inc.
Project: Proposed Wareham Elementary School, Wareham, MA

Project No: 1816 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	15.0	10.8	8.2	17.9	26.4	21.7	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0	100.0	
1.5"	100.0	80.0 - 100.0	
0.75"	85.0		
0.5"	78.4	50.0 - 100.0	
#4	74.2	30.0 - 85.0	
#8	67.7		
#20	57.7	15.0 - 60.0	
#40	48.1		
#60	39.6	5.0 - 35.0	X
#200	21.7	0.0 - 10.0	X

* Structural Fill

Material Description

ASTM (D 2488) Classification: Silty SAND with Gravel (SM), fine to coarse, 20-25% fines, 25-30% fine to coarse subrounded gravel, light gray, moist

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 23.5191 D_{85}= 19.0453 D_{60}= 1.0560
D_{50}= 0.4813 D_{30}= 0.1334 D_{15}=
D_{10}= C_u= C_c=

Remarks

Natural sand sample.

Date Received: 3/1/19 **Date Tested:** 3/13/19

Tested By: NP

Checked By: AML

Location: Boring B-114
Sample Number: S4 **Depth:** 6'-8'

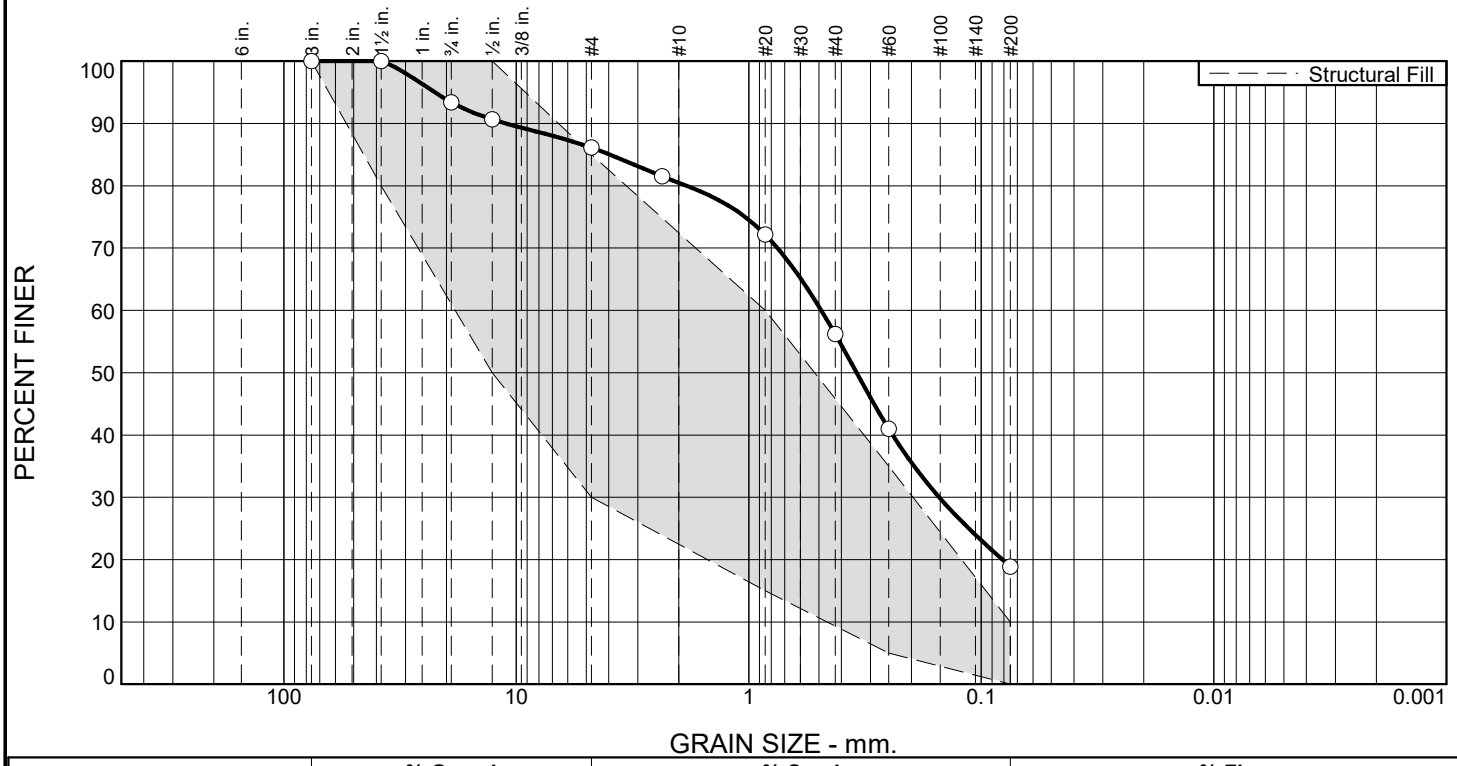
Date Sampled: 3/1/19

LGCI
Lahlaf Geotechnical Consulting, Inc.

Client: Mount Vernon Group Architects, Inc.
Project: Proposed Wareham Elementary School, Wareham, MA

Project No: 1816 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.6	7.3	5.6	24.3	37.3	18.9	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0	100.0	
1.5"	100.0	80.0 - 100.0	
0.75"	93.4		
0.5"	90.7	50.0 - 100.0	
#4	86.1	30.0 - 85.0	X
#8	81.5		
#20	72.2	15.0 - 60.0	X
#40	56.2		
#60	41.0	5.0 - 35.0	X
#200	18.9	0.0 - 10.0	X

* Structural Fill

Material Description

ASTM (D 2488) Classification: Silty SAND (SM), fine to coarse, 15-20% fines, 10-15% fine to coarse subangular gravel, trace organic soil, brown, moist

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 11.0478 D_{85}= 3.9524 D_{60}= 0.4881
D_{50}= 0.3435 D_{30}= 0.1516 D_{15}=
D_{10}= C_u= C_c=

Remarks

Fill sample.

Date Received: 2/25/19 **Date Tested:** 3/13/19

Tested By: NP

Checked By: AML

Location: Boring B-118
Sample Number: S2 **Depth:** 2'-4'

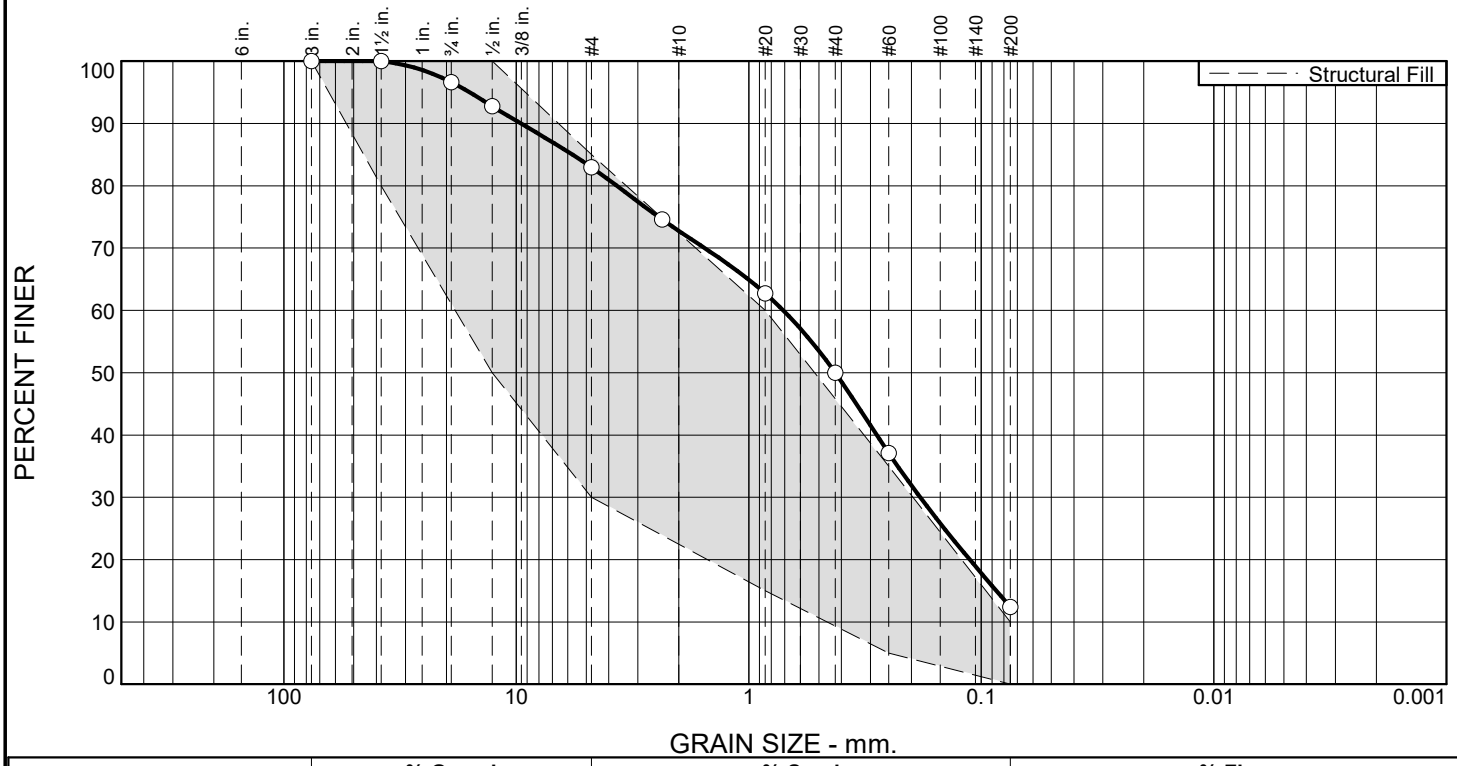
Date Sampled: 2/25/19

LGCI
Lahlaf Geotechnical Consulting, Inc.

Client: Mount Vernon Group Architects, Inc.
Project: Proposed Wareham Elementary School, Wareham, MA

Project No: 1816 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	3.4	13.6	10.2	22.8	37.6	12.4	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3"	100.0	100.0	
1.5"	100.0	80.0 - 100.0	
0.75"	96.6		
0.5"	92.8	50.0 - 100.0	
#4	83.0	30.0 - 85.0	
#8	74.6		
#20	62.7	15.0 - 60.0	X
#40	50.0		
#60	37.1	5.0 - 35.0	X
#200	12.4	0.0 - 10.0	X

* Structural Fill

Material Description

ASTM (D 2488) Classification: Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 10-15% fines, 15-20% fine to coarse subrounded gravel, 10-15% cobbles, light gray, moist

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 9.5407 D_{85}= 5.7333 D_{60}= 0.7113
D_{50}= 0.4247 D_{30}= 0.1829 D_{15}= 0.0862
D_{10}= C_u= C_c=

Remarks

Natural sand sample.

Date Received: 2/22/19 **Date Tested:** 3/14/19

Tested By: NP

Checked By: AML

Location: Test Pit TP-B103
Depth: 4'-12'

Date Sampled: 2/22/19

LGCI
Lahlaf Geotechnical Consulting, Inc.

Client: Mount Vernon Group Architects, Inc.
Project: Proposed Wareham Elementary School, Wareham, MA

Project No: 1816 **Figure**

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Lord Associates, Inc.
Environmental Consulting & Licensed Site Professional Services

1506 Providence Highway - Suite 30
Norwood, MA 02062-4647

Voice: 781.255.5554
Fax: 781.255.5535
www.lordenv.com

PHASE I-ENVIRONMENTAL SITE ASSESSMENT With Soil Sampling

Minot Forest Elementary School
63 Minot Avenue
Wareham, Massachusetts

Prepared for:

Mr. Ammar Dieb
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702-6218

Prepared by:

Lord Associates, Inc.
1506 Providence Highway, Suite 30
Norwood, Massachusetts 02062

Project # 2650
March 9, 2018

Lord Associates, Inc.
Environmental Consulting & Licensed Site Professional Services

1506 Providence Highway - Suite 30
Norwood, MA 02062-4647

Voice: 781.255.5554
Fax: 781.255.5535
www.lordenv.com

March 9, 2018

Mr. Ammar Dieb
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702-6218

RE: Phase I Environmental Site Assessment with Soil Sampling:
63 Minot Avenue
Wareham, Massachusetts

Dear Mr. Dieb:

Lord Associates, Inc. has completed a Phase I Environmental Site Assessment of the above-referenced property (the "Site"). Environmental investigations were completed with consideration to standard industry practice, the ASTM E1527-13 site assessment standard entitled "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process". The purpose of this assessment was to identify "Recognized Environmental Conditions" as defined in ASTM E1527-13, and to determine if additional investigation is warranted. This scope of work included the review of soil testing results.

This assessment has not identified any Recognized Environmental Conditions in connection with the Site. However, the lack of confirmatory soil sampling results associated with the removal of the two underground storage tanks in 1998 as required by state fire protection code, represents a Potential Environmental Concern. Based on anecdotal information obtained at the fire department that there was no evidence of leakage, no additional investigation is warranted at this time. Please refer to the attached report for specific details and findings of our assessment.

We appreciate the opportunity to have provided our professional environmental consulting and analytical services.

Sincerely,
LORD ASSOCIATES, INC.

Ralph Tella, CHMM, LSP
President

Andrea J. Lang
Project Manager

Enc.: Phase I ESA

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Purpose

Lord Associates, Inc. (LAI) has completed a Phase I Environmental Site Assessment for the Minot Forest Elementary School at 63 Minot Avenue, Wareham, Massachusetts (the "Site"). The purpose of this assessment was to identify "Recognized Environmental Conditions" as defined in ASTM standard E1527-13 (the "Standard"), and to determine if additional investigation is warranted.

Recognized Environmental Conditions are defined as the presence or likely presence of any hazardous substances or petroleum products on the property under conditions that indicate an existing release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term Recognized Environmental Conditions is not intended to include *de minimis* conditions which generally do not present a material risk of harm to public health or the environment, and that generally would not be the subject of a notification and/or enforcement action if brought to the attention of appropriate governmental agencies.

The Phase I consisted of a Site reconnaissance and an assessment of the Site and surrounding properties for visual and/or olfactory evidence of the use, storage, and/or release of oil and/or hazardous material. The Phase I also included a review of federal, state, and local agency files regarding the history of the Site and surrounding area relative to the use, storage and/or release of oil and/or hazardous material.

Please note that an investigation for the presence of mold, asbestos and PCBs in building materials, lead-based paint, indoor air quality, or regulatory compliance is beyond the scope of work described by ASTM E1527-13, therefore LAI did not explore those conditions.

1.2 Significant Assumptions

Factual information regarding operations, conditions, and other data provided by the Client, site contacts, third parties, and governmental agencies are assumed to be correct and complete.

1.3 Special Terms and Conditions

The Phase I ESA was conducted by LAI on behalf of the Client consistent with the agreed upon Scope of Work and LAI Standard Terms and Conditions. No other special terms and conditions were established in connection with these services.

2.0 SCOPE OF SERVICES

This assessment was performed following standard industry practice and with consideration to the ASTM E1527-13 site assessment standard entitled "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. The investigation included completion of the following tasks:

1. A field investigation was performed including a visual surficial inspection of the Site and abutting properties; and

2. The following agencies or services were contacted to inquire of past ownership, complaints, or violations concerning environmental issues at the Site and vicinity:

   - The Massachusetts Department of Environmental Protection (MADEP)
   - The Wareham Tax Assessor's Office
   - The Wareham Town Clerk's Office
   - The Wareham Board of Health
   - The Wareham Building Department
   - The Wareham Water Department
   - The Wareham Conservation Commission
   - The Wareham Fire Prevention Office
   - Environmental Data Resources
   - Sanborn Fire Insurance Maps
   - HistoricalAerials.com

3. The following agencies were contacted to determine the physical characteristics of the Site and vicinity:

   - USGS Topographical Maps
   - MADEP Priority Resource Maps
   - US Fish & Wildlife Service Wetlands Inventory
   - FEMA Flood Zone Maps
   - USDA Soil Survey Maps
   - Google Earth Pro

3.0 SITE DESCRIPTION

3.1 Site Location and Parcel Legal Description

Information provided indicates that the Site consists of a single parcel totaling approximately 20.9 acres of land located at the south side of Minot Avenue in Wareham, Massachusetts. A Site Location Map is included as **Figure 1**. The Site is designated as Parcel ID 42-1001 on the Wareham Tax Assessor's Map. The Tax Assessor's Map is included as **Figure 2** and a Site Plan depicting pertinent Site features is included as **Figure 3**.

Information provided indicates the Site longitude and latitude are approximately -70.687302° west and 41.755299° north, respectively. Universal Transverse Mercatur (UTM) coordinates are approximately 4,623,770 meters north by 359,721 meters east.

3.2 Site and Vicinity General Characteristics

The Site consists of a single parcel totaling approximately 20.9 acres of land. The Site property is located in a residential zoned area. The Site is improved with a two-story school building constructed on-slab with a footprint of approximately 38,843 square feet. The building comprises approximately 5 % of the Site.

Undeveloped land surrounds the Site to the south and west. A multi-tenant commercial property exists to the north. A multi-family residential development exists to the east.

3.3 Current Property Use

The Site building has been occupied by Minot Forest Elementary School since 1966.

3.4 Description of Improvements

The Site is improved with a two-story school building constructed on-slab with a footprint of approximately 38,843 square feet. The building occupied by Minot Forest Elementary School. The building is situated on the northern portion of the Site. Paved lots surround the building. A playground is located to the south of the building, athletic fields exist on the southeast portion of the Site and undeveloped exist on the southwest portion. According to the Wareham Assessors information, the building was constructed in 1966. A detailed Site description is presented in **Section 4.0**, photographs provided in the **Appendix A**.

3.4.1 Wastewater

Wastewater generated on-Site is discharged to the municipal sewer. No information pertaining to storm water handling and/or management was encountered during this assessment. No oil/water separators, floor drains or storm drains were observed in the building.

3.4.2 Water Supply

Water is supplied by the Town of Wareham; the connection date was not available through files reviewed.

3.4.3 Wells

No potable, groundwater monitoring, irrigation, injection, dry, or abandoned wells were observed or identified from the interviews or records reviewed.

3.4.4 Heating/Cooling System

Heat for the building is provided by natural gas-fired boilers located in the boiler room. AC is provided to the building by electrical window units.

3.4.5 Solid Waste Disposal

Three solid waste dumpsters were observed on the south side of the Site building. There were no areas of solid waste disposal, mounds or depressions, or areas apparently filled or graded by non-natural causes suggesting solid waste disposal observed.

3.4.6 Storage Tanks

One 10,000-gallon No. 4 heating oil underground fuel oil tank (UST) was associated with the boilers and one 500-gallon diesel UST was associated with the emergency generator installed on May 19, 1965. Removal permits were available at the Wareham Fire Department for both tanks; the 10,000-gallon No. 4 heating oil UST was removed on December 18, 1998 and the 500-gallon diesel UST was removed on December 28, 1998. No confirmatory soil sampling results or records of tank conditions were available for review at this location.

One 275-gallon diesel aboveground fuel oil tank (AST) is currently associated with the emergency generator and is located adjacent to the equipment.

3.4.7 Transformers, Hydraulic Equipment and Other Potential Evidence of the Potential Use of Polychlorinated Biphenyls

Polychlorinated Biphenyls (PCBs) can be found in hydraulic-oil filled electrical equipment (such as motors and pumps), capacitors or transformers, and fluorescent light ballasts manufactured prior to July 2, 1979.

LAI observed fluorescent light fixtures throughout the Site. The age of the fixtures could not be determined. However, it is not likely that the light ballasts were manufactured prior to 1979, as the average life span for the fluorescent fixtures is less than 15 years. Additionally, any light ballast manufactured after 1979 must be labeled “No PCB”. Note that electric light ballasts that contained PCBs had less than 1.5 ounces of PCB. The

reportable quantity requiring notification to the Massachusetts Department of Environmental Protection of a release is one pound. Therefore, the risk presented by PCB-containing ballasts is relatively low.

The Site is supplied with secondary electrical service provided by one pad mounted electrical transformer observed on the southwest side of the Site property. The transformer is owned by the public utility. The PCB content is unknown, however based on the apparent age of the equipment it is unlikely to be PCB-contaminated. This equipment appeared to be in good condition with no evidence of leaks. Sampling for building materials is beyond the scope of ASTM E1527.

One hydraulic elevator was observed in the building. The hydraulic reservoir for the elevator equipment was observed above the concrete floors; evidence of minor leaks and staining from the equipment was observed in the elevator equipment room. However, the equipment is located on a concrete floor; no cracks were observed in the floors. Sampling for building materials is beyond the scope of ASTM E1527.

No additional evidence of the potential use of polychlorinated biphenyls (PCBs) was observed on the Site during the inspections.

3.5 Current Uses of Adjoining Properties

Undeveloped land surrounds the Site to the south and west. A multi-tenant commercial property exists to the north. A multi-family residential development exists to the east. The table below summarizes current abutting land usage.

Table 1
Area Land Usage

Usage	Orientation
Multi-tenant commercial building (72 Minot Street)	North
Undeveloped land	South
Brandy Hill Apartments (12 State Street)	East
Undeveloped land	West

4.0 USER PROVIDED INFORMATION

4.1 User Questionnaire

A summary of user provided information is provided below.

A User Questionnaire was provided to the User (Client) to assist the User and LAI in gathering information from the User that may be material to identifying RECs. The following answers were provided by the User's Representative.	**Response Inquiry**
Name and title	Bruce Denson, Maintenance Supervisor, Minot Forest Elementary School
Tenure with Site	30 years
Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?	NO
Are you aware of any Activity and Use Limitations, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?	NO
As the user of this ESA do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?	NO
Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?	NA
Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user:	
Do you know the past uses of the property?	YES, undeveloped land
Do you know of specific chemicals that are present or once were present at the property?	NO
Do you know of spills or other chemical releases that have taken place at the property?	NO
Do you know of any environmental cleanups that have taken place at the property?	NO
As the user of this ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property?	NO

4.2 Title Records

LAI did not review the property title.

4.3 Environmental Liens, Activity and Use Limitations

The owner has no knowledge of environmental liens, and the agency check revealed no listing for an Activity and Use Limitation in connection with the Site.

4.4 Specialized Knowledge

No specialized knowledge of Recognized Environmental Conditions was provided to LAI by the owner or client.

4.5 Commonly Known or Reasonably Ascertainable Information

No commonly known or reasonably ascertainable information regarding Recognized Environmental Conditions was provided to LAI by the owner or client.

4.6 Valuation Reduction for Environmental Issues

No information regarding the sale price of the Site in comparison to the expected value of the property was provided to LAI by the owner or client.

4.7 Owner, Property Manager, and Occupant Information

According to the Wareham Assessor's Department, the current owner of the property is:

Town of Wareham
Wareham, Massachusetts 02571

LAI conducted an interview with Mr. Bruce Denson, the maintenance supervisor for Minot Forest School. Mr. Denson provided information regarding the history of the Site and operations at the Site, and as such was considered to be a representative of the User. Mr. Denson indicated that the Site was previously unoccupied land and that the current Site building was constructed in 1966.

4.8 Reason for Performing Phase I Study

A Phase I ESA is being conducted in connection with the redevelopment of the property.

5.0 RECORDS REVIEWS

A review of federal, state and local regulatory agency files was conducted in accordance with ASTM E-152713 standards to identify the use, generation, storage, treatment, disposal and/or release of oil and/or hazardous materials that may potentially impact the Site.

5.1 Municipal Offices

5.1.1 Assessor's Office

Lord Associates, Inc. visited the municipal Assessor's Office on March 6, 2018 and reviewed the current property card on-line on March 1, 2018 (see attached in **Appendix C**) to collect historical ownership information for the Site. This data was reviewed for the purposes of land use determination and should not be relied upon as a complete chain-of-title. The following table offers a summary of ownership information for the Site and was obtained at the Massachusetts Registry of Deeds website.

Table 2
Chain of Title

Grantee	Date of Acquisition	Book/Page
Henry M. Channing	Not listed	Not Listed
Town of Wareham	2/15/1951	2182/173

5.1.2 Board of Health

LAI made inquiries at the municipal Board of Health Department on March 6, 2018. No records of environmental concern were on-file for the Site.

5.1.3 Building Department

A review of files was requested at the municipal Building Department to obtain information on historical building alterations on March 6, 2018. Various building, electrical, and plumbing permits were on file. No records of environmental significance were on-file.

5.1.4 Water Department

Water is supplied by the municipal Water Department; the connection date was not available.

5.1.5 Conservation Commission

A review of files was requested at the municipal Conservation Commission regarding environmental violations on March 6, 2018. No records were available pertaining to the Site.

5.1.6 Clerk's Office

A review of files was requested at the municipal Clerk's Office regarding environmental violations on March 6, 2018. No records were available pertaining to the Site.

5.1.7 Fire Department

LAI visited the Fire Prevention Office on March 6, 2018 and requested a review of information regarding the storage of hazardous materials at the Site. Fire Department records indicated that one 10,000-gallon No. 4 heating oil underground fuel oil tank (UST) was associated with the boilers and one 500-gallon diesel UST was associated with the emergency generator were installed on May 19, 1965. Removal permits were available for both tanks; the 10,000-gallon No. 4 heating oil UST was removed on December 18, 1998

and the 500-gallon diesel UST was removed on December 28, 1998. No confirmatory soil sampling results were available for review at this location. Based on a review of photographs and anecdotal information obtained, no contamination was observed.

5.2 Sanborn/Historical Map Review

Sanborn Fire Insurance Maps were reviewed for the Site and vicinity. Sanborn Maps usually show property use and underground commercial fuel storage for the purposes of insurance companies. No Sanborn Maps were available for the Site.

5.3 Historical Aerial Photograph Review

Aerial photographs from 1966, 1971, 1981, 1995, 1997, 2001, 2003, 2005, 2008, 2009, 2010, 2012, and 2014 were reviewed through the Historic Aerials website (www.historicaerials.com) and a current 2017 aerial photograph was reviewed from Google Earth. The following table summarizes the aerial photographs review.

Table 3
Aerial Photographs

Aerial Year	Site Description	Area Description	
		Direction	Description
1966 1971	The Site appears with one apparent school structure. The Site building appears similar to the current configuration	North	Undeveloped land
		South	Undeveloped land
		East	Undeveloped land
		West	Undeveloped land
1981 1995 1997 2001 2003 2005	The Site appears with one apparent school structure. The Site building appears similar to the current configuration	North	Commercial property
		South	Undeveloped land
		East	Apartment development
		West	Undeveloped land
2008 2009 2010 2012 2017	The Site appears with one apparent school structure. The Site building appears similar to the current configuration.	North	Commercial property
		South	Undeveloped land
		East	Apartment development
		West	Undeveloped land

5.4 Radius Search for Properties of Environmental Concern

A radius search was conducted of federal and state-listed sites of potential environmental concern as outlined in ASTM E1527 guidelines. The search was performed using software developed by Environmental Data Resources (EDR).

The Site is not listed on any of the regulatory databases. Sites identified within the designated ASTM search radii are summarized in the following table. The EDR report is included in **Appendix B.**

Table 4
Properties of Potential Environmental Concern

NPL (1 mi.)	RCRIS TSDF (1 mi.)	CERCLIS (0.5 mi.)	Landfill (0.5 mi.)	STATE SITES (0.50 mi.)	LUST & SPILLS (0.25 mile)	ERNS (Site/ Abutters	RCRIS (Site/ Abutter	UST (Site/ Abutter
NI	NI	NI	NI	**Pole 592/2** **72 Minot Ave** **Adjoining North** **Elev Diff= -46** **4-17389/RAO** Wareham Freight yard Freight House Rd W/0.407 mi. Elev Diff= -62 4-21093/RAONR 4-20532/TierI	NI	NI	NI	NI

Notes:
All addresses are located in Wareham, MA
N=north, S=south, W=west, E=east
NPL = National Priorities List
RCRIS = Resource Conservation and Recovery Information System
TSDF = Treatment Storage & Disposal Facilities
ERNS = Environmental Response Notification System
NI = None Identified
NFA – LSP Opinion of No Further Action
RAO = Response Action Outcone, Closed in accordance with MADEP Regulations
TierII = Listed with MADEP due to oil or hazardous material in soil/groundwater (not closed)
DPS = Downgradient Property Status (contamination is from an upgradient source)
UST = Underground Storage Tank
F = Final
AUL = Activity and Use Limitation
DEPNFA= DEP No Further Action
PENNFA=Pending No Further Action
PSNC=Permanent Solution with No Conditions

5.5 Massachusetts Department of Environmental Protection Review

Pertinent files were reviewed at the Massachusetts Department of Environmental Protection (MADEP). Copies of pertinent files are included in Appendix C. Those properties shown in bold in the preceding table were reviewed and are summarized as follows:

Pole 592/2
72 Minot Aveune
Adjoining North
4-17389/RAO

LAI reviewed a Response Action Outcome (RAO) Statement report prepared by NSTAR Electric and Gas, dated October 2002. On October 2, 2002, a guy wire that supported utility pole #592/2 broke causing the utility pole to fall. The pole was used to support overhead electric power distribution wires and three 50 kva electric power distribution transformers. When the pole fell, the transformers came down with it and struck the ground surface at the rear of 72 Minot Avenue, subsequently releasing their contents of MODF. Collectively, the 3 transformers contained approximately 77-gallons of MODF. Following the incident, 40-gallons was recovered from the damaged transformer carcasses. Therefore, it was estimated that 37-gallons was released. The released MODF impacted soils and a small area of asphalt pavement. The overall impact area on soil was 10-feet long by 5-feet wide to a depth of 2-feet below grade. No storm water catch basins, surface water, or groundwater were impacted by this release.

A copy of the report is available upon request.

5.6 Previous Reports-Soil Sampling

The analytical laboratory testing results of four soil samples collected by LGCI and UEC were reviewed by LAI. The soil samples identified as being from test pits TP-6, TP-7, TP-9 and TP-10 were collected on April 3, 2019 as part of the geotechnical evaluation. The samples were submitted to Rhode Island Analytical Laboratory for disposal characterization testing pursuant to Mass Landfill Policy Comm-97, including the 14 MCP metals.

The results of that testing indicated that none of the parameters exceeded a Reportable Concentration and that all met the Massachusetts landfill disposal requirements. A copy of that report is provided as **Appendix D**.

5.7 Physical Setting Sources

LAI reviewed information provided by the United States Geological Survey (USGS) in connection with physiographic conditions, soil and bedrock types. LAI also reviewed the MADEP Priority Resource Map for the area, and located natural resources during the Site Reconnaissance. According to the USGS Wareham, Massachusetts Quadrangle Topographical Map, the elevation of the Site is approximately 85 feet above mean sea level. Topography of the Site vicinity is sloped to the north. The direction of groundwater flow in the vicinity is estimated to the north.

No pits, ponds or lagoons are located at the Site. Agawam River waterway is located approximately 500 feet to the north of the Site. Review of the MADEP Priority Resource Map published by the MADEP, indicated the Site is located in a potential Sole Source

aquifer area. Review of the National Wetlands Inventory from the U.S fish and Wildlife Service, indicated that wetlands are not located on the Site or adjacent properties.

The Soil Survey of Plymouth County indicates that soil in the vicinity of the Site is classified as Poquonock sands, and indicates a well-drained, loamy sand.

5.8 Historical Use Information

Research regarding historical land usage of the Site and surrounding properties was conducted using data obtained from historical maps, parties familiar with the Site, and municipal officials. Based on information gathered through the course of this assessment, the following summary history of the Site has been prepared:

- No historical data is available prior to 1951. The Site was undeveloped land until 1965. In 1966, the construction of the current building was complete.

6.0 SITE RECONNAISSANCE

6.1 Methodology and Limiting Conditions

On March 6, 2018, LAI personnel conducted on-Site inspections, which consisted of a visual examination of the Site and portions of adjacent properties and interviews with Site personnel. Areas were examined for surficial indications of releases of oil and/or hazardous materials (OHM).

Mr. Bruce Denson, the maintenance supervisor for Minot Forest School, accompanied our personnel during the inspection. A Site Plan depicting significant features observed is included as **Figure 3** and photographs are included in **Appendix A** of this report.

6.2 Interior Inspection

The Site is improved with a two-story school building constructed on-slab with a footprint of approximately 38,843 square feet.

Heat for the building is provided by natural gas-fired boilers located in the boiler room. AC is provided to the building by electrical window units. One 275-gallon diesel aboveground fuel oil tank (AST) is currently associated with the emergency generator and is located adjacent to the equipment.

One hydraulic elevator was observed in the building. The hydraulic reservoir for the elevator equipment was observed above the concrete floors; evidence of minor leaks and staining from the equipment was observed in the elevator equipment room. However, the equipment is located on a concrete floor; no cracks were observed in the floors.

No evidence of significant staining or surface release of OHM was observed through the course of our inspection. No visible evidence of significant mold was observed.

6.3 Exterior Inspection

The building occupied by Minot Forest Elementary School. The building is situated on the northern portion of the Site. Paved lots surround the building. A playground is located to the south of the building, athletic fields exist on the southeast portion of the Site and undeveloped exist on the southwest portion. Three solid waste dumpsters were observed on the south side of the Site building.

The Site is supplied with secondary electrical service provided by one pad mounted electrical transformer observed on the southwest side of the Site property. The transformer is owned by the public utility. The PCB content is unknown, however based on the apparent age of the equipment it is unlikely to be PCB-contaminated. This equipment appeared to be in good condition with no evidence of leaks.

Undeveloped land surrounds the Site to the south and west. A multi-tenant commercial property exists to the north. A multi-family residential development exists to the east.

LAI did not observe any odors, pools of liquid, ponds, lagoons, stressed vegetation, suspicious containers or tanks, evidence of septic systems, or solid waste disposal during the reconnaissance.

7.0 INTERVIEWS

LAI interviewed the current owner representative in connection with property conditions and the potential for Recognized Environmental Conditions.

Mr. Bruce Denson, the maintenance supervisor for Minot Forest School accompanied our personnel during the inspection. He was interviewed and questioned of any knowledge regarding environmental conditions or releases at the Site.

8.0 SUMMARY OF FINDINGS AND CONCLUSION

8.1 Findings

The findings of Lord Associates, Inc. Phase I Environmental Site Assessment of the Site are presented below:

1. Information provided indicates that the Site consists of a single parcel totaling approximately 20.9 acres of land located at the south side of Minot Avenue in Wareham, Massachusetts. The Site is designated as Parcel ID 42-1001 on the Wareham Tax Assessor's Map. The Site property is located in a residential zoned area.

2. The Site is improved with a two-story school building constructed on-slab with a footprint of approximately 38,843 square feet. The building occupied by Minot Forest Elementary School. The building is situated on the northern portion of the Site. Paved lots surround the building. A playground is located to the south of the building, athletic fields exist on the southeast portion of the Site and undeveloped exist on the southwest portion.

3. No historical data is available prior to 1951. The Site was undeveloped land until 1965. In 1966, the construction of the current building was complete. The Site building has been occupied by Minot Forest Elementary School since 1966.

4. Lord Associates, Inc. conducted an inspection of the Site consisting of a visual examination of the Site, immediate surrounding features, and abutting properties. The building is connected to the municipal water and sewer systems. Heat for the building is provided by natural gas-fired boilers located in the boiler room. AC is provided to the building by electrical window units.

5. Municipal file reviews were performed. Fire Department records indicated that one 10,000-gallon No. 4 heating oil underground fuel oil tank (UST) was associated with the boilers and one 500-gallon diesel UST was associated with the emergency generator installed on May 19, 1965. Removal permits were available at the Wareham Fire Department for both tanks; the 10,000-gallon No. 4 heating oil UST was removed on December 18, 1998 and the 500-gallon diesel UST was removed on December 28, 1998. No confirmatory soil sampling results were available. Based on observations of Fire Department personnel during the removal, in addition to photos reviewed in the file, contamination was not indicated.

6. The Site is not listed on any of the regulatory databases searched. Several state-listed properties were identified in the radius search of waste sites in the vicinity. Based on the information in the database, the location, distance, regulatory status and/or cleanup activities, it is our opinion that the properties listed are not likely to have current or former releases of hazardous substances and/or petroleum products with the potential to migrate to the property that would result in a material threat to public health or the environment. Migration refers to the movement of hazardous substances or petroleum products in any form, including solid and liquid at the surface or subsurface and vapor in the subsurface.

7. The results of four soil samples collected during exploratory geotechnical soil sampling indicate that all parameters met applicable Massachusetts Landfill disposal characteristics.

8.2 Conclusions

Lord Associates, Inc. has completed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM E152713 of 63 Minot Avenue, Wareham, Massachusetts, the Site. Any exceptions to, or deletions from, this practice are described in **Section 10** of this report.

This assessment has not identified any Recognized Environmental Conditions in connection with the Site. However, the lack of confirmatory soil samples associated with the removal of the two USTs in 1998, represents a Potential Environmental Concern. No additional investigation is warranted at this time based on anecdotal information obtained indicating that there was no contamination observed.

9.0 RESTRICTIVE CONDITIONS

9.1 Limitations & Deviations

LAI recognizes the following limitations and/or deviations from the Standard with respect to this Phase I Environmental Site Assessment:

- LAI did not interview past owners of the Site;
- LAI did not interview owners of neighboring property;
- LAI did not review Title Records for the Site; and
- LAI did not conduct an evaluation of the purchase price of the Site compared to the fair market value.

9.2 Significance of Data Gaps

As described above, the deviations from the Standard constitute data gaps. However, it is our opinion that these data gaps do not raise reasonable concerns that would affect the ability to identify conditions indicative of a release or threatened release or Recognized Environmental Conditions (RECs) based upon other information collected during the course of the Phase I Environmental Site Assessment.

- Although the past owner and owners of neighboring property were not interviewed, site and surrounding area history does not indicate prior use involving oil and/or hazardous materials.
- In Massachusetts, all environmental liens and Activity and Use Limitations are identified on the MADEP sites database, which has been searched.
- Based on Site History, there is no reasonable indication that property value has been affected due to environmental concerns.

10.0 LIMITATIONS

No warranty, whether expressed or implied, is given with respect to this report or any opinions expressed herein. It is expressly understood that this report and the opinions expressed herein are based upon Site conditions, as they existed only at the time of assessment. Nothing in this report constitutes a legal opinion or legal service, and should not be relied upon as such.

The data reported and the findings, observations, and opinions expressed in the report are limited by the Scope of Work. The Scope of Work was performed based on budgetary, time, and other constraints imposed by the Client, and the agencies and persons reviewed.

In preparing this report, Lord Associates, Inc. has relied upon and presumed accurate certain information about the Site and adjacent properties provided by governmental agencies, the client and others identified in the report. Except as otherwise stated in the report, Lord Associates, Inc. has not attempted to verify the accuracy or completeness of any such information.

This report has been prepared on behalf of and for the exclusive use of the client, and those immediate entities involved with the proximate financing of this project, solely for use in the environmental evaluation of the Site. Any reuse or reliance on this report by any other third party shall be done only with the written consent of LAI.

11.0 SIGNATURES AND ENVIRONMENTAL PROFESSIONAL STATEMENT

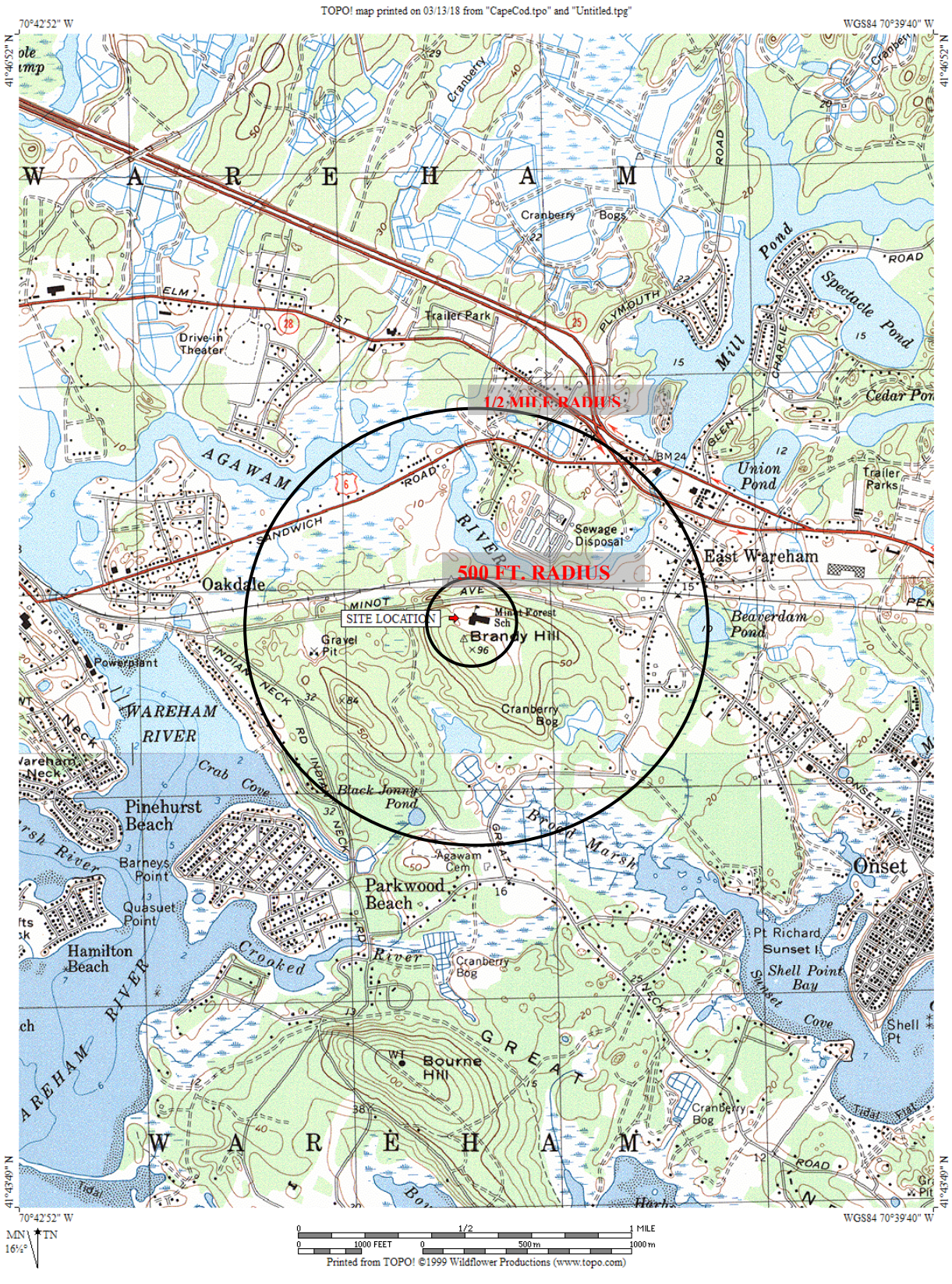
LAI declares that, to the best of our professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR 312. LAI has the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. LAI has developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

This report is dated this June 6, 2019 and is signed by individuals who are duly authorized to do so.

Ralph Tella, CHMM, LSP
President

Andrea J. Lang
Project Manager

APPENDIX A



LORD ASSOCIATES, INC.

1506 Providence Highway, Suite 30
Norwood, MA 02062-4647
(781) 255-5554

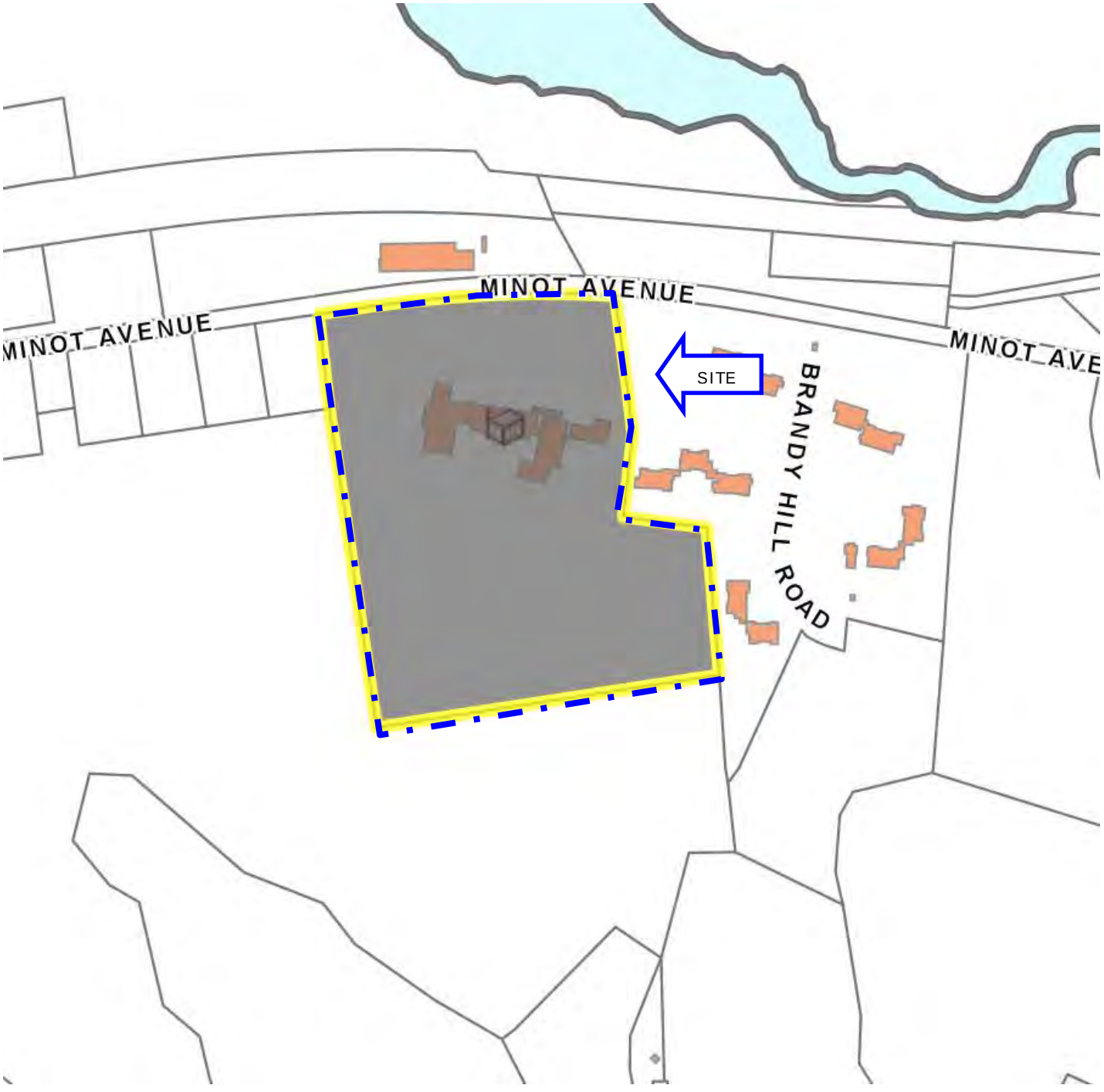
REFERENCE:

USGS TOPOGRAPHIC MAPS
WAREHAM QUADRANGLE
CONTOUR INTERVAL: 3 METERS

NORTH

FIGURE 1: LOCATION MAP

63 MINOT AVENUE
WAREHAM, MASSACHUSETTS



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Norwood, MA 02062-4647
(781) 255-5554

REFERENCE:

EXCERPT OF FITCHBURG
PARCEL ID: 192-9-1, 192-9-2,
192-9-3

NORTH

FIGURE 2: TAX MAP

63 MINOT AVENUE
WAREHAM, MASSACHUSETTS

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REFERENCE:

SCALE: NTS DRAWN BY: AJL
DATE: 3/18/2018
T-Transformer
D-Dumpster
U-Location of former USTs

NORTH

FIGURE 3: SITE PLAN

63 MINOT AVENUE
WAREHAM, MASSACHUSETTS

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REFERENCE:

GOOGLE MAPS

NORTH

FIGURE 4: AERIAL MAP

63 MINOT AVENUE
WAREHAM, MASSACHUSETTS

MassDEP - Bureau of Waste Site Cleanup

Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

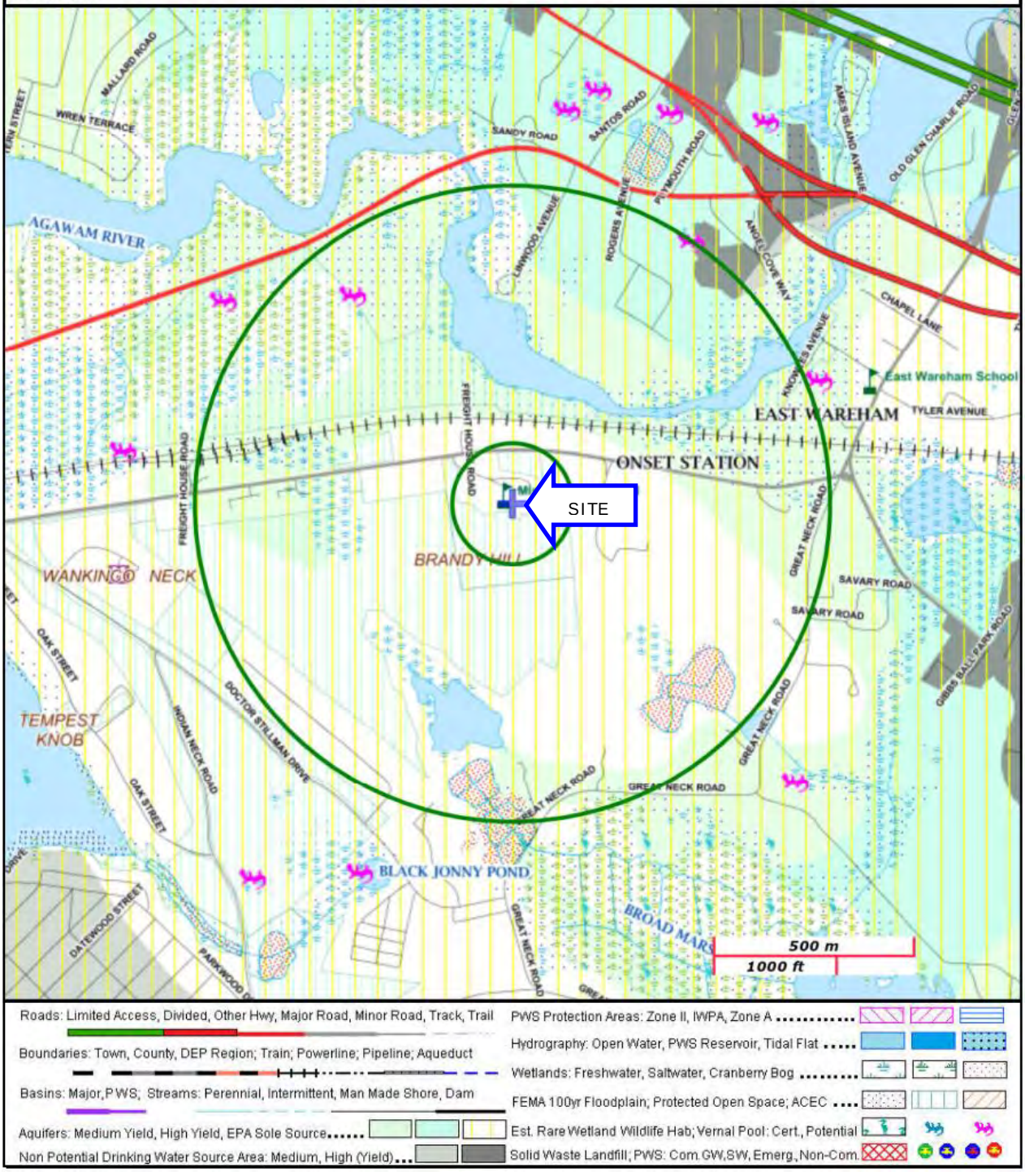
Site Information:

63 MINOT AVE WAREHAM, MA

NAD83 UTM Meters:
4624032mN , 359745mE (Zone: 19)
March 13, 2018

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: http://www.mass.gov/mgis/.

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection



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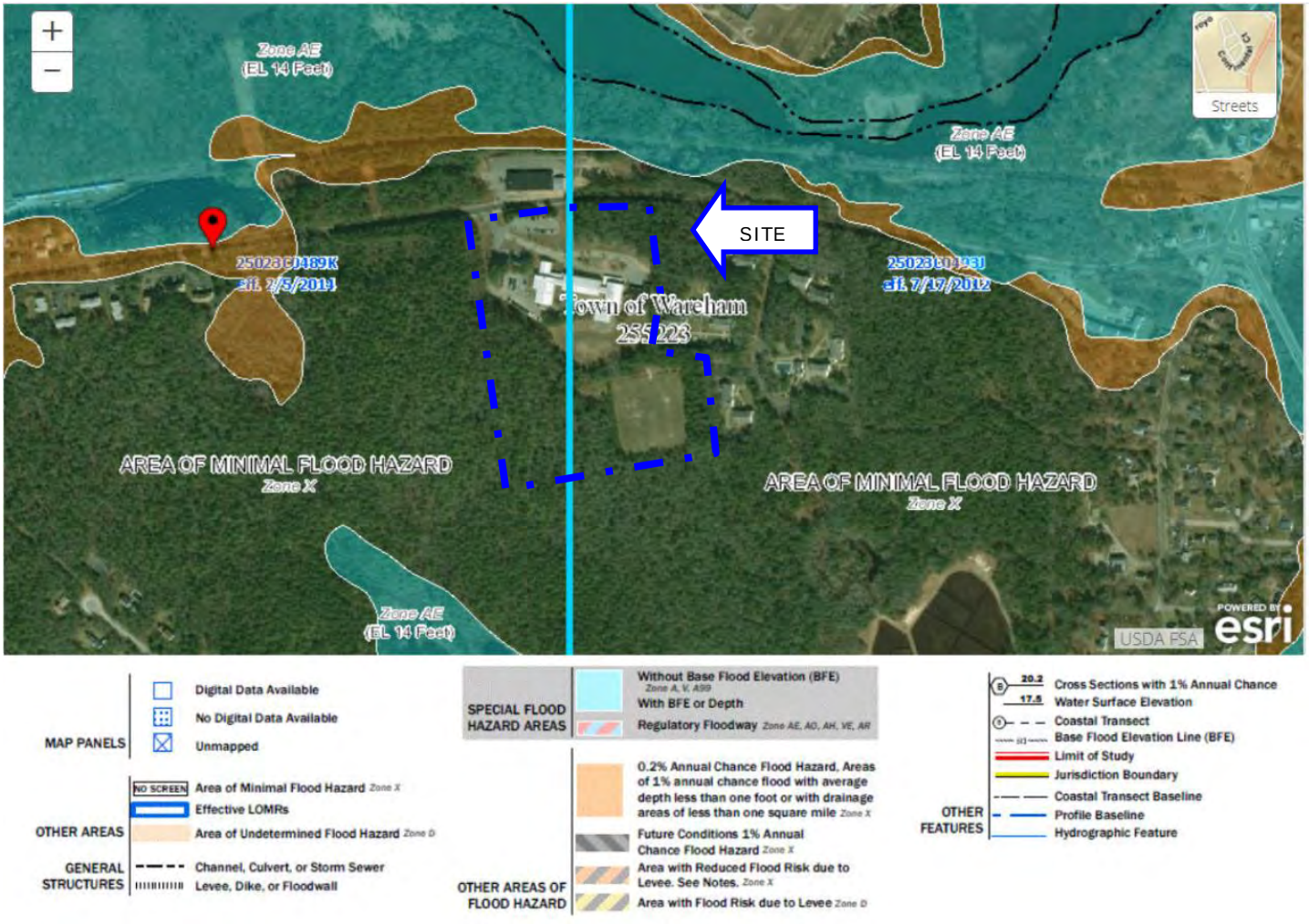
REFERENCE:
MASSACHUSETTS GIS
DEP PRIORITY RESOURCES MAP
http://maps.massgis.state.ma.us/21e/

NORTH

FIGURE 5: PRIORITY RESOURCES

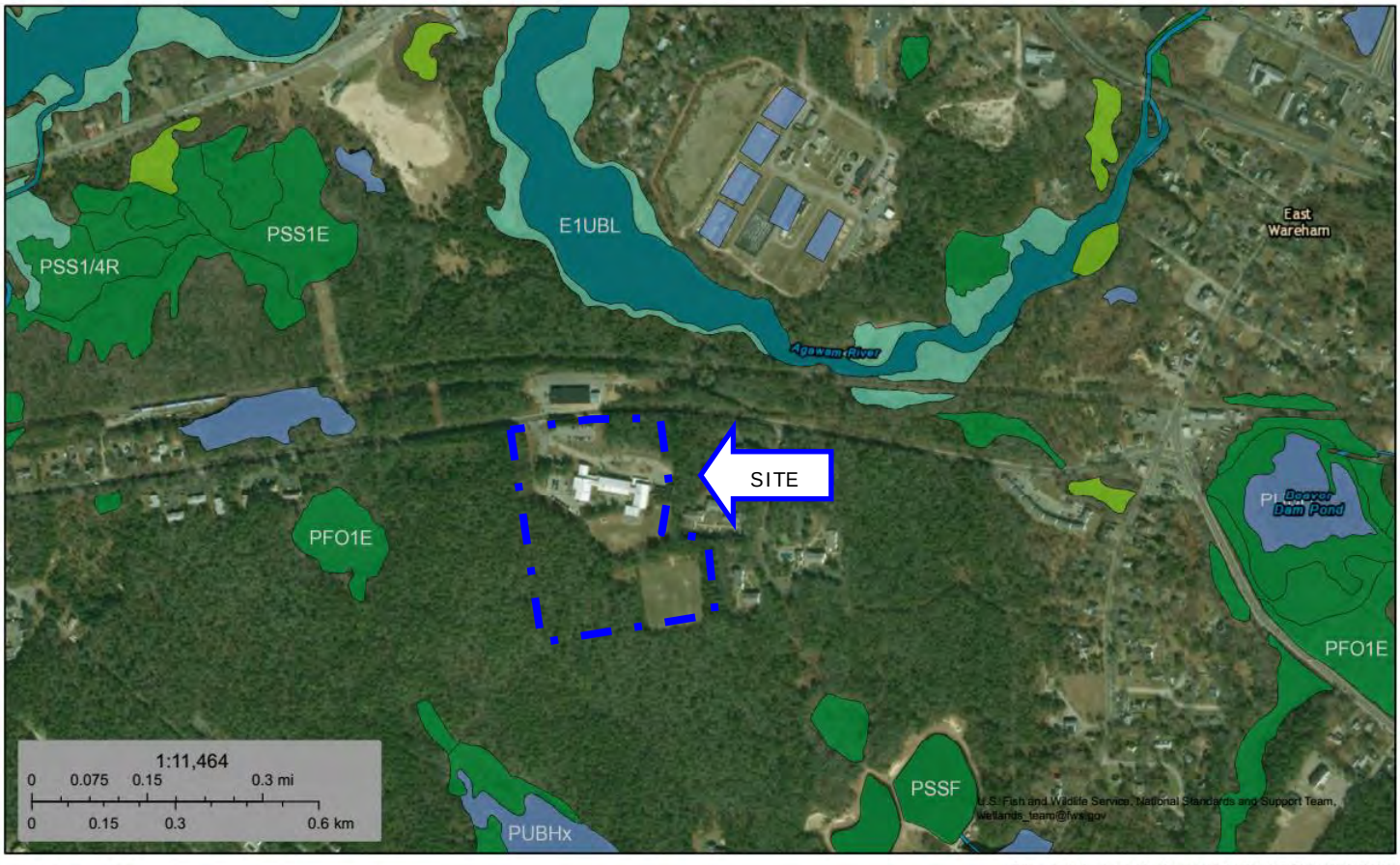
63 MINOT AVENUE
WAREHAM, MASSACHUSETTS



LORD ASSOCIATES, INC. 1506 Providence Highway, Suite 30 Norwood, MA 02062-4647 (781) 255-5554	REFERENCE: FEMA.gov	NORTH	FIGURE 6: FEMA MAP 63 MINOT AVENUE WAREHAM, MASSACHUSETTS

U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands



March 13, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

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(781) 255-5554

REFERENCE:

US FISH AND WILDLIFE SERVICE
NATIONAL WETLANDS

NORTH

FIGURE 7: WETLANDS MAP

63 MINOT AVENUE
WAREHAM, MASSACHUSETTS

Photo #1:	North side of Site building.

Photo #2:	North and west sides of the Site building.

Photo #3:	East side of the Site building.

Photo #4:	West side of Site building.

Photo #5:	North side of Site.

Photo #6:	South side of Site building.

Photo #7:	Transformer.

Photo #8:	Water heaters.

Photo #9:	Emergency generator.

Photo #10:	275-gallon AST associated with the emergency generator.

Photo #11:	Boilers.

Photo #12:	Hydraulic elevator eqipment.

APPENDIX B

85 Minot Ave

85 Minot Ave

Wareham, MA 02571

Inquiry Number: 5208844.7

March 05, 2018

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

03/05/18

Site Name:

85 Minot Ave
85 Minot Ave
Wareham, MA 02571
EDR Inquiry # 5208844.7

Client Name:

Lord Associates, Inc.
1506 Providence Highway
Norwood, MA 02062
Contact: Andrea Lang

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Lord Associates, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 5532-4B65-86EB

PO # 2650

Project NA

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: 5532-4B65-86EB

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

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85 Minot Ave
85 Minot Ave
Wareham, MA 02571

Inquiry Number: 5208844.9s
March 05, 2018

EDR FIRST REPORT

A Search of ASTM E1527-13 §8.2.1 Databases

Table of Contents

This report includes a search of reasonably available environmental records to assist the professional in compliance with Section 8.2.1 Standard Federal, State, and Tribal Environmental Record Source of ASTM Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (E1527-13). Additional environmental records sources may be available for your property.

Target Site: 85 MINOT AVE
WAREHAM, MA 02571

Site Location

	Degrees (Decimal)	Degrees (Min/Sec)	UTMs	
Longitude:	70.687302	70.6873020 - 70° 41' 14.28''	Easting:	359721.4
Latitude:	41.755299	41.7552990 - 41° 45' 19.07''	Northing:	4623770.5
Elevation:	84 ft. above sea level		Zone:	Zone 19

Search Summary

TARGET SITE: **85 MINOT AVE**
WAREHAM, MA 02571

Category	Database	Update	Radius	Site	1/8	1/4	1/2	> 1/2	Orphan	TOTALS
Federal NPL site list										
	NPL	12/11/2017	1.000	0	0	0	0	0	0	0
	Proposed NPL	12/11/2017	1.000	0	0	0	0	0	0	0
	NPL LIENS	10/15/1991	TP	0	-	-	-	-	0	0
Federal Delisted NPL site list										
	Delisted NPL	12/11/2017	1.000	0	0	0	0	0	0	0
Federal CERCLIS list										
	FEDERAL FACILITY	11/07/2016	0.500	0	0	0	0	-	0	0
	SEMS	12/11/2017	0.500	0	0	0	0	-	0	0
Federal CERCLIS NFRAP site list										
	SEMS-ARCHIVE	12/11/2017	0.500	0	0	0	0	-	0	0
Federal RCRA CORRACTS facilities list										
	CORRACTS	12/11/2017	1.000	0	0	0	0	0	0	0
Federal RCRA non-CORRACTS TSD facilities list										
	RCRA-TSDF	12/11/2017	0.500	0	0	0	0	-	0	0
Federal RCRA generators list										
	RCRA-LQG	12/11/2017	0.250	0	0	0	-	-	0	0
	RCRA-SQG	12/11/2017	0.250	0	0	0	-	-	0	0
	RCRA-CESQG	12/11/2017	0.250	0	0	0	-	-	0	0
Federal institutional controls / engineering controls registries										
	LUCIS	05/22/2017	0.500	0	0	0	0	-	0	0
	US ENG CONTROLS	11/13/2017	0.500	0	0	0	0	-	0	0
	US INST CONTROL	11/13/2017	0.500	0	0	0	0	-	0	0
Federal ERNS list										
	ERNS	09/18/2017	TP	0	-	-	-	-	0	0
State- and tribal - equivalent CERCLIS										
	SHWS	01/10/2018	1.000	0	1	0	1	9	3	14
State and tribal landfill and/or solid waste disposal site lists										
	SWF/LF	01/10/2017	0.500	0	0	0	0	-	0	0

Search Summary

TARGET SITE: **85 MINOT AVE**
WAREHAM, MA 02571

Category	Database	Update	Radius	Site	1/8	1/4	1/2	> 1/2	Orphan	TOTALS
State and tribal leaking storage tank lists										
	LUST	01/10/2018	0.500	0	0	0	0	-	0	0
	LAST	01/10/2018	0.500	0	0	0	2	-	1	3
	INDIAN LUST	04/14/2017	0.500	0	0	0	0	-	0	0
State and tribal registered storage tank lists										
	FEMA UST	05/15/2017	0.250	0	0	0	-	-	0	0
	UST	10/24/2017	0.250	0	0	0	-	-	0	0
	AST	10/22/2009	0.250	0	0	0	-	-	0	0
	INDIAN UST	04/14/2017	0.250	0	0	0	-	-	0	0
State and tribal institutional control / engineering control registries										
	INST CONTROL	01/10/2018	0.500	0	0	0	1	-	0	1
State and tribal voluntary cleanup sites										
	INDIAN VCP	07/27/2015	0.500	0	0	0	0	-	0	0
State and tribal Brownfields sites										
	BROWNFIELDS	04/05/2017	0.500	0	0	0	0	-	0	0
	- Totals --			0	1	0	4	9	4	18

Sites Sorted by Distance

TARGET PROPERTY ADDRESS:

85 MINOT AVE
WAREHAM, MA 02571

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft, mi.) DIRECTION
1	POLE 592/2	72 MINOT AVE	SHWS	Lower	163, 0.031, North
2	WAREHAM YARD	FREIGHT HOUSE RD	SHWS	Lower	2148, 0.407, West
A3	BRYANT OIL INC SUPER	140 SANDWICH RD	LAST, INST CONTROL	Lower	2286, 0.433, NW
A4	SUPERIOR FUEL NEXT T	136 SANDWICH RD	LAST	Lower	2446, 0.463, NW
5	NO LOCATION AID	447 ONSET AVE	SHWS	Lower	2715, 0.514, East
6	LA CASSES BP STATION	109 ONSET AVE	SHWS	Lower	3685, 0.698, ESE
7	MAXI GAS	3242 CRANBERRY HWY	SHWS	Lower	3894, 0.738, ENE
8	NO LOCATION AID	11 APPLE ST	SHWS	Lower	3992, 0.756, WNW
9	GRASSI RESIDENCE	4 BIRCH ST	SHWS	Lower	4143, 0.785, SW
10	NO LOCATION AID	65 PARKWOOD DR	SHWS	Lower	4190, 0.794, SW
11	NO LOCATION AID	26 PHEASANT AVE	SHWS	Lower	4476, 0.848, NW
12	NO LOCATION AID	31 OLD ONSET RD	SHWS	Lower	4691, 0.888, ESE
13	RESIDENCE	9 EAST EDGEWATER DR	SHWS	Lower	5014, 0.950, SSW

Sites Sorted by Database

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

SURROUNDING SITES: SEARCH RESULTS

State- and tribal - equivalent CERCLIS

SHWS: Reportable Releases Database

Site	Address	Direction / Distance	Map ID	Page
POLE 592/2 Release Tracking Number / Current Status: 4-0017389 / RAO	72 MINOT AVE	N (0.031 mi. / 163 ft.)	1	4
WAREHAM YARD Release Tracking Number / Current Status: 4-0021093 / RAONR Release Tracking Number / Current Status: 4-0020532 / TIERI	FREIGHT HOUSE RD	W (0.407 mi. / 2148 ft.)	2	4
NO LOCATION AID Release Tracking Number / Current Status: 4-0013284 / RAO	447 ONSET AVE	E (0.514 mi. / 2715 ft.)	5	5
LA CASSES BP STATION Release Tracking Number / Current Status: 4-0012572 / RAO	109 ONSET AVE	ESE (0.698 mi. / 3685 ft.)	6	6
MAXI GAS Release Tracking Number / Current Status: 4-0000552 / RAO	3242 CRANBERRY HWY	ENE (0.738 mi. / 3894 ft.)	7	6
NO LOCATION AID Release Tracking Number / Current Status: 4-0019141 / RAO	11 APPLE ST	WNW (0.756 mi. / 3992 ft.)	8	7
GRASSI RESIDENCE Release Tracking Number / Current Status: 4-0025771 / PSNC	4 BIRCH ST	SW (0.785 mi. / 4143 ft.)	9	7
NO LOCATION AID Release Tracking Number / Current Status: 4-0015199 / RAO	65 PARKWOOD DR	SW (0.794 mi. / 4190 ft.)	10	8
NO LOCATION AID Release Tracking Number / Current Status: 4-0013457 / RAO	26 PHEASANT AVE	NW (0.848 mi. / 4476 ft.)	11	8
NO LOCATION AID Release Tracking Number / Current Status: 4-0014615 / RAO	31 OLD ONSET RD	ESE (0.888 mi. / 4691 ft.)	12	9
RESIDENCE Release Tracking Number / Current Status: 4-0021940 / RAO	9 EAST EDGEWATER DR	SSW (0.950 mi. / 5014 ft.)	13	9

State and tribal leaking storage tank lists

LAST: Leaking Aboveground Storage Tank Sites

Site	Address	Direction / Distance	Map ID	Page
BRYANT OIL INC SUPER Release Tracking Number / Current Status: 4-0000735 / PSC	***140 SANDWICH RD***	***NW (0.433 mi. / 2286 ft.)***	***A3***	***5***

Sites Sorted by Database

Site	Address	Direction / Distance	Map ID	Page
SUPERIOR FUEL NEXT T	136 SANDWICH RD	NW (0.463 mi. / 2446 ft.)	A4	5
Release Tracking Number / Current Status: 4-0010726 / RAONR				
Release Tracking Number / Current Status: 4-0021940 / RAO				

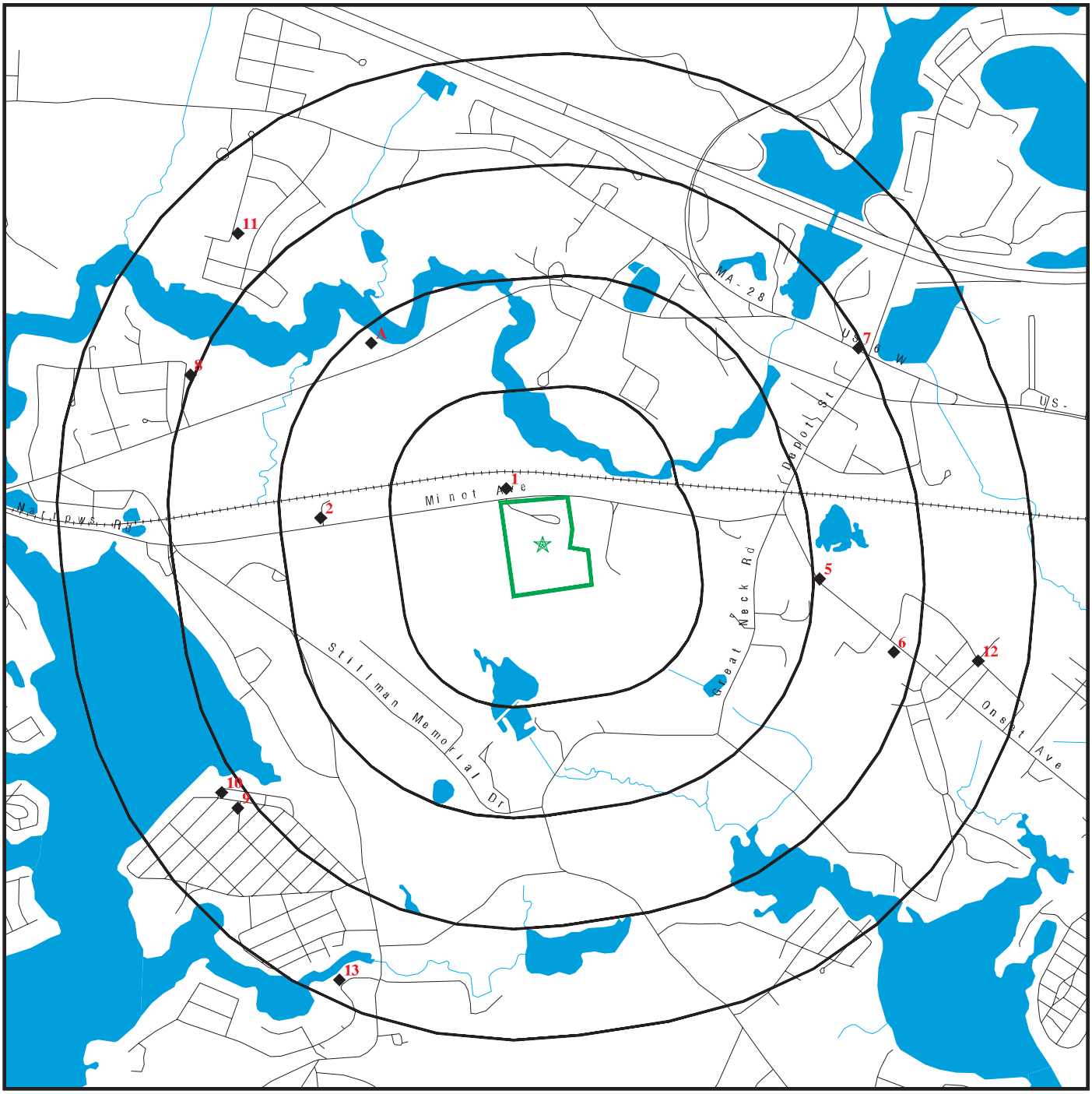
State and tribal institutional control / engineering control registries

INST CONTROL: Sites With Activity and Use Limitation

Site	Address	Direction / Distance	Map ID	Page
BRYANT OIL INC SUPER	***140 SANDWICH RD***	***NW (0.433 mi. / 2286 ft.)***	***A3***	***5***
Release Tracking Number: 4-0000735				

1.00 Mile Map

85 MINOT AVE WAREHAM, MA 02571



Black Rings Represent Qtr. Mile Radius

- ★ **Target Property (Latitude: 41.755299 Longitude: 70.687302)**
- ▲ **High or Equal Elevation Sites**
- ◆ **Low Elevation Sites**
- **National Priority List Sites**

EDR First Report

0.250 Mile Map

85 MINOT AVE WAREHAM, MA 02571

Black Rings Represent Qtr. Mile Radius

- ★ **Target Property (Latitude: 41.755299 Longitude: 70.687302)**
- ▲ **High or Equal Elevation Sites**
- ◆ **Low Elevation Sites**
- **National Priority List Sites**

EDR First Report

Mapped Sites Summary

Target Property: 85 MINOT AVE
WAREHAM, MA 02571

SHWS

EDR ID: S105735795 **DIST/DIR:** 0.031 North **ELEVATION:** 38 **MAP ID:** 1

NAME: POLE 592/2
ADDRESS: 72 MINOT AVE
WAREHAM, MA 02571

Click here for full text details

SHWS
Release Tracking Number / Current Status: 4-0017389 / RAO

Click here to access the MA DEP site for this facility

SHWS

EDR ID: S108640737 **DIST/DIR:** 0.407 West **ELEVATION:** 22 **MAP ID:** 2

NAME: WAREHAM YARD
ADDRESS: FREIGHT HOUSE RD
WAREHAM, MA 02571

Click here for full text details

SHWS
Release Tracking Number / Current Status: 4-0021093 / RAONR
Release Tracking Number / Current Status: 4-0020532 / TIERI

Click here to access the MA DEP site for this facility

Mapped Sites Summary

Target Property: 85 MINOT AVE
WAREHAM, MA 02571

LAST, INST CONTROL

EDR ID: S109948651 **DIST/DIR:** 0.433 NW **ELEVATION:** 1 **MAP ID:** A3

NAME: BRYANT OIL INC SUPER
ADDRESS: 140 SANDWICH RD
WAREHAM, MA 02571

Click here for full text details

LAST
Release Tracking Number / Current Status: 4-0000735 / PSC
INST CONTROL
Release Tracking Number: 4-0000735

LAST

EDR ID: S101037213 **DIST/DIR:** 0.463 NW **ELEVATION:** 1 **MAP ID:** A4

NAME: SUPERIOR FUEL NEXT T
ADDRESS: 136 SANDWICH RD
WAREHAM, MA 02571

Click here for full text details

LAST
Release Tracking Number / Current Status: 4-0010726 / RAONR

SHWS

EDR ID: S106513223 **DIST/DIR:** 0.514 East **ELEVATION:** 12 **MAP ID:** 5

NAME: NO LOCATION AID
ADDRESS: 447 ONSET AVE
EAST WAREHAM, MA 02538

Click here for full text details

SHWS

- Continued on next page -

Mapped Sites Summary

Target Property: 85 MINOT AVE
WAREHAM, MA 02571

SHWS

EDR ID: S106513223 **DIST/DIR:** 0.514 East **ELEVATION:** 12 **MAP ID:** 5

NAME: NO LOCATION AID
ADDRESS: 447 ONSET AVE
EAST WAREHAM, MA 02538

Release Tracking Number / Current Status: 4-0013284 / RAO

Click here to access the MA DEP site for this facility

SHWS

EDR ID: S103812464 **DIST/DIR:** 0.698 ESE **ELEVATION:** 33 **MAP ID:** 6

NAME: LA CASSES BP STATION
ADDRESS: 109 ONSET AVE
WAREHAM, MA 02571

Click here for full text details

SHWS
Release Tracking Number / Current Status: 4-0012572 / RAO

Click here to access the MA DEP site for this facility

SHWS

EDR ID: S101020774 **DIST/DIR:** 0.738 ENE **ELEVATION:** 13 **MAP ID:** 7

NAME: MAXI GAS
ADDRESS: 3242 CRANBERRY HWY
WAREHAM, MA 02571

Click here for full text details

- Continued on next page -

Mapped Sites Summary

Target Property: 85 MINOT AVE
WAREHAM, MA 02571

SHWS

EDR ID: S101020774 **DIST/DIR:** 0.738 ENE **ELEVATION:** 13 **MAP ID:** 7

NAME: MAXI GAS
ADDRESS: 3242 CRANBERRY HWY
WAREHAM, MA 02571

SHWS
Release Tracking Number / Current Status: 4-0000552 / RAO

Click here to access the MA DEP site for this facility

SHWS

EDR ID: S106954182 **DIST/DIR:** 0.756 WNW **ELEVATION:** 5 **MAP ID:** 8

NAME: NO LOCATION AID
ADDRESS: 11 APPLE ST
WAREHAM, MA 02571

Click here for full text details

SHWS
Release Tracking Number / Current Status: 4-0019141 / RAO

Click here to access the MA DEP site for this facility

SHWS

EDR ID: S118337431 **DIST/DIR:** 0.785 SW **ELEVATION:** 28 **MAP ID:** 9

NAME: GRASSI RESIDENCE
ADDRESS: 4 BIRCH ST
WAREHAM, MA

Click here for full text details

- Continued on next page -

Mapped Sites Summary

Target Property: 85 MINOT AVE
WAREHAM, MA 02571

SHWS

EDR ID: S118337431 **DIST/DIR:** 0.785 SW **ELEVATION:** 28 **MAP ID:** 9

NAME: GRASSI RESIDENCE
ADDRESS: 4 BIRCH ST
WAREHAM, MA

SHWS
Release Tracking Number / Current Status: 4-0025771 / PSNC

Click here to access the MA DEP site for this facility

SHWS

EDR ID: S104482723 **DIST/DIR:** 0.794 SW **ELEVATION:** 19 **MAP ID:** 10

NAME: NO LOCATION AID
ADDRESS: 65 PARKWOOD DR
WAREHAM, MA 02571

Click here for full text details

SHWS
Release Tracking Number / Current Status: 4-0015199 / RAO

Click here to access the MA DEP site for this facility

SHWS

EDR ID: S102967649 **DIST/DIR:** 0.848 NW **ELEVATION:** 24 **MAP ID:** 11

NAME: NO LOCATION AID
ADDRESS: 26 PHEASANT AVE
WAREHAM, MA 02571

Click here for full text details

- Continued on next page -

Mapped Sites Summary

Target Property: 85 MINOT AVE
WAREHAM, MA 02571

SHWS

EDR ID: S102967649 **DIST/DIR:** 0.848 NW **ELEVATION:** 24 **MAP ID:** 11

NAME: NO LOCATION AID
ADDRESS: 26 PHEASANT AVE
WAREHAM, MA 02571

SHWS
Release Tracking Number / Current Status: 4-0013457 / RAO

Click here to access the MA DEP site for this facility

SHWS

EDR ID: S106508892 **DIST/DIR:** 0.888 ESE **ELEVATION:** 21 **MAP ID:** 12

NAME: NO LOCATION AID
ADDRESS: 31 OLD ONSET RD
ONSET, MA 02558

Click here for full text details

SHWS
Release Tracking Number / Current Status: 4-0014615 / RAO

Click here to access the MA DEP site for this facility

SHWS

EDR ID: S109613032 **DIST/DIR:** 0.950 SSW **ELEVATION:** 0 **MAP ID:** 13

NAME: RESIDENCE
ADDRESS: 9 EAST EDGEWATER DR
WAREHAM, MA

Click here for full text details

- Continued on next page -

Mapped Sites Summary

Target Property: 85 MINOT AVE
WAREHAM, MA 02571

SHWS

EDR ID: S109613032 **DIST/DIR:** 0.950 SSW **ELEVATION:** 0 **MAP ID:** 13

NAME: RESIDENCE

ADDRESS: 9 EAST EDGEWATER DR
WAREHAM, MA

SHWS
Release Tracking Number / Current Status: 4-0021940 / RAO

Click here to access the MA DEP site for this facility

Count: 4 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
WAREHAM	S105309557	LOT VACANT	KNOWLES AVE LOT 1081	02571	SHWS
WAREHAM	S106030208	NO LOCATION AID	SANDWICH RD/INDIAN AVE/MINOT A	02571	LAST
WAREHAM	S105596815	UMASS CRANBERRY EXP STATION	STATE BOG RD	02571	SHWS
WAREHAM	S121146241	TRASH TRUCK DIESEL FUEL RELEASE	VICINITY OF 247 GREAT NECK ROA		SHWS

RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Gov Date	Arvl. Date	Active Date	Last EDR Contact
MA	AST	Aboveground Storage Tank Database	10/22/2009	10/28/2009	11/06/2009	01/11/2018
MA	BROWNFIELDS	Completed Brownfields Covenants Listing	04/05/2017	08/03/2017	10/10/2017	02/02/2018
MA	BROWNFIELDS 2	Potential Brownfields Listing	05/22/2017	08/03/2017	09/22/2017	02/02/2018
MA	INST CONTROL	Sites With Activity and Use Limitation	01/10/2018	01/12/2018	02/22/2018	02/22/2018
MA	LAST	Leaking Aboveground Storage Tank Sites	01/10/2018	01/12/2018	02/22/2018	02/22/2018
MA	LF PROFILES	Landfill Profiles Listing	07/01/2015	10/27/2015	12/14/2015	01/05/2018
MA	LUST	Leaking Underground Storage Tank Listing	01/10/2018	01/12/2018	02/22/2018	02/22/2018
MA	SHWS	Site Transition List	01/10/2018	01/12/2018	02/22/2018	02/22/2018
MA	SWF/LF	Solid Waste Facility Database/Transfer Stations	01/10/2017	04/05/2017	04/18/2017	02/02/2018
MA	UST	Summary Listing of all the Tanks Registered in the State of	10/24/2017	11/17/2017	12/29/2017	01/11/2018
US	BRS	Biennial Reporting System	12/31/2015	02/22/2017	09/28/2017	02/23/2018
US	CORRACTS	Corrective Action Report	12/11/2017	12/26/2017	02/09/2018	01/19/2018
US	Delisted NPL	National Priority List Deletions	12/11/2017	12/22/2017	01/05/2018	02/06/2018
US	ERNS	Emergency Response Notification System	09/18/2017	09/21/2017	10/13/2017	01/19/2018
US	FEDERAL FACILITY	Federal Facility Site Information listing	11/07/2016	01/05/2017	04/07/2017	01/05/2018
US	FEDLAND	Federal and Indian Lands	12/31/2005	02/06/2006	01/11/2007	10/11/2017
US	FEMA UST	Underground Storage Tank Listing	05/15/2017	05/30/2017	10/13/2017	01/09/2018
US	INDIAN LUST R1	Leaking Underground Storage Tanks on Indian Land	04/14/2017	07/27/2017	10/06/2017	01/23/2018
US	INDIAN LUST R10	Leaking Underground Storage Tanks on Indian Land	04/25/2017	11/07/2017	12/08/2017	01/23/2018
US	INDIAN LUST R4	Leaking Underground Storage Tanks on Indian Land	10/14/2016	01/27/2017	05/05/2017	01/19/2018
US	INDIAN LUST R5	Leaking Underground Storage Tanks on Indian Land	04/26/2017	07/27/2017	10/13/2017	01/23/2018
US	INDIAN LUST R6	Leaking Underground Storage Tanks on Indian Land	04/24/2017	07/27/2017	10/06/2017	01/23/2018
US	INDIAN LUST R7	Leaking Underground Storage Tanks on Indian Land	04/14/2017	07/27/2017	10/06/2017	01/23/2018
US	INDIAN LUST R8	Leaking Underground Storage Tanks on Indian Land	05/01/2017	07/27/2017	10/13/2017	01/23/2018
US	INDIAN LUST R9	Leaking Underground Storage Tanks on Indian Land	04/13/2017	07/27/2017	10/13/2017	01/23/2018
US	INDIAN UST R1	Underground Storage Tanks on Indian Land	04/14/2017	07/27/2017	10/06/2017	01/23/2018
US	INDIAN UST R10	Underground Storage Tanks on Indian Land	04/25/2017	07/27/2017	10/13/2017	01/23/2018
US	INDIAN UST R4	Underground Storage Tanks on Indian Land	10/14/2016	01/27/2017	05/05/2017	01/19/2018
US	INDIAN UST R5	Underground Storage Tanks on Indian Land	04/26/2017	07/27/2017	10/06/2017	01/23/2018
US	INDIAN UST R6	Underground Storage Tanks on Indian Land	04/24/2017	07/27/2017	12/08/2017	01/23/2018
US	INDIAN UST R7	Underground Storage Tanks on Indian Land	05/02/2017	07/27/2017	10/06/2017	01/23/2018
US	INDIAN UST R8	Underground Storage Tanks on Indian Land	05/01/2017	07/27/2017	10/13/2017	01/23/2018
US	INDIAN UST R9	Underground Storage Tanks on Indian Land	04/13/2017	07/27/2017	10/13/2017	01/23/2018
US	INDIAN VCP R1	Voluntary Cleanup Priority Listing	07/27/2015	09/29/2015	02/18/2016	12/20/2017
US	INDIAN VCP R7	Voluntary Cleanup Priority Lisitng	03/20/2008	04/22/2008	05/19/2008	04/20/2009
US	LUCIS	Land Use Control Information System	05/22/2017	06/13/2017	09/15/2017	02/09/2018
US	NPL	National Priority List	12/11/2017	12/22/2017	01/05/2018	02/06/2018
US	NPL LIENS	Federal Superfund Liens	10/15/1991	02/02/1994	03/30/1994	08/15/2011
US	PRP	Potentially Responsible Parties	10/25/2013	10/17/2014	10/20/2014	02/06/2018
US	Proposed NPL	Proposed National Priority List Sites	12/11/2017	12/22/2017	01/05/2018	02/06/2018
US	RCRA-CESQG	RCRA - Conditionally Exempt Small Quantity Generators	12/11/2017	12/26/2017	02/09/2018	01/19/2018
US	RCRA-LQG	RCRA - Large Quantity Generators	12/11/2017	12/26/2017	02/09/2018	01/19/2018
US	RCRA-SQG	RCRA - Small Quantity Generators	12/11/2017	12/26/2017	02/09/2018	01/19/2018
US	RCRA-TSDF	RCRA - Treatment, Storage and Disposal	12/11/2017	12/26/2017	02/09/2018	01/19/2018
US	SEMS	Superfund Enterprise Management System	12/11/2017	12/22/2017	01/12/2018	02/06/2018
US	SEMS-ARCHIVE	Superfund Enterprise Management System Archive	12/11/2017	12/22/2017	01/12/2018	02/06/2018
US	US AIRS (AFS)	Aerometric Information Retrieval System Facility Subsystem (	10/12/2016	10/26/2016	02/03/2017	09/26/2017

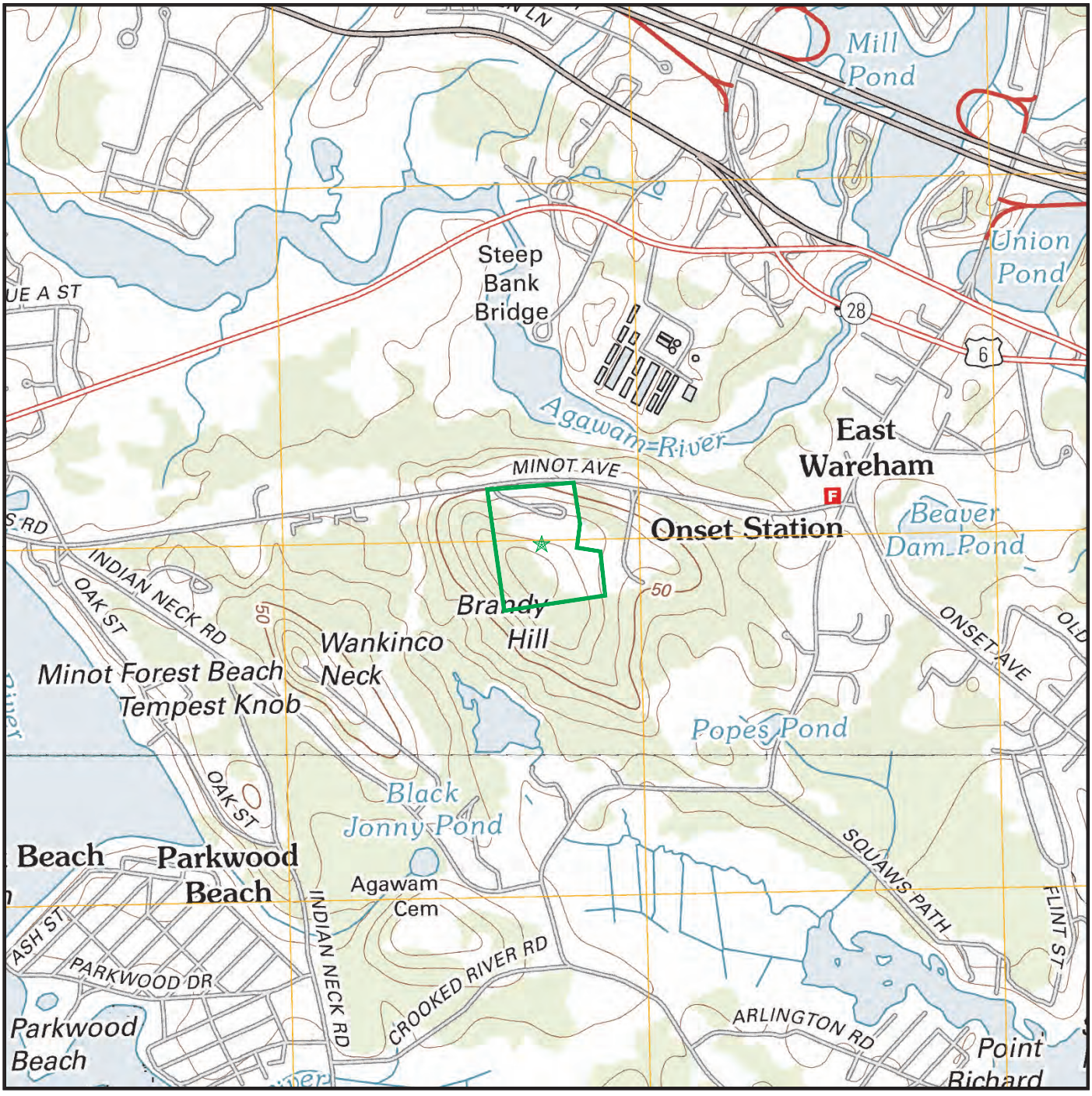
RECORDS SEARCHED / DATA CURRENCY TRACKING

St	Acronym	Full Name	Gov Date	Arvl. Date	Active Date	Last EDR Contact
US	US AIRS MINOR	Air Facility System Data	10/12/2016	10/26/2016	02/03/2017	09/26/2017
US	US ENG CONTROLS	Engineering Controls Sites List	11/13/2017	11/27/2017	02/09/2018	02/27/2018
US	US INST CONTROL	Sites with Institutional Controls	11/13/2017	11/27/2017	02/09/2018	02/27/2018

STREET AND ADDRESS INFORMATION

USGS 7.5 Minute Topographic Map

85 MINOT AVE WAREHAM, MA 02571



Map Image Position: TP
Map Reference Code & Name: 5642145 Wareham
Map State(s): MA
Version Date: 2012
Map Image Position: S
Map Reference Code & Name: 5642275 Onset
Map State(s): MA
Version Date: 2012

EDR First Report

APPENDIX C

1/11/05

Department of Public Safety - Office of the State Fire Marshal

Notification for Storage Tanks Regulated Under 527 CMR 9.00

Forward completed form, signed by local fire department, to: ***Mass. UST Program, Office of the State Fire Marshal, 1010 Commonwealth Ave., Boston, MA 02215***

(Fire Department retains one copy of FP-290)

☐ A. New Facility (see Instructions, #1) ☐ B. Amended ☐ C. Renewal

_____ No. of tanks at facility _____ No. of continuation sheets attached

Fire Dept. Use Only

Date Received: _____
Fire Dept. ID# _____
Fire Dept. Sig. _____

State Use Only

A. Facility Number _____
B. Date Entered _____
C. Clerk's Initials _____
D. Comments _____

INSTRUCTIONS: Form FP-290 (Notification for Aboveground and Underground Storage Tanks) is to be completed for each location containing underground or aboveground storage tanks regulated under 527 CMR 9.00. If more than five tanks are owned at this location, photocopy the following pages and staple continuation sheets to the form. The FP-290 must be completed in duplicate. Although the form may be photocopied, the facility owner or owner's representative must **sign each copy separately**; photocopied signatures are not sufficient. **Both copies of the FP-290 are to be forwarded to the local fire department, who will check all information and certify the forms.** The fire department will retain one copy of the FP-290 for its records, and **the facility owner shall be responsible for forwarding the other copy to the Office of the State Fire Marshal at the address above.** The local fire department will issue the permit portion of the FP-290; however, registration is not complete until the FP-290 is received and checked by the Office of the State Fire Marshal. All questions on this form are to be answered. Incomplete forms will be returned.

[1] "New Facility" means a tank or tanks located at a site where tanks have not been previously located.

[2] "Facility street address" must include both a street number and a street name. Post office box numbers are not acceptable, and will cause a registration to be returned. If geographic location of facility is not provided, please indicate distance and direction from closest intersection, e.g., (facility at 199 North Street is located) 400 yards southeast of Commons Road (intersection).

General Information

Notification Required
Fire Prevention Form FP-290 is to be used as Notification, Registration, and Permit for aboveground and underground storage tanks and tank facilities regulated under 527 Code of Massachusetts Regulations 9.00. No regulated aboveground or underground storage tank facility shall be installed, maintained, replaced, substantially modified or removed without a permit (FP- 290) issued by the head of the local fire department. The owner of any storage facility shall within seven working days notify the head of the local fire department and the State Fire Marshal of any change in the name, address, or telephone number of the owner or operator of a storage facility subject to regulation by Chapter 148, Mass. General Law and by 527 CMR 9.00.

Underground Storage Tanks
Each owner of an underground tank first put into operation on or after Jan. 1, 1991, shall, within thirty days after the tank is first put into operation, notify the Department of Public Safety (the department) of the existence of such tank, specifying, to the extent known, the owner of the tank, date of installation, capacity, type, location, and uses of such tank. By no later than Jan. 31, 1991, each owner of an underground storage tank that was in operation at any time after Jan. 1, 1974, regardless of whether or not such tank was removed from beneath the surface of the ground at any time, shall notify the department of the existence of such tank, specifying, to the extent known, the owner of the tank, date of installation, capacity, type, and location of the tank, and the type and quantity of substances stored in such tank, or which were stored in such tank before the tank ceased being in operation if the tank was removed from beneath the surface of the ground prior to the submittal of such notice to the department. Such notice shall also specify, to the extent known, the date the tank was removed from beneath the surface of the ground prior to the submittal of such notice to the department. The operator of any tank that has no owner or whose owner cannot be definitely ascertained, shall notify the department of the existence of such tank, specifying, to the extent known, any information relating to ownership of the tank, and date of installation, capacity, type, and location of the tank, and the type and quantity of substances stored in such tank, or which were stored in such tank before the tank ceased being in operation if the tank was removed from beneath the surface of the ground prior to the submittal of such notice to the department. If the tank was abandoned beneath the surface of the ground prior to the submittal of such notice to the department, such notice shall also specify, to the extent known to the owner or operator, the date the tank was abandoned in the ground and all methods used to stabilize the tank after the tank ceased being in operation.

Exception: (a) a farm or residential tank of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes, or (b) a tank used for storing heating oil for consumptive use on the premises where stored are not required to be registered under 527 CMR 9.00.

Penalties: Any owner who knowingly fails to notify or submits false information shall be subject to a civil penalty not to exceed $25,000 for each tank for which notification is not given or for which false information is submitted. (MGL Chapter 148, section 38H, 527 CMR 9.00)

Aboveground Storage Tanks
527 CMR 9.00 requires the registration of any aboveground storage tank which meets the following definition: a horizontal or vertical tank, equal to or less than 10,000 gallons capacity, that is intended for fixed installation without back fill above or below grade, and is used for the storage of Hazardous Substances, Hazardous Wastes, or Flammable or Combustible Liquids.

Exception #1: Aboveground tanks of more than 10,000 gallons capacity regulated by 520 CMR 12.00 (Requirements for the Installation of Tanks Containing Fluids Other Than Water in Excess of 10,000 Gallons) are not required to be registered under 527 CMR 9.00.

Exception #2: (a) a farm or residential tank of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes, or (b) a tank used for storing heating oil for consumptive use on the premises where stored are not required to be registered under 527 CMR 9.00.

Penalties: Any person who knowingly violates any rule or regulation made by the Board of Fire Prevention Regulations shall, except as otherwise provided, be punished by a fine of not less than one hundred dollars nor more than one thousand dollars. (MGL, Chapter 148, section 10B, and 527 CMR 9.00)

Where to Notify? Two completed notification forms should be signed by both the tank owner and the local fire department. One copy will be retained by the fire department, and the tank owner shall send a separate copy to the address at the top of this page.

When to Notify? 1. Owners of storage tanks in use or that have been taken out of operation must notify within thirty days.

Owners and Operators of Regulated Storage Tank Systems must maintain records certifying that all leak detection, inventory control and tightness testing requirements for the Regulated Storage Tank System are current. These records must be readily available for inspection.

I. Ownership of Tank(s)

Owner Name (Corporation, Individual, Public Agency, or Other Entity)
Town of Wareham (School Dept)

54 Marion Rd
Street Address

Wareham MA 02571
City State Zip Code

Plymouth
County

508-295-3500
Phone Number (Include Area Code)

Owner's Employer Federal ID #

II. Location of Tank(s)

If known, give the geographic location of tanks by degrees, minutes, and seconds. Example: Lat. 42, 36, 12 N Long. 85, 24, 17W

Latitude _____ Longitude _____

Distance and direction from closest intersection (see instructions #2)

Facility Name or Company Site Identifier, as applicable

Street Address (P.O. Box not acceptable - see instructions #2)

City State Zip Code

County

Tank Identification Number (cont.)	Tank No. 1	Tank No. 2	Tank No. ____	Tank No. ____	Tank No. ____
4. Substance Currently or Last Stored					
a. Gasoline					
Motor vehicle or other use	☐ MV ☐ other	☐ MV ☐ other	☐ MV ☐ other	☐ MV ☐ other	☐ MV ☐ other
b. Diesel					
Motor vehicle or other use	☐ MV ☐ other	☐ MV ☐ other	☐ MV ☐ other	☐ MV ☐ other	☐ MV ☐ other
c. Kerosene					
d. Fuel Oil	X (4)	X (2)			
e. Waste Oil					
f. Other, Please specify					
Hazardous Substance (other than 4a thru 4e above)					
CERCLA name and/or					
CAS number					
Mixture of Substances					
Please specify					
5. Material of Construction - Tank (mark all that apply)					
Asphalt coated or bare steel	X	X			
Cathodically protected steel					
Epoxy coated steel					
Composite (steel with fiberglass)					
Fiberglass reinforced plastic (FRP)					
Concrete					
Other, Please specify					
6. Type of Construction-Tank (mark all that apply)					
Lined interior					
Double walled					
Single walled	X	X			
Polyethylene tank jacket					
Excavation liner					
Unknown					
Other, please specify					
Has tank been repaired?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Date					

Tank Identification Number (cont.)	Tank No. 1	Tank No. 2	Tank No. ____	Tank No. ____	Tank No. ____
2. Tank closed in accordance with 527 CMR 9.00	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
A. Evidence of leak detected	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
B. Mass. DEP notified	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
1. Mass. DEP tracking number					
2. Agency or company performing assessment					

XI. Certification of Compliance

	Tank No. 1	Tank No. 2	Tank No. ____	Tank No. ____	Tank No. ____
1. Installation					
A. Installer certified by tank and piping manufacturers	☐	☐	☐	☐	☐
B. Installer certified or licensed by the implementing agency	☐	☐	☐	☐	☐
C. Installation inspected by a registered engineer	☐	☐	☐	☐	☐
D. Installation inspected and approved by the implementing agency	☒	☒	☐	☐	☐
E. Manufacturers' installation checklists have been completed	☐	☐	☐	☐	☐
F. Another method allowed by 527 CMR 9.00. Please specify					

	Tank No. 1		Tank No. 2		Tank No. ____		Tank No. ____		Tank No. ____	
2. Tank Leak Detection (mark all that apply)	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping
A. Double-wall tank - Interstitial monitoring	☐		☐		☐		☐		☐	
B. Approved in-tank monitor	☐		☐		☐		☐		☐	
C. Continuous vapor monitoring in soil	☐		☐		☐		☐		☐	
D. Monthly vapor monitoring in soil	☐		☐		☐		☐		☐	
E. Inventory record-keeping and tank testing	☐		☐		☐		☐		☐	
F. Other method allowed by 527 CMR 9.00. Please specify										

	Tank No. 1		Tank No. 2		Tank No. ____		Tank No. ____		Tank No. ____	
3. Piping Leak Detection (mark all that apply)										
A. Pressurized		☐		☐		☐		☐		☐
Interstitial space monitor		☐		☐		☐		☐		☐
Automatic flow restrictor*		☐		☐		☐		☐		☐
Automatic shut-off device*		☐		☐		☐		☐		☐
Continuous alarm*		☐		☐		☐		☐		☐

* Also requires annual tank tightness test or monthly vapor monitoring of soil.

Make application to local Fire Department.
Fire Department retains original application and issues duplicate as Permit.

Commonwealth of Massachusetts

Department of Fire Services – Board of Fire Prevention

APPLICATION and PERMIT

Fee: n/c

for storage tank removal and transportation to approved tank disposal yard in accordance with the provisions of M.G.L. Chapter 148, Section 38A, 527 CMR 9.00, application is hereby made by:

Tank Owner

Tank Owner Name (please print) Town of Wareham X _____ (Signature (if applying for permit))

Address Memorial Town Hall 54 Marion Road (Street) Wareham, MA (City, State) 02571 (Zip)

Removal Contractor

Company Name Enviro-Safe (Print)

Address P.O.BOX 810, E.Sandwich, MA (Print) 02537

Signature (if applying for permit)

☒ IFCI Certified Other _____

Contamination Assessment

Co. or Individual _____ (Print)

Address _____ (Print)

Signature (if applying for permit)

☐ IFCI Certified ☐ LSP # _____ Other _____

Tank Information

Tank Location Minot Forest School 85 Minot Ave., Wareham MA (Street Address, City)

Tank Capacity (gallons) ~~10,000~~ 500 gal Substance Last Stored #2 (no) #4 Fuel Oil

Tank Dimensions (diameter x length) _____

Remarks: _____

Disposal Information

Firm transporting waste Enviro-Safe State Lic. # 329 MA

Hazardous waste manifest# _____ E.P.A. # MAD985269323

Approved tank disposal yard Turner Salvage Tank yard # 002

Type of inert gas _____ Tank yard address 235 Commercial Street Lynn, MA

Approvals

City or Town Wareham FDID# 23992 Permit# 6-98276

Date of Issue 12/14/98 Date of expiration 12/28/98

Dig safe approval number: 984903085

Dig Safe Toll Free Tel. Number - 800-322-4844

Signature / Title of Officer granting permit _____

After removal(s) send Form FP-290R signed by Local Fire Dept. to UST Regulatory Compliance Unit, One Ashburton Place, Room 1310, Boston, MA 02108-1618.

Commonwealth of Massachusetts
Department of Fire Services - Office of the State Fire Marshal
RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

Form FP 291

NAME AND ADDRESS OF APPROVED TANK YARD

Turner Trucking & Savage Co., Inc.
225 Commercial St.
Lynn, MA 01905
002

APPROVED TANK YARD NO. 002 Tank Yard Ledger 502 CMR 3.03 (4) Number: 0095284

I certify under penalty of law I have personally examined the underground steel storage tank delivered to this "approved tank yard" by firm, corporation or partnership_____ and accepted same in conformance with Massachusetts Fire Prevention Regulation 502 CMR 3.00 Provisions for Approving Underground Steel Storage Tank dismantling yards. A valid permit was issued by LOCAL Head of Fire Department. FDID# 23991 to transport this tank to this yard.

Name and official title of approved tank yard owner or owners authorized representative:

SIGNATURE	TITLE	DATE SIGNED
John T	Scale	12-31-98

This signed receipt of disposal **must be returned** to the local head of the fire department FDID# 23991 pursuant to 502 CMR 3.00.

EACH TANK MUST HAVE A RECEIPT OF DISPOSAL

TANK DATA

Gallons 500

Previous Contents #2

Diameter _____ Length _____

Date Received 12-31-98

Serial # (if available) _____

Tank I.D. # (Form FP-290) _____

TANK REMOVED FROM

85 minot ave
(No. and Street)

Wareham
(City or Town)

Fire Department Permit # 698276

Owner/Operator to mail revised copy of Notification Form (FP290, or FP290R) to : UST Compliance, Office of the State Fire Marshal, P.O. Box 1025 State Road, Stow, MA 01775.

617 - 595 - 3741

Make application to local Fire Department.
Fire Department retains original application and issues duplicate as Permit.

Commonwealth of Massachusetts

Department of Fire Services – Board of Fire Prevention

APPLICATION and PERMIT

Fee: NC

for storage tank removal and transportation to approved tank disposal yard in accordance with the provisions of M.G.L. Chapter 148, Section 38A, 527 CMR 9.00, application is hereby made by:

Tank Owner

Tank Owner Name (please print) Town of Wareham X _____ (Signature (if applying for permit))

Address Memorial Town Hall 54 Marion Road Wareham, MA 02571 (Street / City / State / Zip)

Removal Contractor

Company Name Enviro-Safe (Print)

Address P.O.BOX 810, E.Sandwich, MA 02537 (Print)

Signature (if applying for permit)

☒ IFCI Certified Other _____

Contamination Assessment

Co. or Individual _____ (Print)

Address _____ (Print)

Signature (if applying for permit)

☐ IFCI Certified ☐ LSP # _____ Other _____

Tank Information

Tank Location Minot Forest School 85 Minot Ave., Wareham, MA (Street Address / City)

Tank Capacity (gallons) ~~500~~ 10,000 Substance Last Stored ~~diesel fuel~~ #4

Tank Dimensions (diameter x length) _____

Remarks: _____

Disposal Information

Firm transporting waste Enviro-Safe State Lic. # 329 MA

Hazardous waste manifest# _____ E.P.A. # MAD985269323

Approved tank disposal yard Turner Salvage Tank yard # 002

Type of inert gas _____ Tank yard address 235 Commercial Street Lynn, MA

Approvals

City or Town Wareham FDID# 23492 Permit# 6-98275

Date of Issue 12/14/98 Date of expiration 12/17/98

Dig safe approval number: 984903085 Dig Safe Toll Free Tel. Number - 800-322-4844

Signature / Title of Officer granting permit _____

After removal(s) send Form FP-290R signed by Local Fire Dept. to UST Regulatory Compliance Unit, One Ashburton Place, Room 1310, Boston, MA 02108-1618.

Commonwealth of Massachusetts - Department of Fire Services
Executive Office of Public Safety - UST Regulatory Compliance Unit

Notification for Removal or Closure of In Place Storage Tanks Regulated Under 527 CMR 9.00

Forward completed form, signed by local fire department, to: ***Mass. UST Compliance Unit, Dept. of Fire Services, P.O. Box 1025 - State Road, Stow, MA 01775***

Telephone (978) 567-3710

Fire Department retains one copy of FP-290R)

This form is to be used for notification for removal of Underground Storage Tanks/ Piping.

If a storage facility has UST's which are to remain in use, an entire amended FP-290 (long form) must be filed.

Note: "Facility street address" must include both a street number and a street name. Post office box numbers are not acceptable, and will cause a registration to be returned. If geographic location of facility is not provided, please indicate distance and direction from closest intersection, e.g., (facility at 199 North Street is located) **100 yards southeast of Commons Road** (intersection).

Fire Dept. Use Only

Date Received: 1/29/99
Fire Dept. ID# 35952
Fire Dept. Sig. [signature]

State Use Only

A. Facility Number
B. Date Entered
C. Clerk's Initials
D. Comments

I. Ownership of Tank(s)

Owner Name (Corporation, Individual, Public Agency, or Other Entity)

Town of Wareham

54 Marion Road
Street Address

Memorial Town Hall

Wareham | MA | 02571
City | State | Zip Code

Plymouth
County

508-291-3500
Phone Number (Include Area Code)

04-6001336
Owner's Employer Federal ID #

II. Location of Tank(s)

If known, give the geographic location of tanks by degrees, minutes, and seconds. Example: Lat. 42, 36, 12 N Long. 85, 24, 17W

Latitude _____ Longitude _____

one hundred West Depot ST
Distance and direction from closest intersection (see note above)

Minot Forest School
Facility Name or Company Site identifier, as applicable

85 Minot Avenue
Street Address (P.O. Box not acceptable - see note above)

Wareham | MA | 02571
City | State | Zip Code

Plymouth
County

III. Tanks/Piping Removed or Filled in Place

Tank Number	Tank No. 1	Tank No. 2	Tank No.	Tank No.	Tank No.
1. Tank/Piping removed or filled in place (mark all that apply)					
A. Substance last stored	#4 oil	#2 oil			
B. Tank capacity gallons	10,000	500			
C. Estimated date last used (mo./day/yr.)	12/14/98	12/14/98			
D. Estimated date of removal (mo./day/yr.)	12/18/98	12/28/98			
E. Tank was removed from ground	X	X			
F. Tank was not removed from ground					
Tank was filled with inert material					
Describe material used:					
G. Piping was removed from ground	X	X			
H. Piping was not removed from ground					
I. Other, please specify					

OVER

FP-290R (revised 5/98)

TANK DATA

Gallons 10,000

Previous Contents #4 oil

Diameter _____ Length _____

Date Received 12-18-98

Serial # (if available) _____

Tank I.D. # (Form FP-290) _____

TANK REMOVED FROM

Minot Forest School
85 Minot Ave
(No. and Street)

Wareham MA
(City or Town)

Fire Department Permit # G 98273

Owner/Operator to mail revised copy of Notification Form (FP290, or FP290R) to : UST Compliance, Office of the State Fire Marshal, P.O. Box 1025 State Road, Stow, MA 01775.

Commonwealth of Massachusetts
Department of Fire Services - Office of the State Fire Marshal
RECEIPT OF DISPOSAL OF UNDERGROUND STEEL STORAGE TANK

Form FP 291

NAME AND ADDRESS OF APPROVED TANK YARD

Turner Trucking & Savage Co., Inc.
225 Commercial St.
Lynn, MA 01905
002

APPROVED TANK YARD NO. _____ Tank Yard Ledger 502 CMR 3.03 (4) Number: OD 95221

I certify under penalty of law I have personally examined the underground steel storage tank delivered to this "approved tank yard" by firm, corporation or partnership_____ and accepted same in conformance with Massachusetts Fire Prevention Regulation 502 CMR 3.00 Provisions for Approving Underground Steel Storage Tank dismantling yards. A valid permit was issued by LOCAL Head of Fire Department. FDID# 23992 to transport this tank to this yard.

Name and official title of approved tank yard owner or owners authorized representative:

K. Walsh	Scale Operator	12-18-98
SIGNATURE	TITLE	DATE SIGNED

This signed receipt of disposal **must be returned** to the local head of the fire department FDID# ____ ____ ____ ____ ____ pursuant to 502 CMR 3.00.

EACH TANK MUST HAVE A RECEIPT OF DISPOSAL

85 MINOT AVE

Location	85 MINOT AVE	**Mblu**	42/ / 1001/ /
Acct#		**Owner**	TOWN OF WAREHAM
Assessment	$8,072,100	**Appraisal**	$8,072,100
PID	5284	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$6,540,700	$1,531,400	$8,072,100
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$6,540,700	$1,531,400	$8,072,100

Owner of Record

Owner	TOWN OF WAREHAM	**Sale Price**	$1
Co-Owner		**Certificate**	
Address	TOWN HALL WAREHAM, MA 02571	**Book & Page**	2182/ 173
		Sale Date	01/01/1901

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
TOWN OF WAREHAM	$1		2182/ 173	01/01/1901

Building Information

Building 1 : Section 1

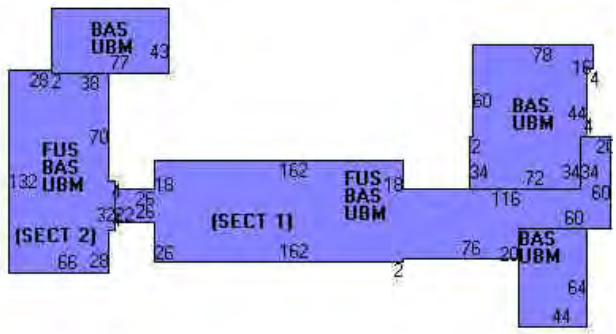
Year Built:	1966
Living Area:	64,607
Replacement Cost:	$9,006,790
Building Percent Good:	70
Replacement Cost Less Depreciation:	$6,304,800

Building Attributes	
Field	**Description**
STYLE	Schools-Public
MODEL	Commercial
Grade	Ave
Stories:	2
Occupancy	1
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Vinyl Tile
Interior Floor 2	Linoleum
Heating Fuel	Oil
Heating Type	Forced Hot Air
AC Type	None
Bldg Use	IMPROVED EDUCATION
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	903C
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	ABOVE AVERAGE
Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	ABOVE AVERAGE
Wall Height	14
% Comn Wall	0

Building Photo

(http://images.vgsi.com/photos2/WarehamMAPhotos//\00\02\29/01.jpg)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	38,843	38,843
FUS	Upper Story	25,764	25,764
UBM	Basement Unfin	38,843	0
		103,450	64,607

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
	MODULAR CLASS	15	$115,500	1
	ELEV	1	$70,000	1

Land

Land Use

Use Code	9340
Description	IMPROVED EDUCATION
Zone	
Neighborhood	5000
Alt Land Appr	No
Category	

Land Line Valuation

Size (Sqr Feet)	910840
Frontage	0
Depth	0
Assessed Value	$1,531,400
Appraised Value	$1,531,400

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	PAVING-ASPHALT			40000 S.F.	$50,000	1
SHD1	SHED/FRAME			80 S.F.	$400	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$6,540,700	$1,531,400	$8,072,100
2016	$6,540,700	$1,531,400	$8,072,100
2015	$6,540,700	$1,531,400	$8,072,100

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$6,540,700	$1,531,400	$8,072,100
2016	$6,540,700	$1,531,400	$8,072,100
2015	$6,540,700	$1,531,400	$8,072,100

APPENDIX D

Lord Associates, Inc.
Environmental Consulting & Licensed Site Professional Services

1506 Providence Highway, Suite 30
Norwood, MA 02062

Voice: 781.255.5554
Fax: 781.255.5535
www.lordenv.com

April 22, 2019

Mr. Ammar Dieb
Universal Environmental Consultants
12 Brewster Road
Framingham, MA 01702

RE: Soil Analyses:
Minot School
63 Minot Street
Wareham, Ma.

Dear Ammar:

I have reviewed the attached the disposal characterization analyses of soil samples collected from four test pits excavated at the Minot School property in Wareham, Massachusetts. The samples were collected on April 3, 2019 by LGCI. The samples were transferred under chain-of-custody protocol to a state-certified laboratory, Rhode Island Analytical for analyses.

In review of the analytical testing completed, no Massachusetts Department of Environmental Protection (DEP) Reportable Concentrations were exceeded, and all results meet the minimum criteria for reuse at a lined or unlined landfill, pursuant to DEP Policy #COMM-97-001.

Copies of the original lab reports and chain-of-custody form are attached.

Should you have any other questions regarding this material, please do not hesitate to give me a call.

Sincerely,
LORD ASSOCIATES, INC.

Ralph J. Tella, CHMM, LSP
President

Attached: Laboratory Reports

R.I. ANALYTICAL
Specialists in Environmental Services

LABORATORY REPORT

Universal Environmental Conslt
Attn: Mr. Ammar Dieb
12 Brewster Road
Framingham, MA 01702

Date Received: 4/3/2019
Date Reported: 4/18/2019
P.O. Number

Work Order #: 1904-05945
Project Name: MINOT SCHOOL - WAREHAM, MA

Enclosed are the analytical results and Chain of Custody for your project referenced above. The sample(s) were analyzed by our Warwick, RI laboratory unless noted otherwise. When applicable, indication of sample analysis at our Hudson, MA laboratory and/or subcontracted results are noted and subcontracted reports are enclosed in their entirety.

All samples were analyzed within the established guidelines of US EPA approved methods with all requirements met, unless otherwise noted at the end of a given sample's analytical results or in a case narrative.

The Detection Limit is defined as the lowest level that can be reliably achieved during routine laboratory conditions.

These results only pertain to the samples submitted for this Work Order # and this report shall not be reproduced except in its entirety.

We certify that the following results are true and accurate to the best of our knowledge. If you have questions or need further assistance, please contact our Customer Service Department.

Approved by:

Dawne E. Smart
Data Reporting Manager

Laboratory Certification Numbers (as applicable to sample's origin state):
Warwick RI * RI LAI00033, MA M-RI015, CT PH-0508 Hudson MA * M-MA1117, RI LAO00319

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 001
Sample Description: #1 TP-7
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
COMM-97 Landfill Protocol							
pH	6.7		SU	SW-846 9045C	4/4/2019	16:50	JWC
Specific Conductance	5.7	1.0	uMHOS/CM	SM2510B 18-21ed	4/5/2019	13:30	ML
Flashpoint	>200	80	deg F	SW-846 1010	4/10/2019	9:20	NRG
Reactivity CN & S Soils							
Sulfide Reactivity	<2.0	2.0	mg/kg	SW-846 7.3.4.2	4/9/2019	6:30	SNI
Cyanide Reactivity	<0.10	0.10	mg/kg	SW-846 7.3.3	4/9/2019	6:30	SNI
TPH							
TPH GC/FID	11	11	mg/kg dry	SW-846 8100M	4/9/2019	16:12	SRM
Surrogate			RANGE	SW-846 8100M	4/9/2019	16:12	SRM
2-Fluorobiphenyl	70		40-140%	SW-846 8100M	4/9/2019	16:12	SRM
Moisture	9.4		%	SM2540G 18-21ed	4/8/2019	12:45	JBW
PCB							
Aroclor-1016	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:11	JBW
Aroclor-1221	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:11	JBW
Aroclor-1232	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:11	JBW
Aroclor-1242	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:11	JBW
Aroclor-1248	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:11	JBW
Aroclor-1254	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:11	JBW
Aroclor-1260	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:11	JBW
Aroclor-1262	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:11	JBW
Aroclor-1268	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:11	JBW
Surrogate			RANGE				
Tetrachloro-m-xylene (TCMX)	75		30-150%	SW-846 8082A	4/10/2019	21:11	JBW
Decachlorobiphenyl	52		30-150%	SW-846 8082A	4/10/2019	21:11	JBW
Extraction Date				SW-846 3546	4/8/2019	12:55	NRG
Semi-Volatile Organic Comp.							
Acenaphthene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Acenaphthylene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Anthracene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Benzidine	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Benzo(a)anthracene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Benzo(b)fluoranthene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Benzo(k)fluoranthene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Benzo(g,h,i)perylene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Benzo(a)pyrene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Bis(2-chloroethyl)ether	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Bis(2-Chloroethoxy)methane	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 001
Sample Description: #1 TP-7
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Bis(2-Chloroisopropyl)Ether	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Bis(2-ethylhexyl)phthalate	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
4-Bromophenyl phenyl ether	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Butylbenzyl phthalate	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
2-Chloronaphthalene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
4-Chlorophenyl phenyl ether	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Chrysene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Dibenzo(a,h)anthracene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Di-n-butyl phthalate	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
1,2-Dichlorobenzene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
1,3-Dichlorobenzene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
1,4-Dichlorobenzene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
3,3'-Dichlorobenzidine	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Diethyl phthalate	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Dimethyl phthalate	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
2,4-Dinitrotoluene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
2,6-Dinitrotoluene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Di-n-octyl phthalate	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
1,2-Diphenylhydrazine	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Fluoranthene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Fluorene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Hexachlorobenzene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Hexachlorobutadiene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Hexachlorocyclopentadiene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Hexachloroethane	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Indeno(1,2,3-cd)pyrene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Isophorone	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
2-Methylnaphthalene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Naphthalene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Nitrobenzene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
N-nitrosodimethylamine	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
N-nitrosodiphenylamine	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
N-nitrosodi-n-propylamine	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Phenanthrene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Pyrene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
1,2,4-Trichlorobenzene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
4-Chloro-3-methylphenol	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
2-Chlorophenol	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
2,4-Dichlorophenol	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
2,4-Dimethylphenol	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 001
Sample Description: #1 TP-7
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
2-Methyl-4,6-dinitrophenol	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
2,4-Dinitrophenol	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
2-Nitrophenol	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
4-Nitrophenol	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Pentachlorophenol	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Phenol	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
2,4,5-Trichlorophenol	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
2,4,6-Trichlorophenol	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
4-Chloroaniline	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Dibenzofuran	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
2-Methyl Phenol	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
3 & 4-Methylphenols	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Aniline	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Acetophenone	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Azobenzene	<0.37	0.37	mg/kg dry	SW-846 8270D	4/9/2019	20:54	JEB
Surrogates			RANGE	SW-846 8270D	4/9/2019	20:54	JEB
Phenol-d5	57		30-130%	SW-846 8270D	4/9/2019	20:54	JEB
2-Fluorophenol	51		30-130%	SW-846 8270D	4/9/2019	20:54	JEB
2,4,6-Tribromophenol	83		30-130%	SW-846 8270D	4/9/2019	20:54	JEB
Nitrobenzene-d5	52		30-130%	SW-846 8270D	4/9/2019	20:54	JEB
2-Fluorobiphenyl	58		30-130%	SW-846 8270D	4/9/2019	20:54	JEB
P-Terphenyl-d14	73		30-130%	SW-846 8270D	4/9/2019	20:54	JEB
Semi Extraction Date				SW-846 3546	4/9/2019	12:05	NRG
Total Metals - Soil							
Antimony	<5.41	5.41	mg/kg dry	SW-846 6010C	4/16/2019	18:16	DDP
Arsenic	<2.7	2.7	mg/kg dry	SW-846 6010C	4/16/2019	18:16	DDP
Barium	8.5	0.54	mg/kg dry	SW-846 6010C	4/16/2019	18:16	DDP
Beryllium	0.226	0.054	mg/kg dry	SW-846 6010C	4/16/2019	18:16	DDP
Cadmium	<0.27	0.27	mg/kg dry	SW-846 6010C	4/16/2019	18:16	DDP
Chromium	2.8	1.6	mg/kg dry	SW-846 6010C	4/16/2019	18:16	DDP
Lead	4.7	2.2	mg/kg dry	SW-846 6010C	4/16/2019	18:16	DDP
Mercury	<0.095	0.095	mg/kg dry	SW-846 7471B	4/12/2019	14:07	AJD
Nickel	1.5	1.1	mg/kg dry	SW-846 6010C	4/16/2019	18:16	DDP
Selenium	<5.4	5.4	mg/kg dry	SW-846 6010C	4/16/2019	18:16	DDP
Silver	<1.1	1.1	mg/kg dry	SW-846 6010C	4/16/2019	18:16	DDP
Thallium	<2.7	2.7	mg/kg dry	SW-846 6010C	4/16/2019	18:16	DDP
Vanadium	7.2	1.1	mg/kg dry	SW-846 6010C	4/16/2019	18:16	DDP
Zinc	9.8	2.2	mg/kg dry	SW-846 6010C	4/16/2019	18:16	DDP
Percent Solids	90.6		%	SM2540G 18-21ed	4/8/2019	12:45	JBW
Extraction Date				SW-846 5035A	4/5/2019	8:00	RBR

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 001
Sample Description: #1 TP-7
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
ICP Digestion				SW-846 3050B	4/16/2019	16:37	MEM
Mercury Digestion				SW-846 7471B	4/12/2019	12:52	MEM
Volatile Organic Compounds							
Acetone	<0.040	0.040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Tertiary Amyl Methyl Ether	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Benzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Bromobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Bromochloromethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Bromodichloromethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Bromoform	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Bromomethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Sec-butylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
n-Butylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
tert-Butylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Carbon Disulfide	<0.0080	0.0080	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Carbon Tetrachloride	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Chlorobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Dibromochloromethane	<0.0016	0.0016	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Chloroethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Chloroform	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Chloromethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
2-Chlorotoluene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
4-Chlorotoluene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,2-Dibromo-3-Chloropropane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,2-Dibromoethane(EDB)	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Dibromomethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,3-Dichlorobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,2-Dichlorobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,4-Dichlorobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
n-Propylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Dichlorodifluoromethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,1-Dichloroethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,2-Dichloroethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,1-Dichloroethene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
cis-1,2-Dichloroethene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
trans-1,2-Dichloroethylene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,2-Dichloropropane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,3-Dichloropropane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
2,2-Dichloropropane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,1-Dichloropropene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 001
Sample Description: #1 TP-7
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
cis-1,3-Dichloropropene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
trans-1,3-Dichloropropylene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Diethyl ether	<0.040	0.040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Diisopropyl Ether (DIPE)	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,4-Dioxane	<0.080	0.080	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Ethyl Tertiary Butyl Ether	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Ethylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Hexachlorobutadiene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
2-Hexanone	<0.040	0.040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Isopropylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
p-Isopropyltoluene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
2-Butanone(MEK)	<0.040	0.040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
4-Methyl-2-pentanone(MIBK)	<0.040	0.040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
MTBE	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Methylene Chloride	<0.0080	0.0080	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Naphthalene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,1,2-Trichloroethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Styrene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,1,1,2-Tetrachloroethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,1,2,2-Tetrachloroethane	<0.0016	0.0016	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Tetrachloroethene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Tetrahydrofuran	<0.040	0.040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Toluene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,2,4-Trichlorobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,2,3-Trichlorobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,1,1-Trichloroethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Trichloroethene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Trichlorofluoromethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,2,3-Trichloropropane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,2,4-Trimethylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
1,3,5-Trimethylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Vinyl Chloride	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
o-Xylene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
m,p-Xylene	<0.0080	0.0080	mg/kg dry	SW-846 8260C	4/5/2019	20:50	RBR
Surrogates			RANGE	SW-846 8260C	4/5/2019	20:50	RBR
Dibromofluoromethane	101		70-130%	SW-846 8260C	4/5/2019	20:50	RBR
Toluene-d8	97		70-130%	SW-846 8260C	4/5/2019	20:50	RBR
4-Bromofluorobenzene	107		70-130%	SW-846 8260C	4/5/2019	20:50	RBR
1,2 Dichloroethane-d4	95		70-130%	SW-846 8260C	4/5/2019	20:50	RBR

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 002
Sample Description: #2 TP-6
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
COMM-97 Landfill Protocol							
pH	6.5		SU	SW-846 9045C	4/4/2019	16:50	JWC
Specific Conductance	12	1.0	uMHOS/CM	SM2510B 18-21ed	4/5/2019	13:30	ML
Flashpoint	>200	80	deg F	SW-846 1010	4/10/2019	9:30	NRG
Reactivity CN & S Soils							
Sulfide Reactivity	<2.0	2.0	mg/kg	SW-846 7.3.4.2	4/9/2019	6:30	SNI
Cyanide Reactivity	<0.10	0.10	mg/kg	SW-846 7.3.3	4/9/2019	6:30	SNI
TPH							
TPH GC/FID	<11	11	mg/kg dry	SW-846 8100M	4/9/2019	17:08	SRM
Surrogate			RANGE	SW-846 8100M	4/9/2019	17:08	SRM
2-Fluorobiphenyl	77		40-140%	SW-846 8100M	4/9/2019	17:08	SRM
Moisture	6.6		%	SM2540G 18-21ed	4/8/2019	12:45	JBW
PCB							
Aroclor-1016	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:40	JBW
Aroclor-1221	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:40	JBW
Aroclor-1232	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:40	JBW
Aroclor-1242	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:40	JBW
Aroclor-1248	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:40	JBW
Aroclor-1254	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:40	JBW
Aroclor-1260	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:40	JBW
Aroclor-1262	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:40	JBW
Aroclor-1268	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	21:40	JBW
Surrogate			RANGE				
Tetrachloro-m-xylene (TCMX)	76		30-150%	SW-846 8082A	4/10/2019	21:40	JBW
Decachlorobiphenyl	64		30-150%	SW-846 8082A	4/10/2019	21:40	JBW
Extraction Date				SW-846 3546	4/8/2019	12:55	NRG
Semi-Volatile Organic Comp.							
Acenaphthene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Acenaphthylene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Anthracene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Benzidine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Benzo(a)anthracene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Benzo(b)fluoranthene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Benzo(k)fluoranthene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Benzo(g,h,i)perylene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Benzo(a)pyrene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Bis(2-chloroethyl)ether	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Bis(2-Chloroethoxy)methane	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 002
Sample Description: #2 TP-6
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Bis(2-Chloroisopropyl)Ether	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Bis(2-ethylhexyl)phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
4-Bromophenyl phenyl ether	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Butylbenzyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
2-Chloronaphthalene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
4-Chlorophenyl phenyl ether	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Chrysene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Dibenzo(a,h)anthracene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Di-n-butyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
1,2-Dichlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
1,3-Dichlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
1,4-Dichlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
3,3'-Dichlorobenzidine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Diethyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Dimethyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
2,4-Dinitrotoluene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
2,6-Dinitrotoluene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Di-n-octyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
1,2-Diphenylhydrazine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Fluoranthene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Fluorene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Hexachlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Hexachlorobutadiene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Hexachlorocyclopentadiene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Hexachloroethane	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Indeno(1,2,3-cd)pyrene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Isophorone	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
2-Methylnaphthalene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Naphthalene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Nitrobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
N-nitrosodimethylamine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
N-nitrosodiphenylamine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
N-nitrosodi-n-propylamine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Phenanthrene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Pyrene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
1,2,4-Trichlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
4-Chloro-3-methylphenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
2-Chlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
2,4-Dichlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
2,4-Dimethylphenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 002
Sample Description: #2 TP-6
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
2-Methyl-4,6-dinitrophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
2,4-Dinitrophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
2-Nitrophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
4-Nitrophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Pentachlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Phenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
2,4,5-Trichlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
2,4,6-Trichlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
4-Chloroaniline	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Dibenzofuran	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
2-Methyl Phenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
3 & 4-Methylphenols	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Aniline	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Acetophenone	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Azobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	20:22	JEB
Surrogates			RANGE	SW-846 8270D	4/9/2019	20:22	JEB
Phenol-d5	62		30-130%	SW-846 8270D	4/9/2019	20:22	JEB
2-Fluorophenol	56		30-130%	SW-846 8270D	4/9/2019	20:22	JEB
2,4,6-Tribromophenol	84		30-130%	SW-846 8270D	4/9/2019	20:22	JEB
Nitrobenzene-d5	56		30-130%	SW-846 8270D	4/9/2019	20:22	JEB
2-Fluorobiphenyl	60		30-130%	SW-846 8270D	4/9/2019	20:22	JEB
P-Terphenyl-d14	75		30-130%	SW-846 8270D	4/9/2019	20:22	JEB
Semi Extraction Date				SW-846 3546	4/9/2019	12:05	NRG
Total Metals - Soil							
Antimony	<5.25	5.25	mg/kg dry	SW-846 6010C	4/16/2019	18:20	DDP
Arsenic	<2.6	2.6	mg/kg dry	SW-846 6010C	4/16/2019	18:20	DDP
Barium	10.0	0.52	mg/kg dry	SW-846 6010C	4/16/2019	18:20	DDP
Beryllium	0.345	0.052	mg/kg dry	SW-846 6010C	4/16/2019	18:20	DDP
Cadmium	<0.26	0.26	mg/kg dry	SW-846 6010C	4/16/2019	18:20	DDP
Chromium	24	1.6	mg/kg dry	SW-846 6010C	4/16/2019	18:20	DDP
Lead	6.8	2.1	mg/kg dry	SW-846 6010C	4/16/2019	18:20	DDP
Mercury	<0.10	0.10	mg/kg dry	SW-846 7471B	4/12/2019	14:10	AJD
Nickel	9.5	1.0	mg/kg dry	SW-846 6010C	4/16/2019	18:20	DDP
Selenium	<5.2	5.2	mg/kg dry	SW-846 6010C	4/16/2019	18:20	DDP
Silver	<1.0	1.0	mg/kg dry	SW-846 6010C	4/16/2019	18:20	DDP
Thallium	<2.6	2.6	mg/kg dry	SW-846 6010C	4/16/2019	18:20	DDP
Vanadium	12	1.0	mg/kg dry	SW-846 6010C	4/16/2019	18:20	DDP
Zinc	18	2.1	mg/kg dry	SW-846 6010C	4/16/2019	18:20	DDP
Percent Solids	93.4		%	SM2540G 18-21ed	4/8/2019	12:45	JBW
Extraction Date				SW-846 5035A	4/5/2019	8:00	RBR

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 002
Sample Description: #2 TP-6
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
ICP Digestion				SW-846 3050B	4/16/2019	16:37	MEM
Mercury Digestion				SW-846 7471B	4/12/2019	12:52	MEM
Volatile Organic Compounds							
Acetone	<0.041	0.041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Tertiary Amyl Methyl Ether	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Benzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Bromobenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Bromochloromethane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Bromodichloromethane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Bromoform	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Bromomethane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Sec-butylbenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
n-Butylbenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
tert-Butylbenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Carbon Disulfide	<0.0082	0.0082	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Carbon Tetrachloride	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Chlorobenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Dibromochloromethane	<0.0016	0.0016	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Chloroethane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Chloroform	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Chloromethane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
2-Chlorotoluene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
4-Chlorotoluene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,2-Dibromo-3-Chloropropane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,2-Dibromoethane(EDB)	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Dibromomethane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,3-Dichlorobenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,2-Dichlorobenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,4-Dichlorobenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
n-Propylbenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Dichlorodifluoromethane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,1-Dichloroethane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,2-Dichloroethane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,1-Dichloroethene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
cis-1,2-Dichloroethene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
trans-1,2-Dichloroethylene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,2-Dichloropropane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,3-Dichloropropane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
2,2-Dichloropropane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,1-Dichloropropene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 002
Sample Description: #2 TP-6
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
cis-1,3-Dichloropropene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
trans-1,3-Dichloropropylene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Diethyl ether	<0.041	0.041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Diisopropyl Ether (DIPE)	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,4-Dioxane	<0.082	0.082	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Ethyl Tertiary Butyl Ether	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Ethylbenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Hexachlorobutadiene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
2-Hexanone	<0.041	0.041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Isopropylbenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
p-Isopropyltoluene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
2-Butanone(MEK)	<0.041	0.041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
4-Methyl-2-pentanone(MIBK)	<0.041	0.041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
MTBE	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Methylene Chloride	<0.0082	0.0082	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Naphthalene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,1,2-Trichloroethane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Styrene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,1,1,2-Tetrachloroethane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,1,2,2-Tetrachloroethane	<0.0016	0.0016	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Tetrachloroethene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Tetrahydrofuran	<0.041	0.041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Toluene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,2,4-Trichlorobenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,2,3-Trichlorobenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,1,1-Trichloroethane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Trichloroethene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Trichlorofluoromethane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,2,3-Trichloropropane	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,2,4-Trimethylbenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
1,3,5-Trimethylbenzene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Vinyl Chloride	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
o-Xylene	<0.0041	0.0041	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
m,p-Xylene	<0.0082	0.0082	mg/kg dry	SW-846 8260C	4/5/2019	21:19	RBR
Surrogates			RANGE	SW-846 8260C	4/5/2019	21:19	RBR
Dibromofluoromethane	97		70-130%	SW-846 8260C	4/5/2019	21:19	RBR
Toluene-d8	96		70-130%	SW-846 8260C	4/5/2019	21:19	RBR
4-Bromofluorobenzene	101		70-130%	SW-846 8260C	4/5/2019	21:19	RBR
1,2 Dichloroethane-d4	96		70-130%	SW-846 8260C	4/5/2019	21:19	RBR

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 003
Sample Description: #3 TP-9
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
COMM-97 Landfill Protocol							
pH	6.9		SU	SW-846 9045C	4/4/2019	16:50	JWC
Specific Conductance	2.3	1.0	uMHOS/CM	SM2510B 18-21ed	4/5/2019	13:30	ML
Flashpoint	>200	80	deg F	SW-846 1010	4/10/2019	9:35	NRG
Reactivity CN & S Soils							
Sulfide Reactivity	<2.0	2.0	mg/kg	SW-846 7.3.4.2	4/9/2019	6:30	SNI
Cyanide Reactivity	<0.10	0.10	mg/kg	SW-846 7.3.3	4/9/2019	6:30	SNI
TPH							
TPH GC/FID	<11	11	mg/kg dry	SW-846 8100M	4/9/2019	16:40	SRM
Surrogate			RANGE	SW-846 8100M	4/9/2019	16:40	SRM
2-Fluorobiphenyl	70		40-140%	SW-846 8100M	4/9/2019	16:40	SRM
Moisture	6.8		%	SM2540G 18-21ed	4/8/2019	12:45	JBW
PCB							
Aroclor-1016	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:08	JBW
Aroclor-1221	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:08	JBW
Aroclor-1232	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:08	JBW
Aroclor-1242	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:08	JBW
Aroclor-1248	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:08	JBW
Aroclor-1254	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:08	JBW
Aroclor-1260	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:08	JBW
Aroclor-1262	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:08	JBW
Aroclor-1268	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:08	JBW
Surrogate			RANGE				
Tetrachloro-m-xylene (TCMX)	86		30-150%	SW-846 8082A	4/10/2019	22:08	JBW
Decachlorobiphenyl	71		30-150%	SW-846 8082A	4/10/2019	22:08	JBW
Extraction Date				SW-846 3546	4/8/2019	12:55	NRG
Semi-Volatile Organic Comp.							
Acenaphthene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Acenaphthylene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Anthracene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Benzidine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Benzo(a)anthracene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Benzo(b)fluoranthene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Benzo(k)fluoranthene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Benzo(g,h,i)perylene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Benzo(a)pyrene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Bis(2-chloroethyl)ether	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Bis(2-Chloroethoxy)methane	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 003
Sample Description: #3 TP-9
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Bis(2-Chloroisopropyl)Ether	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Bis(2-ethylhexyl)phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
4-Bromophenyl phenyl ether	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Butylbenzyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
2-Chloronaphthalene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
4-Chlorophenyl phenyl ether	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Chrysene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Dibenzo(a,h)anthracene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Di-n-butyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
1,2-Dichlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
1,3-Dichlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
1,4-Dichlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
3,3'-Dichlorobenzidine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Diethyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Dimethyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
2,4-Dinitrotoluene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
2,6-Dinitrotoluene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Di-n-octyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
1,2-Diphenylhydrazine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Fluoranthene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Fluorene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Hexachlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Hexachlorobutadiene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Hexachlorocyclopentadiene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Hexachloroethane	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Indeno(1,2,3-cd)pyrene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Isophorone	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
2-Methylnaphthalene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Naphthalene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Nitrobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
N-nitrosodimethylamine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
N-nitrosodiphenylamine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
N-nitrosodi-n-propylamine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Phenanthrene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Pyrene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
1,2,4-Trichlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
4-Chloro-3-methylphenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
2-Chlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
2,4-Dichlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
2,4-Dimethylphenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 003
Sample Description: #3 TP-9
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
2-Methyl-4,6-dinitrophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
2,4-Dinitrophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
2-Nitrophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
4-Nitrophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Pentachlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Phenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
2,4,5-Trichlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
2,4,6-Trichlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
4-Chloroaniline	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Dibenzofuran	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
2-Methyl Phenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
3 & 4-Methylphenols	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Aniline	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Acetophenone	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Azobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:18	JEB
Surrogates			RANGE	SW-846 8270D	4/9/2019	19:18	JEB
Phenol-d5	55		30-130%	SW-846 8270D	4/9/2019	19:18	JEB
2-Fluorophenol	51		30-130%	SW-846 8270D	4/9/2019	19:18	JEB
2,4,6-Tribromophenol	79		30-130%	SW-846 8270D	4/9/2019	19:18	JEB
Nitrobenzene-d5	52		30-130%	SW-846 8270D	4/9/2019	19:18	JEB
2-Fluorobiphenyl	54		30-130%	SW-846 8270D	4/9/2019	19:18	JEB
P-Terphenyl-d14	75		30-130%	SW-846 8270D	4/9/2019	19:18	JEB
Semi Extraction Date				SW-846 3546	4/9/2019	12:05	NRG
Total Metals - Soil							
Antimony	<5.29	5.29	mg/kg dry	SW-846 6010C	4/16/2019	18:45	DDP
Arsenic	<2.6	2.6	mg/kg dry	SW-846 6010C	4/16/2019	18:45	DDP
Barium	9.7	0.53	mg/kg dry	SW-846 6010C	4/16/2019	18:45	DDP
Beryllium	0.240	0.053	mg/kg dry	SW-846 6010C	4/16/2019	18:45	DDP
Cadmium	<0.26	0.26	mg/kg dry	SW-846 6010C	4/16/2019	18:45	DDP
Chromium	3.4	1.6	mg/kg dry	SW-846 6010C	4/16/2019	18:45	DDP
Lead	3.3	2.1	mg/kg dry	SW-846 6010C	4/16/2019	18:45	DDP
Mercury	<0.11	0.11	mg/kg dry	SW-846 7471B	4/12/2019	14:12	AJD
Nickel	2.0	1.1	mg/kg dry	SW-846 6010C	4/16/2019	18:45	DDP
Selenium	<5.3	5.3	mg/kg dry	SW-846 6010C	4/16/2019	18:45	DDP
Silver	<1.1	1.1	mg/kg dry	SW-846 6010C	4/16/2019	18:45	DDP
Thallium	<2.6	2.6	mg/kg dry	SW-846 6010C	4/16/2019	18:45	DDP
Vanadium	7.5	1.1	mg/kg dry	SW-846 6010C	4/16/2019	18:45	DDP
Zinc	7.1	2.1	mg/kg dry	SW-846 6010C	4/16/2019	18:45	DDP
Percent Solids	93.2		%	SM2540G 18-21ed	4/8/2019	12:45	JBW
Extraction Date				SW-846 5035A	4/5/2019	8:00	RBR

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 003
Sample Description: #3 TP-9
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
ICP Digestion				SW-846 3050B	4/16/2019	16:37	MEM
Mercury Digestion				SW-846 7471B	4/12/2019	12:52	MEM
Volatile Organic Compounds							
Acetone	0.047	0.040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Tertiary Amyl Methyl Ether	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Benzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Bromobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Bromochloromethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Bromodichloromethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Bromoform	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Bromomethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Sec-butylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
n-Butylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
tert-Butylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Carbon Disulfide	<0.0079	0.0079	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Carbon Tetrachloride	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Chlorobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Dibromochloromethane	<0.0016	0.0016	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Chloroethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Chloroform	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Chloromethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
2-Chlorotoluene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
4-Chlorotoluene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,2-Dibromo-3-Chloropropane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,2-Dibromoethane(EDB)	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Dibromomethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,3-Dichlorobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,2-Dichlorobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,4-Dichlorobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
n-Propylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Dichlorodifluoromethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,1-Dichloroethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,2-Dichloroethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,1-Dichloroethene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
cis-1,2-Dichloroethene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
trans-1,2-Dichloroethylene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,2-Dichloropropane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,3-Dichloropropane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
2,2-Dichloropropane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,1-Dichloropropene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 003
Sample Description: #3 TP-9
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
cis-1,3-Dichloropropene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
trans-1,3-Dichloropropylene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Diethyl ether	<0.040	0.040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Diisopropyl Ether (DIPE)	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,4-Dioxane	<0.079	0.079	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Ethyl Tertiary Butyl Ether	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Ethylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Hexachlorobutadiene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
2-Hexanone	<0.040	0.040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Isopropylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
p-Isopropyltoluene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
2-Butanone(MEK)	<0.040	0.040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
4-Methyl-2-pentanone(MIBK)	<0.040	0.040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
MTBE	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Methylene Chloride	<0.0079	0.0079	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Naphthalene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,1,2-Trichloroethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Styrene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,1,1,2-Tetrachloroethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,1,2,2-Tetrachloroethane	<0.0016	0.0016	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Tetrachloroethene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Tetrahydrofuran	<0.040	0.040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Toluene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,2,4-Trichlorobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,2,3-Trichlorobenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,1,1-Trichloroethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Trichloroethene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Trichlorofluoromethane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,2,3-Trichloropropane	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,2,4-Trimethylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
1,3,5-Trimethylbenzene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Vinyl Chloride	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
o-Xylene	<0.0040	0.0040	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
m,p-Xylene	<0.0079	0.0079	mg/kg dry	SW-846 8260C	4/5/2019	21:47	RBR
Surrogates			RANGE	SW-846 8260C	4/5/2019	21:47	RBR
Dibromofluoromethane	96		70-130%	SW-846 8260C	4/5/2019	21:47	RBR
Toluene-d8	97		70-130%	SW-846 8260C	4/5/2019	21:47	RBR
4-Bromofluorobenzene	100		70-130%	SW-846 8260C	4/5/2019	21:47	RBR
1,2 Dichloroethane-d4	98		70-130%	SW-846 8260C	4/5/2019	21:47	RBR

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 004
Sample Description: #4 TP-10
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
COMM-97 Landfill Protocol							
pH	6.6		SU	SW-846 9045C	4/4/2019	16:50	JWC
Specific Conductance	3.4	1.0	uMHOS/CM	SM2510B 18-21ed	4/5/2019	13:30	ML
Flashpoint	>200	80	deg F	SW-846 1010	4/10/2019	9:40	NRG
Reactivity CN & S Soils							
Sulfide Reactivity	<2.0	2.0	mg/kg	SW-846 7.3.4.2	4/9/2019	6:30	SNI
Cyanide Reactivity	<0.10	0.10	mg/kg	SW-846 7.3.3	4/9/2019	6:30	SNI
TPH							
TPH GC/FID	22	21	mg/kg dry	SW-846 8100M	4/9/2019	17:36	SRM
Surrogate			RANGE	SW-846 8100M	4/9/2019	17:36	SRM
2-Fluorobiphenyl	57		40-140%	SW-846 8100M	4/9/2019	17:36	SRM
Moisture	6.7		%	SM2540G 18-21ed	4/8/2019	12:45	JBW
PCB							
Aroclor-1016	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:37	JBW
Aroclor-1221	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:37	JBW
Aroclor-1232	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:37	JBW
Aroclor-1242	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:37	JBW
Aroclor-1248	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:37	JBW
Aroclor-1254	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:37	JBW
Aroclor-1260	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:37	JBW
Aroclor-1262	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:37	JBW
Aroclor-1268	<0.1	0.1	mg/kg dry	SW-846 8082A	4/10/2019	22:37	JBW
Surrogate			RANGE				
Tetrachloro-m-xylene (TCMX)	77		30-150%	SW-846 8082A	4/10/2019	22:37	JBW
Decachlorobiphenyl	51		30-150%	SW-846 8082A	4/10/2019	22:37	JBW
Extraction Date				SW-846 3546	4/8/2019	12:55	NRG
Semi-Volatile Organic Comp.							
Acenaphthene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Acenaphthylene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Anthracene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Benzidine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Benzo(a)anthracene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Benzo(b)fluoranthene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Benzo(k)fluoranthene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Benzo(g,h,i)perylene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Benzo(a)pyrene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Bis(2-chloroethyl)ether	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Bis(2-Chloroethoxy)methane	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 004
Sample Description: #4 TP-10
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Bis(2-Chloroisopropyl)Ether	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Bis(2-ethylhexyl)phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
4-Bromophenyl phenyl ether	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Butylbenzyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
2-Chloronaphthalene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
4-Chlorophenyl phenyl ether	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Chrysene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Dibenzo(a,h)anthracene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Di-n-butyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
1,2-Dichlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
1,3-Dichlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
1,4-Dichlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
3,3'-Dichlorobenzidine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Diethyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Dimethyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
2,4-Dinitrotoluene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
2,6-Dinitrotoluene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Di-n-octyl phthalate	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
1,2-Diphenylhydrazine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Fluoranthene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Fluorene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Hexachlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Hexachlorobutadiene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Hexachlorocyclopentadiene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Hexachloroethane	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Indeno(1,2,3-cd)pyrene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Isophorone	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
2-Methylnaphthalene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Naphthalene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Nitrobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
N-nitrosodimethylamine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
N-nitrosodiphenylamine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
N-nitrosodi-n-propylamine	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Phenanthrene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Pyrene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
1,2,4-Trichlorobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
4-Chloro-3-methylphenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
2-Chlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
2,4-Dichlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
2,4-Dimethylphenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 004
Sample Description: #4 TP-10
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
2-Methyl-4,6-dinitrophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
2,4-Dinitrophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
2-Nitrophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
4-Nitrophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Pentachlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Phenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
2,4,5-Trichlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
2,4,6-Trichlorophenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
4-Chloroaniline	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Dibenzofuran	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
2-Methyl Phenol	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
3 & 4-Methylphenols	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Aniline	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Acetophenone	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Azobenzene	<0.36	0.36	mg/kg dry	SW-846 8270D	4/9/2019	19:50	JEB
Surrogates			RANGE	SW-846 8270D	4/9/2019	19:50	JEB
Phenol-d5	67		30-130%	SW-846 8270D	4/9/2019	19:50	JEB
2-Fluorophenol	63		30-130%	SW-846 8270D	4/9/2019	19:50	JEB
2,4,6-Tribromophenol	90		30-130%	SW-846 8270D	4/9/2019	19:50	JEB
Nitrobenzene-d5	66		30-130%	SW-846 8270D	4/9/2019	19:50	JEB
2-Fluorobiphenyl	69		30-130%	SW-846 8270D	4/9/2019	19:50	JEB
P-Terphenyl-d14	82		30-130%	SW-846 8270D	4/9/2019	19:50	JEB
Semi Extraction Date				SW-846 3546	4/9/2019	12:05	NRG
Total Metals - Soil							
Antimony	<5.31	5.31	mg/kg dry	SW-846 6010C	4/16/2019	18:50	DDP
Arsenic	<2.6	2.6	mg/kg dry	SW-846 6010C	4/16/2019	18:50	DDP
Barium	14	0.53	mg/kg dry	SW-846 6010C	4/16/2019	18:50	DDP
Beryllium	0.379	0.053	mg/kg dry	SW-846 6010C	4/16/2019	18:50	DDP
Cadmium	<0.26	0.26	mg/kg dry	SW-846 6010C	4/16/2019	18:50	DDP
Chromium	6.8	1.6	mg/kg dry	SW-846 6010C	4/16/2019	18:50	DDP
Lead	6.0	2.1	mg/kg dry	SW-846 6010C	4/16/2019	18:50	DDP
Mercury	<0.10	0.10	mg/kg dry	SW-846 7471B	4/12/2019	14:13	AJD
Nickel	2.7	1.1	mg/kg dry	SW-846 6010C	4/16/2019	18:50	DDP
Selenium	<5.3	5.3	mg/kg dry	SW-846 6010C	4/16/2019	18:50	DDP
Silver	<1.1	1.1	mg/kg dry	SW-846 6010C	4/16/2019	18:50	DDP
Thallium	<2.6	2.6	mg/kg dry	SW-846 6010C	4/16/2019	18:50	DDP
Vanadium	16	1.1	mg/kg dry	SW-846 6010C	4/16/2019	18:50	DDP
Zinc	11	2.1	mg/kg dry	SW-846 6010C	4/16/2019	18:50	DDP
Percent Solids	93.3		%	SM2540G 18-21ed	4/8/2019	12:45	JBW
Extraction Date				SW-846 5035A	4/5/2019	8:00	RBR

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 004
Sample Description: #4 TP-10
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
ICP Digestion				SW-846 3050B	4/16/2019	16:37	MEM
Mercury Digestion				SW-846 7471B	4/12/2019	12:52	MEM
Volatile Organic Compounds							
Acetone	<0.056	0.056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Tertiary Amyl Methyl Ether	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Benzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Bromobenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Bromochloromethane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Bromodichloromethane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Bromoform	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Bromomethane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Sec-butylbenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
n-Butylbenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
tert-Butylbenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Carbon Disulfide	<0.011	0.011	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Carbon Tetrachloride	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Chlorobenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Dibromochloromethane	<0.0023	0.0023	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Chloroethane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Chloroform	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Chloromethane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
2-Chlorotoluene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
4-Chlorotoluene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,2-Dibromo-3-Chloropropane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,2-Dibromoethane(EDB)	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Dibromomethane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,3-Dichlorobenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,2-Dichlorobenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,4-Dichlorobenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
n-Propylbenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Dichlorodifluoromethane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,1-Dichloroethane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,2-Dichloroethane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,1-Dichloroethene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
cis-1,2-Dichloroethene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
trans-1,2-Dichloroethylene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,2-Dichloropropane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,3-Dichloropropane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
2,2-Dichloropropane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,1-Dichloropropene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

Sample Number: 004
Sample Description: #4 TP-10
Sample Type : GRAB
Sample Date / Time : 4/03/2019

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
cis-1,3-Dichloropropene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
trans-1,3-Dichloropropylene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Diethyl ether	<0.056	0.056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Diisopropyl Ether (DIPE)	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,4-Dioxane	<0.11	0.11	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Ethyl Tertiary Butyl Ether	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Ethylbenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Hexachlorobutadiene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
2-Hexanone	<0.056	0.056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Isopropylbenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
p-Isopropyltoluene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
2-Butanone(MEK)	<0.056	0.056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
4-Methyl-2-pentanone(MIBK)	<0.056	0.056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
MTBE	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Methylene Chloride	<0.011	0.011	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Naphthalene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,1,2-Trichloroethane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Styrene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,1,1,2-Tetrachloroethane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,1,2,2-Tetrachloroethane	<0.0023	0.0023	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Tetrachloroethene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Tetrahydrofuran	<0.056	0.056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Toluene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,2,4-Trichlorobenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,2,3-Trichlorobenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,1,1-Trichloroethane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Trichloroethene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Trichlorofluoromethane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,2,3-Trichloropropane	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,2,4-Trimethylbenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
1,3,5-Trimethylbenzene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Vinyl Chloride	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
o-Xylene	<0.0056	0.0056	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
m,p-Xylene	<0.011	0.011	mg/kg dry	SW-846 8260C	4/5/2019	22:16	RBR
Surrogates			RANGE	SW-846 8260C	4/5/2019	22:16	RBR
Dibromofluoromethane	96		70-130%	SW-846 8260C	4/5/2019	22:16	RBR
Toluene-d8	95		70-130%	SW-846 8260C	4/5/2019	22:16	RBR
4-Bromofluorobenzene	99		70-130%	SW-846 8260C	4/5/2019	22:16	RBR
1,2 Dichloroethane-d4	94		70-130%	SW-846 8260C	4/5/2019	22:16	RBR

R.I. Analytical Laboratories, Inc.

Laboratory Report

Universal Environmental Conslt

Work Order #: 1904-05945

Project Name: MINOT SCHOOL - WAREHAM, MA

5035LL Volatile Organics: For 1904-05945-001-003 samples, soil weight above the 1:1 gram/DI water ratio.

UEC universal environmental consultants
12 Brewster Road
Framingham, MA 01702
Phone: 508.628.5486
Fax: 508.628.5488

CHAIN OF CUSTODY

BUILDING / SITE NAME: Minot School
WORK AREA: Site
TOWN / CITY: Wareham
STATE: MA

Analysis Type	Turnaround Time (x) 6-8 Hr	12 Hr	24 Hr	48 Hr	72 hr
TEM / AHERA					
TEM / Level II					
TEM / Dust					
TEM / Bulk					
TEM / Water					
PLM					
Mold					
Other:					

Specific Project Notes

Please Analyze for Comm-97 & MCP 14 Metals

2-Weeks (3-4w)

SAMPLE ID	MATERIAL DESCRIPTION	SAMPLE LOCATION	START	STOP	TIME	L/MIN	VOLUME
(1)	Soil	TP-7					
(2)	Soil	TP-6					
(3)	Soil	TP-9					
(4)	Soil	TP-10					

SAMPLED BY: Contractor - LGCI * DATE/TIME: 3/3/19
RECEIVED BY: [signature] DATE/TIME: 4/3/19 10:55
RELINQUISHED BY: [signature] DATE/TIME: 4/3/19 1604
RECEIVED IN LAB BY: [signature] DATE/TIME: 4-3-19 1604

* collected 4/3/19 per R. Parrilla, ND 4/3/19

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SECTION 31 10 00

SITE PREPARATION

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

B. Examine all other Sections of the Specifications and drawings for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section or implied on the drawings.

C. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF WORK

A. Provide all labor, materials, equipment, services and transportation required to complete all site preparation work as shown on Drawings, as specified herein, or both.

B. Include the following work:

1. Removal of trees.
2. Removal of vegetation.
3. Removal of Topsoil
4. Tree Protection.
5. Removing asphalt pavement.
6. Cutting and capping of existing utilities to be abandoned
7. Remove concrete driveway and base.
8. Removing concrete sidewalk and base
9. Removing and salvage granite curbs
10. Removing designated site improvements.

C. See Drawings for locations and details.

1.03 RELATED WORK UNDER OTHER SECTIONS

A. Section 31 00 00 – EARTHWORK

B. Section 31 25 00 – EROSION AND SEDIMENTATION CONTROLS

1.04 PERMITS AND CODES

A. All work shall comply with applicable codes, ordinances, rules, regulations and laws of all local, municipal, and state authorities having jurisdiction. All work necessary to make site preparation comply with such requirements shall be provided without additional cost to the Owner.

B. Contractor shall procure and pay for all permits and licenses required for work under this Section. Give all required notices.

C. Do not close or obstruct any streets, sidewalks, alleys, or passageways, unless and until they have been discontinued by the appropriate municipal authority, or unless and until all necessary municipal and other permits therefore have been secured. No materials whatsoever shall be placed or stored in streets, alleys, or passageways until they have been so discontinued. Conduct all operations to interfere as little as possible with the use ordinarily made of roads, driveways, alleys, sidewalks, and other facilities near enough to the Work to be affected.

1.05 PROJECT CONDITIONS

A. Locate, protect, and maintain bench marks, monuments, control points and project engineering reference points. Re-establish disturbed or destroyed items at no additional expense to the Owner.

B. Perform site work operations and the removal of debris and waste materials to assure minimum interference with streets, walks, and other adjacent facilities.

C. Obtain governing authorities' and abutting land owners written permission when required to close or obstruct streets, walks and adjacent facilities. Provide alternate routes around closed or obstructed traffic ways when required by governing authorities.

D. Control dust caused by the work. Dampen surfaces as required. Comply with pollution control regulations of governing authorities.

E. Protect existing buildings, paving, and other services or facilities adjacent to the site from damage caused by site work operations. Cost of repair and restoration of damaged items shall be at no additional expense to the Owner.

F. When uncharted or incorrectly charted underground piping or other utilities and services are encountered during site work operations, notify the applicable utility company immediately to obtain procedure directions. Cooperate with the applicable utility company in maintaining active services in operation.

G. Do not commence site clearing operations until temporary erosion and sedimentation control and tree protection measures are in place.

H. Soil Stripping, Handling and Stockpiling:

1. Perform only when the topsoil is dry or slightly moist.

1.06 EXISTING UTILITIES

A. Active utilities existing on the site shall be carefully protected from damage and relocated or removed or abandoned as necessitated by the work. When an active utility line is exposed during construction, its location and elevation shall be plotted on the record drawings as described in this Section and both Architect and the utility owner notified in writing.

B. Inactive or abandoned utilities encountered during construction operations shall be removed, plugged or capped. The location of such utilities shall be noted on the record drawings and reported in writing to the Architect.

1.07 PREVIOUS SITE PREPARATION

A. Contractor shall accept the site as received at the commencement of this Contract, including measures previously taken to alter, protect, stabilize and maintain site conditions.

B. Removal and disposal of temporary provisions is included in the work of this Section. Do all additional site preparation required for construction as further provided in this Section, in accordance with the Contract Documents.

PART 2 - PRODUCTS

2.01 Not used.

PART 3 - EXECUTION

3.01 SITE CONDITIONS

A. Perform site preparation work before commencing construction.

B. Locate, protect, and maintain active utilities and site improvements to remain. Consult the records and drawings of adjacent work and of existing services and utilities which may affect site work operations.

C. Provide necessary barricades, coverings, and protection to prevent damage to existing improvements to remain.

D. Restore to original grades and conditions, areas adjacent to site disturbed or damaged as a result of site preparation work.

E. Examine the areas and conditions under which site work is performed. Do not proceed with the work until unsatisfactory conditions are corrected.

3.02 REMOVAL OF EXISTING SITE IMPROVEMENTS

A. Remove existing site improvements within the limit of work line as indicated. Include the following:

1. Asphalt pavement
2. Concrete walk
3. Concrete and granite items
4. Buildings
5. Other indicated items on the plans.

B. Existing Utilities: Information on the Drawings relating to existing utility lines and services is from the best sources presently available. All such information is furnished only for information and is not guaranteed. Excavate test pits as required to determine exact locations of existing utilities.

C. Coordinate with the Owner on utilities to be removed or relocated so services to other buildings remain active and uninterrupted.

D. Remove existing paving, including base material, as required to accommodate new construction. Cut existing paving in neat, straight lines to provide uniform, even transition from new to adjacent existing work.

E. Utilities showed to be removed, or identified as no longer required by the owner, shall be cut and capped at the main in the street.

3.03 REMOVAL OF BITUMINOUS PAVEMENT

A. Existing pavement located within the limits of new pavement may be pulverized in place in lieu of removal (see section 32 12 16).

3.04 REMOVAL OF TREES AND SHRUBS

A. Before commencing other work under this Section, provide protection for trees and shrubs which are to remain. Refer to the Drawings and arrange a conference on the site with the Landscape Architect to identify and mark trees and shrubs which are to remain, removed and/or transplanted. Do no commence clearing without clear understanding of existing conditions to be preserved.

B. Exercise extreme care during excavation to prevent damage to roots of trees which are to remain. Owners Representative shall be notified in advance of excavation within and adjacent to tree-protection zones and shall be

present during the operation. When excavating or grading within the branch spread of trees to remain, do so in a manner which will cause minimum damage to root systems, as approved by Owners Representative. Fell other trees in such a manner as not to injure trees to remain. Carefully remove branches which endanger life or property.

C. Exercise extreme care during excavation to prevent damage to roots of trees which are to remain. When excavating or grading within the branch spread of trees to remain, do so in a manner which will cause minimum damage to root systems, as approved by Owners Representative. When excavating within the root zone of trees to remain, all work shall commence by utilizing a Ditch Witch Vibratory Plow 410-SX or 420-SX with a new blade with a serrated edge to provide a clean cut of existing root system to a depth of 1 ft. 6 in. to 2 ft. 0 in. Open such trenches only when the utility can be installed immediately. Cover roots exposed at the wall of the excavation with wet burlap and water regularly. Backfill excavation with stockpiled soil and water as soon as possible.

D. Fell other trees in such a manner as not to injure trees to remain. Carefully remove branches which endanger life or property.

3.05 CLEARING

A. Prior to starting site clearing operations, stake out all roads, parking areas, and other paved areas, and limits of cuts and fill.

B. Clear areas as indicated or required of all trees, plants, stumps, branches and other debris and rubbish.

C. Vegetation and trees to be removed shall be chipped and the resultant material removed and disposed of offsite legally.

3.06 GRUBBING

A. Areas within the limits of clearing, except where fill of more than 3-1/2 ft. in depth is required, shall be grubbed. Grubbing shall consist in grubbing-up and removing, for a depth of at least 12 in. below existing ground level, all stumps and roots 1-1/2 in. or more in diameter. All depressions excavated below the original ground surface, or caused by the removal of stumps and roots, shall be refilled with suitable material compacted to the density, grade, and contour of the surrounding earth as specified in Section 31 00 00 - EARTHWORK.

B. Remove completely stumps, foliage, brush, roots, and trees from areas to be occupied by building, parking areas, sidewalks, driveways, roads, Bio Retention and Deletion basins, and other such finished areas and for a distance of 10 feet outside of the building walls, except where otherwise indicated. Remove stumps and roots to a clear depth of not less than 2 ft. 0 in. below subgrade level. At lawns only, depth shall be 1 ft. 0 in. below finish grade. Sticks, stones, and roots over 2 in. in any dimensions shall be removed from loam designated for stockpiling. Legally dispose of all debris and rubbish away from the site.

C. Fill depressions caused by clearing and grubbing operations with general fill with 6 in. of native stockpiled top soil on top unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.07 STRIPPING AND STOCKPILING TOPSOIL

A. Prior to starting general excavation, strip all topsoil within areas to be occupied by structures, pavements, steps, lawns, planting, and trenches, as well as all areas to be regraded, or used for construction operations, for later use in topsoiling and finish grading. Stockpile areas for topsoil shall be as directed by Architect. Should the topsoil be stockpiled in any area without prior approval of the Architect, Owners Representative may direct Contractor to relocate such stockpile to another portion of the site, and the Contractor shall do so, at no additional cost to the Owner.

B. Do no stripping without clear understanding of existing soil, planting, and site conditions to be preserved. Topsoil shall be stripped its entire, natural depth, as determined by the Architect. Redistribution of topsoil is included as part of the work specified in other Sections. Do not remove topsoil from site without explicit written approval of Architect.

C. Do not strip topsoil in tree-protection zones.

D. All loam encountered during the stripping operation, regardless of depth, shall be removed from the site, where directed by EARTHWORK 31 00 00. All other stripped material which can be classified as fill under EARTHWORK 310000 shall be used for re-use in rough-grading or removed from site.

E. Temporary stockpile of topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

F. topsoil and fill not required to fulfill the requirements of the Contract shall become the property of the Contractor and shall be removed from the site and legally disposed of at no cost to the Owner.

3.08 DISPOSAL OF WASTE MATERIALS

A. Remove, haul from site, and legally dispose of all waste materials and debris not required to be saved. Accumulation is not permitted.

B. Maintain disposal routes clear, clean, and free of debris.

C. On-site burning of combustible cleared materials is not permitted.

D. Cover trucks used for hauling, follow approved routes, obtain disposal permits required and pay all fees in connection with disposal of materials removed.

E. Upon completion of site preparation work, clean areas of work, remove tools and equipment. Provide site clear, clean, and free of materials and debris and suitable for site construction operations.

3.09 PROTECTION OF EXISTING UTILITIES

A. Protect existing site improvements from damage during construction

B. All areas disturbed through the removal and disposal of existing utilities and site improvements outside the limits of final grading shall be loamed and seeded or paved to match or exceed existing conditions.

C. Where noted, the Contractor shall protect existing utility poles, overhead wires, and other electrical or communications elements within and adjacent to the property

D. Any damage to these utilities or structures resulting from the construction operation shall be repaired to meet or exceed the existing condition at the Contractor's expense

E. Any losses to the property or any other utility company resulting from the interruption of service from construction or blasting activity, both directly or indirectly, shall be the responsibility of the Contractor, and shall result in no additional cost to the Architect

F. The Contractor shall make every effort to protect existing utilities including electrical and communications conduits and structures during construction. Any damage to utilities designated to remain shall be repaired immediately at the Contractor's expense

3.010 SALVAGEABLE MATERIALS

A. Any items salvaged but not ultimately used in the project shall become the property of the Contractor and disposed of legally at no cost to the Owner.

B. Remove non-salvage materials from site as work progresses. Storage and sale of Contractor's salvage items on site is not permitted

C. Any items salvaged but not ultimately used in the project shall become the property of the Contractor and disposed of legally

END OF SECTION

[SECTION 31 20 00

EARTH MOVING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. All the Contract Documents, including Drawings, General and Supplementary Conditions and Division 1 – General Requirements, apply to the Work of this Section.

1.02 SPECIAL INSTRUCTIONS

A. The Contractor shall become familiar with other Sections of the Specifications to determine the type and extent of work there under which affects the work of this section whether, or not such work is specifically mentioned.

1.03 DESCRIPTION OF WORK

A. The Work of this Section includes, but is not limited to, furnishing and installation of the following:
   1. All materials, equipment, labor and services required for all Earth Moving work, including all items incidental thereto, as specified herein and as shown on the Drawings:
   2. All excavated soils shall be removed from the site and disposed of. No burning on the site shall be permitted.
   3. Excavating and backfilling required for the removal of the pavements, underground utilities including storm drainage, sanitary, electrical and water.
   4. Pumping and/or bailing necessary to maintain excavated spaces free from water from any source whatsoever. The Work of this Section shall include performance of pre and post blasting surveys, preparation of a blast design plan and analysis, and provision of all services in accordance with requirements of 527 CMR 13.00 Explosives and the Contract Documents, for all existing building structures and utilities located within 500 feet of the Limit of Work Line (LOW) as indicated on the Drawings. The Contractor shall coordinate with the Town of Wareham Fire Department to provide fire watch services before, during, and after all blasting performed under the Contract, in accordance with requirements of 527 CMR 13.00 Explosives and the Contract Documents.
   5. Preparation, submission of, and compliance with an approved, phased erosion control plan in accordance with DEP requirements for a SWPPP (Stormwater Pollution Prevention Plan) to include materials and measures required to control soil erosion resulting from construction operations for the duration of the project.
   6. Removal of transite and other buried pipes.
   7. Designation of an Erosion Control Supervisor and submission of weekly erosion control reports
   8. Coordination with Archaeological Monitor.
   9. Sediment removal and disposal
   10. Maintenance of erosion control device
   11. Removal of erosion control devices
   12. Install fencing and safety devices or controls as specified and as necessary.
   13. Dust control and clean up.

1.04 RELATED WORK SPECIFIED ELSEWHERE

A. Carefully examine all the Contract Documents for requirements that effect the Work of this Section.

B. Other Specification Sections which directly relate to the Work of this section include, but are not limited to, the following:
   1. DIVISION 01 – GENERAL REQUIREMENTS; including all Sections contained therein
   2. DIVISION 02 – EXISTING CONDITIONS; including all Sections contained therein

1.05 REFERENCED SPECIFICATIONS

A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements govern.

1. Commonwealth of Massachusetts:

A. Massachusetts Highway Department, "Standard Specifications for Highways and Bridges" (S.S.H.B.) Commonwealth of Massachusetts State Building Code.

1.06 OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA):

A.Occupational Safety and Health Act of 1970 (Public Law 91-596 of the United States, 29 USC Section 651 et seq.).

1.07 BENCH MARKS AND ENGINEERING

A. Lines and grade work in accordance with Drawings and Specifications shall be laid out by a registered Civil Engineer or Surveyor employed by the Contractor. The Contractor shall establish permanent bench marks, to which access can easily be had during the progress of the work. The Contractor shall maintain all established bounds and bench marks and replace, as directed, any which may be disturbed or destroyed. The selection of the registered Civil Engineer or Surveyor shall be subject to the Architect's approval. The General Contractor shall pay all costs of the services of the Civil Engineer or Surveyor.

B. The Contractor shall verify dimensions and elevations on the ground and report any discrepancies immediately to the Architect. Any discrepancies not reported prior to construction shall not be the basis for claims for extra compensation.

1.08 SOIL REPORT

A. Geotechnical Engineering Report for the Minot Forest Elementary School dated April 9, 2019 prepared by LGCI; 100 Chelmsford Road, Suite 2, Billerica, MA 01862 is attached hereto, and hereby made a part of the Contract Documents.

B. The Owner assumes no responsibility for the Contractor's failure to make his own site investigation and makes no representation other than the soils reports regarding the character of the soil or subsurface conditions which may be encountered during the performance of the work. The Contractor shall refer to Section 31 09 00 - Subsurface Investigation, and attached soil Reports. Failure by the Contractor to be aware of existing site conditions shall not be cause for additional cost to the Owner.

C. Information on subsurface conditions is made available for the convenience of the Bidders. The Owner does not represent to the Contractor that the information is either an accurate or a comprehensive indication of subsurface conditions. Bidders are invited to review the information to apprise themselves of the information available, and also to make additional investigations at their own expense.

D. No claim for extra cost or extension of time resulting from reliance by the Contractor on information presented herein shall be allowed, except as provided in the Contract Documents.

1.09 PHASE I-ENVIRONMENTAL SITE ASSESSMENT

A. The Phase I-Environmental Site Assessment prepared by Lord Associates, Inc. 1506 Providence Highway, Suite 30, Norwood, MA 02062 dated March 20, 2018 is attached hereto, and hereby made a part of the Contract Documents.

B. The Owner assumes no responsibility for the Contractor's failure to make his own site investigation and makes no representation other than the soils reports and site assessment regarding the character of the soil or subsurface conditions which may be encountered during the performance of the work. Failure by the Contractor to be aware of existing site conditions shall not be cause for additional cost to the Owner.

C. Information on subsurface conditions is made available for the convenience of the Bidders. The Owner does not represent to the Contractor that the information is either an accurate or a comprehensive indication of subsurface conditions. Bidders are invited to review the information to apprise themselves of the information available, and also to make additional investigations at their own expense.

D. No claim for extra cost or extension of time resulting from reliance by the Contractor on information presented herein shall be allowed, except as provided in the Contract Documents.

1.10 ARCHAEOLOGICAL MONITORING

A. In consultation with the Massachusetts Historical Commission (MHC) it has been determined that the school site is sensitive for containing unmarked graves, locations of which have not been identified. The MHC agrees that archaeological monitoring should occur in the northwestern part of the site entrance/exit, grading, utilities and other impacts are proposed and in the western and southwestern portion of the site, areas that are west and south of the base of the wooded slope.

B. An Archaeologist will be retained by the Town of Wareham to monitor the clearing and grading operations in the two designated areas.

C. The Contractor shall coordinate the schedule of the clearing and grading operations notifying the selected Monitor at least 48 hours in advance of the pending work. During these operations the Monitor may require some time to investigate uncovered materials. In the case In the event that unmarked graves are identified during the archaeological monitoring, or if human skeletal remains are found otherwise during implementation of the project than the discovery location should be protected and the MHC contacted immediately so that consultation can occur.

D. Refer to APPENDIX D: PAL Excavation Permit for Archeological Monitoring Special Requirements.

1.11 TRANSITE AND INSULATED BURIED PIPES

A. The Contractor shall remove and disposal of transite or insulated buried pipes assumed to contain asbestos. Should any of these materials be encountered during excavation operations the Contractor shall cease earthwork operations in the area of encounter and notify the Architect. The removal and disposal of these materials shall be in accordance with the Unit Price section of these specifications. The price is inclusive of all required/related earthwork

1.12 PROTECTION

A. All rules and regulations governing the respective utilities shall be observed in executing all work under this Section.

B. All work shall be executed in such a manner as to prevent any damage to existing streets, curbs, paving, service utility lines, structures and adjoining property. Monuments and bench marks shall be carefully maintained and, if disturbed or destroyed, replaced as directed.

1.12 DEFINITIONS

A. SSHB: “Standard Specification for Highways and Bridges”, Commonwealth of Massachusetts, Massachusetts Highway Department, latest edition, including supplements.

B. The words "finished grades" as used herein mean the required final grade elevations indicated on the Drawings and defined in this specification section. Where not otherwise indicated, areas outside of buildings shall be given uniform slopes between points, for which finished grades are shown, or between such points and existing grade except that vertical curves or roundings shall be provided at abrupt changes in slope.

1.13 SUBMITTALS

A. Provide submittals in accordance with requirements of Section 01 33 00 – Submittal Procedures in accordance with requirements of the Contract Documents.

1. Submit a detailed earthwork sequence plan for project excavation indicating temporary stockpile areas and procedures for subgrade protection

1.14 SUBMIT A DEWATERING PLAN FOR REVIEW BY THE ARCHITECT AT LEAST TWO WEEKS BEFORE THE START OF CONSTRUCTION.

1.15 EXCAVATION AND EXCAVATION SUPPORT PLAN: SUBMIT AT LEAST 10 CALENDAR DAYS PRIOR TO THE START OF THE WORK A DETAILED PLAN FOR THE SEQUENCE OF EXCAVATION, AND METHODS TO BE USED DEWATERING OF EXCAVATIONS. DEWATERING AND GROUNDWATER CONTROL SYSTEMS SHALL BE DESIGNED TO KEEP EXCAVATIONS FREE OF WATER AND TO AVOID DISTURBANCE OF THE SUBGRADE.

1.16 OBTAIN REQUIRED PERMITS FOR DISCHARGE OF DEWATERING EFFLUENT. SUBMIT TWO COPIES OF ALL PERMITS OBTAINED AT LEAST ONE WEEK PRIOR TO SYSTEM INSTALLATION.

1.17 EXAMINATION OF SITE AND DOCUMENTS

A. It is hereby understood that the Contractor has carefully examined the site and all conditions affecting work under this Section. No claim for additional costs will be allowed because of a lack of knowledge of existing conditions as indicated in the Contract Documents, or obvious from observation of the site.

B. Plans, surveys, measurements, and dimensions under which the work is to be performed are believed to be correct, but the Contractor shall have examined them for himself during the bidding period and formed his own conclusions as to the full requirements of the work involved.

1.18 PROJECT COORDINATION

A. Prior to start of earthwork, the Contractor shall arrange an onsite meeting with the Architect and the Geotechnical Engineer for the purpose of establishing the Contractor's schedule of operations, and scheduling observation and requirements.

B. Protect all benchmarks, monuments, and property boundary pins. Replace if destroyed by contractor’s operation.

1.19 PROJECT CONDITIONS

A Do not proceed with utility interruptions without Architect's written permission.

B. Contact utility-locator service for area where Project is located before excavating.

C. Protect nearby structures from damage. All construction induced damage shall be repaired by the Contractor at no additional expense to the Owner.

D. The Contractor shall obtain and pay for all permits and licenses required to complete the work of this Section.

E. In case of conflict between regulations or between regulations and Specifications, the Contractor shall comply with the strictest applicable codes, regulations, or Specifications.

F. The contractor may perform additional test borings and other explorations at no cost to the Owner.

1.20 SEQUENCING AND SCHEDULING

A. As construction proceeds, notify the Architect prior to the start of earthwork operations which require observations and testing. A minimum of 72 hours notification shall be provided for work that requires observation or testing

1.21 AS BUILT SURVEY

A. At the completion of the specified work a field survey shall be performed by a surveyor registered in Massachusetts of the as built ground elevations and stockpiled loam (spot elevations 30 feet on center and one foot contours), limit-of-work line, property lines, existing ground elevations and tree line outside the limit of work. The surveyed information shall be presented in a CAD format and submitted to the Architect in the format of a CD with PDF”S at a scale of 1”=30’.

All field survey work and presentation of the surveyed information shall be completed and submitted to the Architect within two weeks of completion of the construction as specified and as shown on the drawings.

1.21 UNIT PRICES

A. The base bid shall include the excavating and disposing of excavated material generated within the limit of work and specified subgrades grades shown on the drawings or specified herein.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.01 EXCAVATION

A. General

1. All unsuitable materials within the indicated and specified limits shall be excavated and removed from the site.
2. The Contractor shall obtain from the proper authority locations of all utilities within the scope of this work so that there will be no damage done to such utilities. Neither the Owner nor the Architect will be responsible for any such damage, and the Contractor shall restore any structure or utility so damaged without additional compensation. Written notifications to the appropriate utility agencies shall be made at least ten (10) days prior to the commencement of any work.
3. Any unsanitary conditions encountered, such as broken sewer mains or uncovered garbage shall be corrected or removed entirely as directed by the Architect.

B. Excavation of Subgrades

1. Excavate to the lines and grades shown on the Drawings and as specified to obtain the subgrades for the following items of work:

AREA	INCHES BELOW FINISH GRADE
a. Building	**16”**
b. **Bituminous concrete drive pavement**	**16”**
c. Bituminous concrete parking pavement	**12”**
d. Concrete sidewalk	**16”**
e. Seeded areas	**8”**

3.02 ROCK EXCAVATION

A. Should highly fractured or weathered bedrock be encountered during excavation, the following shall apply:

1. When rock is encountered within the building footprint and its zone of influence and site improvements it shall be excavated or ripped with a hydraulic excavator. When it is demonstrated to the satisfaction of the Architect and the Geotechnical Engineer that this material can no longer be removed with a hydraulic excavator and requires drilling and blasting, this material shall be classified as Rock Excavation.

B. Intermittent drilling and ripping performed to increase production and not necessary to permit excavation of material.

C. Measurements:

1. When, during the process of excavation, rock is encountered, it shall be uncovered and exposed in such a manner that the unbroken ledge surface is clearly visible, and the Architect shall be notified by the Contractor, before proceeding further. The areas in question shall then be cross-sectioned as hereinafter specified.
2. The contractor shall perform rock probes at the site in a grid pattern before the start of excavations. At a minimum, the results of the probes should include the ground surface elevation and the elevation of the top of the rock. The probes should extend at least 10 feet beyond the perceived top of rock to make sure that the perceived top of rock is not a boulder.

3. Failure on the part of the Contractor to perform the probes and identify the depth to top of the rock surface and to notify the Architect and proceeding by the Contractor with the rock excavation before cross-sections are taken, will forfeit the Contractor's right of claim towards the stated allowance or additional payment over and above the stated allowance at the quoted unit price.
4. The Contractor shall employ and pay for a licensed Registered Civil Engineer or Land Surveyor to take cross-sections of rock before removal and to make computations of volume of rock encountered within the Payment Lines. Cross-sections shall be taken in the presence of the Geotechnical Engineer and the computations approved by the Architect. The Owner has the option to perform independent cross-sections and computations of rock quantities.
5. Where removal of boulder or ledge is required the extent of this removal and basis of payment shall be determined by the Architect with payment made as stated in Unit Prices.

D. Blasting

1. Blasting: Obtain written permission and approval of method from local authorities before proceeding with rock excavation. Explosives shall be stored, handled, and employed in accordance with state and local regulations or, in the absence of such, in accordance with the provisions of the "Manual of Accident Prevention of Construction" of the Associated General Contractors of America, Inc.
2. Notify the Architect at least 48 hours before any intended blasting and do no blasting without his specific approval of each blasting operation.
3. Contractor shall present evidence that his insurance includes coverage for blasting operations before doing any blasting work. A pre and post survey shall be performed for all buildings and utilities within 250 feet of the nearest blasting operations, conforming to the Municipal ordinance governing blasting and the Municipal Fire Department regulations.
4. All rock blasting shall be well covered with heavy mats or timbers chained together and the Contractor shall take great care to do no damage to existing structures, utility lines and trees to remain.
5. Any damage caused by the work of this Contractor shall be repaired to the full satisfaction of the Architect at no additional cost to the Owner.
6. Any rock fragments or loose material from blasting operations shall be removed. All voids shall be filled with a leveling layer of Structural Fill
7. Additional blasting requirements:
   a. Comply fully with National and Town of Wareham Regulations.
   b. All documentation submitted with application for “Use and Handling’ PERMIT. 527 CMR 13:04 (11) E-1 states “A Use and Handling” Permit may be suspended or revoked by the head of the Fire Department or the Marshal or their designees for any violation of 527 CMR 13:00, or MGL c. 148”
   c. Meet all requirements of 527 CMR 13;00
   d. All Pre-Blast Surveys completed per 527 CMR 13:00
   e. Hours of Blasting 09:00 hrs. through 16:00 hrs. Mon. through Fri.
   f. No Blasting Saturdays, Sundays or Holidays.
   g. All shots to be double matted unless approved in advance by the City of Marlborough Fire Chief.
   h. Shot size limited to 500 lbs. unless approved in advance by the City of Marlborough Fire Chief.
   i. Blast warning signals to be sounded in accordance with 527 CMR 13:00
   j. 24 hours notification to the fire department of intent to blast
   k. In or near residential areas, written notification must be distributed to homes advising of intent to blast at least three (3) days prior to blasting operations. Such written notification to include time frame of blasting operations and description of warning signals. The area of distribution shall be determined by the Fire Chief during pre-blast conference. A Fire Department detail will be required unless waived by the Fire Chief.
   l. Two or more seismographs required on all shots.
   m. All seismographs to be calibrated and certified according to manufactures specifications and 527 CMR 13:00

E. Rock shall be removed to the specified subgrades.

F. Rock surfaces that heave due to blasting should be compacted with a vibratory roller that imparts a minimum of 40 kips to the rock surface. To reduce the magnitude of rock heave, drilling for blast holes should extend no more than 2 feet beneath proposed subgrades.

Complaints:

1. Report all blasting complaints to the Architect within 24 hours of receipt thereof. Include the name, address, date, time received, date and time of blast complained about, and a brief description of the alleged damages or other circumstances upon which the complaint is predicated. Assign each complaint a number, and number all complaints consecutively in order of receipt.
2. Submit a summary report to the Architect each week which indicates the date, time and name of person investigating the complaint, and the amount of damage, if any.
3. When settlement of a claim is made, furnish the Architect with a copy of the release of claim by the claimant.
4. Immediately notify the Architect, throughout the statutory period of liability, of any formal claim or demands made by attorneys on behalf of claimants, or of serving of any notice, summons, subpoena, or other legal documents incidental to litigation, and of any out-of-court settlement or court verdict resulting from litigation.
5. Immediately notify the Architect of any investigations, hearings, or orders received from any governmental agency, board or body claiming to have authority to regulate blasting operations.

Basis of Payment: The total amount of rock excavation will be based upon the volume of rock excavated within and/or above the lines referred to in the next paragraph as "Payment Lines". The payment lines are only to be used as a basis of payment, and are not to be used as limits of excavation. Limits of excavation area as shown on the Drawings and as specified herein.

Payment Lines for Rock Excavation:

1. Payment lines for rock excavation shall be at the specified subgrades.

B. Excavation and removal of unsuitable materials

As stated in the Geotechnical Report there is a layer of unsuitable materials consisting of silty sand with traces of organics and organic loam. These materials are to be excavated and removed within the limits of work and disposed of offsite

3.03 OFF-SITE DISPOSAL OF SOILS

A. All off-site disposal of soils shall meet the minimum requirements of the following as applicable:

a. DEP Policy #Comm-97-001: Reuse and Disposal of Contaminated Soil at Massachusetts Landfills
b. DEP Policy #WSC-13-500: Similar Soils Provision Guidance

The Contractor is responsible for any and all disposal characterization sampling and analysis and preparation of disposal applications as required by the facility to be used. Copies of all applications and approvals shall be submitted to the Architect.

3.04 PROTECTION, SHORING AND DEWATERING

A. Protect open excavations with steel plates, fencing, warning lights and other suitable safeguards.

B. Provide all pumps and pumping facilities to keep all excavations free from water from whatever source at all times, when work is in progress.

3.05 DUST CONTROL

A. The Contractor shall employ all possible methods and/or materials to prevent the spread of dust. Chemical materials shall not be used on subgrades of areas to be seeded.

3.06 RUBBISH REMOVAL

A. The General Contractor shall remove all waste and debris and dispose daily in accordance with requirements of Section 01 74 19 – Construction Waste Management and Disposal.

END OF SECTION

SECTION 31 25 00

EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

B. Examine all other Sections of the Specifications and drawings for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section or implied on the drawings.

C. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

D. Environmental Pollution Agency – Compliance with the National Pollution Discharge Elimination Scheme (NPDES) Program.

1.02 WORK INCLUDED

A. Provide all equipment and materials, and do all work necessary to construct a complete erosion and sediment control program for minimizing erosion and siltation during the construction phase of the project. The erosion and sediment control provisions detailed on the Drawings and specified herein are the minimum requirements for an erosion control program. The Contractor shall provide additional erosion and sediment control materials and methods as required to affect the erosion and siltation control principles specified herein.

B. Contractor shall be responsible for applying for a NPDES Permit, and complying with the approved Storm Water Pollution Prevention Plan (SWPPP) as developed by the contractor. It shall be the responsibility of the Contractor to prepare the required SWPPP plan and to file for a Construction General Permit through the EPA at least 14- business days prior to the start of work. The Contractor shall prepare the SWPPP in advance and submit to Engineer and Town for review. The Engineer may review and request changes / modifications as required.

1.03 RELATED WORK

A. Section 02 41 1323, UTILITY LINE REMOVAL.

B. Section 31 10 00, SITE PREPARATION

C. Section 31 10 00, SITE CLEARING

D. Section 31 00 00, EARTHWORK.

1.04 SUBMITTALS

A. Proposed methods, materials to be employed, and schedule for effecting erosion and siltation control and preventing erosion damage shall be submitted for approval. Submittals shall include:
1. Proposed methods for effecting erosion and siltation control including 1 in. = 20 ft. scale plans indicating location of erosion control devices.
2. Schedule of erosion control program indicating specific dates from implementing programs in each major area of work.
3. List of proposed materials including manufacturer's product data.

B. The following shall be submitted:
1. Filter Fabric - 12 in. x 12 in. sample
2. Seed mixture for temporary seed cover shall be submitted.
3. Catch Basin / Area Drain filters
4. Straw Wattles

1.05 INSPECTION:

A. Upon installation of all soil erosion and sediment control devices, the Contractor shall notify and coordinate a site inspection with the Architect & engineer.

1.06 SAFETY PROTECTION

A. A construction fence shall be provided along the entire perimeter of the contract limit lines, and shall be kept in good repair at all times, and shall be arranged to maintain ongoing operation's access and egress.

B. Construction fences shall be 6 ft. high and of chain link, or approved equal, erected in a substantial manner, straight, plumb and true.

C. Gates shall be built into fence at such approved locations as such approved locations as are necessary, well cross-braced and hung on heavy strap hinges with proper post and hook for double gates. Provide heavy hasps and padlocks for each gate. Provide a set of three keys for each lock to Owner and Engineer to facilitate emergency access.

D. Fencing shall be removed by the Contractor at no cost to the Owner at such a time before final completion as the engineer approves. Restore site to acceptable condition after removing fence.

1.07 EROSION CONTROL PRINCIPALS

A. The Contractor shall implement all soil erosion and sediment control devices prior to excavation within the site.

B. The following erosion control principles shall apply to the land grading and construction phases:
1. Stripping of vegetation, grading, or other soil disturbance shall be done in a manner which will minimize soil erosion.
2. Whenever feasible, natural vegetation shall be retained and protected.
3. Extent of area which is exposed and free of vegetation and duration of its exposure shall be kept within practical

limits.

4. Drainage provisions shall accommodate increased runoff resulting from modifications of soil and surface conditions during and after development or disturbance. Such provisions shall be in addition to existing requirements.
5. Sediment shall be retained on-site.
6. Erosion control devices shall be installed as early as possible in the construction sequence prior to the start of clearing and grubbing operations and excavation work.

C. Cut and fill slopes and stockpiled materials shall be protected to prevent erosion. Slopes shall be protected with temporary erosion protection till the slopes can be permanently stabilized. (Permanent stabilization will be part of Phase 3) Temporary erosion controls includes, but not limited to the use of erosion control blankets, straw cover, wattles, and filter fabric. Temporary erosion control measures shall be left in place until site is permanently stabilized. Refer to civil drawings for erosion control installation locations.

1. Temporary erosion protection shall be accomplished by covering with erosion protection materials, as appropriate for the prevailing conditions.
2. Except where specified slope is indicated on Drawings, fill slopes shall be limited to a grade of 2:1 (horizontal: vertical), cut slopes shall be limited to a grade of 1.5:1.

PART 2 - PRODUCTS

2.01 CATCH BASIN FILTERS

A. Catch basin filters shall be manufactured from a woven polypropylene geotextile and sewn by a double needle machine, using a high strength nylon thread. Seams have a certified average wide width strength per ASTM D-4884 of 165.0 lbs./in.

B. The filters will be manufactured to fit the opening of the catch basin or drop inlet. The filters will have the following features: two dump straps attached at the bottom to facilitate the emptying of the filters; the filters will also have lifting loops as an integral part of the system to be used to lift the filters from the basin. The filters will have a restraint cord approximately halfway up the sack to keep the sides away from the catch basin walls; this yellow cord shall also be a visual means of indicating when the sack should be emptied.

C. Silt sacks geotextile fabric shall have the following properties:

Property(ASTM Test Method)	Unit	Typical Values
Grab Strength (D-4632-86)	lbs	300
Puncture (D-4632)	Lbs.	120
Grab Elongation (D-4632-86)	%	20(max)
Trapezoid Tear Strength (D-4533-85)	Lbs	120
Mullen Burst Strength (D-3786-80a)	Psi	800
Coeff. of Permeability (D-4491-85)	Cm/sec	0.55
Water Flow Rate (D-4491-85)	Gal/min/(ft)(ft)	40
Ultraviolet Stability (D-4355-84)	%	80

2.02 SILTATION FENCE

A. Geotextile Fabric shall consist of long-chain synthetic polymers, composed of at least 85 percent by weight polylefins,

polyesters, or polymides. They shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including selvedes. The geotextile fabric shall have the following properties:

Property(ASTM Test Method)	Unit	Typical Values
Grab Strength (D-4632-86)	lbs	100
Grab Elongation (D-4632-86)	%	30(Max)
Trapezoid Tear Strength (D-4533-85)	lbs	65
Mullen Burst Strength (D-3786-80a)	psi	280
Coeff. of Permeability (D-4491-85)	cm/sec	0.01
Water Flow Rate (D-4491-85)	gal/min/(ft)(ft)	35
Ultraviolet Stability (D-4355-84)	%	90

B. Support fence posts shall be at least 48 in. high and strong enough to support applied loads. The Contractor shall have the option of using wood or metal posts. Wood posts shall consist of 1-1/2 in. square, kiln dried, hardwood posts. Steel posts of U, T, L, or C shape weighing 1.3 lbs. per linear foot may be substituted for wood. In soft ground, swamps, etc., a wider post is advantageous as additional passive resistance needs to be developed. Filter fabric shall be attached to wood posts with staples and with 13 gauge minimum, galvanized steel wire for steel post application.

C. Prefabricated fence systems may be used provided they meet all of the above material requirement.

D. Fencing other than that specified above shall be subject to review and acceptance by Architect.

2.03 STRAW WATTLES

A. Straw wattles / fiber roll shall have cylindrical exterior of jute or high-density polyethylene netting and an interior composed of certified seed free agricultural straw, and have diameter of 12 in. minimum.

B. The use of straw bales in lieu of straw wattles will be accepted. Bayles shall be made of straw; the use of hay bales will not be an acceptable alternative.

2.04 JUTE MESH

A. Jute mesh shall be a uniform, open, plain weave cloth of undyed and unbleached single jute yarn. The yarn shall be of a loosely twisted construction and it shall not vary in thickness more than one-half its normal diameter. Jute mesh shall be furnished in rolled strips and shall meet the following requirements:
1. Width - 48 in., plus or minus 1 in.
2. 78 warp - ends per width of cloth (minimum)
3. 41 weft - ends per yard (minimum)
4. Weight shall average 1.22 lbs. per linear yard with a tolerance of plus or minus five percent.

B. Mesh shall be secure using U-shaped staples.

2.05 TEMPORARY SEED COVER

A. Grass seed for temporary seed cover shall be previous year's crop. Not more than 0.5 percent by weight shall be weed seed and not more than 1.75 percent by weight crop seed. Seed shall be delivered to the site in sealed

containers, labeled with name of seed grower and seed formula, in form stated below. Seed shall be dry and free of mold. Seed shall meet the following requirements:

Species Name	in Mixture	Germination	Purity
Chewing Fescue *(Festuca Rubra Comutata)*	25	85	97
Alta Fescue *(Festuca Arundinacea)*	30	85	97
Annual Rye Grass *(Lolium Multiflorum)*	20	90	98
Red Top *(Agrostis Alba)*	15	90	92
White Clove (Trifolium Repens)	10	90	98

2.06 CONSTRUCTION ENTRANCE

A. Filter fabric shall conform to Section 311100(2.2)(A) (without wire-bound woodroll fence).

B. Stone shall be clean, crushed stone, with a ranging from 1-1/2 in. to 2-1/2 in. in size.

C. Top dressing shall be clean, 6 in. of crushed stone.

2.07 STREET SWEEPER

A. A mechanical street sweeper shall be utilized to clean the existing paved areas on an as-needed basis

2.08 BIODEGRADABLE EROSION BLANKETS

A. Erosion control blanket to be made from straw/coconut double net blanket.

B. Straw coconut matrix: 70 percent agricultural straw and 30 percent coconut

C. Bottom Net: lightweight photodegradable polypropylene

D. Erosion control blanket is to be used for erosion protection for up to 24 months on exposed grades. Erosion control blanket shall be used in areas 5:1 up to 1:1 slopes.

PART 3 - EXECUTION

3.01 CATCH BASIN FILTER

A. Catch basin, filters shall be placed at all inlets to drainage structures as structures are installed and prior to pavement removal. Outlet protection work shall be constructed before runoff is allowed to enter the drainage system. Construction and location of catch basin filters shall be as indicated on the Drawings.

B. Once the strap is covered with sediment, the catch basin filter should be emptied, cleaned and placed back into the basin.

3.02 STRAW BALES

A. Straw bales shall be installed as shown on the plans. Bales shall be placed in a row with ends tightly abutting the adjacent bales. Each bale shall be securely anchored in place by 2 stakes or re-bars driven through the bales. The first stake in each bale shall be angled toward the previously laid bale to force the bales together

3.03 STRAW WATTLES /FIBER ROLLS

A. Straw wattles / fiber rolls shall be installed as indicated on the Drawings. They shall be placed on contour and staked with 18 in. or 24 in. wood stakes at 4 ft. on center. The ends of adjacent Straw Wattles shall overlap a minimum of 24 in.

B. The contract price paid per linear foot of Straw Wattles shall include full compensation for furnishing all labor, materials, including wood stakes, tools, equipment, and incidentals, and for doing all the work involved in furnishing and installing Straw Wattles, complete in place, including furnishing and installing the wood stakes, as shown on the plans and directed by the Owners Representative.

3.04 CONSTRUCTION ENTRANCE

A. The area of the construction entrance should be cleared of all vegetation, roots, and other objectionable material. The filter fabric should be placed on the subgrade prior to the gravel placement. The gravel shall be placed to the specified dimensions depicted on the plans.

B. The Construction entrance shall be a minimum of 30 ft. in length and 10 ft. wide.

C. The location of the construction entrance is to be decided by the contractor and approved by the Owner's Representative.

D. Washing: When necessary, wheels shall be cleaned to remove sediment prior to entrance onto public right-of-way. When washing is required, it shall be done on an area stabilized with crushed stone which drains into an approved sediment trap or sediment basin. All sediment shall be prevented from entering any storm drain, ditch, or watercourse through the use of sand bags, gravel boards or other approved methods.

E. Maintenance: The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-or-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spoiled, dropped, washed or tracked onto public rights-of-way must be removed immediately.

3.05 TEMPORARY SEED COVER

A. Grass seed shall be spread by mechanical spreader at a rate of 0.40 lb./100 sq. ft.

B. Following seeding, area shall be lightly raked to mingle seed with the top 1/8 in. to 1/4 in. of soil. Areas shall then be smoothed and rolled.

C. Following rolling, entire area shall be watered until equivalent of a 2 in. depth of water has been applied to entire seeded surface, at a rate which will not dislodge seed. Watering shall be repeated thereafter as frequently as required to prevent drying of surface, until grass attains an average height of 1-1/2 in.

D. At the Contractor's option, seed may be spread by the hydroseeding method, utilizing power equipment commonly used for that purpose. Seed and mulch shall be mixed and applied to achieve application quantities specified herein for the conventional seeding method, with mulch applied at the rate stated in the table below. A mulching machine, acceptable to the Developer, shall be equipped to eject the thoroughly wet mulch material at a uniform rate to provide the mulch coverage specified. Other provisions specified above for conventional seeding shall apply to hydroseeding.
   1. If the results of hydroseeding are unsatisfactory the mixture and/or application rates and methods shall be modified to achieve the desired results.
   2. After the grass has appeared, all areas and parts of areas which fail to show a uniform stand of grass, for any reason whatsoever, shall be reseeded and such areas and parts of areas seeded repeatedly until all areas are covered with a satisfactory growth of grass.

Application Rates	
Slope Gradient/Condition	English
≤ 3H to 1V	3000 lb/ac
> 3H to 1V and ≤ 2H to 1V	3500 lb/ac
> 2H to 1V and ≤ 1H to 1V	4000 lb/ac
> 1H to 1V	4500 lb/ac

3.06 SILTATION FENCE

A. Siltation fence shall be constructed along the Limit of Excavation and installed as indicated on the Drawings, prior to the start of clearing and grubbing operations.

3.07 BIODEGRADABLE EROSION BLANKETS

A. Contractor shall smooth out slope prior to installation of erosion control blankets

B. Dig anchor trench at top of slope. set aside native soil removed from trench

C. Secure blanket in anchor trench, staking or stapling blankets as shown on civil details. Staples to be 18 in. max offset along outer edge, and 36 in. max across the blanket.

D. Replace native soil previously removed from trench

E. Roll blanket down the slope ion a controlled manner, taking care to remove excess slack and taking care not to stretch fabric. Blankets to overlap 6 in. minimum.

F. Stake or staple blanket as shown in civil details so there are no gaps between blankets and soil. Staple while unrolling blanker to minimize walking on blanket.

3.08 DUST CONTROL

A. Throughout the construction period the Contractor shall carry on an active program for the control of fugitive dust within all site construction zones, or areas disturbed as a result of construction. Control methods shall include the following: street sweeping. For emergency control of dust apply water to affected areas. The source of supply and the method of application for water are the responsibility of the contractor.

B. The frequency and methods of application for fugitive dust control shall be as directed by the Engineer.

3.09 MAINTENANCE AND REMOVAL OF EROSION CONTROL DEVICES

A. Erosion Control Devices
1. Sediment behind the erosion control device shall be checked in accordance with the SWPPP.

B. Removal of Erosion Control Devices
1. Erosion control devices shall be maintained until all disturbed earth has been paved or vegetated, at which time they shall be removed. After removal, areas disturbed by these devices shall be regraded and seeded.

END OF SECTION

APPENDIX A

1. Phase 1 Intensive (Locational) Archeological Survey

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PHASE I INTENSIVE (LOCATIONAL) ARCHAEOLOGICAL SURVEY

WAREHAM ELEMENTARY SCHOOL

WAREHAM, MASSACHUSETTS

Prepared for

Town of Wareham

by

Craig S. Chartier and

Gregory F. Walwer

Plymouth Archaeological Rediscovery Project

January 2019

Table of Contents

List of Figures and Tables

Abstract

An archaeological intensive survey was conducted at an approximate 22-acre parcel off of Minot Avenue in Wareham, Massachusetts, on the site of the present Minot Forest Elementary School. The Town of Wareham is proposing to replace the school, with a new elementary school building and athletic fields. The project area is located near several archaeological sites and was considered to have a high probability for containing archaeological remains related to the use of wetlands associated with the Agawam River, in the form of resource procurement and habitation sites by Native peoples.

A total of 278 50-cm-square shovel test pits were excavated with no historic cultural material recovered. A small shell deposit and lithic scatter were identified in a wooded and undeveloped portion of the property at the northeastern corner of the project area. A total of 485 artifacts were recovered, consisting of two rhyolite flakes, two quartzite flakes, one quartz flake, 14 pieces of quartz shatter, and 466 pieces of shell. These prehistoric artifacts and the shell, which may also be prehistoric in origin, were recovered from a site measuring approximately 20 meters east to west by 9 meters north to south.

Extensive fill deposits and areas of soil stripping associated with the original construction of the school and its infrastructure were also identified. The prehistoric site is located in an area that is not slated for development. The remainder of the project area is not considered to be archaeologically significant.

I. GENERAL INFORMATION

The Town of Wareham is proposing to replace the Minot Forest School on Minot Avenue, with a new elementary school building and athletic fields **(Figures 1-3)**. The approximate 22-acre project area will be impacted by the construction of a new two-story, 155,000 square-foot, elementary school building on the existing Minot Forest School site **(Figure 4)**.

The soils within the project area are characterized as Montauk fine sandy loams and Poquonock sands. Elevations within the project area range from 42 ft (12.8 m) in the northern portion near Minot Avenue to 92 ft (28 m) at the highest point near the existing school. The ground slopes towards Minot Avenue in the north and towards adjacent woods in the south. The Agawam River flows in an easterly direction to the north of the property. Just over 12 acres of wetlands are located to the west of the project area.

The development has been designed to minimize impacts to wetland resource areas and undeveloped land. There will be two access drives, both connecting to Minot Avenue. The project area is located near several archaeological sites and was considered to have a high probability for containing archaeological remains associated with the Agawam River in the form of resource procurement and habitation sites occupied by Native peoples.

Mount Vernon Group, Architects (the Town of Wareham's project manager) contracted with Plymouth Archaeological Rediscovery Project (PARP) to conduct an intensive (locational) archaeological survey of the Wareham Elementary School project area. The survey was conducted in compliance with Massachusetts General Laws, Chapter 9, Sections 26-27C (950 CMR 71). Archaeologists conducted the survey in July 2018 under permit number 3850 issued by the Massachusetts State Archaeologist.

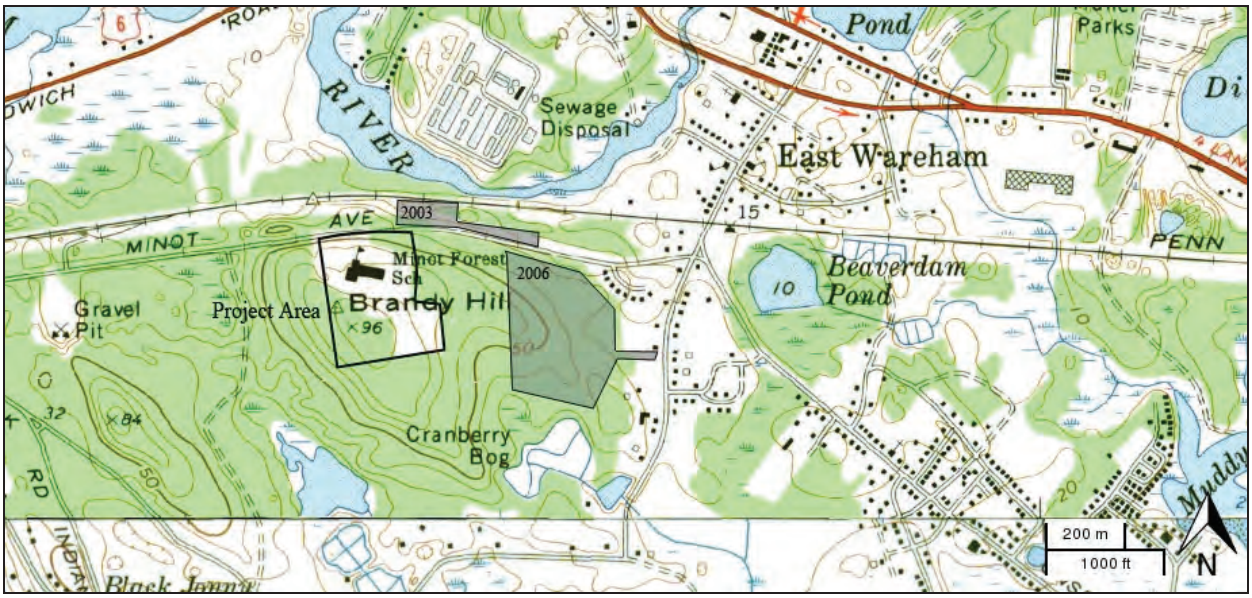

Figure 1. Current project area shown on USGS topographic map (USGS 1995) (locations of 2003 and 2006 archaeological testing also shown in gray).

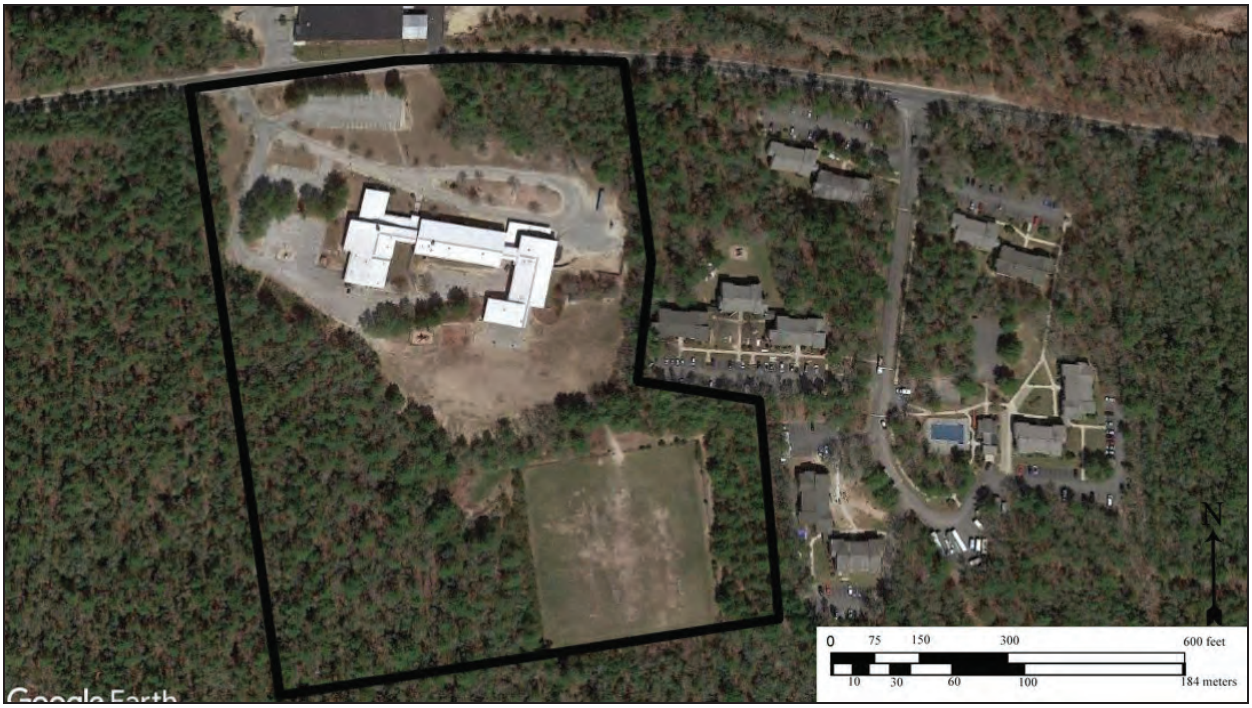

Figure 2. Aerial view of project area (Google Earth).

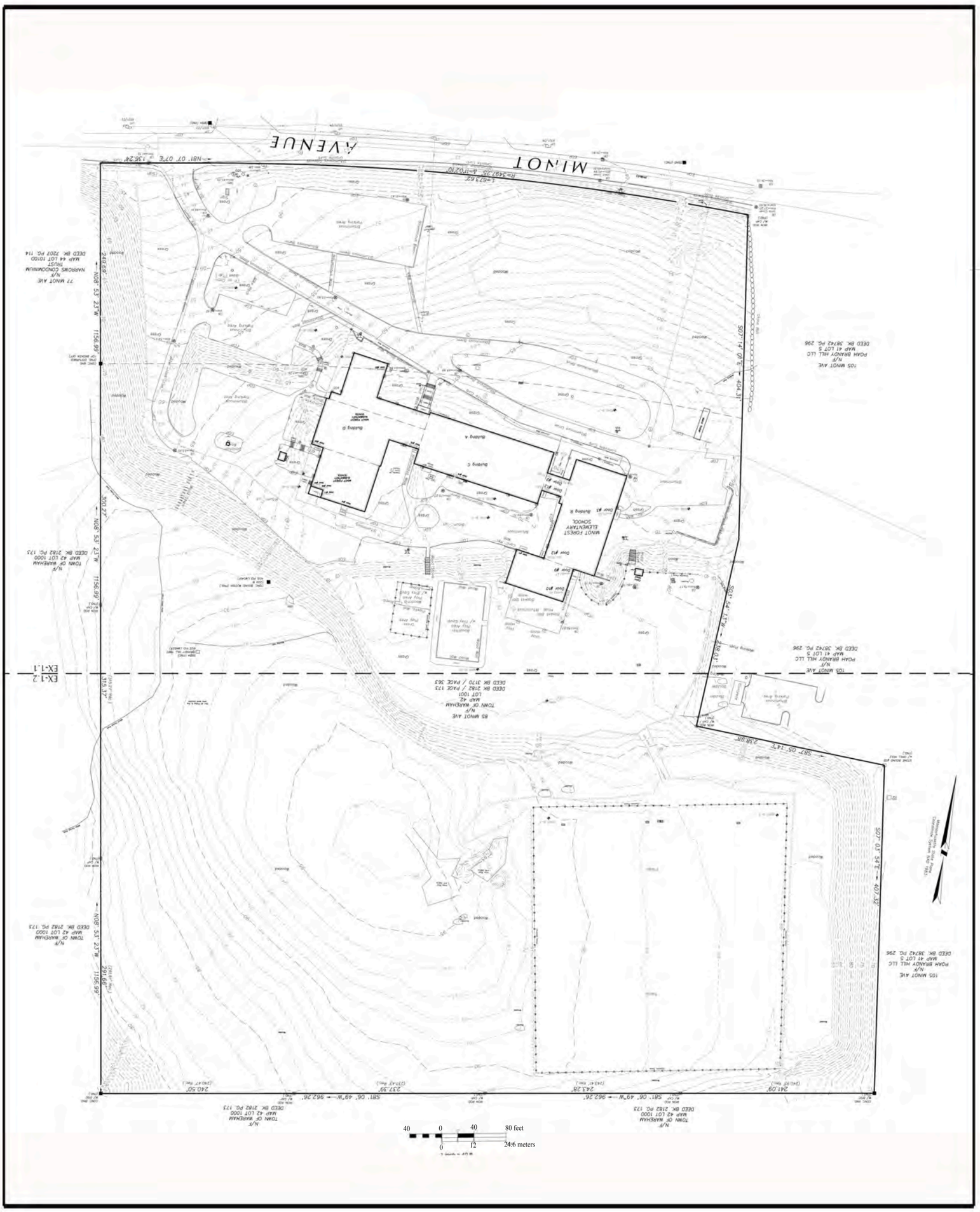

Figure 3. Current conditions at the project area

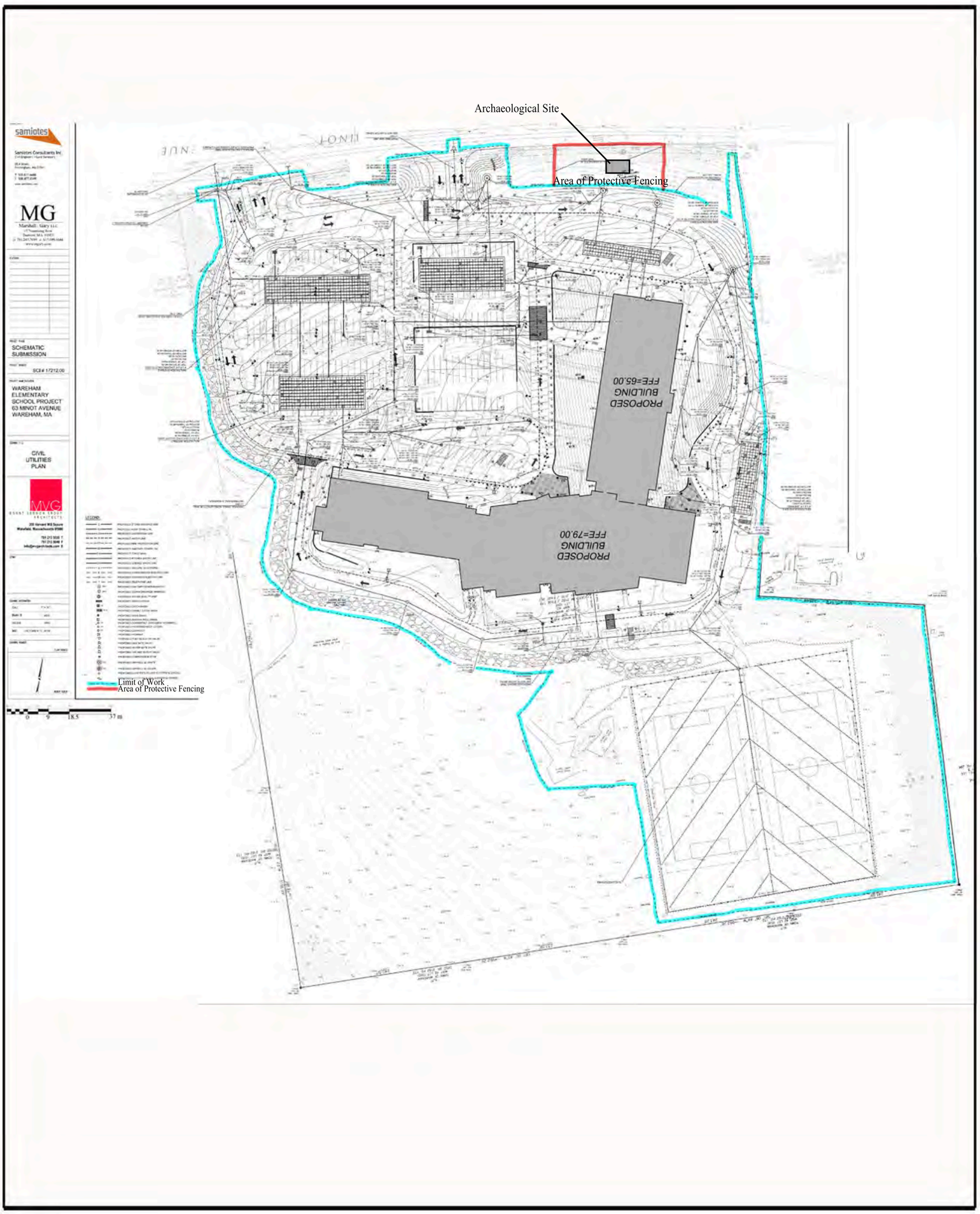

Figure 4. Proposed development of project area (The high visibility protective fence encompassing an area measuring approximately 50.8 m east to west by 18.5 m north to south is represented by the red box. The archaeological site area measuring 20 m east to west by 9 m. north to south, is represented by the gray rectangle within the area of high visibility protective fencing).

II. ENVIRONMENTAL CONTEXT

The Town of Wareham is located on the Coastal Lowlands with drainages occurring in the west by the Weweantic, Wankinco and Broad Marsh Rivers, and to the east by the Agawam River. Numerous ponds and swamps are located in the northeast and along the river ways, which would have made this an ideal area for pasture and harvesting of meadow grasses and salt marsh hay by Plymouth Colony settlers. The general topography of Wareham is made up of glacial pitted plain.

The Minot Avenue location is a gently to moderately sloping piece of land with a slight slope up to Brandy Hill in the western portion. A moderate-sized woodland of pine and oak is present on the southwestern section of the project area. Soils at the project area consist mostly of Poquonock sand, with a strip of Montauk fine sandy loam running north to south through the center of it. Poquonock sand is a very deep, well-drained soil commonly used for cultivated crops, hay, woodland, and pasture. The typical soil profile consists of a 20 cm deep dark brown (10YR3/3) loamy fine sand with gravel, followed by a B1 horizon that commonly extends to 46 cmbs. The B1 is dark yellowish brown (10YR4/4) loamy fine sand with gravel that sits upon a B2 layer extending on average to 70 cmbs. The light olive brown (2.5Y5/4) loamy sand B2 rests upon a dark gray gravelly loam C1 horizon that contains a much higher percentage of gravel. Montauk fine sandy loam is a well-drained soil used for potatoes, vegetable crops, hay, corn, and pasture. The typical soil profile consists of a 10 cm deep very dark gray (10YR3/1) Ap horizon with gravel and cobble that overlies a dark yellowish brown (10YR4/6) gravelly and rocky B1 horizon extending to 65 cmbs on average. The B1 rests on a yellowish brown (10YR5/6) sandy loam B2 with gravel and rock, commonly extending to approximately 85 cmbs where it sits upon a strong brown (7.5YR5/6) gravelly loamy sand C1 horizon.

These soils are part of the Wareham pitted outwash plain, a triangular shaped area of sand extending from Plymouth to West Wareham. This sand was formed between the Narragansett Bay, Buzzards Bay and Cape Cod ice lobes at the end of the last ice age (Skehan 2001: 169). Outwash soils in this plain range from coarse gravel and rounded boulders near Ellisville, just south of Plymouth, to fine sand near the Agawam River. Scattered across this plain are the pits-kettle hole ponds formed by melting blocks of ice trapped in the outwash.

The soils immediately around the present school building and its associated parking areas are characterized as Montauk-Urban complex (meaning they are Montauk soils that have been altered and paved by construction), while those to the immediate south are identified as Udorthents, or soils that have been mechanically filled or leveled.

III. PREHISTORIC CONTEXT

New England's prehistory is poorly understood relative to that of other regions in North America. For most of the prehistory in the region, river drainages such as the Agawam River defined physiographic units within which human communities operated. This pattern follows from the longitudinal diversity of habitats that occur along drainages, forming ecologically unique wetland habitats, together with the transportation routes afforded by their watercourses. In the clearest examples, rivers provide access to maritime and upland resources at each end of the drainage, and to the diverse habitats in between. The exploitation of those habitats can be integrated into a seasonal round that differs at various historical moments.

The prehistory of southern New England is divided into seven periods, each identified by characteristic styles of projectile points, pottery, and other artifacts. These periods are the Paleoindian (13,000-9000 BP), Early Archaic (9000-8000 BP), Middle Archaic (8000-6000 BP), Late Archaic (6000-3000 BP), Early Woodland (3000-2000 BP), Middle Woodland (2000-1000 BP), and Late Woodland (1000-350 BP). In addition to their artifacts, the periods are characterized by changing patterns of site location, activities, and size.

Paleoindian (13,000-9000 Years Ago)
Although there is new research continually being conducted, the present theory is that the people who first settled in New England arrived in the New World during the end of the Wisconsin Ice Age, approximately 13,000 years ago (Stone and Borns 1986; Braun and Braun 1994:14-15). Before this time, New England, and much of the northern half of the United States, was covered by a mile and a half thick sheets of ice as glaciers. Ice ages are part of the Earth's natural warming and cooling cycle. Approximately 60,000 years ago, the temperature dropped on Earth just a few degrees, just enough to cause the glaciers and ice caps located at the north and south poles to begin growing by removing water from the oceans. By approximately 20,000 years ago, the edge of the northern ice sheet had reached its maximum extent, at present-day Martha's Vineyard and Nantucket, and then began to recede. As the glaciers melted, they dropped millions of tons of sand, gravel, and boulders that had accumulated during their journey southward. All this material - the moraine and outwash soils, became the sandy hills, the drumlins, eskers and kames, and basically all the lower layers of soil that make up our landscape today. Mixed in with the moraine and outwash were glacial erratics - these are the large boulders, like Plymouth Rock, that dot our landscape today.

Following the retreat of the glaciers, the climate in southern New England was southern tundra**.** It was cold, windy, and barren, and the land was covered with large areas of wetlands. Scattered intermittently across the landscape were patches of grasses, shrubs such as sedge, alder and willow, and small stunted trees including spruce followed by birch and pine. There was also a lot more landscape than there is today, because the oceans were approximately 300 to 400 feet lower. In New England, this meant that the coastline was up to 50 miles to the east of its present position. This left exposed large portions of land, like George's Banks, that are today underwater. The islands that we see today in many coastal harbors were at this time hills on a

barren landscape, and many of the rivers that we know today were nothing more than springs or small streams (Braun and Braun 1994:3).

The types of animals that were present at this time included some of the smaller species such as foxes and rabbits, but megafauna were also present. Megafauna is a term that describes the large breeds of animals that were present in New England after the last ice age. These included the mammoth, which existed on the tundra, the mastodon, which lived in the early forests, the horse, which later became extinct and was reintroduced by the Spanish in the 1500s, bears like the large Kodiak variety, giant beavers, bison, elk, caribou, and musk ox, which disappeared fairly early.

In southeastern Massachusetts, sites that date to this period have been encountered in Plymouth on the Eel River, on the coast in Marshfield, and in Taunton on the Nemasket River. At these sites, evidence of people living here after the last ice age has consisted predominately of stone projectile points of a variety called the Paleo or fluted point. These points were generally made from exotic materials that were carried in by the inhabitants as they traveled from the west. These materials were predominately very fine-grained stones, including cherts from New York and Maine and jaspers from Pennsylvania. Population densities have been estimated at approximately five to twelve people per 100 square kilometers. These people made their living by hunting and possibly scavenging the carcasses of the megafauna. They also hunted smaller game such as rabbits, and they may have fished on the coast. The populations in New England at this time may have numbered no more than a few hundred. These people lived in small groups and traveled seasonally. They probably were not nomadic, but were following seasonally migrating herds. Paleo sites are often located on hilltops overlooking plains or were high on the shores of glacial lakes (Dincauze 1980; Snow 1980). Prominent glacial lakes were located in the Connecticut River valley and the Hudson-Champlain drainages (Curran and Dincauze 1977, Dincauze 1974, Koteff 1982, Larsen and Hartshorn 1982, Stone and Pepper 1982). Eventually, by 12,500 BP, these lakes drained, with many marshes, swamps, and bogs being left behind as the final remnants of the great glacial lakes.

By the end of the Paleo Period, the environment in New England was stabilizing, and lifeways were becoming fairly distinct. The megafauna were extinct by 10,000 years ago, probably due to a combination of hunting by the first settlers and climactic change. The forests were beginning to change to more pine and nut-bearing hardwoods that created new habitats for animals and new food sources for people. The tundra gave way to spruce parkland by 9000 BP and eventually became oak and hemlock by 7000 BP. While the Paleo Period can be seen as a time of initial colonization, the next period, the Early Archaic, can be viewed as a time of settling in and accommodation to life in New England. No sites dating to the Paleoindian Period have been identified in Wareham.

Early Archaic (9000-8000 Years Ago)

The extinction of the megafauna and the changing climate led to a revamping of the Paleo-Native way of life around 10,000 years ago. The environment in the Early Archaic had warmed slightly, and as a result, trees such as oaks, pitch pines, beeches, and hazel began to flourish. It

was during this time that the major rivers that are around today began to form, and anadramous fish species like salmon and herring began to run up the rivers. This would have provided another food source for the inhabitants of New England. As New England began to become more forested, new mammalian species also would have moved into the area. These species would have included black bear, deer, and moose.

The Early Archaic is one of the little understood and most elusive periods of New England prehistory. Early Archaic sites tend to occur on a wide range of settings, including hill sides with slopes over 15 degrees, as well as hilltops. Some sites are situated on the same locations as Paleo sites, while others appear alone in the landscape. Homes at this time have been theorized as being either longhouse-shaped, as have been identified in Taunton, Massachusetts at the Titicut Site, or as small pits dug into the sides of hills as have been identified in Connecticut and northern Massachusetts (Braun and Braun 19984: 35; Dudek 2005: 12). It is unknown if the two forms of houses occurred simultaneously, were seasonally determined, or represent different building traditions by different populations.

Evidence of the Early Archaic peoples' process of "settling in" is evidenced in their use of local volcanic materials such as rhyolite and felsite for tools and projectile points, and their possible use of quartz for quick, expendable tools (Dincauze 1980, Meltzer 1988). Hunting during this period may have taken the form of spear-throwing with the use of the atlatl, a weighted stick that was held in the hand and onto which a long spear was placed and launched. The atlatl was basically an extension of the thrower's arm, and it effectively increased the distance, force, and accuracy of the throw.

Evidence for the Early Archaic has been recovered from Marshfield, Taunton, and Carver, Massachusetts, with an especially large concentration of sites in Taunton on the Taunton River. The types of artifacts recovered from the Early Archaic Period include Dalton-like points and Eden lanceolate points (Johnson and Mahlstedt 1984). Sites from the Early Archaic Period are perhaps best known in southeastern Massachusetts, especially in the Taunton River drainage (Dincauze and Mulholland 1977; Thorbahn 1982; Taylor 1976). The Titicut Site is the largest identified from the Early Archaic Period. It has been interpreted as a base camp for several families. A number of Early Archaic sites identified in Massachusetts contained evidence that suggests small hunting groups returned to camps with seasonal regularity. These sites contained stone tools diagnostic of the Early Archaic Period, radiocarbon age determinations, or both. Another site had deep pit features, interpreted as pit houses, with an abundance of charred hazelnut shells (Forrest 2000).

Early Archaic diagnostic points include Bifurcate-Base points, Kirk Stemmed, and Kirk Corner-Notched points. The materials for these types of points generally do not include the exotic lithics characteristic of the Paleo Period, but tend to be local rhyolites and quartz. There has also been a noted occurrence of quartz technology in the form of bifaces and unifaces without any of the usual temporally diagnostic points being present (Forrest 2000).

No sites dating to the Early Archaic have been identified in Wareham.

Middle Archaic (8000-6000 Years Ago)
While the Early Archaic was a time of transition from the Paleoindian way of life to a more sedentary and permanent situation, the Middle Archaic can be seen as a time of more normality and permanence. It still was a time of many changes, though. Oceans remained lower than they are today, but the rate of rise had slowed enough for estuaries to begin forming, which led to the establishment and proliferation of shellfish beds. Shellfish first settled in the warmer southern waters, and eventually moved northward as the sea level rise slowed and waters warmed.

By 7,000 years ago, forests with the same basic composition as today began to be established (Dincauze 1976:119). Evidence of site differentiation and a more complexly ordered social landscape can be extrapolated on the basis of a number of large Middle Archaic sites containing a variety of features. The use of heavy stone woodworking tools such as axes, adzes, and gouges increased during this period, possibly indicating the construction of log canoes, or at least an increase in woodworking. Evidence for hunting using atlatls first appears at this time as well. In fact, the oldest burial in New England, 7,570 +/- 150 to 7,660 +/- 110 years ago, was located in Carver, Massachusetts, and contained two atlatl weights of the whale-tail variety (Doucette 2005: 24).

Sites from this period are fairly common, indicating that people had begun to spread out over larger areas. They have been found on the margins of bogs, swamps, rivers, lakes, and ponds, and on the present day coasts, with sites of differing size possibly based on site function reflecting seasonal rounds or scheduled subsistence activities, as was the case at the time of European contact (Dincauze and Mulholland 1977). Substantial base camps along rivers, streams, or wetlands; smaller special-purpose camps in uplands or near wetlands; and rock shelters, stone quarries, and workshop areas have all been identified in southeastern Massachusetts (Bussey et al. 1992). The wide variety of sites and the common occurrence of projectile points from this period probably indicate that there were more people living in Massachusetts than at any previous time. Artifacts recovered from sites of this period include stemmed projectile points of the Neville, Neville-like, and Stark varieties; atlatl (spear-thrower) weights; pecked, ground, and polished woodworking tools such as axes, adzes and celts; and plant processing tools such as mortars, pestles, grinding stones, and nutting stones.

Five Middle Archaic sites have been identified in Wareham, consisting mostly of findspots of single points. One site, located at the confluence of the Wareham and Agawam Rivers in Wareham Harbor, appears to represent a multi-component campsite where at least two Stark style points were recovered from an eroding bank. A second site was tested to the data recovery level on Broad Marsh where intensive lithic reduction was carried out.

Late Archaic (6000-3000 Years Ago)
The Late Archaic represents the period with the most identified and recorded archaeological sites in Massachusetts. This has been interpreted by many as indicating a very large number of people

living in the area during this period, although archaeologists are not sure why this happened. The case may also be made that this proliferation of stone tools and sites may be more related to a wider variety of stone tools being manufactured for specific purposes and a wider variety of habitats being exploited as opposed to a population boom. The Late Archaic is also a time of greater diversification and specialization than was evident in the earlier periods. The tool kits of the people living on the south coast and its coastal forests differed from that of the people in Maine and further north. This in turn was similar but distinct from the inhabitants of the strictly boreal forests such as those in New York and inland Massachusetts.

Along coastal Massachusetts, the combination of stabilizing sea levels and estuary formation led to significant runs of anadramous fish by the Late Archaic. As a way of taking maximum advantage of these fish runs, Native people began using weirs in the rivers, streams, and bays. Weirs were undoubtedly employed in most of the bays, rivers, and larger streams in southeastern Massachusetts (Johnson 1942, Johnson 1949). Late Archaic populations appear to have settled into narrow foraging territories defined by drainages, and were highly specialized to the habitats within these drainages where activities focused around the seasonal cycle. Sites are found in the same locations as those of the Middle Archaic, with some greater focus on inland / upland locales. The variety of site sizes suggests use of a radiating, seasonally dynamic settlement pattern (Dincauze 1974, 1975, 1980; Thorbahn and Cox 1984).

The pattern of a riverine-uplands subsistence settlement system apparently emerged during the Middle Holocene, between 6,000 and 5,000 BP, when the climax oak-hickory forest had matured and population levels increased, leading to regional Late Archaic strategies of extensive and intensive resource exploitation (Dincauze 1974). In southeastern Massachusetts, the number and diversity of Late Archaic sites, and their distribution in riverine and inter-riverine upland settings, suggest a broad-base collecting approach to resource-use, and considerable attention to small scale environmental features, including bogs and kettle-hole swamps (Binford 1980).

Another significant development in the Late Archaic was the use of bowls carved out of soapstone (steatite). The actual carving of the bowls was probably not a significant development in itself, but what these bowls represented is significant. The raw material for the bowls, soapstone, is found only in certain deposits in Rhode Island, Massachusetts, and Connecticut. As a result, the recovery of soapstone fragments on the coast indicates either that these items were being traded in an exchange system, or that people were traveling fairly significant distances to quarry this stone. From the coast, the quarries could have been reached in approximately two to three days. The stone would then have to be quarried, worked into shape, and then carried back to the homesite. These bowls are not small affairs by any means, some weighing up to 60 pounds. It is believed that the effort expended to acquire these bowls, as well as their weightiness, must mean that they were fairly important to the people. Before these bowls were used, food was probably either roasted or boiled in skin lined pits in the ground through the use of hot stones. The soapstone bowls allowed for cooking directly on the fire, a change in cooking technology that eventually led to the use of pottery in southern New England. These appear to have been used only in the Late Archaic, and do not appear in more recent periods.

Artifacts from this period include a wide variety of projectile points that some archaeologists believe relate to the movements of southern or western peoples into New England. Projectile points and tool traditions represented in Massachusetts include Laurentian (Brewerton), Narrow Point (Small-Stemmed), and Broadpoint (Susquehanna or Wayland Notched) (Johnson and Mahlstedt 1984).

Fourteen sites dating to the Late Archaic have been identified in Wareham in association with rivers, marshes, ponds, beaches, and streams. One site was located on the Agawam River at a point where the river narrows to only four to five meters wide, making this a possible location for a fish weir. Activities that took place here may have included lithic reduction and habitation. Another is a multi-component site at the confluence of the Wareham and Agawam Rivers where several Late Archaic style points were recovered. Another multi-component site was identified on Broad Marsh where lithic reduction and possibly wetlands resource collection was carried out, while the other sites are find spots identified in avocational collections.

Early Woodland (3000-2000 B.P.)

The main distinction between the Archaic and Woodland Periods is the use of pottery. As far as we know right now, pottery was not made in New England during the Archaic Period, and soapstone was not used as widespread as it was during the Archaic. When, where, and even why pottery was first manufactured in southeastern Massachusetts is a mystery to archaeologists. Pottery is more fragile, but lighter than soapstone, and the raw material is readily available and easily acquired, but not as valuable as soapstone. The switch from soapstone to pottery was neither immediate nor widespread, but eventually it did occur everywhere in southeastern Massachusetts. It may have been a product of increasing sedentism and larger community size. In this case, because people were not moving around as much, there was less of an occasion for the pottery to be broken during transport, and more people began to make it. The earliest pottery in southeastern Massachusetts dates from approximately 3,000 BP (Braun and Braun 1994:65). This pottery, identified as Vinette 1, has thick walls tempered with a great deal of crushed rock temper and little decoration. These pots are believed to have been suitable for simmering but not boiling. The use of pottery may be related to an increased utilization of nuts and the removal of oils thorough boiling. Pottery may have also been used to render fat to grease in much the same way.

This period is marked by basic technological and economic changes such as the production and use of pottery and a gradual shift to food production (maize, beans, squash, sunflower, and other vegetables). The latter trend is documented by ca. 1,100 BP on Martha's Vineyard (Ritchie 1969), but perhaps began by ca. 2,000 BP (Thorbahn 1982). Other identified changes from the Late Archaic include the formation of stable estuaries with tidal flats (Cross 1996:5-6) and an apparent increase in the amount of exotic raw materials used such as jasper, chert, and copper. This increase in exotic goods may reflect an increase in trade and communication. Sites dating to this period have been found around large wetlands and lakes, along large river valleys, and on the coasts at the mouth of rivers and streams.

This period is marked by a decrease in the number of exotic finished goods indicative of long-distance trade, and by changes in mortuary practice (increase in secondary interments, less use of ocher, fewer grave goods, more variation in preparation of the dead). While the roots of ceramic and lithic variability are found in the preceding periods, more rapid variation in sequence through time and more regional variation characterize this period. Ceramics vary more in decoration and form. Lithic projectile points are less important in the tool kit, and bone and antler tools are preserved at some sites where matrix conditions are appropriate (Shaw 1996a:84-87). By the end of the period, there is evidence of maize horticulture (Thorbahn 1982).

Artifacts attributable to the Early Woodland include side-notched bifaces, lobate-stemmed Adena, Small Stemmed, Orient Fishtail, Meadowood and Rossville projectile points, and cache blades. Smoking pipes, possibly used for the ritual smoking of tobacco, but also for the smoking of other plants such as pokeweed or mint, began to be present in the archaeological record.

Only two sites with Early Woodland components have been identified in the area. Activities represented at the sites included pottery manufacture and the processing of deer. One site was a large multi-component site that appears to have been occupied or reoccupied continually from the Late Archaic into the Early Woodland Periods

Middle Woodland (2000-1000 B.P.)
Settlement and subsistence of the Middle Woodland Period are similar to those of the Early Woodland Period, with the main difference being lengthened stays at large sites along waterways, with a continuation of the use of upland areas for short-term resource procurement.

During this period, there is a marked decrease in the number of exotic finished goods, and changes in mortuary practice to an increase in secondary interments and less use of ocher. Ceramics vary more in decoration and form, with more occurrences of smoothed surfaces and the beginning of the use of shell temper. The decrease in the variety of projectile points may be evidence that these were now less important in the tool kit, although this point is still being studied. Typical projectile points include Fox Creek and Steubenville points, and in the later Middle Woodland, Jack's Reef points. While the amount of exotic finished goods decreased, the amount of exotic raw lithic materials increased, with Jack's Reef points often being made of non-local chert (Shaw 1996b: 92-93). Some projectile point types, such as Rossville and Small Stemmed appear to continue into the Middle Woodland (Shaw 1996b:90; Hasenstab et al. 1990). Settlement and subsistence are similar to those of the Early Woodland Period, but sedentism increases. Stays at large sites along waterways increase in duration, while upland areas are used short-term for procurement. Long-distance communication and exchange appear to shut down by the end of the period.

Three sites in the area have been identified as having Middle Woodland components. Middle Woodland pottery, shellfish processing, and herring fishery areas have been identified at two of them on the Agawam River and at Red Brook. The third site yielded no artifacts datable to the

Middle Woodland, but did have several radiocarbon dates from this time associated with small pit features.

Late Woodland (1000-350 B.P.)
This is the period just prior to European contact, and as a result, many of the historical reports written by the early explorers to New England (e.g. Verrazanno, Gosnold, Pring, Smith) present one way of understanding the late Late Woodland Period. Some of their observations may be able to be extrapolated back into the prehistoric past through the use of ethnographic analogy. These analogies can be created with more confidence as pertaining to the culture of the Late Woodland Period than any earlier time.

Ethnohistorically, it was recorded that the Native people lived within a community territory that, for the most part, supplied their own needs. Being on the coast or within a coastal environment, the Native people of Cape Cod and southeastern Massachusetts participated in a seasonal migration that was probably very similar to that which they had done for centuries.

The seventeenth century Wampanoag were practicing what is well known to anthropologists as a mobile economy. These people were seasonally migrational, so they moved from place to place throughout the year to coordinate the resources of their territory. The resources they were using were ill-distributed, and as a result, they had developed a specialized economy that maintained higher population numbers than could be done if those resources were gathered in isolation by specialized groups (Higgs and Vita-Finzi 1982:28). Their system was not as unique among peoples as some researchers believe (Dunford 1992: 23). In Frederick Dunford's view, the Cape Cod and southeastern Massachusetts Natives practiced a unique human adaptation to the environment that he termed "conditional sedentism" (Bragdon 1996:58). This adaptation had the estuary as its primary focus, with its human community "joining and splitting like quicksilver in a fluid pattern within its bounds." (Bragdon 1996:59).

The Wampanoag exploited a diffuse range of plants and animals and coordinated their gathering so that as each species came into season, it was intensively harvested and stored for the winter. In order to do this, the people would split up during the spring, summer, and early fall, and each family would venture out to their planting fields, which became their seasonal bases. They would then move out from these to exploit various resources. In the fall, they would all join up again, and move as a community to a sheltered valley or into the woods and establish a winter seasonal base from which to venture out and exploit winter resources. At spring, the entire process would begin again. (Nanapashamet 1996).

The ceramics of the Late Woodland Period are often shell-tempered or made with fine grit temper and have thinner bodies and a more globular form than the earlier ceramics. The diagnostic projectile point of the Late Woodland Period is the triangular Levanna point and occasionally the elongated Madison form. This period is marked by an increasing importance in horticulture (maize, beans, squash, sunflower, and other vegetables) in coastal or riverine zones, which begins by ca. 1,100 BP on Martha's Vineyard (Ritchie 1969).

The decrease in projectile point styles and the increase in the reliance on horticultural crops may be attributed to increasing numbers and densities of population at larger sites. While the occurrence of the "village" in southeastern Massachusetts continues to be debated, the effects of an increased reliance on corn, beans, squash and to a lesser degree gourds, sunflowers and tobacco, definitely led to a degree of sedentism not seen prior to this time (Hasenstab 1999; Kerber 1988; Luedtke 1988; Thorbahn 1988).

Six sites of the area have been identified with components dating to the Late Woodland Period. One, located on the Agawam River, revealed evidence of herring fishery in the late Late Woodland, as well as pottery manufacture and oyster collection. A second, located on Red Brook, was primarily a shellfish processing and possible habitation area. The remaining four sites were identified as individual projectile points in local avocational collections.

Contact Period

The Contact Period was a time of dramatic social, political, and personal upheaval for southeastern Massachusetts Native populations. This period began with amiable trade relations between Native populations and European explorers such as Verrazanno (1524) and Gosnold (1602), followed by a growing distrust of Europeans and increased hostilities, especially on Cape Cod (Pring 1603, Champlain 1605). This hostility was primarily due to the kidnapping of Native men by Europeans desirous of returning home with informants or curiosities from the New World (Weymouth 1607, Hunt under Smith 1614). By the time of the settling of the English at Plymouth in 1620, Natives in southeastern Massachusetts had been decimated by a European epidemic in 1616-1619, with mortality rates possibly reaching 100% in some mainland communities.

The first recorded trading encounter in New England occurred in 1524 and involved the Florentine sailor Giovanni da Verrazano, who was sailing for France. Verrazanno arrived in Narragansett Bay in April of 1524 and traded with the Natives (Parker1968:14). He stated that the people were apparently unfamiliar with Europeans and were very willing to trade and host the visitors. The Natives were first enticed to trade by tossing "some little bells, and glasses and many toys" (Parker 1968:14) to them as they came to Verrazanno's ship in their own boats. The Europeans remained in the harbor until early May, and Verrazanno stated that of all the goods they traded to the Natives "...they prized most highly the bells, azure (blue) crystals, and other toys to hang in their ears and about their necks; they do not value or care to have silk or gold stuffs, or other kinds of cloth, nor implements of steel or iron." (Parker 1968: 16). It was also noted that the Natives here possessed ornaments of wrought copper, which they prized greater than gold. The copper may have come indirectly through trade with Natives to the north who traded them from European fishermen, or it may have been native copper from the Great Lakes or Bay of Fundy regions.

The next explorer known to have visited southeastern Massachusetts was Bartholomew Gosnold, who arrived at the Elizabeth Islands off Martha's Vineyard in May of 1602. There, he traded with the first Natives he encountered, giving them "certain trifles, as knives, points, and such

like, which they much esteemed" (Parker1968:38). Gosnold's crew, in return for the trifles, received many different types of fur from animals such as beavers, luzernes, martens, otters, wild-cats, black foxes, conie (rabbit), deer, and seals, as well as cedar and sassafras, the latter of which was prized as a cure-all in Europe.

Particularly noteworthy was the great store of copper artifacts, which Gosnold saw people wearing and using. A Native informant asked by Gosnold as to where they received the copper from, signed that it came from the mainland, possibly he meant through trade with Natives or Europeans, or he may have been referring to a Native historical tale as to the origin of the copper. It is also interesting to note Gosnold's report of the desire that was present in the Native people to trade for metal knives. It would appear that between 1524 and 1602, they had begun to see a value in steel knives, and they had expanded their use of copper to create beads and arrowheads, whereas in 1524 they were noted as having only breastplates of copper.

Two Contact Period sites have been identified in Wareham. The first is 19-PL-188 where a brass point and brass scrap were recovered. The second is at Horseshoe Pond, where evidence of a large habitation and burial area were identified. A third possible Contact Period site was identified on Monroe Street by the presence of possible 17th century artifacts.

Core and periphery relationships during the Contact Period (1500-1620) were focused along major river drainages where Natives made seasonal rounds between river estuary, headwaters and associated tributaries and interior ponds (MHC 1982: 33). The Native people of Wareham were in what the MHC designated the Buzzards Bay Core. It is not known with what other Native communities the local Native people were in contact, but the presence of suspected and known Native trails leading to the north to present day Plymouth (Pawtucxet), east to Bourne (Herring Pond/Manamet), to the west to New Bedford (Acushnet), and to the northwest to Middleboro (Nemasket), as well as likely canoe travel to Sandwich (Pocasset), makes it highly likely that they had consistent contact with all of these areas. Three main settlement cores within the Town of Wareham can be identified by looking at a combination of archaeological and historic evidence. These are the **Weweantic Core**, centered at and around Conant's Hill at Horseshoe Pond; the **Agawam Core,** centered around Brandy Hill on the Agawam River, and the **Red Brook Core** focused on the western side of Red Brook. This last core may have been associated closely with the community of Manamet/ Herring Pond located to the east. One other potential core is hypothesized to have been located at the head of Wareham Harbor, the **Wankinco Core**, at the mouth of the Wankinco River. No archaeological evidence exists for a core at this location, but its position at the mouth of the river and at the head of the harbor, as well as the fact that this was a likely fording place across the river, makes it a strong possibility.

A. Known Prehistoric Sites

A total of 11 archaeological sites are located within two kilometers of the project area **(Table 1)**. Four of these sites either have no information recorded as to what was recovered, or the material recovered was not temporally diagnostic. One site contains a known burial.

Table 1. Known prehistoric sites within 2 km of project area

Site Number	Nearest Water	Period	Type	Size
19-PL-187	Muddy Cove	Unknown	Unknown	Unknown
19-PL-188	Agawam River	Late Archaic - Contact	Habitation/ Burial	Several Acres
19-PL-277	Agawam River	Middle Archaic	Camp	Small
19-PL-279	Agawam River	Unknown	Find Spot	Small
19-PL-562	Agawam River	Middle/ Late Archaic	Unknown	Unknown
19-PL-1030	Agawam River	Late Archaic - Contact	Village	Several Acres
19-PL-1076	Union Pond	Unknown	Findspot	Small
19-PL-1112	Agawam River	Late Archaic - Contact	Village	Several Acres
19-PL-1139	Unnamed Wetland	Unknown	Findspot	Small
19-PL-1151	Union Pond	Late Archaic	Unknown	Unknown
19-PL-1158	Crooked River	Late Archaic/ Late Woodland	Unknown	Unknown

When the locations of the known archaeological sites in the town were examined during a 2010 townwide reconnaissance survey (Chartier 2011), it was found that the three sites with known Middle Archaic components are all located on major waterways, the Agawam River or Broad Marsh River. Two are located close to their river's mouth at Wareham Harbor, while the remaining site is well inland and may represent a small transitory encampment used as a stop over or hunting camp. Late Archaic sites, on the other hand, are evenly split between those located close to the mouth of major rivers, the Agawam and Broad Marsh Rivers, and those located well inland, up the Agawam River and at Rose Brook. This tendency for Late Archaic populations to occupy prime sites as well as more marginal ones is a general trend commonly seen in their distribution. Woodland sites in Wareham appear to all be located along the coast, whereas the two Contact Period sites identified are both located well inland on major rivers.

The Car Tracks / Agawam River site (19-PL-188) was first reported by Bernard Stockley in 1962, and is a well known collecting location. It was further tested in 2003 when the western half of the site was sold to a developer. While the site has been plowed, it appears to have a high degree of integrity, with features remaining below the plow zone, and is believed to be a site that maintains a high research potential and significance. Artifacts recovered from the site point to a significant occupation during the Terminal Archaic to Early Woodland, and again in the Late Woodland to Contact Periods. It is possible that the Car Tracks / Agawam River Site once continued to the south of its present boundary, into the project area. The present southern boundary of the Car Tracks / Agawam River Site is marked by Minot Avenue and a defunct trolley car railway bed. This boundary is obviously a modern one imposed by the roadway, and as a result, the true original southern edge of the site is not known.

B. Prehistoric Archaeological Potential

Archaeological sites are found in a wide variety of environmental settings with new settings and locations of sites in areas not usually tested by cultural resource management surveys coming to light each year. The majority of sites, however, are to be found in particular environmental contexts (Funk 1972; Root 1978; Thorbahn et al 1980; McManamon 1984; Mulholland 1984; Thorbahn 1984; Nicholas 1990). By using the contexts of known sites, archaeological potential models can be developed to predict the potential locations of archaeological sites.

Sites in southern New England appear to be linked to three variables, topography, soil characteristics, and proximity to water resulting in the general predictive model of a predominance of sites on flat to low slopes on well-drained soils near fresh or salt water. These factors can be combined with the proximity to natural resources (clay, lithic raw materials, and seasonal foods) and the use of transportation routes via waterways or land trails.

Prehistoric Archaeological potential can be stratified as follows:

High potential: <200 m. from a water source on a <8% slope with excessively well drained soils and minimal site disturbance.

Medium potential: 200-400 m. from a water source on an 8%-15% slope with well-drained soils and moderate site disturbance.

Low Potential: >400 m. from a water source, >15% slope on poorly drained soil and heavily disturbed

Decima's study of the regional settlement pattern for Buzzard's Bay found that most of the coastal sites that had chronological information associated with them generally dated from the Late Archaic through Contact Periods (Decima et al 1993: 99). The majority of these sites were located near inlets, which was probably a response to the basic need for shelter from prevailing wind and rough water. Sites located on the Weweantic and Agawam drainages were most frequently located at inlets or outlets of ponds that were adjacent to other bodies of water such as bogs, or at confluence of streams. They were also found to be more frequent at headwaters than in lower reaches. Sites were found to be especially prominent on the Weweantic River, possibly due to its proximity to brooks and streams that could be navigated to gain access to the Taunton River drainage (Decima et al 1993:99). Large multi-period sites were identified along the lower reaches of drainages, while some major sites were located at headwaters, appearing to represent Middle Archaic through Late Woodland occupations. Sites in the lower reaches tended to range from the Late Archaic through Contact Periods, with an emphasis on the Woodland Period. It was determined that this pattern probably reflected seasonal and functional integration of regions within a larger settlement system (Decima et al 1993:100).

The project area was determined to have a high potential for containing prehistoric archaeological resources due to the proximity of the Agawam River just to the north of the site across Minot Avenue, as well as the well-drained soils and elevated terrace on which the project area is located. The property lies diagonally across Minot Avenue from the Car Tracks / Agawam Site, a Late Archaic to Late Woodland base camp site that contained at least one Pre-Contact Native burial. The project area is located on Brandy Hill, another known Pre-Contact Native burial location. This general area of Wareham is believed to be the location of the Contact and early historic period Native community of Agawam. Prehistoric sites predicted for the project area are expected to possibly range from small extractive resource camps to large winter base camps, possibly extensions of the Car Tracks or Brandy Hill Sites. The small sites are expected to relate to resource procurement activity, including the harvesting of faunal resources such as deer, fish, and small mammals, or the collection of floral resources such as medicinal plants or raw materials. Occupation evidence is expected to take the form of hearths and activity areas related to all phases of lithic reduction, as well as food processing and domestic activities.

C. Previous Archaeological Testing

Site 19-PL-188

The project area is situated to the west and south of two previous avocational or professional archaeological excavations. The Car Tracks/ Agawam Site (19-PL-188) was a location that had been collected and pot-hunted for an unknown amount of time prior to Stockley's investigations in the 1960s. Intensive survey and site examination testing was conducted much later by the Plymouth Archaeological Rediscovery Project (PARP) in 2003 (Chartier 2007a). The only known published reference to this site was by Bernard Stockley, a Wareham resident who lived on the north side of the Agawam River, almost directly across from the site. Stockley's article appeared in the Bulletin of the Massachusetts Archaeological Society in 1962 (Stockley 1962). Stockley stated that the site was well known to collectors, and that it originally covered several acres with a shell heap and burial area.

The site is approximately two miles from the mouth of the Agawam River and is described by Stockley as being situated on land that slopes gently downward from Brandy Hill on the south and from an unnamed knoll on the west, to a small stream and swamp on the northeast, and to a bend in the Agawam River on the north and northwest. The cited knoll is believed to be the one on the north side of Minot Avenue adjacent to the area excavated by Stockley, and not the same as Brandy Hill. A shell heap was identified at the site in the nineteenth century and may have been excavated at this time as well. Stockley stated that much of the site had been disturbed in the past as a result of previous excavation, the construction of the railroad in the nineteenth century, electric car tracks in the early twentieth century, the present day Minot Avenue, the stripping of topsoil by one prior owner, and the installation of two sets of utility lines. Limited by all of these disturbances, Stockley chose the top of a knoll on the western side of the site for his work. This area is believed to lie to the immediate east of the 2003 excavation. He reported that the knoll was still heavily wooded with pitch pine and scrub oak, and it appeared undisturbed.

Stockley excavated with five-foot square contiguous units oriented to magnetic north. Depths were measured in inches, and all features and artifacts were triangulated from two stakes, thus giving a high degree of horizontal and vertical control. In the course of two days excavation, Stockley uncovered one stone-lined hearth and 26 features that he identified as refuse and firepits. The stone-lined hearth was encountered six inches below the ground surface and three and one quarter inches above the topsoil / B1 horizon junction. It had been slightly disturbed by previous "relic hunters" as he identifies them, but the approximate original site was estimated at 21 x 45." This top dimension tapered to six inches at the rounded bottom below the B1 junction. Within this hearth were found charcoal, flakes, shell, and bone, as well as seven shards of Native pottery.

The "fire and refuse pits" contained some faunal remains, consisting mostly of deer, with some beaver or muskrat and other small mammals, turtle, and birds. The deer elements that were identified by Stockley consisted of antlers and jaw bones. Shellfish remains were also found in these features, including clam, quahog, oyster, and sea snail (moonsnail). In several of the pits, thick layers of fish bones and scales were encountered. This led Stockley to theorize that a weir was located at this point in the river. Native pottery fragments were recovered from seven of the pits, while stone artifacts were found in six of them. Most of these pits were small and round, but several appeared larger and oval in shape. They ranged in size from 11 to 69 inches in diameter, and in depth from six to 38 inches. Eleven postmolds were also identified. They outline a roughly oval-shaped structure that measured approximately 27 feet northwest to southeast by 17 feet northeast to southwest.

Artifacts recovered by Stockley include steatite, bone tools, one cuprous arrowhead, groundstone artifacts, chipped stone points and tools, and Native pottery shards. Only a limited amount of steatite was recovered by Stockley, that in his estimation represented only one vessel. He stated that the vessel, approximately 33% of which was recovered, had cracked during its use life and had been repaired by having holes drilled in it and the pieces lashed together. The distribution of the vessel fragments appears to have been affected by the digging of one of the refuse pits, as it appears that shards were found on either side of it. Stockley estimated that the reconstructed bowl would have measured about ten inches in diameter. The thickness of the sides averaged between 1/2” and 5/8" thick, and the surfaces were smoothed on the interior and rough on the exterior. Shards of steatite were also noticed in the stripped area of the site.

Bone tools were recovered from the refuse pits that contained shell. These tools consisted of one antler pressure flaker, one bone arrowhead, two antler tip arrowheads, one awl, and several tool fragments. One piece of turtle shell with a hole drilled through it was also recovered, possibly representing a fragment of a turtle shell rattle similar to those recovered on sites in New York State. The cuprous arrowhead recovered was in the form of a triangle with a rectangular notch in the base. A fragment from one Late Archaic two-hole slate gorget was recovered, as well as another slate possible pendent with a single hole drilled through it. One partially finished possible gouge was also recovered from the same layer as the gorget. Stockley interpreted this

layer as being the Stage 1 (Early Woodland) level of the site. The pendent was recovered above these artifacts.

One hundred and eighty pottery shards were recovered, 137 of these being large enough to be identified to "Stage" as defined by the Massachusetts Archaeological Society. The identification of “Stage" roughly correlates to the Woodland and Contact Periods of Early (Stage 1), Middle (Stage 2) and Late (Stage 3), with Stage 4 representing the Contact Period.

Fifty-nine chipped stone artifacts were recovered, of which Stockley broadly identified 39 as side notched points (N=9), large triangle points (N=8), small triangle points (N=5), stemmed scrapers (N=3), stemmed knives (N=10), and one each of the following: flake knife, cross drill, expanded base drill and small "pipe bowl reamer." The large triangle points are probably Late Woodland to Contact Period Levannas, while the small triangles may be Late Archaic to Early Woodland Squibnocket Triangle points. Identifiable amongst the artifacts illustrated by Stockley are one Orient Fishtail point, one Brewerton side-notched point, one Atlantic point, one large Wayland Notched point made from pink "felsite," and one other possible Orient Fishtail. All of these points date to the Late Archaic Period. Stockley stated that all of the points except the large triangles were recovered below the top 4" of soil. The large triangles all came from above this level.

Intensive Survey and Site Examination testing were conducted at the site in 2003, when the parcel was sold and development was proposed. Significant archaeological remains were encountered, including 14 features such as pits, hearths, shell deposits, a pot drop, and one human burial, as well as lithic debitage, steatite, pottery, and faunal remains. Four features were radiocarbon dated, with dates ranging from the Early Woodland to Contact Periods. While the site has been plowed, it appears to maintain a high degree of integrity, with features remaining below the plow zone. Artifacts recovered from the site point to a significant occupation from the Transitional Archaic to Contact Periods. The site has the potential to add significantly to our understanding of settlement patterns, degrees of mobility, resource procurement, and the transition from steatite bowl use to early pottery that characterizes the change from the Transitional Archaic to Early Woodland Periods. This site is recommended and eligible for inclusion in the National Register of Historic Places.

Additional information regarding collector activity is provided in the 19-PL-188 site file at the MHC. MHC's comment letter dated April 25, 2018 reported that a “note on the MAS site record card for M41SW66 (19-PL-188), reported by Charles F. Sherman (3/25/1941), refers to 'burials on hill mostly on southern exposure'” (MHC 2018b). The hill is believed to be Brandy Hill, and the northern exposure would be the side facing Minot Avenue. A hand-annotated map labeled “State St. Development Co. Project,” also in the inventory file, appears to have the same hand writing as the MAS site record card showing the interpreted extent of the archaeological site. Thomas F. Mahlstedt added a note to the site record in 1985 stating that Frank Kremp worked on the site 40 years prior, but could only identify a few pieces in his collection from the site

including a large Atlantic blade that appears to have been burned, some steatite, and Small Stemmed points.

Site 19-PL-1030

Site 19-PL-1030 was identified as a result of intensive survey archaeological investigations that were conducted in 2006 at the proposed site of a new police station in East Wareham, east of the current project area (Chartier 2007b). Two hundred and two (171 systematically placed along six transects and in five blocks, and 31 in nine array brackets) test pits were excavated in high potential areas across the project area. A total of 521 artifacts were recovered (357 prehistoric, 104 historic, and 60 unattributable). Three locations were identified through diagnostic prehistoric material, with five features found at only one of the locations.

Prehistoric artifacts recovered consisted of 189 pieces of chipping debris and shatter, two hammerstones, two biface fragments, three projectile point tips, 31 pieces of Native pottery, one piece of steatite, two fragments of a cuprous arrowhead, 112 pieces of shell, 29 pieces of calcined bone (mammal, turtle, bird), and nine pieces of fire-cracked rock (FCR). Sixty pieces of material, charcoal (n=55) and graphite (n=5), were recovered which may be either natural or cultural. Material was found to date possibly from the Late Archaic through the Contact Periods, with the majority being related to Woodland Period occupation.

1965 Minot Avenue Waterline Burial Disturbance

A captioned *Wareham Courier* newspaper photograph appeared in the September 30, 1965 issue of the paper. Pictured are four men, with a caption that reads "RIGHT THERE! This appears to be what Joseph Santos of New Bedford; workman for the contractor laying the pipeline to the new elementary school on Minot Ave. is saying as he designates spot where human bones were unearthed Monday In (sic) excavating work. Also shown are, l-r: Brad Thomas, Wareham highway superintendent; and Wareham Selectmen Robert L. Tassinari and Frank H. Cutler." (*Wareham Courier* 30 September 1965: 1) **(Figure 5)**. A short article was presented on the same page. The article stated that the bones included the skull of an adult and the bones of a child. A Marion medical examiner, Harvard Medical authorities, and an "expert in Indian lore" were to be consulted. The bones were reported to have been kept at Wareham Town Hall. A review of the issues of the paper from 1960 to 1970, on file at the Wareham Public Library, failed to reveal any previous report of discoveries in the area or any subsequent follow up report for those years.

Attempts to further delineate the location of the burials disturbed in 1965 failed to yield further information on their original location or on the present whereabouts of the remains. The Wareham Water Department stated that the waterline from 1965 followed the same route as the present one, running along the south side of Minot Avenue and up the present driveway to the school, but they had no record of where along the waterline the burials were found. The photograph in the newspaper does not contain any features or landmarks that would enable the present researchers to locate where along the waterline route the photograph was taken. Inquiries at the Wareham Police Station failed to yield any additional information on the fate of the remains after they were reportedly turned over to the police. The *Wareham Courier* newspaper

no longer exists as an independent paper, now being part of the Gate House Media Group. An inquiry made to the local Gate House (Wicked Local) headquarters contact in Plymouth resulted in the information that the paper had been sold at least two times since 1965, and that the only archives still extant are the copies of the issues of the newspaper held by libraries like the Wareham Free Public Library. No photographic or business archives are known to still exist. It should not be assumed that the burials were found on the school property, but the possibility does exist.

Wareham Courier

Serving the Towns of Wareham, Marion, Mattapoisett, Bourne, Sagamore, Sandwich and Roche

PUBLISHED EVERY THURSDAY — Second Class Postage Paid at Wareham, Mass. Post Office — WAREHAM, MASSACHUSETTS, THURSDAY SEPTEMBER 30, 1965

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that just a defense ent gave High a last Sat- rans' Me- a. It was in five gridiron. Door and greatly to the sec- rials from fleetfooted winners Case 22, r plunged

Besides the other passes received, Denny Akin clutched a Door pass for a TD. Domingo Pina raced around left end for a tally followed by Lopes rushing over the line for two extra points.

After putting this game on ice the Bulldogs are now sharpening up to face Dighton-Rehoboth Saturday at the Old Rochester field. Coach Frank Almeida and assistant Bob Gibeley look for another Tri-County win if the defense can hold up on this one. It'll take a strong defense too to stop the Falcons who registered a big 25-0 win over Barnstable.

a 22-yard by Cliff was score- all four econd and

Bourne Chamber to elect officers

On Wednesday, Oct. 13 at 7 p.m. the Bourne Chamber of Commerce will assemble at Anthony's Gray Gables Inn for a fall dinner meeting, at which time the election of officers will be held.

Mayor of New Bedford, Edward Harrington, will speak at the occasion. A social hour is scheduled prior to dinner at 6:30 p.m.

Selectmen Augustus Wagner and August Cristofori, members of the Bourne Christmas lighting committee will meet with the Chamber next week to discuss display arrangements for the oncoming season.

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sing of the ked in front a full scale featuring a 579th USAF officials and ll be on the ew. e there will of takeoff's, s, and land- of jet and in the Air high perfor- by the F-4C

ral aircraft oyed in Viet Nam will also be on display. These include the C-123, F-100, and B-57.

Also planned is a precision drill demonstration by the Jody Drill Team from L. G. Hanscom Field, Mass.

According to base officials, this Open House should bs one of the biggest events to be held at Otis Air Force Base in many years.

Invite parents to hear speakers

Parents who have children attending the East, West, Everett, and the Pilgrim Memorial Elementary Schools, are invited to an informal meeting, to be held in the auditorium of the Pilgrim Memorial School on Monday afternoon, Oct. 4, from 3:30 to 4:30 p.m.

At that time, Mrs. Alice Salfer, elementary supervisor; Mrs. Mary Giberti, elementary guidance psychologist, and Nicholas Vardack, elementary consultant, from the Judge Stone Clinic, will explain how their special services benefit the school child.

November draft call jumps up

Massachusetts Selective Service has received a call to induct one thousand and eighteen men into

Courier Photo

RIGHT THERE! This appears to be what Joseph Santos, of New Bedford, workman for the contractor laying the water pipeline to the new elementary school on Minot Ave. is saying as he designates spot where human bones were unearthed Monday in excavating work. Also shown are, l-r: Brad Thomas, Wareham highway superintendent; and Wareham Selectmen Robert L. Tassinari and Frank H. Cutler.

Announce Cranberry Bowl Queen candidates during drum and bugle corps competition

Among the festivities surrounding the All-American Championship Drum and Bugle Corps Competition last Saturday night on the Wareham Athletic Field was the naming of the eight young ladies who will vie for the title of Miss Cranberry Bowl Queen for 1965-66.

Four girls each from Wareham and Old Rochester High Schools have been selected by vote of the Junior Classes in the respective schools to compete for the crown, holder of which presides at the annual Cranberry Bowl Football Festival, including the game between Old Rochester and Wareham Highs, and the accompanying festivities. Also, she is called upon at other times of the year for special appearances.

The Wareham Exchange Club is the sponsoring organization for the Cranberry Bowl Festival as it was for last Saturday night's event, the first Annual Indian Summer Music 'N Motion, brilliantly staged drum and bugle corps competition and exhibitions. Eight talented corps performed in the event from points throughout New England. Working with the Wareham Exchange Club in staging the event was the Whalers of New Bedford.

Candidates from Wareham High School for Miss Cranberry Bowl Queen are: Joan Lukey, daughter of Mr. and Mrs. Philip Lukey of Weweantic Shores; Paula Ravaioli, daughter of Mr. and Mrs. Gino Ravaioli of Sandwich Rd., East Wareham; and Janice and Joanne Smith, twin daughters of Mr. and Mrs. Herbert Smith of Adams St., Nanumett Heights.

Old Rochester nominees are: Karen Eckersley, daughter of Mr. and Mrs. Vance Eckersley of South St., Marion; Laura Escobar, daughter of Mr. and Mrs. Manuel Escobar of Cushman Rd., Rochester; Susan Sylvia, daughter of Mr. and Mrs. Francis Sylvia of Crystal Spring Rd., Mattapoisett; and Barbara Hardy, daughter of Mr. and Mrs. Malcolm Hardy, and of the Crystal Spring Rd. address. Judging for the winner will take place at a later date.

Announcement was made by Wayne Bailey of Radio Station WBSM, who served as master of ceremonies for the evening's presentation.

Winner of the first place championship trophy was the Holy Rosary Caballeros of Providence, R.I., who just barely nosed out the host Whalers in the keenest of gories in the judging are: marching and maneuvering, bugling, drumming, and general effect. The judges are specialists and work on the particular category in which they are expert.

Ideal weather conditions prevailed for the colorful event.

Only two weeks for inspection

Registrar Richard E. McLaughlin today reminded the motoring public that only two weeks remain in which to have motor vehicles inspected in compliance with the compulsory motor vehicle inspection law.

"Two-thirds of the inspection period have passed and to date only one-half of Massachusetts cars have been inspected and carry the green sticker on the lower right-hand corner of the windshield. This leaves approximately one million vehicles to be inspected during a two-week period," said

U.S. in Vietnam is defended by Wareham soldier

The policy of the U.S. Government as regards Vietnam is defended by a Wareham native, SP4 Raymond A. Pezzoli, son of Mr. and Mrs. Raymond A. Pezzoli of High St., Wareham, has been in the embattled country for several months now. In a letter to his parents, he admitted that he had wondered at first about the mission there, but no longer. "We Americans are doing a good thing here . . . ," he says.

His parents have forwarded the letter to the Courier and included one of their own. The letters follow:

120 High Street
Wareham, Massachusetts
September 27, 1965

Letters to the Readers Column
Wareham Courier
Wareham, Massachusetts

To Whom it May Concern:

We would like to thank everyone who has been so considerate to write our son Ray, who is stationed at Cam Rahn Bay, Viet-Nam. He is unable to answer all the letters, but he asked that we thank you for him.

Ray has written us many inter-

Wareham Chamber of natters of importanc

Although little action of an official nature was taken by members of the Wareham Chamber of Commerce at their meeting Monday night, discussion was held on several subjects which could have important bearing on the future of the Town of Wareham.

Selectman Chairman Benjamin . Merrihew, in observing that the own had a potentially great future, said, "We must stop fooling around. Let's join hands and get on the ball." He said that a number of inquiries are in the hands of the selectmen relative to industries locating here or expanding existing operations, but identities can not be revealed at the present time. All members of the Wareham Board of Selectmen were present at the meeting.

Presiding in the absence of Manuel Brun, president, was Alfred Holbrook.

Considerable discussion was held on the information booths and cottages of the Chamber. Selectman Frank H. Cutler said that he would like to see some comparison figures on inquiries made at the information cottage on Rte. 28 (when it was in operation) and those of the installation on Rte. 6, the past two years. The Rte. 6 office of the Chamber of Commerce has been in Ripley's Service Station the last two summers. A report from Mrs. Abbie Seaver, who manned the office last summer, was read by Mrs. Emma Houle, secretary.

Workers find human bones off Minot Ave.

Chief Frederick Basse of the Wareham Police Department is initiating an investigation to determine origin of human bones unearthed in East Wareham along Minot Ave.

The bones, during methods which appear to be, according to medical examiner Dr. Raymond Baxter of Marion, the skull of an adult and some bones of a child. No further identification has been determined.

There has been conjecture that the workers who are laying the water pipeline for the new elementary school being built in the neighborhood may have come upon part of an old Indian burial ground.

Harvard Medical authorities may be called in to give their opinions. Also an expert in Indian lore is being called in. Meanwhile the bones are in the office of Chief Basse in the Town Hall.

Town Meeting next Wednesday

First special town meeting of 1966 in the Town of Wareham will be held next Wednesday at 7:30 p.m. in the Memorial Town Hall.

Five articles will be placed before the voters for action.

Figure 5. September 30, 1965 *Wareham Courier* newspaper page with burial information (Wareham Courier 1965).

IV. HISTORIC CONTEXT

The land that later became Wareham was originally called Agawam, or the fishing place, by the Native people living there. In 1649, a new grant of land called Sepecan was offered to the Townsmen of Plymouth as a place of pasturage and wintering of cattle (Lovell 1970: 16). The Sepecan or Sippican Grant, as it was called, included part of the land where the project is located, as well as all of West Wareham. The grant was certified by 1655 when, at a Court of Plymouth on June 5, liberty was granted to the Town of Plymouth to purchase lands of the Indians of Sepecan to winter cattle (Lovell 1970:16). In 1666, the lands of what is now Wareham (the section that was known as Agawam) were purchased by the Plymouth government for 24lb 10s by four Plymouth men: Thomas Southworth, Nathaniel Warren, William Clark, and Hugh Cole. The land was purchased from the Natives Nanumett, Weeanucket, Aconootus, Awanco, Attaywanpeek, Awanpoke, and Assanket (sometimes called Peter) (Lovell 1970:16).

As most of the settlement of the town occurred after the 1670s during the **Colonial Period (1675-1775)**, King Philip's War did not have a dramatic impact on the town. It was recorded that Native sachem Tispaquin and John Bump went to Agawam and Sippican to kill horses for meat, and that Tatosan, the Native leader charged with the attack on the Clark Garrison House, fled to Agawam, fell sick, and was "lightly buried" here (Slotkin and Folsom 1978: 448, 461).

The 8,000 acres tract of land purchased from the Natives in 1666 was leased for seven years, and eventually, in 1682, was sold for 280 pounds by Plymouth to pay for the construction of a new meetinghouse in Plymouth (Lovell 1970: 17). This tract was purchased by John Chubbuck, Samuel Bates, John Fearing, William Beale, Seth Pope, Joseph Bartlett, and Josiah Lane, all of whom Lovell identifies as natives of Cambridge, Wareham, Lydd and other places in England (Lovell 1970:16). By 1685, the purchasers divided the lands and laid out houselots of 60 acres each and six tracts of meadow land, a public grist mill on the Agawam River near the present herring run, an animal pound possibly erected in the cemetery, public and private highways, and designated a burying place (Agawam Cemetery) (Lovell 1970:18). By 1688, dwelling houses had been built, as records of this year mention the house of Joseph Warren. This house was probably on the neck of land that extended out from Bourne's Hill toward Little Bird Island (Warren's Point) (Rider 1989:12). It has also been mentioned that there was a pre-1685 homesite located "some distance back of the Mackie Farm" that has been identified as the site of the first house erected by John Bump (Bumpus) in c. 1634 (Lovell 1970: 17). The Massachusetts Historical Commission Town Report for Wareham speculates that pre-1685 Europeans in the area may have been hired overseers who were watching the colony's cattle and horses on a seasonal basis (MHC 1981: 4).

The first settlement core in Wareham was around what is now Agawam Cemetery, and eventually other cores including Fresh Meadow Village centered around what is now the Parker Mills / Wareham Center area. This second settlement was centered around Isaac Bumpus' grist mill near the junction of the Weweantic River and Mary's Pond Road (MHC 1981:4). A few other homes were located on Great Neck and Cromeset Neck.

By the middle of the eighteenth century and into the **Federal Period (1775-1830),** the four main settlement areas of Wareham (Agawam, Fresh Meadow Village, Great Neck, and Cromeset Neck) had essentially been joined together by settlement between them. The three major rivers in the town, the Weweantic, the Wankinco, and the Agawam, led to the establishment of various mills and eventually factories in the eighteenth century. These included a paper mill and tannery (MHC 1981:4). The first meetinghouse was constructed at the corner of Gibbs Avenue and Main Street in 1735 on what is now the Town Green. The principle roads in the town appear to have been what are now Route 28, Main Street, Gibbs Avenue, and Head of the Bay Road **(Figure 6)**.

Wareham did not play any major role in the Revolutionary War. No battles were fought there, and there does not appear to have been much fear on the part of the residents that the town would be attacked. This is not to say that Wareham did not actively participate in the war. Wareham's involvement in the revolutionary actions of the 1770s began on Jan 18, 1773 when, at the request of Boston, the men of Wareham met to consider the grievances that the colony as a whole had against England (Lovell 1970: 107). This meeting was conducted in the barroom of Benjamin Fearing's Inn (Lovell 1970:108). By the end of the war, a total of 127 men had joined the militia, 13 of whom died in the course of battle (Lovell 1970:112).

With the commencement of hostilities in 1774, Wareham raised their militia and was ready to serve at any time. The first time that men from Wareham set out against the British was in 1774 when Noah Fearing, John Gibbs, Nathan Briggs, and Salathiel Bumpus joined the "Body of the People", a group of young Rochester men who set out on September 26, 1774 to go to Barnstable to drive out British (Lovell 1970:110). The town voted on March 17, 1775 to purchase six guns for the use of the town and directed Nathaniel Bassett to put other guns to order and to make bayonets for them (Lovell 1970:110). On April 20, 1775, news of the Battle of Lexington reached Wareham, and two bands of men left the town, one bound for Boston and the other for Marshfield. Israel Fearing led the Marshfield group (Lovell 1970:111). A vote on March 18, 1776, by which the town agreed to buy five pickaxes, 11 spades, and six narrow axes that had been furnished to the army, may either highlight Wareham's concerns for their town's safety and the possible need to dig defensive earthworks, or these items may have been purchased for the militia to use when it traveled away from town and needed to fortify its position (Lovell 1970:109). On December 10, 1776, the Wareham militia marched to Rhode Island to engage the British there on two separate occasions. In September, 1778, once news of an attack on New Bedford reached Wareham, the militia immediately set out to halt them.

The War of 1812 affected Wareham differently than the Revolutionary War did. While Wareham was never attacked during the Revolutionary War, British troops, claiming that Wareham was a haven for the privateers preying on British ships, attacked the town and burned several ships. In fact, 20 Wareham vessels were taken during the course of the war (Rider 1989:124). Wareham, like most coastal towns, was in fact involved with privateering efforts during the war. For example, the 10-gun sloop *Hancock* was fitted out in Wareham as a privateer vessel, Capt. John Kendrick of Wareham commanded the *Fanny,* and the Count d'Estaigne and Capt. David Nye commanded the *Sea Flower.* The most famous incident in southeastern Massachusetts of the

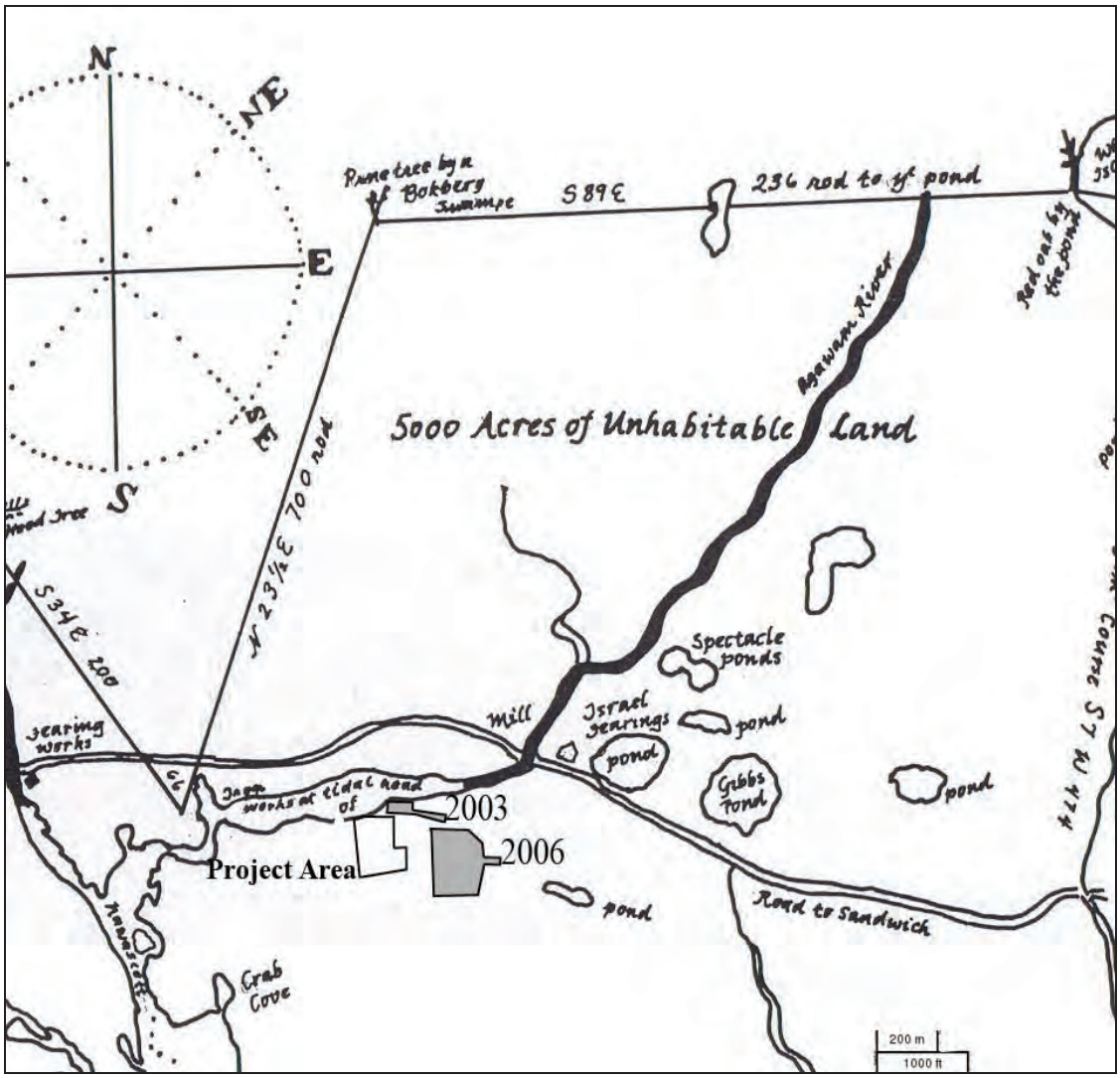

Figure 6. Project area (and adjacent areas previously tested in gray) shown on the 1795 map of Wareham (Anonymous 1795).

War of 1812 took place in Wareham on June 13, 1814. On this date, the British brig-of-war *Nimrod* captured two Wareham residents, Bumpas and Miller, in Westport and then proceeded to sail up Buzzards Bay to West Island, then to Mattapoisett, and finally to Wareham (Lovell 1970: 115). This caused an alarm to be raised at the Narrows, and six British barges carrying 200 troops subsequently landed at Long Wharf where Narrows Bridge is today.

The British entered the town, deploying sentries onto the high land, and proceeded to the cotton factory located at the Narrows which they attempted to burn by firing a Congreve rocket into it (Lovell 1970:116). They then went to Captain Bumpus' house, where the town had secreted their stores of arms and powder, and confiscated these. The British commander told a party of Wareham men who had come to argue for peace, that he and his men had come to search for ships and men involved in privateering. So that they would not fire upon inhabitants or destroy private property or public property which did not belong to the town, the British requested that the ships and property belonging to Falmouth be pointed out. A total of four schooners, five sloops, a ship, and a brig at the wharf, and a new brig being built at William Fearing's shipyard, were all burned (Lovell 1970:116). Six men were also taken hostage, and all told, $25,000 worth of damage was done.

In an attempt to drive the British out, Captain Israel Fearing assembled 12 men on opposite side of Narrows and showed fight. The British left the hostages on Cromeset Point (Lovell 1970:116). As they left, they fired a rocket and the swivel gun from each barge and stated that they would return and burn the whole town. The inhabitants prepared defenses, and a militia company was stationed at Pig Point (Pinehurst) with trenches being dug within gunshot range of the river (Lovell 1970:116).

Israel Fearing built a mill on the Agawam River, also called the Agawam Brook, in 1685 (Barber 1839: 287; MHC 1981). This mill was located on the road that led from Agawam to Sandwich (present day Route 6) at a point where a small fall of water was located and can be seen on the 1795 map of Wareham. The site of this mill is believed to be on the same location as the present day herring run.

The **Early Industrial Period (1830-1870)** saw Wareham grow economically as the number and output of the ironworks in the town increased. The peak of the nail industry was reached in 1855 when there were 860 men employed at between 7 and 12 nail mills, producing over $870,000.00 worth of nails that year (MHC 1981:9). These mills are discussed further below. Additional evidence of the increasing importance of iron to the town's industrial base was the building of the Cape Cod Branch Railroad in 1848, whose route was described in its charter entirely in terms of which Wareham iron works it should touch or approach (MHC 1981:10). While iron provided the majority of the town's economic base, whale, mackerel and cod fisheries as well as coastal trading provided up to $100,000.00 in 1845 and over 50,000 tons of goods exchanged in 1844 (MHC 1981: 10). During this period, the population slowly grew up until about 1855, and settlement continued in the Narrows Village and Wareham Center areas. Roads such as the present day Route 6 were improved, and a bridge was built at the Narrows Crossing.

Due to the shallowness and the fall of the river, the Agawam figured least prominently in the mill industry of Wareham. It was recorded in 1839 that the river was large enough so that small vessels could travel up it at high tide to the point where Israel Fearing had his mill, but due to the gentle fall of this river, there were no mills above this point until one reached the Town of Plymouth (Barber 1839: 287). Agawam Iron Mill was established in approximately 1820 by Thomas Savery, just south of the herring run dam, the same site as Fearings Work. This mill produced holloware such as tea pots and cooking pots, but was soon deemed a failure and abandoned. In 1836, Samuel Tisdale purchased the failed Agawam Iron Mill and refurbished it as the Agawam Nail Company. Tisdale's first attempt failed, but he tried again in 1838 with success. In 1845, after surviving a fire and rebuilding, he expanded the operation with a rolling mill approximately two miles up the Agawam River at Glen Charlie. Both operations closed with Tisdale's death in 1845 (Pizzaloto and Byrne 2002: 77; MHC 1981). The Fearing, Savery, and Tisdale Mills and Furnace are the only known industrial operations on the Agawam River. The 1832 map of Wareham shows two houses located east of the project area **(Figure 7)**. It also shows a road running along the south side of Brandy Hill, and possibly into the project area. This road still exists, but is now a path through the woods. If this road does indeed continue into the project area, it may have connected Wankinco or Little Neck with Great Neck Road, which runs to the east of the project area. On the 1832 map, the road appears to end at the eastern side of Brandy Hill.

The **Late Industrial Period (1870-1915)** saw a beginning of a movement away from iron manufacture in the town's economy, with the incorporation of cranberry and oyster cultivation by the later part of the century. Iron and nail plants on the Wankinco and Weweantic Rivers remained in operation, with some beginning to manufacture other items such as horseshoes by 1890 (MHC 1981: 11) **(Figure 8)**. Population growth slowed between 1870 and 1880, and then began to increase after this decade as Wareham, and especially Onset, started to become important seaside retreats in the summer. The start of the tourist trade in Wareham is evidenced by the continued elaboration of the coastal corridor (present day Cranberry Highway), with branch railroad lines to Onset Neck, a street railway from New Bedford along Marion Road and from Middleborough through West Wareham, and the extension of the Wareham Trolley route to Bourne through Onset (MHC 1981:11). Onset also saw the erection of up to 6 three to five story frame hotels along Onset Avenue in the 1880s to 1890s to accommodate the arriving summer visitors.

The 1879 map of Wareham **(Figure 8)**, shows three houses located to the east of the project area along Great Neck Road. It also shows what appears to be a road or trail along the eastern edge of the project area. The road now extends towards Pope's Pond, instead of ending at Brandy Hill. The 1901 map of Wareham **(Figure 9)** does not show either road or trail seen on the previous maps, but does show the Minot Avenue trolley car tracks and a stream just southwest of the project area.

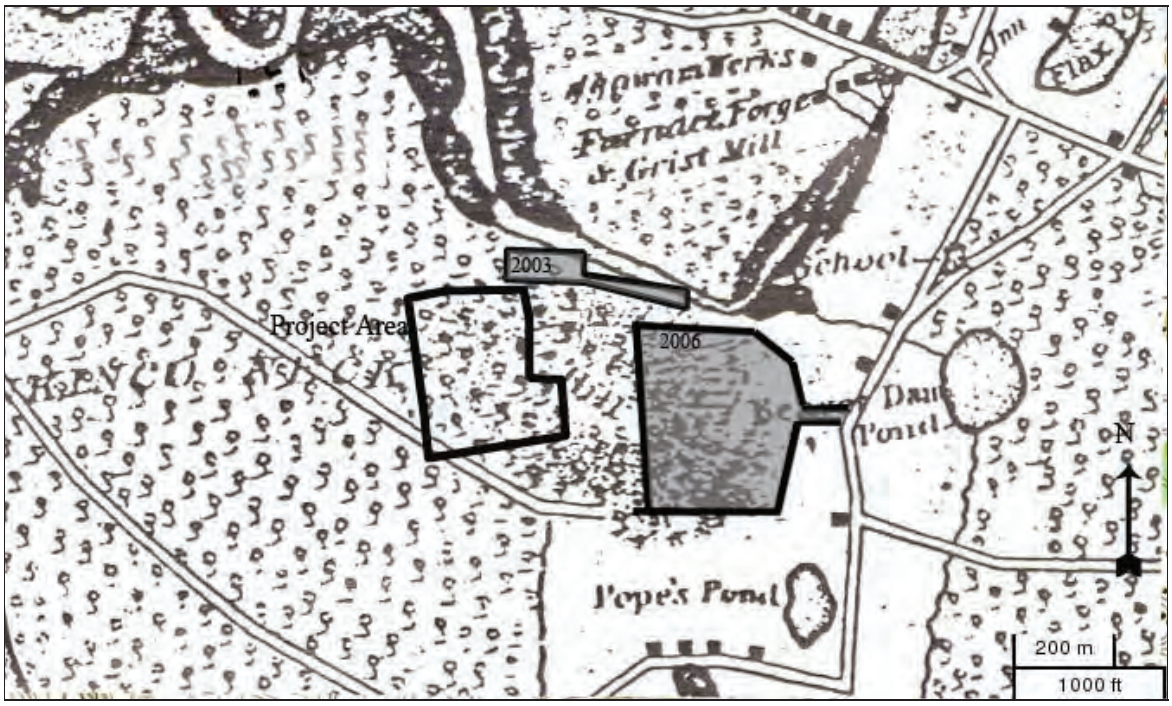

Figure 7. Project area (and adjacent areas previously tested in gray) shown on the 1832 map of Wareham (Bourne 1832).

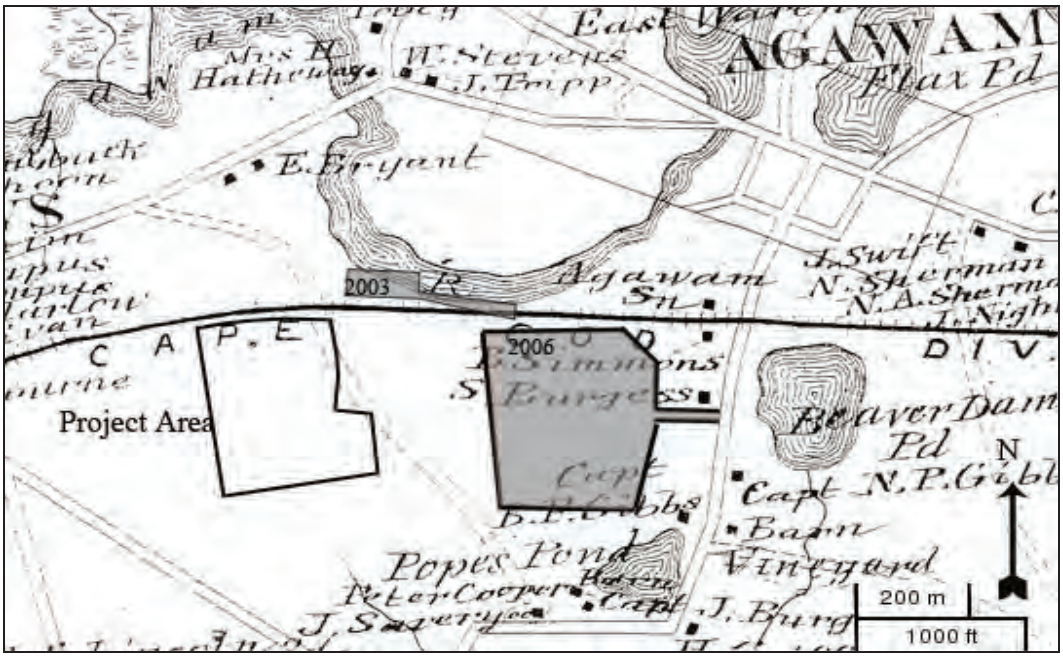

Figure 8. Project area (and adjacent areas previously tested in gray) shown on the 1879 map of Wareham (Walker 1879).

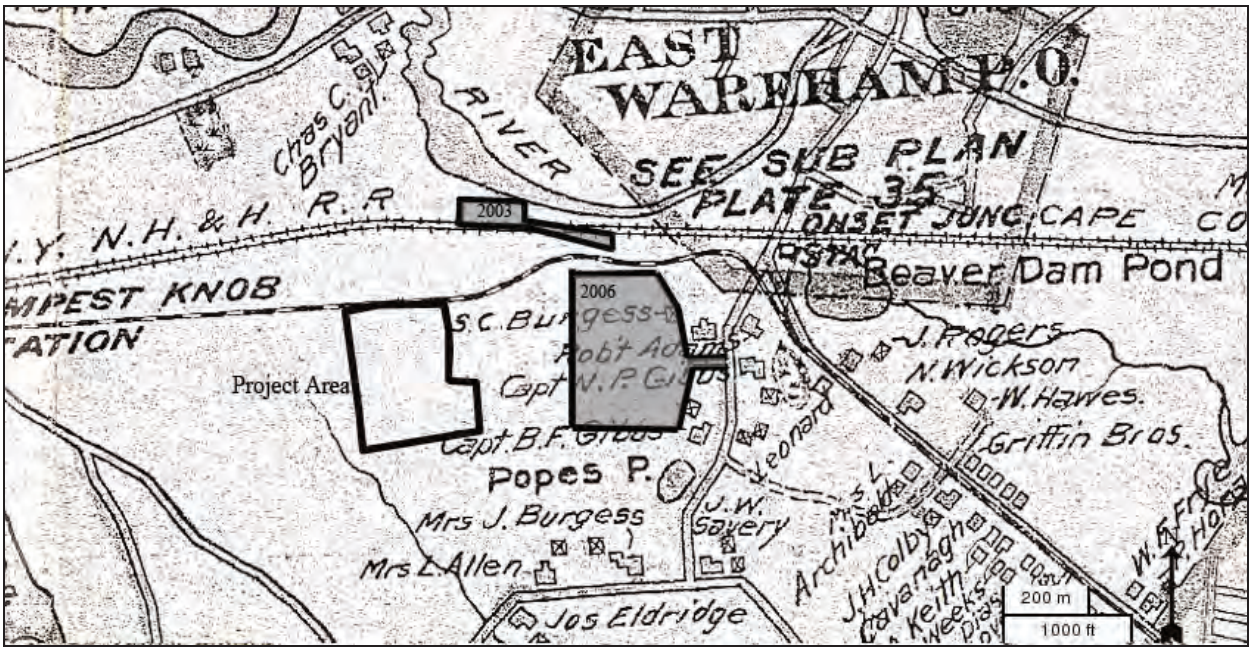

Figure 9. Project area (and adjacent areas previously tested in gray) shown on the Sanborn 1901 map of Wareham (Sanborn 1901).

The **Early Modern Period (1915-1940)** saw the abandonment of the trolley lines to Wareham and the railroad to Onset as more people began owning and driving automobiles at this time. Highways such as Route 6 were improved, and Route 28 was constructed during this time (MHC 1981:12). The population increased, and oyster growing, poultry raising, and boat building all peaked during the first two decades of the new century (MHC 1981: 12). Cranberry growing increased in importance, while the town's iron works slowly succumbed to the importation of foreign sources for their products. The 1937 topographic map **(Figure 10)** shows a more extensive wetlands west of the project area and railroad lines paralleling the Agawam River at this point. Minot Forest School was built in 1965, and it was reported in the local newspaper that two human burials were disturbed when the waterline was laid connecting Minot Avenue to the school (see Documentary Research section above).

A. Known Historic Sites

There are four historic sites within two kilometers of the project area **(Table 2)**. They consist of scattered domestic refuse associated with 18th and 19th century homesites and locations of mills. At least one location on the Agawam River appears to have served as an iron mill, utilizing a fall of water that also became a herring run (the Israel Fearing/ Agawam Iron Mill location).

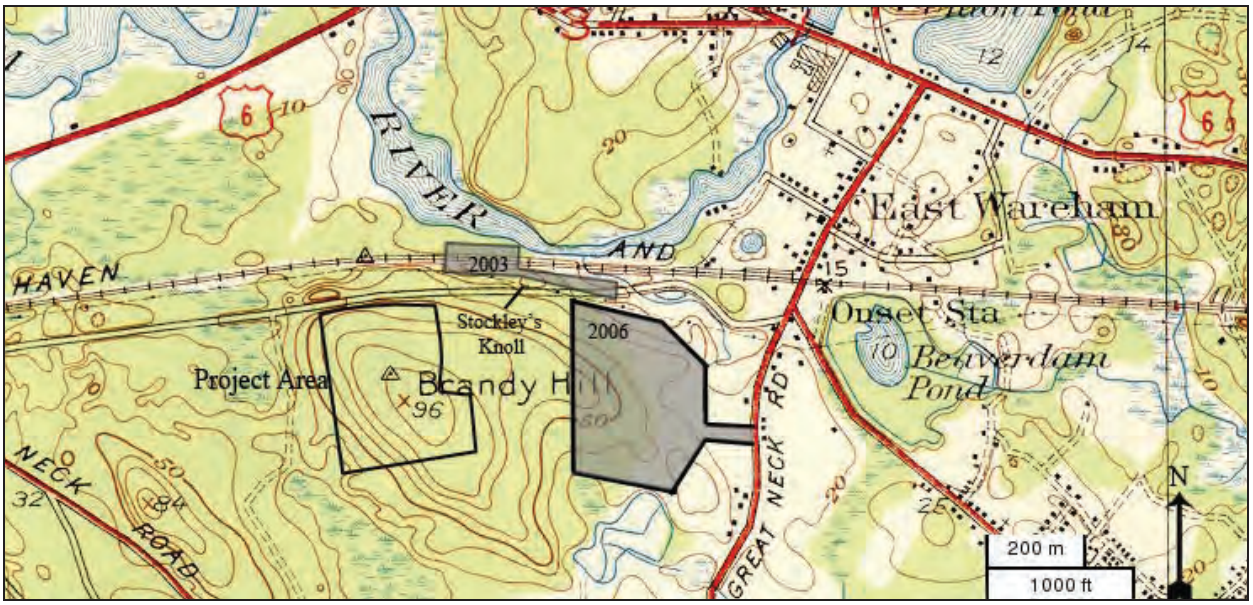

Figure 10. Project area (and adjacent areas previously tested in gray) shown on the 1939 map of Wareham (USGS 1939).

Table 2. Historic archaeological sites located within 2 km of the project area

Site Number	Site Name	Closest Water	Date	Type
WRH-HA-1	Terrace	Agawam River	1750-1890	Homesite
WRH-HA-3	Warehouse	Agawam River	Late 19th century	Homesite?
WRH-HA-11	Wright Homestead	Union Pond	19th century	Homesite
WRH-HA-12	Israel Fearing/ Agawam Iron Mill	Agawam River	18th-19th century	Mill

B. Historic Archaeological Potential

General historic settlement patterns have been developed for historical resources in New England ,and these can be used to help predict where historic archaeological sites may be found (Handsman 1981; Paynter 1982; Waldbauer 1986; Wood 1978). Economic geographers have also formulated models on historic settlement that take into account variables such as proximity to bodies of water, arable soils, granite outcrops, and gravel and clay beds (Haggett et al. 1977). Proximity to settlement concentrations, freshwater springs, streams, and sources of waterpower also effect where people will settle.

Historic Archaeological potential can be stratified as follows:

High/ Moderate potential: Within 100 m. of a major transportation network, with 100 m. of fresh water, and with 1000 m. of a settlement concentration

Low Potential: >100 m. of a major transportation network, >100 m. of fresh water, and >1000 m. of a settlement concentration

The project area is located close to Great Neck Road, one of the early roads laid out to go from what is now Route 6 to the Great Neck area of Wareham, and it is located within 100 meters of the Agawam River and an unnamed brook / wetland. The Prince Burgess House stands on Great Neck Road to the east of the property. This structure is believed to have been built in 1683 by Josiah Morton and sold on January 13, 1790 to Ebenezer Burgess (Jerome 1976: 73). It stands on land that was granted to Thomas Morton in 1652. Prince Burgess served as lieutenant in the American Revolution (Jerome 1976:74). Plantation Period and Colonial grants averaged between 60 and 100 acres in the Wareham area, so the original grant of land likely included the project area. As the land was likely once part of the Josiah Morton (1683) and later the Prince Burgess (1770s) farms, evidence of plowing and also of farm buildings such as barns, may be expected within the project area. Additional evidence of historical use of the land may take the form of animal pens, charcoal burning areas, or additional outbuildings and historical impacts.

V. FIELD METHODS AND RESULTS

A. Justification

The property has a high potential for containing prehistoric and a moderate potential for historic archaeological resources. Prehistoric resources may be related to the occupation identified at the Car Tracks / Agawam River Site, or other occupations focused around the wetlands to the west of the project area. Occupation may have taken the form of resource procurement sites or a base camp. Historic potential is based on the presence of the Prince Burgess House to the east, and the project area position close to a historic transportation route (Great Neck Road). The Intensive Survey may yield evidence of ancillary support buildings associated with the use of the property for agricultural purpose, as well as evidence of Contact Period occupation of the site by Native people. An Intensive Survey is justified to further investigate the potential historic resources within the project area prior to planned construction activities, and to determine if any potentially significant archaeological remains may be present. Intensive Survey testing at this site will help to better understand the use of the inland riverine portions of Wareham as well as to better understand the extent of the Car Tracks / Agawam River Site and possibly the Native community of Agawam itself. The results of the Intensive Survey will be complete enough to allow responsible planning by the Town of Wareham.

B. Research Design

1. Theory

The archaeological potential of the project area was developed by analyzing all of the environmental and topographic characteristics of the area, the previously recorded archaeological sites, and an analysis of the distribution of identified prehistoric resources both within two kilometers of the project area and in Wareham in general, and the documentary records relating to the town and specifically to the project area. A walkover survey was also conducted on the parcel to identify areas of disturbance. A predictive model was developed to identify which portions of the area have the highest potential for containing prehistoric or historic archaeological resources. The following variables were taken into account for assessing prehistoric sensitivity: proximity to water, soil characteristics and drainage, slope, and disturbance.

This model relies on the work of Dincauze and Meyer who in 1977 compiled data on site location in Essex and Middlesex counties and found that 47% and 76% respectively, of the identified sites occupy land with less than an 8% slope on excessively well-drained soils, while 10-20% lie on well drained soils on 8-15% slopes. Kenyon and McDowell developed a model in 1983 studying the distribution of sites along the Merrimack River drainage basin. They found 30% of the sites occurring on alluvial deposits, 40% on river terraces, and 20% on fluvioglacial deltas, outwash, and lakebeds (Kenyon and McDowell 1983). Almost 90% of the sites were situated within 1000 m. of the river, with 60% situated within 200 m. of the river, and 75% of these at no more than 20 m. in elevation above the river. This study concluded that during both

the Archaic and Woodland Periods, sites were situated close to the river on alluvial or terrace settings.

2. Method

The planned number of test pits was 317. Proposed testing locations and areas of disturbance are shown in **Figure 11**. Two hundred seventy-three of these test pits were to be placed on 21 30-m-square blocks, each containing 13 test pits. Twelve pits were to be placed on two transects, and the remaining 32 were judgmental test pits to be used to define artifact concentrations or to test areas not covered by the blocks if necessary. Testing was carried out in the area immediately around the school and in the athletic field to the north. These areas were expected to have been previously disturbed, but, because of the possibility of encountering pit features that may extend into the subsoil (e.g. burials, storage and cache pits), it was felt that determining the degree and depth of disturbance in these areas would be important at the intensive survey level for the evaluation of the integrity of the overall project area. Bracket testing at a five meter intervals oriented to true north was completed around test pits containing prehistoric or historic cultural material pre-dating the 20th century. Bracket test pits were also placed around artifact-bearing units located at the periphery of the blocks and around judgmental test pits until surrounded by sterile test pits.

Prehistoric sites as well as historic limited activity areas are often fairly small, and a block testing strategy has been found to be effective at identifying such sites. The types of sites that may be encountered include prehistoric or historic, small temporary resource procurement or refuge related encampments with activity areas and historic, temporary resource procurement areas with limited refuse scatters which have a high degree of likelihood of being encountered by using this testing strategy.

Artifacts collected during the intensive survey were cleaned, identified, described, and cataloged for analysis at the New Bedford office of PARP. The artifacts were then placed in labeled acid-free plastic bags and then acid-free boxes for curation at the Public Archaeology Laboratory, in Pawtucket, Rhode Island. The original excavation forms, maps, catalog sheets, and a copy of the final report on acid-free archival quality paper all accompany the artifacts to the curation facility. The Plymouth Archaeological Rediscovery Project retains copies of all documentary material in its project files.

Project personnel consisted of Craig S. Chartier (Principal Investigator), Gregory F. Walwer (Co-Principal Investigator), and Blaine Borden (Field Technician). Chartier was tasked with the preparation of permit application research design and testing strategy, permit application editing, and quality control, background research, graphic production, field surveying, field photography, laboratory processing, artifact cataloging, and contributing to the interpretation, conclusion and recommendation portions final report. Walwer assisted in the preparation of the field work results and artifact analysis portions of the final report, contributed to the interpretation, conclusion and recommendation portions of the final report, edited the graphics and cartographic materials based on field survey results, and coordinated the layout, editing, and formatting of the

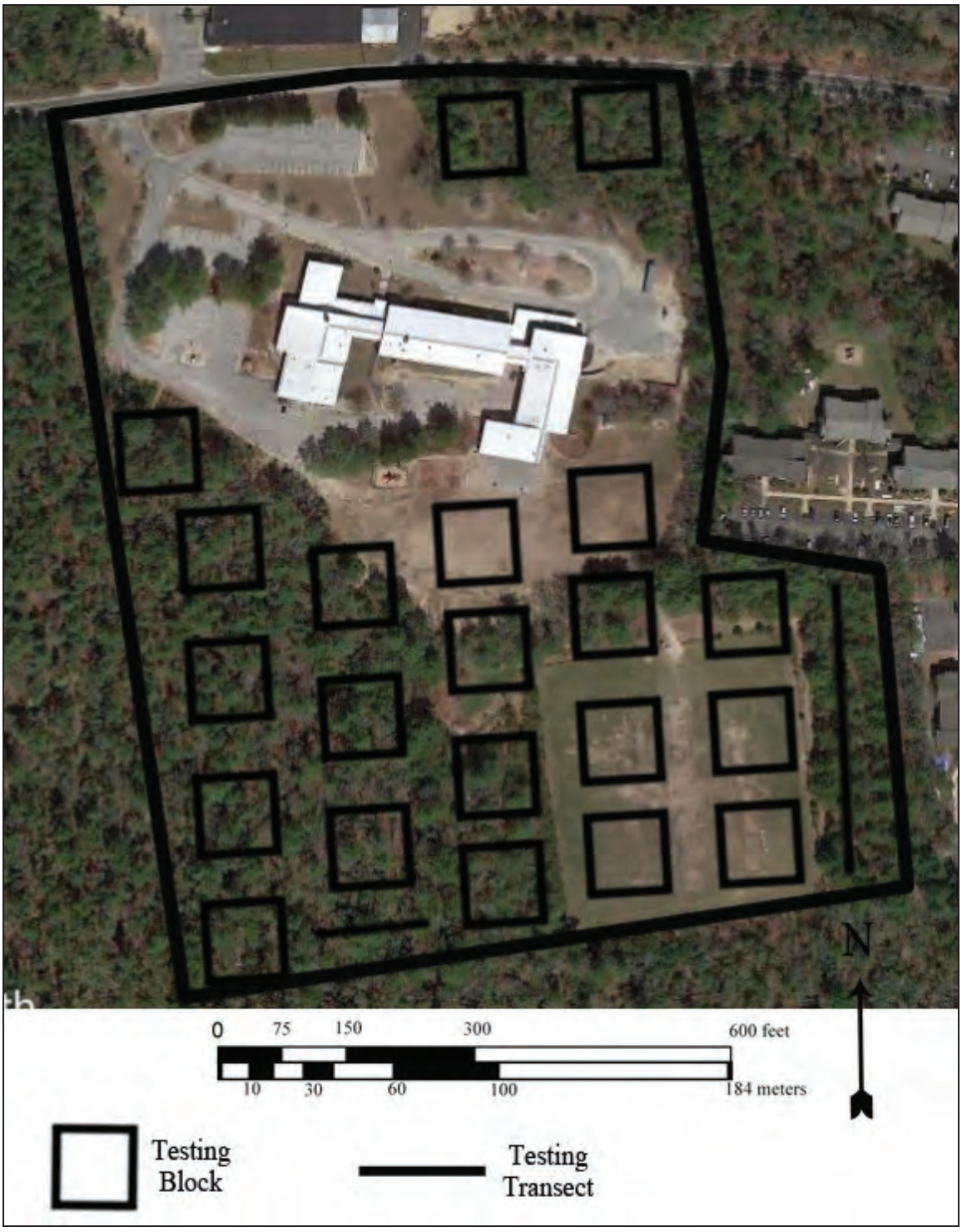

Figure 11. Proposed archaeological testing.

final report. Borden assisted in the field work portion of the project under the direction of, and in conjunction with, Chartier.

3. Results of the Intensive Survey

A total of 278 50-cm-square shovel test pits were excavated, arranged in 20 30-m blocks, two transects, one judgmental test pit (JTP), and six bracket test pits **(Figure 12)**. One of the blocks of tests originally proposed was eliminated as it was found to lie on the northern slope of a portion of Brandy Hill that had been previously disturbed during the construction of the school. The Principal Investigator and field crew carried out the fieldwork. All test pits were 50 x 50 cm. in size and dug to sterile C1 horizon soil, approximately 50-60 centimeters below surface (cmbs). All soils were screened through quarter-inch mesh screens and examined for cultural material. All test pit locations, stratigraphy, and contents were recorded on field forms and maps. All soil colors were recorded using Munsell Soil Color Charts. Artifacts will be curated at the Public Archaeology Lab, Pawtucket, RI. Martin Hendricks, a tribal cultural resource monitor from the Mashpee Tribal Historic Preservation Department, was present during the fieldwork.

The northeastern and southwestern parts of the project area, and a strip of land separating the yard south of the school from the athletic field, are wooded with second growth white pine and red oak **(Figure 13)**. The previously constructed elementary school and its associated infrastructure occupy much of the northern portion of the project area. A part of Brandy Hill was removed when the school was constructed, resulting in a bluff running east to west across the southern side of the south parking lot and between the south yard of the school and the athletic field **(Figures 14** and **15)**.

Three types of soil stratigraphy were identified across the project area: undisturbed, unfilled soils; undisturbed soil profiles buried beneath fill; and substantially impacted soil profiles exhibiting soils stripped to the C1 horizon. Undisturbed, unfilled profiles were found in blocks 1-9, 12, 13, 15, Transect 1, and portions of blocks 11 and 18. Undisturbed profiles buried beneath fill were identified in blocks 16, 17, 19, and 20. Substantially impacted soil profiles stripped to the C1 horizon were identified in Block 10, Transect 2, and a portion of blocks 11 and 18. Representative examples of soil profiles are presented in **Figures 16** and **17**.

Intact soil profiles varied only in the amount of gravel and rock present. The typical soil profile consisted of a 4-10 cm thick A0/ duff, followed by a very dark brown (10YR2/2) loamy Ae/ Podzol that measured, on average, 4-5 cm thick. The Ae overlaid a thin, what appeared to be an unplowed dark yellowish brown (10YR4/4) loamy sand A1 horizon, that measured only 4-15 cm thick and rested upon a 10-26 cm thick yellowish brown (10YR5/6) loamy sand with gravel B1 horizon. One of the thickest A1 horizons was found in test pit B1-NE where it was 15 cm thick and could represent a plowzone. The B1 was on a 19-25 cm thick olive brown (2.5YR6/6) loamy sand B2 horizon, which overlaid the pale brown (2.5Y7/4) gravelly sand C1, which was encountered at an average depth of 50 cmbs.

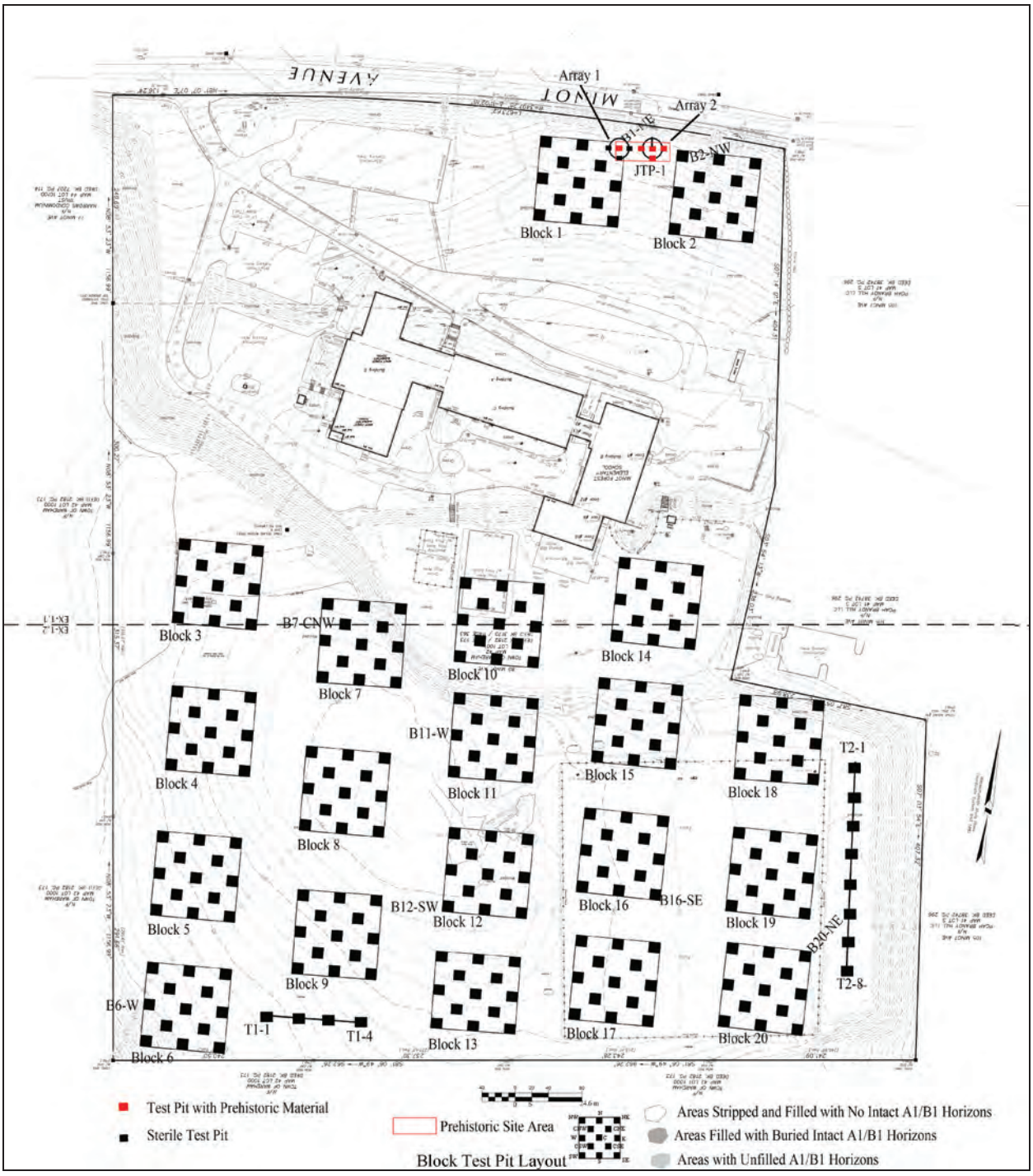

Figure 12. Testing conducted at project area.

Figure 13. Testing map showing intact/ unfilled areas, areas of buried soil horizons, and stripped/ filled areas.

Block 3 NE looking South

Block 1 NE looking south

Figure 14. Undisturbed wooded portions of the project area

Block 10-NE looking Southwest towards Block 7

Block 20-SW looking northwest towards Block 17

Figure 15. Disturbed portions of the project area

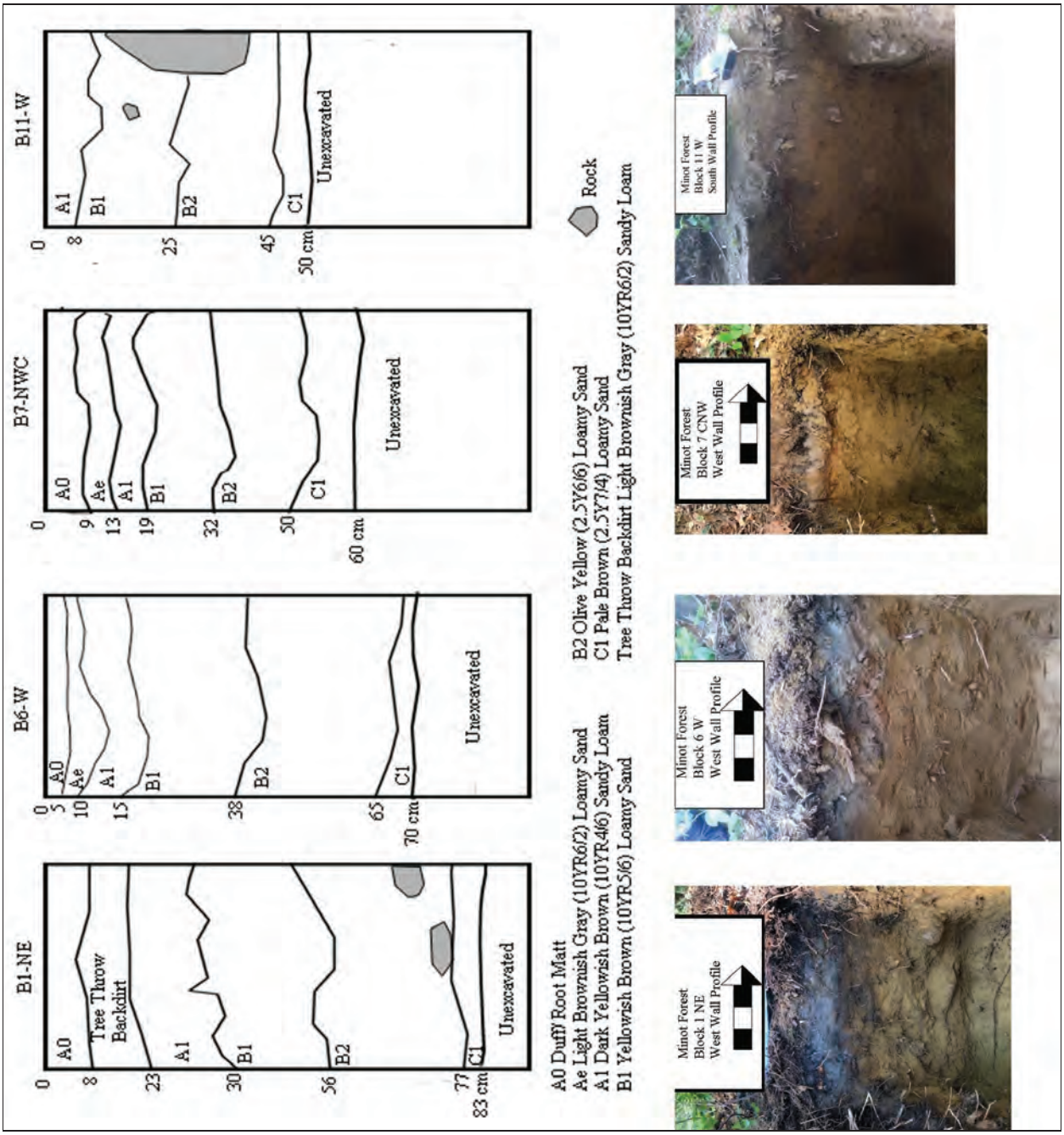

Figure 16. Representative examples of soil profiles (Scale arrow 20 cm long).

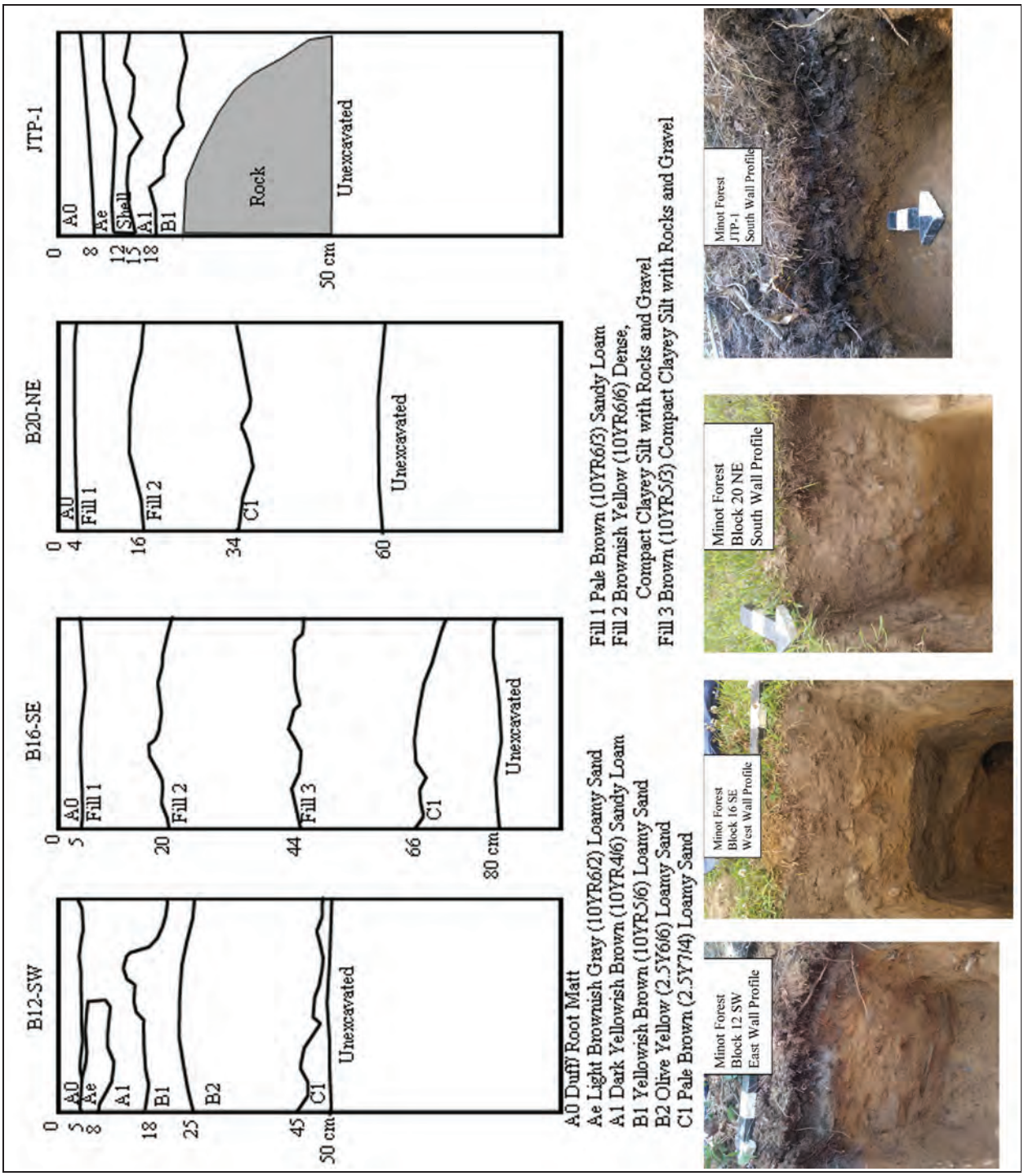

Figure 17. Representative examples of soil profiles (Scale arrow 20 cm long).

The soil profile for test pits with undisturbed layers buried beneath fill consisted of an approximate 5 cm thick A0 horizon that overlaid a pale brown (10YR6/3) sandy loam topsoil fill. This topsoil overlaid an approximate 20-24 cm thick, brownish yellow (10YR6/6) dense, compact clayey silt fill layer with a heavy concentration of rocks and gravel. This fill layer overlaid another fill layer that was a brown (10YR5/3) dense, compact clayey silt fill layer with less rock and gravel, extending to approximately 34-66 cmbs on average. The intact soil horizons were encountered below this third fill layer.

Soil profiles for test pits in areas that had been stripped and filled, consisted of the same fill layers described above, ending on the pale brown (2.5Y7/4) C1 horizon.

Only one systematic test pit, Block 1-NE (B1-NE), yielded any cultural material, a single rhyolite flake in the 20-30 cmbs level **(Table 3)**. Array 1 was placed around B1-NE, with pits spaced five meters to the south, east, and west of it. No pit was dug to the north of B1-NE due to the slope down to Minot Avenue. No additional cultural material was found in the bracket test pits of B1-NE. No soil anomalies were encountered in the test pit B1-NE or any of the bracket test pits around it.

Examination of a tree throw located between Block 1-NE and Block 2-NW revealed the presence of a shell deposit on the north side of a glacial erratic **(Figure 18)**. This deposit was tested with JTP-1 **(Figure 19).** The soil profile in this test pit consisted of 8 cm of A0 followed by an Ae horizon to 12 cmbs. The shell deposit was located immediately below the Ae in the upper portion of the A1 horizon, consisting of a 3 cm thick layer of soft shell clam, quahog, and oyster shell. An intact dark yellowish brown (10YR4/6) sandy loam A1 horizon was immediately below the shell, extending to a depth of 18 cmbs. This rested on a yellowish brown (10YR5/6) B1 horizon. The test pit was terminated due the presence of a large rock **(Figure 20)**. Array 2 was placed around JTP-1, with pits spaced five meters to the south, east, and west of JTP-1. As with Array 1, no pit was dug to the north of JTP-1 due to the slope down to Minot Avenue.

A total of 485 artifacts were recovered. This assemblage consisted of one rhyolite flake from B1-NE; and 460 pieces of shell and one quartzite flake from JTP-1; six pieces of shell, one rhyolite flake and one piece of quartz shatter from JTP-1-E; ten pieces of quartz shatter from JTP-1-S; one quartzite flake and one piece of quartz shatter from JTP-1-W; and two quartz shatter and a quartz flake from the tree throw immediately south of JTP-1-S **(Table 3) (Appendix A)**. Soil profiles for Array 2 test pits (JTP1-E, JTP1-W, and JTP1-S) are presented in **Figure 21.**

Because of the stratigraphic position of the shell on top of the A1 horizon and directly below the Ae, it is unclear if the shell deposit at JTP-1 is directly associated with the lithic debitage or represents a more recent historic deposit. The site may represent a small lithic reduction locus possibly associated with the larger Car Tracks / Agawam Village Site (19-PL-188) to the northeast. It is estimated to measure at least 20 meters east to west and nine meters north to south, being bound on the north by Minot Avenue and on the remaining sides by sterile test pits.

Table 3. Distribution of recovered artifacts.

Location	**Soil Horizon**	**Depth**	**Artifact**
B1-NE	A1	20-30 cm	1 Rhyolite Chipping Debris
JTP-1	Disturbed Soil		394 Shell Fragments
	Disturbed Soil		1 Quartzite Chipping Debris
	A1	0-10 cm	51 Shell Fragments
	A1	10-20 cm	15 Shell Fragments
JTP-1-E	A1	10-20 cm	1 Rhyolite Chipping Debris
	A1	10-20 cm	1 Quartz Shatter
	A1	10-20 cm	6 Shell Fragments
JTP-1-S	A1	10-20 cm	10 Quartz Shatter
JTP-1-W	A1	10-20 cm	1 Quartzite Chipping Debris
	B1	20-30 cm	1 Quartz Shatter
Tree Throw	Disturbed Soil		2 Quartz Shatter
	Disturbed Soil		1 Quartz Chipping Debris

Figure 18. Shell deposit visible in tree throw prior to placement of JTP-1 (Scale arrow 20 cm long) (Note: Archaeologists made sure that photographic board was placed so as not to obscure any part of the shell visible on the surface).

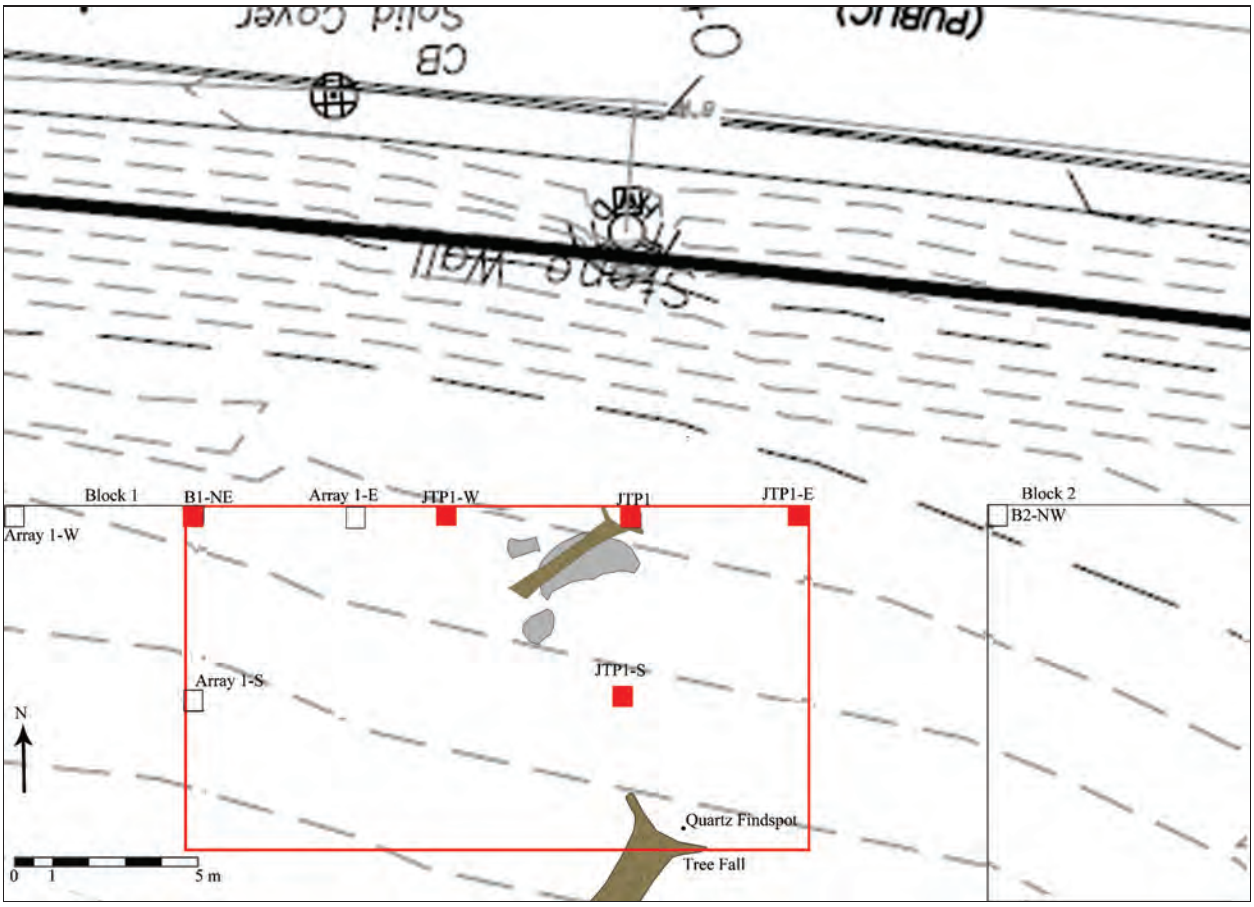

Figure 19. Testing around JTP1.(Note: red box encompasses the site area where archaeological material was recovered).

The prehistoric site is located in an area that is not slated for development, and it is recommended that the area be avoided. If avoidance is not possible, it is recommended that a site examination be carried out to further evaluate the site and determine if it is eligible for inclusion in the National Register of Historic Places.

Figure 20. Glacial erratic located just south of JTP-1 (Scale arrow 20 cm long).

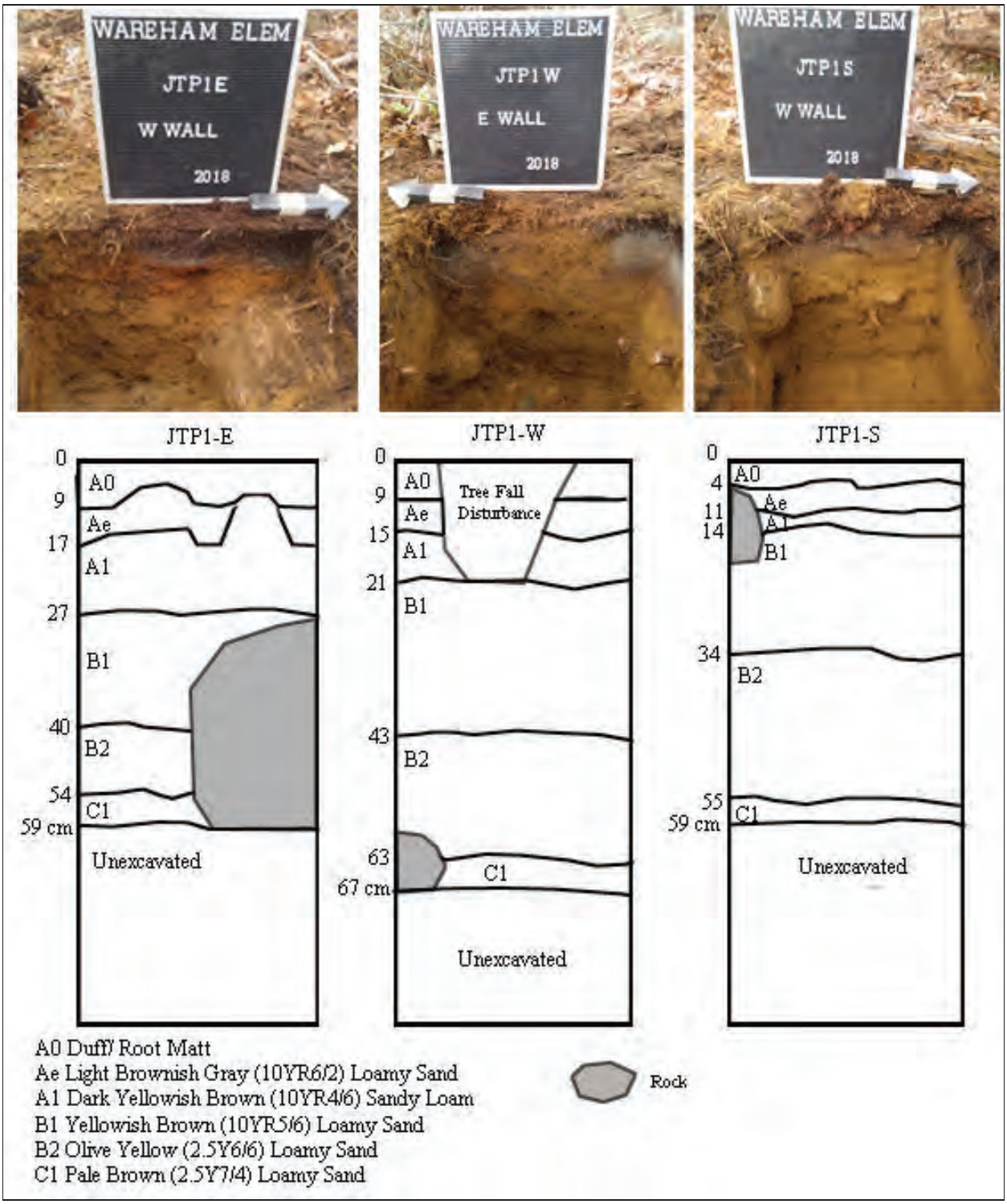

Figure 21. Soil profiles for JTP-1E, JTP-1S, and JTP-1W (all of which contained prehistoric artifacts).

VI. CONCLUSIONS AND RECOMMENDATIONS

PARP conducted an intensive archaeological survey at an approximate 22 acre parcel off of Minot Avenue in Wareham, Massachusetts, on the site of the present Minot Forest Elementary School. The Town of Wareham is proposing to replace the school with a new elementary school building and athletic fields. The project area is located near several archaeological sites and was considered to have a high probability for containing archaeological remains relating to the use of wetlands associated with the Agawam River in the form of resource procurement and habitation sites by Native peoples. The goal of the survey was to identify and locate potentially significant historic or archaeological resources that may be affected by the proposed project and to provide information to avoid, minimize, or mitigate adverse effects to such resources (950 CMR 71).

A total of 278 50-cm-square shovel test pits were excavated, with no historic cultural material being recovered. A small shell deposit and lithic scatter were identified in a wooded and undeveloped portion of the property at the northeastern corner of the project area. Extensive fill deposits and areas of soil stripping associated with the original construction of the school and its infrastructure were also identified.

The prehistoric site is located in an area that is not slated for development, and it is recommended that the area be avoided. If avoidance is not possible, it is recommended that a site examination be carried out to evaluate the site and to determine if it is eligible for inclusion on the National Register of Historic Places. The remainder of the project area is not considered to be archaeologically significant. No further work is recommended for the remainder of the project area.

Human remains have been previously encountered in the general area at least twice - once when a waterline was being laid in 1965 for the Minot Forest School, and more recently during site examination testing to the north of the current project area. The school sits on Brandy Hill, and at other locations (such as the Conant's Hill Site in West Wareham), Native burials were discovered on the hill associated with the village location, so it is possible that Native people were buried on Brandy Hill as well. If human remains are encountered during construction, then the procedures outlined in Massachusetts Unmarked Burial Law (Massachusetts General Laws c.7, s.38A; c.38, s.6; c.9, ss.26A & 27C; and c.114, s.17; all as amended) should be followed, and no State Archaeologist permitee is authorized to excavate human skeletal remains without obtaining a Special Permit (950 CMR 70.20). In the event that human skeletal remains are encountered, construction should cease, and the contractor should consult first with the state medical examiner, the MHC, and the Town of Wareham about further procedures. The remains should be left in place and covered, and the site should be secured until the appropriate officials can determine the proper course of action. No definite or potential human remains, grave-related artifacts, or soil samples that may have come from a grave should be removed from the site without prior consultation with the MHC and the Commission on Indian Affairs.

While the exact find spot of the remains uncovered in 1965 could not be determined by the background research conducted for this project, their location was most probably somewhere along Minot Avenue or the present driveway into the school. It is recommended that an archaeological monitor be present during any excavation activities that are planned to occur on the north side of the project area between the present parking lot and Minot Avenue (along Minot Avenue, along the route of the present driveway, or along the route of any proposed driveway).

In their comment letter dated November 6, 2018, MHC recommendations for avoidance and protection of the archaeological site were as follows:

"A qualified professional archaeologists shall stake the boundaries of the archaeological site, and the boundaries shall be surveyed and plotted by a licensed civil engineer. A temporary, high visibility protective fence (such as a snow fence or plastic fence) shall be placed prior to construction around the boundaries of the archaeological site, and the protective fence shall be posted with 'No Trespassing' signs. Suitable language shall be included in contract and construction documents to prevent inadvertent impacts to the fragile archaeological site. Construction personnel and contractors shall be informed verbally and in writing that the fenced area is a 'no impact area.' construction personnel and contractors should neither perform nor permit any tree cutting or tree stumping, construction, excavation, grading, filling, dumping, or the storage or staging of equipment, vehicles, supplies, or debris within the boundaries of the fenced area. No unauthorized artifact collecting or archaeological investigation shall be permitted within the fenced area, other than for which the Massachusetts State Archaeologist has issued an archaeological field investigation permit (950CMR70). The fenced area shall remain in its existing natural condition, and the Massachusetts Historical Commission shall be consulted and provided the opportunity to review and comment on any otherwise unforeseen activities that may be proposed within the fenced area. The fence may be removed upon completion of the project." (MHC 2018a).

As shown in **Figure 4**, the proponent has proposed to fence of an area measuring approximately 50.8 m (165 feet) east to west by 18.5 m (60 feet) north to south with high visibility protective fence. The archaeological site area, identified by test pits that yielded prehistoric material and a surface find location of the same, is located close to the center of the area to be fenced off.

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APPENDIX A
Artifact Catalog

Test Pit	Horizon	Depth	Count	Material	Class	Artifact	Color	Measurement	Part
B1-NE	A1	20-30 cm	1	Lithic	Rhyolite	Flake	Dark Gray	60 degree platform angle	
								2.5 cm wide 1.6 cm long	
JTP1	Disturbed soil	Disturbed soil	25	Faunal	Shell	Soft Shell Clam			Body
JTP1	Disturbed soil	Disturbed soil	27	Faunal	Shell	Oyster			Hinge
JTP1	Disturbed soil	Disturbed soil	140	Faunal	Shell	Quahog			Body
JTP1	Disturbed soil	Disturbed soil	31	Faunal	Shell	Quahog			Hinge
JTP1	Disturbed soil	Disturbed soil	3	Faunal	Shell	Soft Shell Clam			Umbo
JTP1	Disturbed soil	Disturbed soil	8	Faunal	Shell	Soft Shell Clam			Chondrophore
JTP1	Disturbed soil	Disturbed soil	160	Faunal	Shell	Oyster			Body
JTP1	Disturbed soil	Disturbed soil	1	Lithic	Quartzite	Flake Fragment	tan/ white	2 cm wide	
JTP1	A1	0-10 cm	1	Faunal	Shell	Oyster			Hinge
JTP1	A1	0-10 cm	28	Faunal	Shell	Soft Shell Clam			Body
JTP1	A1	0-10 cm	3	Faunal	Shell	Soft Shell Clam			Chondrophore
JTP1	A1	0-10 cm	3	Faunal	Shell	Oyster			Body
JTP1	A1	0-10 cm	16	Faunal	Shell	Quahog			Body
JTP1	A1	10-20 cm	1	Faunal	Shell	Quahog			Body
JTP1	A1	10-20 cm	1	Faunal	Shell	Soft Shell Clam			Chondrophore
JTP1	A1	10-20 cm	7	Faunal	Shell	Soft Shell Clam			Body
JTP1	A1	10-20 cm	6	Faunal	Shell	Oyster			Body
JTP1-E	A1	10-20 cm	1	Lithic	Rhyolite	Flake	Purple Gray	70 degree platform angle	
JTP1-E	A1	10-20 cm	1	Lithic	Quartz	Shatter	White/ Clear	2 cm long	
JTP1-E	A1	10-20 cm	4	Faunal	Shell	Oyster			Body
JTP1-E	A1	10-20 cm	2	Faunal	Shell	Quahog			Body
JTP1-S	A1	10-20 cm	1	Lithic	Quartz	Shatter	Clear/ White	2.2 cm long	
JTP1-S	A1	10-20 cm	1	Lithic	Quartz	Shatter	Clear/ White	2 cm long	
JTP1-S	A1	10-20 cm	1	Lithic	Quartz	Shatter	Clear/ White	2.6 cm long	
JTP1-S	A1	10-20 cm	1	Lithic	Quartz	Shatter	Clear/ White	1.2 cm long	
JTP1-S	B1	20-30 cm	1	Lithic	Quartz	Shatter	White/ Clear	3.2 cm long	
JTP1-S	B1	20-30 cm	1	Lithic	Quartz	Shatter	White/ Clear	2 cm long	
JTP1-S	B1	20-30 cm	1	Lithic	Quartz	Shatter	White/ Clear	1.1 cm long	
JTP1-S	B1	20-30 cm	1	Lithic	Quartz	Shatter	White/ Clear	1.7 cm long	
JTP1-S	B1	20-30 cm	1	Lithic	Quartz	Shatter	White/ Clear	2.5 cm long	
JTP1-S	B1	30-40 cm	1	Lithic	Quartz	Shatter	White/ Clear	2.5 cm long	
JTP1-W	A1	10-20 cm	1	Lithic	Quartzite	Flake	Tan	50 degree platform angle	
								1.3 cm long1.5 cm wide	
JTP1-W	B1	20-30 cm	1	Lithic	Quartz	Shatter	White/ Clear	2 cm long	

Tree Throw	Disturbed soil	7m S of JTP1-E	1	Lithic	Quartz	Shatter	White/ Clear	2 cm long	
Tree Throw	Disturbed soil	7m S of JTP1-E	1	Lithic	Quartz	Flake Fragment	White/ Clear	1.6 cm long	
Tree Throw	Disturbed soil	7m S of JTP1-E	1	Lithic	Quartz	Shatter	White/ Clear	1.1 cm long	

APPENDIX B

1. SITE UTILITY PLAN – ANNOTATED FOR MHC
2. SITE LOGISTICS PLAN – ANNOTATED FOR MHC

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LEGEND:

- PROPOSED STORM DRAINAGE LINE
- PROPOSED ROOF DRAIN LINE
- PROPOSED UNDERDRAIN LINE
- PROPOSED WATER LINE
- PROPOSED FIRE PROTECTION LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED FORCE MAIN
- PROPOSED KITCHEN WASTE LINE
- PROPOSED SCIENCE WASTE LINE
- PROPOSED GAS LINE (BY OTHERS)
- PROPOSED UNDERGROUND ELECTRIC LINE
- PROPOSED OVERHEAD ELECTRIC LINE
- PROPOSED TELEPHONE LINE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM DRAINAGE MANHOLE
- PROPOSED WATER QUALITY UNIT
- PROPOSED TRENCH DRAIN
- PROPOSED CATCH BASIN
- PROPOSED DOUBLE CATCH BASIN
- PROPOSED AREA DRAIN
- PROPOSED WINDOW WELL DRAIN
- PROPOSED DOWNSPOUT (DISCHARGE AT GRADE)
- PROPOSED PROPOSED ROOF LEADER
- PROPOSED CLEANOUT
- PROPOSED HYDRANT
- PROPOSED POST INDICATOR VALVE
- PROPOSED GAS GATE VALVE
- PROPOSED WATER GATE VALVE
- PROPOSED TAP AND SLEEVE VALVE
- PROPOSED CORPORATION STOP
- PROPOSED DRYWELL W/ GRATE
- PROPOSED DRYWELL W/ COVER
- PROPOSED LIGHT FIXTURE (SEE ELECTRICAL DWGS)
- PROPOSED UTILITY POLE (SEE ELECTRICAL DWGS)
- LIMIT OF WORK
- PROTECTIVE FENCING

NORTH ARROW

CONSULTANTS

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REVISIONS

PROJECT PHASE
MASSACHUSETTS HISTORICAL COMMISSION (MHC)

PROJECT NUMBER
SCI # 17212.00

PROJECT NAME/LOCATION
WAREHAM ELEMENTARY SCHOOL PROJECT
63 MINOT AVENUE
WAREHAM, MA

DRAWING TITLE
PROTECTION PLAN

MVG
MOUNT VERNON GROUP ARCHITECTS
200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880
781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

STAMP

DRAWING INFORMATION

SCALE	1" = 40'
DRAWN BY	MEK
CHECKED	SRG
DATE	FEBRUARY 15, 2019

DRAWING NUMBER
PP-1.1

LEGEND:

- PROPOSED STORM DRAINAGE LINE
- PROPOSED ROOF DRAIN LINE
- PROPOSED UNDERDRAIN LINE
- PROPOSED WATER LINE
- PROPOSED FIRE PROTECTION LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED FORCE MAIN
- PROPOSED KITCHEN WASTE LINE
- PROPOSED SCIENCE WASTE LINE
- PROPOSED GAS LINE (BY OTHERS)
- PROPOSED UNDERGROUND ELECTRIC LINE
- PROPOSED OVERHEAD ELECTRIC LINE
- PROPOSED TELEPHONE LINE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM DRAINAGE MANHOLE
- PROPOSED WATER QUALITY UNIT
- PROPOSED TRENCH DRAIN
- PROPOSED CATCH BASIN
- PROPOSED DOUBLE CATCH BASIN
- PROPOSED AREA DRAIN
- PROPOSED WINDOW WELL DRAIN
- PROPOSED DOWNSPOUT (DISCHARGE AT GRADE)
- PROPOSED PROPOSED ROOF LEADER
- PROPOSED CLEANOUT
- PROPOSED HYDRANT
- PROPOSED POST INDICATOR VALVE
- PROPOSED GAS GATE VALVE
- PROPOSED WATER GATE VALVE
- PROPOSED TAP AND SLEEVE VALVE
- PROPOSED CORPORATION STOP
- PROPOSED DRYWELL W/ GRATE
- PROPOSED DRYWELL W/ COVER
- PROPOSED LIGHT FIXTURE (SEE ELECTRICAL DWGS)
- PROPOSED UTILITY POLE (SEE ELECTRICAL DWGS)
- LIMIT OF WORK
- PROTECTIVE FENCING

PROGRESS DRAFT 20180518

SITE UTILITY PLAN - ANNOTATED FOR MHC

NORTH ARROW

CONSULTANTS

Samiotes Consultants Inc.
Civil Engineers + Land Surveyors
20 A Street
Framingham, MA 01701
T 508.877.6688
F 508.877.8349
www.samiotes.com

MG
Marshall | Gary LLC
17 Naumkeag Row
Danvers, MA 01923
p. 781.245.7699 c. 617.699.6644
www.mgary.com

REVISIONS

PROJECT PHASE
MASSACHUSETTS HISTORICAL COMMISSION (MHC)

PROJECT NUMBER
SCI # 17212.00

PROJECT NAME/LOCATION
WAREHAM ELEMENTARY SCHOOL PROJECT
63 MINOT AVENUE
WAREHAM, MA

DRAWING TITLE
PROTECTION PLAN

MVG
MOUNT VERNON GROUP ARCHITECTS
200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880
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APPENDIX C

1. MASSACHUSETTS HISTORICAL COMMISSION (MHC) LETTER #1_2019.02.27
2. MASSACHUSETTS HISTORICAL COMMISSION (MHC) LETTER #2_2019.02.28

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The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth

Massachusetts Historical Commission

February 27, 2019

Kimberly Shaver-Hood
Acting Chair
Wareham Elementary School Building Committee
Town of Wareham
54 Marion Road
Wareham, MA 02571

RE: Wareham Elementary School Project, Minot Forest Site, 85 Minot Avenue, Wareham.
MHC #RC.63878.

Dear Ms. Shaver-Hood:

Staff of the Massachusetts Historical Commission (MHC) have reviewed the project information prepared and submitted to the MHC by PMA Consultants, LLC (PMA), received by the MHC on February 19, 2019. The information prepared by PMA is responsive to the MHC's request for information dated February 5, 2019.

As you know, the project area is sensitive for containing unmarked graves, locations of which have not been identified. The MHC reviewed the information submitted by PMA and the MHC's files to advise the Town of Wareham regarding locations where archaeological monitoring of systematic soil stripping should occur. The goal of the archaeological monitoring is to assist to identify any locations of unmarked graves within the limits of work for the project before they are impacted. If any graves are found, then consultation will occur to consider prudent and feasible alternatives to avoid and protect graves from impact.

Figure 13 (page 38) in the final archaeological report, *Phase I Intensive (Locational) Archaeological Survey, Wareham Elementary School, Wareham, Massachusetts,* dated January 2019, indicates—with lighter and darker gray shading—the areas where intact subsoil was identified, which is where unmarked graves could be located.

There are three areas within the limits of work where archaeological monitoring should occur. The location and boundaries of the first area for monitoring are shown on the plans submitted by PMA. The locations and boundaries of the second and third areas can be determined by comparing areas within the boundaries of the limits of work which are also within the lighter and darker gray shaded areas shown on Figure 13.

The three areas are:

(1) The northwestern part of the project area where the new entrance/exit, grading, utilities, and other impacts are proposed. That location has had several previous impacts, but part of that area includes what may be the location where skeletal remains were found and removed in 1965 during construction of a waterline. The MHC agrees that archaeological monitoring should occur in the northwestern part of the project area during project-related excavation work, as indicated on the project plans submitted by PMA.

(2) The southeastern portion of the project area, where the "Grass Fields" are presently located, is within an area of buried (filled over) intact subsoil. That southeastern part of the project area is proposed for two athletic fields with underground utilities. Archaeological monitoring of systemic soil stripping should occur of the southeastern part of the project area prior to implementing the project-related excavation work for the athletic fields.

(3) The western and southwestern portions of the project area—the areas that are west and south of the base of the wooded slope—are within an area with intact subsoil. Portions of the new building, grading, utilities, and other impacts are proposed in that western and southern part of the project area. Archaeological monitoring of systemic soil stripping should occur in the western and southwestern part of the project area prior to implementing the project-related excavation work for those aspects of the project in those locations.

The archaeological report indicates that other portions of the project area within the limits of work do not have intact subsoil, having been previously impacted during the original construction of the school and after. Even so, it is possible that human skeletal remains may be found in areas with disturbed soil. Human remains from their original grave location could have been unnoticed at the time and mixed into the disturbed soils.

In the event that unmarked graves are identified during the archaeological monitoring, or if human skeletal remains are found otherwise during implementation of the project, then the discovery location should be protected, and the MHC contacted immediately so that consultation can occur.

The archaeological consultant selected to direct the soil stripping and monitor should have previous experience in identifying ancient and early historical period unmarked graves in this region. A State Archaeologist's field investigation permit (950 CMR 70) is required to be obtained by the consulting archaeologist.

The information submitted by PMA indicates that the archaeological site in the northeastern portion of the project area, designated the Minot Forest School Site (19-PL-1210), will be avoided and protected. Consequently, the project will have "no adverse effect" (950 CMR 71.07 (2)(b)(2)) on the archaeological site.

Thank you for your continued assistance and cooperation to facilities the MHC's review. These comments are offered to assist in compliance with M.G.L. Chapter 9, sections 26-27C (950 CMR 71) and the Massachusetts Unmarked Burial Law (Massachusetts General Laws, Chapter 38, Section 6; Chapter 9, Section 26A and 27C; and, Chapter 7, Section 38A; all as amended).

If you have any questions or need any information, please contact Edward L. Bell, Deputy State Historic Preservation Officer and Senior Archaeologist at the MHC.

Sincerely,

Edward L. Bell, DSHPO

for: Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc:
John Peters, Jr., Massachusetts Commission on Indian Affairs
David Weeden, Mashpee Wampanoag Tribe
Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah)
John McCarthy, Massachusetts School Building Authority
Chad Crittenden, PMA Consultants

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

February 28, 2019

Kimberly Shaver-Hood
Acting Chair
Wareham Elementary School Building Committee
Town of Wareham
54 Marion Road
Wareham, MA 02571

RE: Wareham Elementary School Project, Minot Forest Site, 85 Minot Avenue, Wareham. MHC #RC.63878.
Phase I: Abatement and Demolition; and, Athletic Fields Aspect of Project.

Dear Ms. Shaver-Hood:

Staff of the Massachusetts Historical Commission (MHC) have reviewed the additional information provided by PMA Consultants, LLC (PMA), received by the MHC on February 27, 2019.

The MHC has no objection to the implementation of the Phase I aspect of the project for abatement and demolition of the existing school building because that aspect of the project does not involve ground impacts in areas that are sensitive for unmarked graves.

Additionally, further to the MHC's comments of February 27, 2019, PMA has indicated that the project impacts for the proposed athletic field in the southeastern portion of the project area will not extend below the existing fill soils, and will not impact the intact subsoils at that location. Therefore, archaeological monitoring and soil stripping is not recommended for the proposed athletic fields aspect of the project.

The MHC looks forward to receiving a State Archaeologist's field investigation permit application (950 CMR 70) for archaeological monitoring for the two archaeologically sensitive areas within the limits of work for the project.

Thank you for your continued assistance and cooperation to facilitate the MHC's review. These comments are offered to assist in compliance with M.G.L. Chapter 9, sections 26-27C (950 CMR 71) and the Massachusetts Unmarked Burial Law (Massachusetts General Laws, Chapter 38, Section 6; Chapter 9, Section 26A and 27C; and, Chapter 7, Section 38A; all as amended).

If you have any questions or need any information, please contact Edward L. Bell, Deputy State Historic Preservation Officer and Senior Archaeologist at the MHC.

Sincerely,

for: Brona Simon
State Historic Preservation Officer
Executive Director
State Archaeologist
Massachusetts Historical Commission

xc:
John Peters, Jr., Massachusetts Commission on Indian Affairs
David Weeden, Mashpee Wampanoag Tribe
Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah)
John McCarthy, Massachusetts School Building Authority, Attn. Jennifer Flynn
Chad Crittenden, PMA Consultants

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128
www.sec.state.ma.us/mhc

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APPENDIX D

1. PAL EXCAVATION PERMIT APPLICATION

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Public Archaeology Laboratory

March 29, 2019

Brona Simon
State Archaeologist
State Historic Preservation Officer
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, Massachusetts 02125

Re: Wareham Elementary School, 63 Minot Avenue, Wareham, Massachusetts
Archaeological Monitoring and Machine Assisted Topsoil Stripping
MHC # RC.63878, PAL # 3695

Dear Ms. Simon:

Enclosed please find an application for a permit to conduct archaeological monitoring and machine assisted archaeological survey within the Wareham Elementary School project area in Wareham, Massachusetts. The project area is located on the Wareham quadrangle. We would like to begin investigations as soon as possible. Thank you in advance for your time and attention to this matter.

If you have any questions or concerns, please do not hesitate to contact Duncan Ritchie, Senior Archaeologist, or me, at your convenience.

Sincerely,

Deborah C. Cox, RPA
President

Enclosure

cc: Chad Crittenden, PMA Associates (w/encl.)

26 Main Street Pawtucket, RI 02860 | 401.728.8780 Main | 401.728.8784 Fax
palinc.com

950 CMR: DEPARTMENT OF THE STATE SECRETARY

APPENDIX B
COMMONWEALTH OF MASSACHUSETTS

SECRETARY OF STATE: MASSACHUSETTS HISTORICAL COMMISSION

PERMIT APPLICATION: ARCHAEOLOGICAL FIELD INVESTIGATION

A. General Information

Pursuant to Section 27(c) of Chapter 9 of the General Laws and according to the regulations outlined in 950 CMR 70.00, a permit to conduct a field investigation is hereby requested.

1. Name(s): Duncan Ritchie
2. Institution: The Public Archaeology Laboratory, Inc.

   Address: 26 Main Street
   Pawtucket, Rhode Island 02860

3. Project Location: Wareham Elementary School
   63 Minot Avenue Wareham, MA

   see attached proposal

4. Town(s): Wareham

5. Attach a copy of a USGS quadrangle with the project area clearly marked.

   see attached

6. Property Owner(s): Town of Wareham Public Schools
   48 Marion Road, Wareham, MA 02571

7. The applicant affirms that the owner has been notified and has agreed that the applicant may perform the proposed field investigation.

8. The proposed field investigation is for a(n):

   a. Reconnaissance Survey
   b. Intensive Survey
   c. Site Examination
   d. Data Recovery
   (e) Archaeological Monitoring and Machine Assisted Topsoil Stripping

Public Archaeology Laboratory

Technical Proposal
Wareham Elementary School
Wareham, Massachusetts

Archaeological Monitoring

March 29, 2019

Submitted to:
PMA Consultants, LLC
35 Braintree Office Hill Park
Braintree, MA 02184

The Town of Wareham is planning improvements to the existing Minot Forest Elementary School at 63 Minot Avenue in Wareham, Massachusetts (Figure 1). PMA Consultants, LLC (PMA) is assisting the Town with construction management services for this project.

Project Description

The project includes the abatement and demolition of the existing school building, construction of a new school building, a new entrance and exit to Minot Avenue, driveway and parking at the rear of the new building, installation of utilities and associated grading and landscaping (Figure 2).

The project's area of potential effect (APE) includes sections of the previously identified Minot Forest Site (19-PL-1210), which forms part of a larger pre-contact Native American archaeological site (Car Tracks Site, 19-PL-188). The Car Tracks Site extends across Minot Avenue and is known to contain evidence of occupation in the Archaic, Woodland and Contact periods, from approximately 5000 to 400 years ago.

Project Authority and Scope

In February 2019, the Massachusetts Historical Commission (MHC) reviewed additional information on the project provided by PMA Consultants, LLC. MHC noted that the project area is sensitive for unmarked graves in locations that have not been previously identified. MHC requested that archaeological monitoring be conducted within the limits of work for the project before they are impacted.

Two sections of the project area were specifically identified by MHC as locations where archaeological monitoring should occur. The first area is in the northwestern part of the project area where the new entrance and exit, grading, utility installation and other impacts are proposed. This location was previously impacted and includes the likely location south of Minot Avenue where an unmarked Native American burial with human remains were found during installation of a water main for the Minot Forest Elementary School in 1965. The location of this burial is within a recorded pre-contact Native American site (19-PL-188) (Wareham Courier, September 30, 1965; Chartier and Walwer 2018).

The second area in the western and southwestern portions of the project area are west and south of a wooded slope and contains intact subsoils. Portions of the new school building, driveway, parking

point from a coastal setting indicates that other sites dating to this period could be found in coastal locations (Loparto et al. 1987).

The Early Archaic Period (10,000 – 8000 B.P.) is characterized by a gradually warmer and drier climate in the Hypsithermal Period. This paleoenvironment was dominated by a mixed pine-hardwood forest with seasonally available and predictable food resources, allowing Native American populations to exploit a wide range of territories. Early Archaic lithic technology reflects a more diversified subsistence strategy, including beaked unifacial edge tools, cores, flakes, hammerstones, milling slabs, and notched pebble sinkers, indicating an increased utilization of plant and fish resources (Robinson 1992). Bifurcate-based points are the primary diagnostic artifact for the period.

The limited number of Early Archaic sites in the coastal zone may be due to changes in sea level since the post-glacial period that caused sites to be submerged and/or eroded by marine inundation. The loss of 20 to 30 miles of shoreline in southern New England means that sites originally situated along the coast may now be in shallow offshore waters. Early Archaic artifacts have been collected adjacent to wetlands and in riverine settings in Plymouth County. A diagnostic bifurcate-based projectile point was inventoried in the Brewer collection from the Great Herring Pond Site (19-PL-179) in Plymouth (Loparto et al. 1987).

The distribution and somewhat higher density of Middle Archaic Period (8000-5000 B.P.) sites indicates a multisite seasonal settlement system was established by this time. Site size and function ranges from large base camps near riverine wetlands and large ponds or lakes, which appear to have been used repeatedly to smaller temporary encampments. Sites from this period also appear to cluster around falls and rapids along major river drainages, where the harvesting of anadromous fish and various resources was combined with hunting (Bunker 1992; Dincauze 1976; Doucette and Cross 1997; Maymon and Bolian 1992). The seasonal use of anadromous fish species and migratory waterfowl may have developed in response to the development of socioeconomic territories defined by major river drainage basins (Dincauze and Mulholland 1977). Climatic changes continued and deciduous and coniferous forests of oak, beech, sugar maple, elm, ash, hemlock, and white pine began to emerge (Dincauze 1974).

Neville, Neville-variant, and Stark stemmed projectile points are diagnostic of the Middle Archaic Period in southern New England (Dincauze and Mulholland 1977; MHC 1984). Ground-stone technology introduced a variety of tool types into the lithic assemblage including net sinkers, plummets, grooved adzes, axes, gouges, and atlatl weights (Dincauze 1976). Excavations at Annasnappet Pond in Carver, Massachusetts have linked the use of atlatl weights to this period (Cross 1999; Doucette and Cross 1997). The presence of adzes, gouges, and axes suggests heavy woodworking and the use of dugout canoes. A preference for locally available lithic raw materials including rhyolite, argillite, shale quartz and quartzite for bifacial and unifacial stone tools is evident at many sites. Evidence from Martha's Vineyard indicates Middle Archaic Period populations were likely utilizing marine resources (Richardson 1985). Information about coastal resource use has been limited; with the rise in sea levels over the last 10,000 years most Middle Archaic coastal sites are now in offshore waters. The Agawam River Site (M415W66) to the southeast of Wareham contained a projectile point assemblage that included examples of Stark and Neville varieties. Sites 19-PL-562, 19-PL-277, and WRHL02, all in Wareham, contained Stark and related types of projectile points.

The Late Archaic Period (5000-3000 B.P.) was marked by a shift to drier and slightly warmer conditions with a significant decrease in precipitation. Oak, pine, and beech reached their full extent,

Small Stemmed, Atlantic, Susquehanna, and Squibnocket Triangle projectile points. The Agawam River Site in Wareham yielded Orient Fishtail projectile points.

The Early Woodland Period (2500–1650 B.P.) is generally underrepresented in the regional archaeological record of southern New England. Some archaeologists have suggested that a population decline occurred in the region during this period associated with any number of causal factors including unfavorable environmental conditions and unknown epidemics (Dincauze 1974; Fiedel 2001; Lavin 1988; Mulholland 1988; Snow 1981). However, the low representation may reflect a lack of recognition of Early Woodland cultural material components because of overlapping (Susquehanna and Small Stemmed) and/or poorly documented tool assemblages. Given the problems inherent in using one artifact type alone as a temporal indicator, the presence of early ceramics in conjunction with point types is used to determine Early Woodland Period occupation in the absence of radiocarbon dates. Coastal resources are believed to have become an even more important part of subsistence collecting activities and diets, as evidenced by the high frequency of known Woodland Period coastal sites in New England (Cox et al. 1983; Thorbahn and Cox 1988).

Many sites in the Plymouth area with Early Woodland components also have evidence of use during the Middle and Late Woodland periods. Sites containing Early Woodland components include the Nook Farm Garden (19-PL-532), Nook Road (19-PL-488), PCC (19-PL-787), Plimouth Plantation Spring (19-PL-522), and Powers Shell Heap (19-PL-114) Sites. Single component Early Woodland locations include the Pine Road (19-PL-170), Eel River Farm (19-PL-521), and Davis (19-PL-98) sites. In Wareham, few sites are identified as specifically occurring in the Early Woodland Period. The WRHL-03 Site yielded one Rossville projectile point and this represents the only evidence of this period.

In the Middle Woodland Period (1600 - 1000 B.P.) population may have increased and there was extensive long-distance social and economic interaction. Larger base camps in riverine and coastal settings were established in conjunction with increasing sedentism. This is supported by use of storage pit features suggesting production of bulky foods. The Middle Woodland Period is marked by the introduction of horticulture into the traditional hunting and gathering subsistence practices of human populations in the Northeast. Horticulture led to changes in subsistence, population growth, organization of labor, and social stratification (Snow 1980).

Recent studies have shown that late Middle Woodland components are marked by a high percentage of exotic lithics. This assemblage of exotic raw materials suggest that Middle Woodland populations inhabiting southern New England took part in an extensive network of social and economic contacts that extended from Pennsylvania and New York to southern New England. Pottery also became stylistically diverse, including grit-tempered coil-built vessels with stamped, incised, and dentate decoration.

The Late Woodland Period (1000 - 450 B.P.) is marked by an increase in ceramic production through improvements in technology. Some populations may still have relied solely on hunting and gathering while others turned to horticulture. Coastal areas and large semipermanent village settlements adjacent to arable lands, particularly along broad floodplains, seemed to have been preferred. Farming, however, did not preclude the continuance of seasonal rounds, and small task-specific camps are still common during this period. Larger groups sometimes lived in fortified villages, indicating the presence of complicated political alliances (Mulholland 1988). Late Woodland Period artifacts represented in the archaeological record include triangular Levanna points, cord-wrapped,

1685, at which time it was divided into the three counties of Plymouth, Barnstable, and Bristol. In 1692, Plymouth County was permanently united with the colony of Massachusetts (Barber 1839).

Development in Plymouth was largely restricted to the town center along Plymouth Bay and its immediate environs, and the area became the commercial core for the region. Roads leading out of the town were dotted with homes, but the concentration dwindled as the distance from the town center increased. The Manomet area, located east of the project area, is a large coastal hamlet encompassing approximately 25 square miles of Manomet Point. Established in 1639, Manomet is one of the earliest settlement areas in the town and was previously the site of several Native American villages. The main Indian village of Manomet probably was located on the Manomet River in what is now Bourne. There also were settlements along Beaver Dam Brook and on the shores of Fresh Pond. One of the first peripheral areas to be settled by the colonists was the fertile land to the north along Kingston and Duxbury bays, Green Harbor, and the North River. The seventeenth-century Plymouth settlement area encompassed adjacent sections of present-day Halifax, Plympton, Kingston, and Carver. The southern section of Plymouth was opened up to the Pilgrims by the Peace Treaty of 1621 with the Wampanoags.

In 1627, Plymouth, under the direction of Governor William Bradford, established a trading post at the mouth of the Manomet River called Aptuxcet. The outpost was used for trade with both the Wampanoags and the Dutch, until it was destroyed by a hurricane in 1635. The town of Plymouth began issuing land grants in Manomet in 1638, the earliest of which were issued to John Richards and Thomas Little. The Village of Manomet officially was established in 1639. The name means "trail of the burden carriers" after the short portage on the Indian trade route that ran along the coast. The first residents were farmers who left Plymouth Center in search of land, but settlement before King Philip's War was sparse.

The initial settlers in the Wareham area utilized the Native American trails and traded with the native peoples. The possibility has also been raised that European fishermen and explorers may have set up temporary camps in the Wareham area (MHC 1982). The first recorded settler in Wareham was John Bump who in 1634 settled on Cold Mackie Farm. In 1649, the Sippican lands (Rochester, Marion, Mattapoisett, and Wareham) were sold to the Plymouth settlers as pasture and wintering lands for cattle. The Agawam Purchase of 1666 was the second land purchase for 24 pounds 10 shillings and secured what is now the western portion of Wareham for the Plymouth investors. The primary settlers in the area at this time were hired overseers for the Plymouth Colony. Archaeological evidence for their presence has been recovered at several area sites, including the Car-Tracks Site on the Agawam River in Wareham, Conant Hill, and at Horseshoe Pond.

The Colonial Period began with the King Philip's War (1675–1676) and development outside of Plymouth Center was curtailed in the 1670s. The threat of attack lessened after August 1676 when the war ended and resettlement of Plymouth resumed. During the Colonial Period the two principal regional cores at Plymouth Bay and the North River expanded. Settlement within the Plymouth core grew to include population clusters in Kingston, Duxbury, and Marshfield to the north. The area's economic base relied on a combination of maritime and agricultural-related activities. Plymouth emerged at the forefront of the area's import/export shipping trade with other continental coastal ports as well as the Caribbean, Mediterranean, and England. Plymouth served as the seat of the regional colonial government throughout the 1700s.

The construction of a regional railroad system beginning in 1845 was a major factor in the establishment of the interior townships as viable economic, institutional, and social forces during the Early Industrial Period. This rail system included the Old Colony Line (1845) from Boston through Abington, South Abington (Whitman), Hanson, Halifax, Plympton, and Kingston to its terminus in North Plymouth; the Fall River Line (1846), later part of the Old Colony Rail system, from Boston through Brockton (North Bridgewater), West Bridgewater, East Bridgewater, Bridgewater, and Middleborough, where one branch continued southwest to Fall River and the other continued through Wareham to Cape Cod (MHC 1982). Railroad were built in Wareham during the 1800s which gave the manufacturers a means of readily and quickly transporting their goods to local and regional markets. The Sandwich Railroad was built in 1847 through West Wareham, Wareham Center, and East Wareham. The Cape Cod Branch Railroad was built in 1848 and its initial charter described its route from Middleborough to Buzzards Bay in terms of the Wareham Iron Works. Settlement and transportation routes in the vicinity of the project area are depicted on mid- nineteenth century atlas maps of Wareham.

For most of the Federal and Early Industrial Periods, Wareham was also dominated by iron-related industry because of the combination of excellent waterpower, ready access to the skilled workers, and a rapidly developing coastal trade in iron ore and products (MHC 1981). One of the greatest impetuses for industrial development came in the late 1700s with the discovery of bog iron in the swamps around Wareham center. The excellent waterpower in the area attracted the iron masters to the area to establish forges. Many forges and rolling mills were established by the 1820s to process the raw iron and iron smelting became a major industry. The impact of the bog iron industry on Wareham was varied and included impacts to the bog iron extraction led to creation of large open pits in the landscape. Into these pits were placed the second of the industries Wareham was to become famous for, cranberries. The iron industry also resulted in a canal being built to the Tihonet Iron Factory on the Wankinco River.

There was a building boom of mills and works along many of the major waterways in Wareham. On the Wankinco River in 1819 the nail business, which was to become the Tremont Nail Company, was established by the Pratt brothers. Cotton mills were built in 1812 on the same river by Noble Everett but were later abandoned in 1819 because of the Embargo and the War of 1812. The Weweantic River saw comparable construction in this period. A hollow-ware blast furnace was built by the Leonard brothers in 1805 and the Wareham Iron Works was built by Bartlett Murdock in 1822 (MHC 1981). Wareham's industry continued to grow until 1855 and then it saw a decline until the end of the period. An influx of Irish immigrants in the middle nineteenth century added more people to the work force. This work force began to focus on the production of nails and by 1855 the various nail companies in Wareham employed 860 men in 12 rolling, slitting, and nail mills. Together these mills produced $867,000 worth of nails hoops and bar iron. The Weweantic Nail Company was taken over by the Tremont Nail Company in 1845 and a number of nail and horseshoe mills were built in the decade before 1855.

Whale, cod, and mackerel fisheries peaked during the Early Industrial Period. The 1845 census reported six whale ships, which returned with over $100,000 worth of whale and sperm oil. The coasting business also was substantial during this period with more than 50,000 tons of goods exchanged (MHC 1981).

In the Late Industrial Period (1870–1915), a decline of industrial activity during the late nineteenth and early twentieth centuries coincided with a rise in importance of tourism to the economies of

places this excavation by Stockley and other avocational archaeologists at one or both of two knolls north of Minot Avenue within properties at 60 and 70 Minot Avenue (Chartier and Walwer 2018).

During installation of a water main for the Minot Forest Elementary School in 1965, an unmarked Native American burial with the skull of an adult and bones from a child was found. The location of this burial would have been within the section of 19-PL-188 south of Minot Avenue (Wareham Courier, September 30, 1965; Chartier and Walwer 2018).

Cultural resource management (CRM) studies conducted since 2003 have yielded more specific information about the extent of pre-contact archaeological sites on Brandy Hill and the Minot Avenue area. An intensive survey and site examination were conducted in 2003 for a proposed private development on land between Minot Avenue and the railroad easement and within the Car Tracks Site (19-PL-188). An undisturbed section of this project area yielded steatite and ceramic vessel sherds, diagnostic Late to Transitional Archaic and Early, Middle and Late Woodland period projectile points, chipping debris of numerous lithic materials, graphite paint stones and faunal remains (quahog, oyster, snail shell, fish, mammal and bird bone). The 14 identified features (refuse pits, firepit/hearths, shell deposits) included an unmarked Native American burial. Designated as Site 19-PL-1112, the burial was left in place and protected with a preservation easement. A set of 5 radiocarbon dates obtained from charcoal and shell samples ranged from 2610 +/- 30 years B.P; 2170 +/- 30 years B.P.; 1540 +/- 40 years B.P., and 770 +/-30 years B.P. to 440+/- 40 years B.P. The Car Tracks Site was found to cover an area approximately 50 by 45m in dimension bounded by wetlands, disturbed soils, the railroad easement and Minot Avenue (Chartier 2007b).

An intensive survey within a 26-acre parcel proposed as the location of a new Wareham Police station in a parcel east of the Minot Forest Elementary School identified loci of pre-contact cultural materials within this project area. Most of these loci were in proximity to a former spring head, stream drainage and wetlands. Non-diagnostic materials were projectile point (3) and bifacial tool blade (2) fragments, 189 pieces of chipping debris, two hammerstones and 5 fragments of graphite paint stones. Steatite and ceramic vessel sherds are diagnostic of the Transitional Archaic and Woodland periods and a copper or brass projectile point is of Contact or Plantation period affiliation. Calcined bone fragments identified as bird, turtle and mammal were also recovered from test pits. Post-contact artifacts included eighteenth to nineteenth century ceramic sherds, glass, structural materials (brick, machine cut nails) kaolin pipe fragments and domestic animal bone. The pre-contact site found there was registered as Site 19-PL-1030 and is considered to be a part of the Agawam/Car Tracks (19-PL-188) extending south across Minot Avenue (Chartier 2007a).

A CRM survey was conducted for a new school building and athletic fields on the Minot Forest Elementary School property. This intensive archaeological survey identified a small shell midden deposit with quartz, rhyolite and quartzite chipping debris, designated as the Minot Forest Site, and also interpreted as part of a larger pre-contact habitation area forming 19-PL-188 (Chartier and Walwer 2018). Based on a review of available information, the Wareham Elementary School project area has a high probability to contain deposits of pre-contact Native American cultural materials (stone tools, chipping debris, ceramic sherds, etc.) and features (hearth/firepits, refuse pits, shell midden, unmarked burials) associated with Site 19-PL-188.

Field Investigations

Walkover Survey

Field investigations will begin with a walkover of the project area by PAL staff to examine the two archaeologically sensitive sections, note existing conditions and plan the archaeological monitoring. Information on existing conditions will be noted on scaled project plans and with digital photography. Any surface indication of archaeological deposits will be noted during the walkover, including artifacts or other materials (shell fragments) visible on exposed soils.

While pre-contact sites in New England are most often found belowground, artifact scatters are sometimes exposed on the surface through cultural agents such as pedestrian and vehicular traffic, and natural processes such as erosion. Post-contact archaeological site types that might be visible include stone foundations, stone walls, and trash deposits.

Information collected during the archival research and walkover survey will be used to assess the archaeological sensitivity of the project area. PAL's predictive model considers various criteria to rank the potential for the project area to contain archaeological sites. The criteria are proximity of recorded and documented sites, local land use history, environmental data, and existing conditions. The project area will be stratified into zones of high, moderate and low archaeological sensitivity which will be depicted on scaled project maps.

Archaeological Monitoring

Archaeological fieldwork will be completed upon receipt of the MHC permit and will be coordinated through the proponent. Archeological monitoring will follow the sequence of construction activities in the two archaeologically sensitive areas. In the approximately 0.5-acre northwestern portion of the project area near Minot Avenue PAL staff will monitor excavation and grading associated with the new entrance and exit, location of utilities and other improvements. It is expected that a backhoe with a flat-bladed bucket will be used by the construction contractor to strip topsoil.

Within the wooded 1.5-acre parcel in the western/southwestern portion of the project area proposed for a new school building, driveway, parking and associated grading and landscaping. PAL staff will first monitor grubbing including the pulling of tree stumps. Once that task is completed, PAL staff will direct machine-assisted archaeological investigations. This will include utilizing a backhoe with a flat-bladed bucket to systematically strip the area in 20 cm increments. The surface will be shovel-scraped in order to observe any visible cultural features. Any archaeological features visible on the machine stripped surface identified by PAL or a monitor from a Tribal Historic Preservation Office (THPO) will be left intact and documented in collaboration with the THPO. PAL will photograph these features and map their locations using a Trimble GeoXT Global Positioning System (GPS) handheld receiver.

If any human remains or features determined to be unmarked graves in situ or within disturbed soils are identified during the course of machine excavation and monitoring, all work on-site will cease and the area protected. The local police, the Medical Examiner, the project proponent, and the State Archaeologist will be notified immediately. The MHC will then consult with the property owner, and the Massachusetts Commission on Indian Affairs, if appropriate, in compliance with the Massachusetts Unmarked Burial Law.

Archaeological Data (36 CFR Part 66, Appendix A) and the MHC. Draft copies of the report will be submitted to the PMA for review prior to submittal to the MHC for review. If necessary, archaeological site forms will be completed or amended and submitted to MHC. MHC will have 30 days to review and comment on the technical report once they have received it.

Project Schedule

PAL is prepared to submit the technical proposal and MHC permit application within two weeks of receipt of notice-to-proceed from PMA. The MHC has 60 days to review the application and issue the permit, although permits are generally received within 4 weeks of submittal. The research can be completed while the permit application is under review. Archaeological monitoring of soil stripping will take about one week. Based on the size of the two archaeologically sensitive areas within the Minot Forest Elementary School project area, PAL estimates the fieldwork for both areas can be completed within approximately three weeks, weather and field conditions permitting. The fieldwork completion memorandum will be submitted to PMA within two weeks after completion of fieldwork. The draft technical report will be submitted to PMA within 90 days of fieldwork completion.

Project Personnel

Archaeological investigations will be carried out under the direction of a Principal Investigator. All PAL staff meet the qualifications set by the National Park Service (36 CFR Part 66, Appendix C) for their respective positions.

Cost

A fee proposal is attached.

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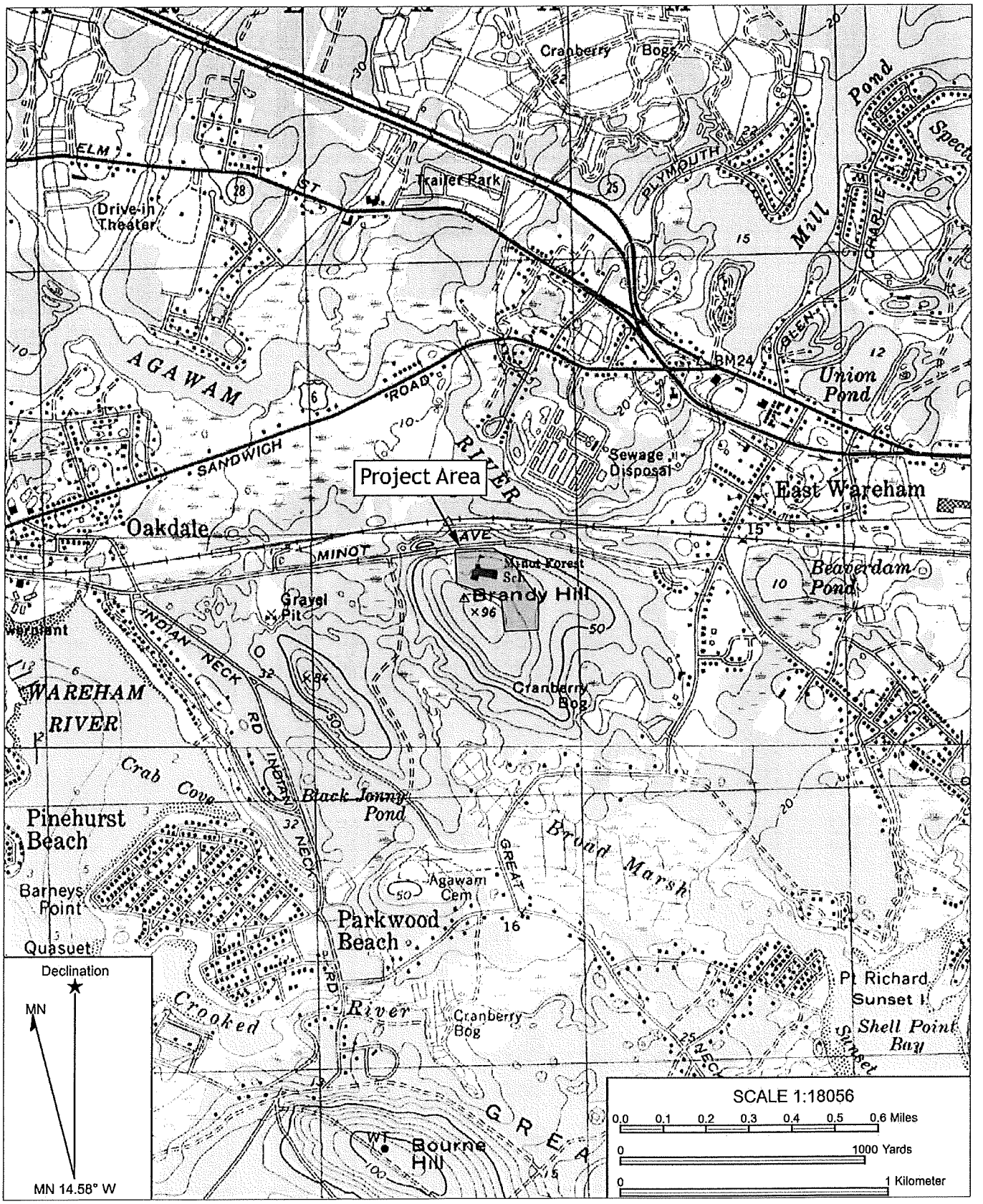

Figure 1. Location of proposed Wareham Elementary School project area on the Wareham, MA, USGS topographic quadrangle, 7.5 minute series.

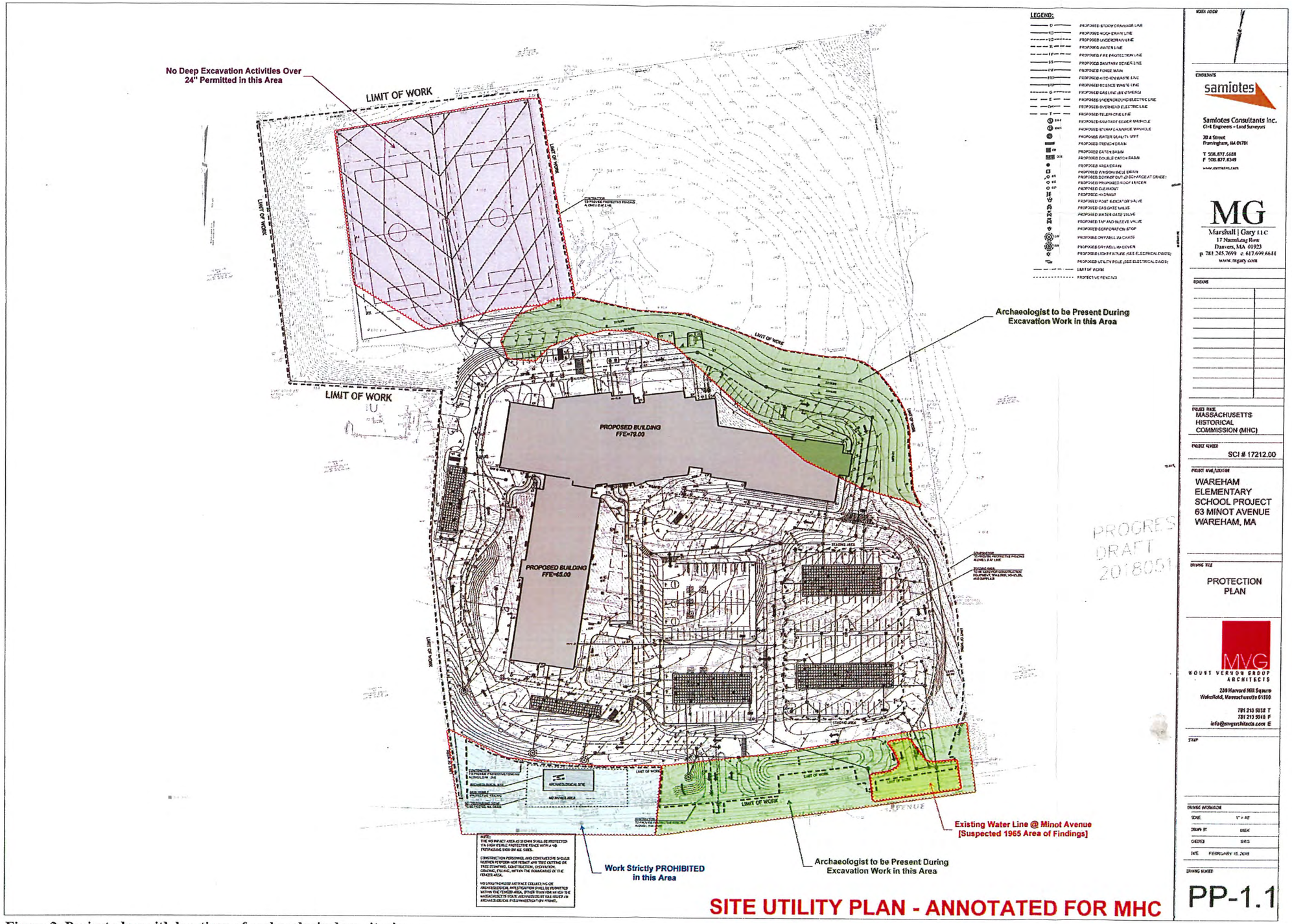

Figure 2. Project plan with locations of archaeological monitoring.

APPENDIX E

1. WAREHAM ELEMENTARY SCHOOL MHC PERMIT #3911

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The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

PERMIT TO CONDUCT ARCHAEOLOGICAL FIELD INVESTIGATION

Permit Number 3911 Date of Issue April 4, 2019

Expiration Date April 4, 2020

PAL is hereby authorized to conduct an archaeological field investigation pursuant to Section 27C of Chapter 9 of General Laws and according to the regulations outlined in 950 CMR 70.00.

New Wareham Elementary School, Minot Forest Project Site,
63 Minot Avenue, Wareham

Project Location

Brona Simon

Brona Simon, State Archaeologist
Massachusetts Historical Commission

220 Morrissey Boulevard, Boston, Massachusetts 02125
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