Woodbridge Board of Fire Commissioners
Fire District No. 1
418 School Street, Woodbridge, NJ 07095-1726

Phone: (732) 602-6050 ext. 6174 Fax: (732) 602-6043
John C. Kenny, President

Contract Documents
For:

Addition at Woodbridge Fire Headquarters

For the

Woodbridge Fire Department

418 School Street
Woodbridge, NJ 07095

Project Engineer
USA Architects
20 N. Doughty Avenue
Somerville, NJ 08876
908-722-2300

April 2024

Bid Opening: Tuesday, April 23, 2024 at 2:00 p.m.

TABLE OF CONTENTS

SECTION I

I. Introduction ………………………………………………………………... 3
II. Scope of Work…………………………………………………………... 3
III. Award of Contract …………………………………………………..… 3
IV. Change Orders………………...……………………………………… 4
V. Compensation………………………………………………………… 4
VI. Instructions to Bidders………………………………………………. 4
VII. Insurance Requirements………………………………………….. 7
VIII. Prevailing Wage Act Information………………………………….. 8
IX. Causes for Rejecting Bids…………………………………………. 9
X. Termination of Contract……………………………………………….. 10
XI. Qualifications…………………………………………………………... 10
Public Notice-Invitation for Bid…………………………………………….. 12
Mandatory Affirmative Action Language….…………………………….. 13
Americans with Disabilities Act of 1990 Language……………………………. 14
Business Registration Certificate Information…………………………….. 15
Model Public Works Withdrawal of Bids Language……………………..…………... 16

FORMS REQUIRING SIGNATURES

Bid Form……………………………………………………………………….. 17
Affirmative Action Compliance Notice ……………………………………….. 18
Stockholder Disclosure Certification ……………………………………………. 19
Non-Collusion Affidavit……..…………………………………………………. 20
Acknowledgement of Receipt of Addenda………………………………………. 21
Disclosure of Investment Activities in Iran……………………………………… 22
Equipment Certification…………………………………………………………. 23
References (Fill-in Only)………………………………………………………… 24
Subcontractor Listing……………………………………………………………. 25
Subcontractor Certification Form………………………………………………. 26
Bidders or Subcontractors Qualifications…………………………………….. 28

ADDITIONAL INFORMATION

Bid Document Checklist ………………………………………………………… 32
Attachment A-Sample Contract……………………………………………….… 33

SECTION II

Section II………………………………………………………………………. 36
Technical Specifications………………………………………………………… 245 PAGES
Drawings………………………………………………………………………… 17 PAGES

Woodbridge Board of Fire Commissioners Fire District No. 1
CONTRACT DOCUMENTS
Addition at Woodbridge Fire Headquarters

I. INTRODUCTION

The Woodbridge Board of Fire Commissioners Fire District No. 1 (Authority) will receive sealed bids for the addition at the Woodbridge Fire Headquarters building located at 418 School Street in Woodbridge, NJ 07095 as per the Technical Specifications and Drawings included herein.

Any prospective bidder who wishes to challenge a bid specification shall file such challenges in writing with the Authority no less than three business days prior to the opening of the bids. Challenges filed after that time shall be considered void and having no impact on the Authority unit or the award of a contract.

Sealed bids will be received until 2:00 p.m. prevailing time on Tuesday, April 23, 2024 at the Authority offices, 109 Green Street, Woodbridge, NJ 07095, at which time all bids will be publicly opened and read aloud.

A Pre-Bid meeting is scheduled for Wednesday, April 10, 2024 at 10:00 am at the project site, 418 School Street, Woodbridge, NJ 07095. Pre-bid meetings are not mandatory but are **strongly recommended** in order for interested parties to familiarize themselves with the project so that a more accurate bid may be submitted.

All permitting fees, if any, relating to the performance of this work will be paid for by the contractor with no expense to the Authority.

All bidders must be licensed to do business in the State of New Jersey and shall have the equipment, knowledge, capability and manpower to successfully and expertly perform the work as per the specifications contained herein.

The contractor must also demonstrate through references that they, or their principles assigned to the project, have successfully completed services similar to the Scope of Work section of these Contract Documents. Please refer to the Bidder's or Sub-Contractors Qualifications pages (included herein) for required qualifications.

The contractor must submit bids in the manner set forth in the Bid Submission section of these Contract Documents. All applicable documents must be submitted at the Bid Opening.

Contractor must be licensed and certified and insured as required by state and federal regulations.

II. SCOPE OF WORK-The scope of work, including warranty information and drawings for this project, is outlined in the technical specifications and drawings included in Section II of these Contract Documents.

III. AWARD OF CONTRACT - One contract for the work shall be awarded to the lowest responsive, responsible bidder. After the contract has been awarded, but before any work is started against the contract, the Contract Administrator shall conduct an orientation conference with the Contractor and

appropriate representatives of the Authority. The purpose of the orientation conference is to aid both Authority and Contractor personnel to achieve a clear and mutual understanding of general contract requirements. However, this conference shall not relieve the Contractor of responsibility for complying with any of the terms and conditions of the contract.

In the rare event of equal bids, where two or more low bids are considered equal in all respects, the award will be decided by drawing lots in the presence of the bidders who submitted the tie bids.

If the post-award orientation is held, the Contract Administrator will provide specific details regarding the date, time, and location of the conference, and information regarding the items/topics to be discussed.

After the contract has been awarded, the Authority may at its sole discretion assign the contract, in whole or in part, to an affiliate or instrumentality of the Authority or an entity controlled by the Authority, its affiliate, or its instrumentality. Assignment of the contract by the Authority does not relieve the Contractor of responsibility for complying with any of the terms and conditions of the contract. The Authority's right to assign the contract is unilateral and does not create any assignment rights for the Contractor.

IV. CHANGE ORDERS - If, during the course of work, the Contractor encounters unforeseen conditions which impact the work and which could not initially be evaluated, the Contractor shall not proceed without written authorization from an authorized Authority representative. If price is affected, the Contractor and the Authority must agree upon a change order which states an agreement between the Contractor and the Authority for:

1. A change in work
2. The amount of the adjustment in Contract Sum
3. The amount of the adjustment in Contract Time

Once the change order has been approved and properly procured, Contractor will receive written authorization to continue.

V. COMPENSATION - The Form of Bid included herein shall be completed in its entirety and submitted by the bidder. Requests for periodic payments to the contractors shall be discussed before the award of the contract.

VI. INSTRUCTIONS TO BIDDERS

A. General: All bidders shall follow the following instructions:

1. All bids must be delivered by mail or in person to the Authority, 109 Green Street, Woodbridge, NJ 07095 by the due date and time. All late bids received by the Authority shall be returned unopened to the Bidder.
2. To ensure fair consideration for all bidders, the Authority prohibits communication to or with any employee of the Authority during the submission process. Additionally, the Authority prohibits communications initiated by a bidder to **any** Authority official or employee evaluating or considering the proposals before the time an award decision has been made. Any communication between bidder and the Authority will be initiated by the appropriate Authority official or employee in order to obtain information or clarification needed to develop a proper, accurate evaluation of the bid. Such communications initiated by a bidder may be grounds for disqualifying the offending bidder from consideration for award of the bid and/or any future bid.

3. In order to be acceptable, **one (1) copy of the bid must be submitted in a sealed envelope on the outside of which shall be plainly marked "Addition at Woodbridge Fire Headquarters", together with the name and address of the firm submitting the bid.** Bids will be received until **2:00 p.m.** or hand delivered no later than **2:00 p.m.** on April 23, 2024 at which time they will be publicly opened and read aloud at the offices of the Authority, 109 Green Street, Woodbridge, NJ 07095.
4. A copy of the contract to be entered into with the successful bidder is included as Attachment "A".

B. Submission Requirements: The following **must** be submitted with your bid:

1. A signed and notarized Stockholder Disclosure Certification (included herein):

N.J.S.A. 52:25-24.2 provides that no corporation or partnership shall be awarded any contract for the performance of any work or the furnishing of any goods and services, unless, prior to the receipt of the bid or accompanying the bid of said corporation or partnership. Bidders shall submit a statement setting forth the names and addresses of all stockholders in the corporation or partnership who own ten percent or more of its stock of any class, or of all individual partners in the partnership who own a ten percent or greater interest therein. The included Statement of Ownership shall be completed and attached to the bid proposal. This requirement applies to all forms of corporations and partnerships, including, but not limited to, limited partnerships, limited liability corporations, limited liability partnerships and Subchapter S corporations. Failure to submit a stockholder disclosure document shall result in rejection of the bid.

2. A signed and notarized Non-Collusion Affidavit (included herein).

3. A Business Registration Certificate-for more information visit http://www.state.nj.us/treasury/revenue/busregcert.htm. N.J.S.A. 52:32-44 requires that each bidder (contractor) submit proof of business registration before contract award. Proof of registration shall be a copy of the bidder's Business Registration Certificate (BRC). A BRC is obtained from the New Jersey Division of Revenue. Information on obtaining a BRC is available on the internet at www.nj.gov/njbgs or by phone at (609) 292-1730. N.J.S.A. 52:32-44 imposes the following requirements on contractors and all subcontractors that **knowingly** provide goods or perform services for a contractor fulfilling this contract:

1) The contractor shall provide written notice to its subcontractors and suppliers to submit proof of business registration to the contractor;
2) Prior to receipt of final payment from a contracting agency, a contractor must submit to the contacting agency an accurate list of all subcontractors or attest that none was used;
3) During the term of this contract, the contractor and its affiliates shall collect and remit, and shall notify all subcontractors and their affiliates that they must collect and remit to the Director, New Jersey Division of Taxation, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into this State.

A contractor, subcontractor or supplier who fails to provide proof of business registration or provides false business registration information shall be liable to a penalty of $25 for each day of violation, not to exceed $50,000 for each business registration not properly provided or maintained under a contract with a contracting agency. Information on the law and its requirements is available by calling (609) 292-9292.

4. The Bid Breakdown (Bid Form) (included herein). Failure to submit the bid breakdown shall result in rejection of the bid.

5. A Bid Guarantee- Bidder shall submit with the bid a certified check, cashier's check or bid bond in the amount of ten percent **(10%)** of the total price bid, but not in excess of $20,000, payable unconditionally to the owner. When submitting a Bid Bond, it shall contain Power of Attorney for full amount of Bid Bond from a surety company authorized to do business in the State of New Jersey and acceptable to the owner. The check or bond of the unsuccessful bidder(s) shall be returned pursuant to N.J.S.A. 40A:11-24a. The check or bond of the bidder to whom the contract is awarded shall be retained until a contract is executed and the required performance bond or other security is submitted. The check or bond of the successful bidder shall be forfeited if the bidder fails to enter into a contract pursuant to N.J.S.A. 40A:11-21.

Failure to submit a Bid Guarantee shall result in rejection of the bid.

6. Consent of Surety-Bidder shall submit with the bid a Certificate (Consent of Surety) with Power of Attorney for full amount of bid price from a Surety Company authorized to do business in the State of New Jersey and acceptable to the owner stating that it will provide said bidder with a Performance Bond in the full amount of the bid. This certificate shall be obtained in order to confirm that the bidder to whom the contract is awarded will furnish Performance and Payment Bonds from an acceptable surety company on behalf of said bidder, any or all subcontractors or by each respective subcontractor or by any combination thereof which results in performance security equal to the total amount of the contract, pursuant to N.J.S.A. 40A:11-22. The Department of the Treasury's Listing of Approved Sureties may be obtained at http://www.fms.treas.gov/c570/c570_a-z.html .

Failure to submit a Consent of Surety form shall result in rejection of the bid.

7. A signed Acknowledgement of Receipt of Addenda (included herein)-Bidders shall submit this form whether or not an addendum has been issued.

Failure to submit an Acknowledgement form shall result in rejection of the bid.

8. Public Works Contractor Registration Certificate-The Public Works Contractor Registration Act (PWCRA) requires that all contractors, including named subcontractors, be registered with the Department of Labor as a Public Works Contractor at the time of the bid opening for contracts over the prevailing wage threshold. The prevailing wage threshold is $2,000 for all non-municipal entities, such as boards of education, authorities, fire districts, counties, etc. Please see Section IX for more information.

9. Affirmative Action Compliance Notice (included herein)

10. References Please submit at least 3 comparable references.

11. Listing of Subcontractors/Subcontractor Certification Form (included herein)-Pursuant to N.J.S.A. 40A:11-16 et. seq., a list of all subcontractors to be used for this project shall be included with the bid, including the subcontractors' business registration certificates. All subcontractors must be licensed to do business in the State of New Jersey. All subcontractors shall be expected, prior to award, to demonstrate sufficient man power and expertise to complete the applicable portion of the project in its entirety. All payments to subcontractors shall be made directly to the

subcontractors who shall be expected to submit payroll certifications before payment to the subcontractor is made.

Electrical subcontractors, if applicable, must be licensed electrical contractors recognized by the New Jersey State Board of Electricians, have a current license and business permit and must submit documents proving such status.

All subcontractors not listed in this section shall be properly licensed to do business in the State of New Jersey, and shall submit proof of such licensure.

Failure to submit a listing of subcontractors and certification forms for each subcontractor shall result in rejection of the bid.

12. Bidder's or Subcontractor's Qualifications (included herein) All bidders and subcontractors must fill out this form in its entirety. Failure to submit this form for the bidder and each subcontractor shall result in rejection of the bid. See section XII for more information.

13. Disclosure of Investment Activities in Iran, Russia and Belarus Certification (included herein).

14. Equipment Certification (included herein).

C. BONDING REQUIREMENTS

1. **Performance Bond**-Bidder shall simultaneously with the delivery of the **executed contract**, submit an executed bond in the amount of one hundred percent (100%) of the acceptable bid as security for the faithful performance of this contract.

   Failure to submit this with the executed contract shall be cause for declaring the contract null and void pursuant to N.J.S.A. 40A:11-22.

2. **Labor and Material Payment Bond**-Bidder shall with the delivery of the performance bond submit an executed payment bond to guarantee payment to laborers and suppliers for the labor and material used in the work performed under the contract.

   Failure to submit a labor and material bond with the performance bond shall be cause for declaring the contract null and void.

   The performance bond provided shall not be released until final acceptance of the whole work and then only if any liens or claims have been satisfied. The surety on such bond or bonds shall be a duly authorized surety company authorized to do business in the State of New Jersey pursuant to N.J.S.A. 17:31-5.

3. **Maintenance Bond**-Upon acceptance of the work by the owner, the contractor shall submit a maintenance bond (N.J.S.A. 40A:11-16.3) in an amount not to exceed 100% of the project costs guaranteeing against defective quality of work or materials for the period of one year.

VII. INSURANCE REQUIREMENTS

A. REQUIRED INSURANCE

1. Worker's Compensation Insurance - Workers Compensation insurance shall be maintained in full force during the life of the contract, covering all employees engaged in performance of the contract pursuant to N.J.S.A. 34:15-12(a) and N.J.A.C. 12:235-1.6.

2. General Liability Insurance - General liability insurance shall be provided with limits of not less than $1,000,000.00 any one person for bodily injury and $1,000,000.00 aggregate for property damage, and shall be maintained in full force during the life of the contract.

3. Automobile Liability Insurance - Liability shall be carried on all owned and non-owned motor vehicles used on the site(s) or in connection therewith for combined single limit for bodily injury and property damage of not less than $500,000.00 per occurrence.

B. CERTIFICATES OF THE REQUIRED INSURANCE

Certificates of Insurance for those policies required above shall be submitted with the contract. Such coverage shall be with an insurance company authorized to do business in the State of New Jersey and shall name the Authority and the project engineer / architect, if any, as an additional insured.

Self-insured contractors shall submit an affidavit attesting to their self-insured coverage. All certificates shall name the Authority and the project engineer / architect, if any, as additional insured.

VIII. PREVAILING WAGE ACT INFORMATION

A. THE PUBLIC WORKS CONTRACTOR REGISTRATION ACT

The Public Works Contractor Registration Act (PWCRA) requires that all contractors, including named subcontractors, to register with the Department of Labor prior to submitting price proposals or engaging on certain public works contracts that exceed the prevailing wage threshold. The prevailing wage rate is $2,000 for all non-municipal entities, such as boards of education, authorities, fire districts, counties, etc.

All named contractors in a bid proposal (including out-of-state contractors) must be registered with the Department of Labor's Division of Wage and Hour Compliance at the time proposals **are received** by the public entity.

> For clarity, Local Finance Notice 2004-9 dated 4/28/04 uses the following term: "Received," in context of when "proposals are received," means the deadline or moment in time when proposals are formally opened and no other proposals are accepted.

The law requires contractors to submit certificates after a bid proposal is received and prior to awarding the contract. (N.J.S.A. 34:11-56.55)

The contracting agent must review the certificates to be sure they were in effect at the time the bid proposals were received.

Non-listed subcontractors do not have to be registered until they physically start the public work assigned to them.

Emergency work is covered under the provisions of the Prevailing Wage Act and the PWCRA.

Additional information on the PWCRA can be obtained from the:

Contractor Registration Unit	Telephone: 609-292-9464
Division of Wage and Hour Compliance	Fax: 609-633-8591
New Jersey Department of Labor	E-mail: contreg@dol.state.nj.us
PO Box 389	Web site:
Trenton, New Jersey 08625-0389	www.nj.gov/labor/lsse/lspubcon.html

Contact the Division of Local Government Services at (609) 292-7842, by fax at (609) 633-6243 or by e-mail at lpcl@dca.state.nj.us for assistance in the application of the Local Public Contracts Law or related PWCRA issues. As specific situations are presented to the contracting unit, local legal advisors should review this guidance as to its applicability.

B. PAYROLL SUBMISSION

Pursuant to N.J.S.A. 34:11-56.25 et seq., contractors on projects where public monies are spent shall adhere to all requirements of the New Jersey Prevailing Wage Act. The contractor shall be required to submit a certified payroll record to the owner within ten (10) days of the payment of the wages. The contractor is also responsible for obtaining and submitting all subcontractors' certified payroll records within the aforementioned time period. The contractor shall submit said certified payrolls in the form set forth in N.J.A.C. 12:60-6.1(c). It is the contractor's responsibility to obtain any additional copies of the certified payroll form to be submitted by contacting the New Jersey Department of Labor and Workforce Development, Division of Workplace Standards. Additional information is available at www.state.nj.us/labor/lsse/lspubcon.html.

C. PREVAILING WAGE DETERMINATION

The New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 et seq., requires that the Department of Labor and Workforce Development establish and enforce a prevailing wage level for workers in order to safeguard their efficiency and general well being and to protect them as well as their employers from the effects of serious and unfair competition. The prevailing wages applicable to this contract may be found at https://lwdwebpt.dol.state.nj.us/archivewages/060094837-middlesex-2-29-24.pdf

IX. CAUSES FOR REJECTING BIDS

A. All bids pursuant to N.J.S.A. 40A:11-13.2;

B. If more than one bid is received from an individual, firm or partnership, corporation or association under the same name;

C. Multiple bids from an agent representing competing bidders;

D. The bid is inappropriately unbalanced;

E. The bidder is determined to possess, pursuant to N.J.S.A. 40A:11-4b, Prior Negative Experience; or,

F. If the successful bidder fails to enter into a contract within 21 days, Sundays and holidays excepted, or as otherwise agreed upon by the parties to the contract. In this case at its option, the owner may accept the bid of the next lowest responsible bidder. (N.J.S.A. 40A:11-24b)

X. TERMINATION OF CONTRACT

A. If, through any cause, the contractor shall fail to fulfill in a timely and proper manner obligations under the contract or if the contractor shall violate any of the requirements of the contract, the owner shall there upon have the right to terminate the contract by giving written notice to the contractor of such termination and specifying the effective date of termination. Such termination shall relieve the owner of any obligation for balances to the contractor of any sum or sums set forth in the contract. Owner will pay only for goods and services accepted prior to termination.

B. Notwithstanding the above, the contractor shall not be relieved of liability to the owner for damages sustained by the owner by virtue of any breach of the contract by the contractor and the owner may withhold any payments to the contractor for the purpose of compensation until such time as the exact amount of the damage due the owner from the contractor is determined.

C. The contractor agrees to indemnify and hold the owner harmless from any liability to subcontractors/suppliers concerning payment for work performed or goods supplied arising out of the lawful termination of the contract by the owner under this provision.

D. In case of default by the contractor, the owner may procure the goods or services from other sources and hold the contractor responsible for any excess cost.

E. Continuation of the terms of the contract beyond the fiscal year is contingent on availability of funds in the following year's budget. In the event of unavailability of such funds, the owner reserves the right to cancel the contract.

XI. QUALIFICATIONS

a. Prospective bidders and all subcontractors shall complete the Bidder's or Sub-Contractor's Qualifications questionnaire attached herein. Steps shall be taken as deemed necessary to determine the ability of the bidders to perform the obligations under the Contract and the bidder shall furnish to the Authority with such information and data for this purpose as the Authority may request. The right is reserved to reject any proposal where the investigation of the evidence does not satisfy the Authority that the bidder is qualified to properly carry out the terms of the Contract.

b. General Contractor must list (where applicable) with their bid all subcontractors who will actually be used for:

    (a) Plumbing and Gas fitting of all kindred work.
    (b) Steam and hot water heating and ventilating apparatus and all kindred work.
    (c) Electrical Work
    (d) Structural Steel and Ornamental Iron Work

c. In addition to the requirements stated above, the General Contractor:
    (a) Must be prepared to demonstrate that each of the listed subcontractors is qualified to perform the specific work for which they are listed in the bid. Each subcontractor must submit with the bid the attached Bidder's or Sub-Contractor's Qualifications questionnaire.
    (b) Must provide evidence of performance security for each subcontractor with the bid. The evidence or performance security shall, for the purpose of statutory and administrative compliance, consist of documents (such as a consent of surety) issued by a qualified surety company. Evidence of performance security may be supplied by the General Contractor on its own behalf and on behalf of any or all of its listed subcontractors, or by the respective listed subcontractors themselves, or by

any combination thereof which results in evidence of performance security equaling the total amount of bid.

(c) May not substitute unlisted subcontractors, or use subcontractors if they are not identified in bid, following award of the contract.

(d) Will be held strictly accountable for proper and timely performance of work by their designated subcontractors. In the event of award, such General Contractor shall furnish the Authority with a true copy of a performance bond contract, if any.

(e) The attention of all bidders is directed to the provisions of New Jersey Statutes 40A:11-16.

(f) All Bidders who intend to use 'in house plumbers' to perform the plumbing work on the contract, are directed to the provisions of New Jersey Statutes 45:14C-21; New Jersey Statutes 45:14C-21; and New Jersey Administrative Code 13:32-1.5(A)(2). These provisions limit and restrict the ability of a licensed master plumber to be utilized as a company employee and apply for a plumbing permit, unless that plumber holds not less than 10% of the issued corporate stock, or 10% of the partnership capital of a partnership. You are advised that the Authority is required to insist upon full compliance with these State regulations.

(g) In the event the General Contractor will perform work specified in paragraph B (a)(b)(c)(d) (Plumbing/Gas; HVAC; Electrical; Structural Steel/Ornamental Iron) with its own salaried non-subcontracted work force, then the General Contractor must so designate itself on bidding documents, and furnish the Authority prior to award of the contract with required information establishing qualifications in such trade(s).

(h) The General Contractor is advised that once they advise the Authority in their bid documents, they will perform the designated trade(s) with their own salaried force, they will not later be permitted to perform same by subcontractor or otherwise.

Thank you for your interest!

INVITATION FOR BID

PUBLIC NOTICE

Woodbridge Board of Fire Commissioners Fire District No. 1

Addition at Woodbridge Fire Headquarters

The Woodbridge Board of Fire Commissioners Fire District No. 1 (Authority) will receive sealed bids for the Addition at Woodbridge Fire Headquarters located at 418 School Street in Woodbridge, NJ as per the Technical Specifications and Drawings included in the Contract Documents. Bids will be received until 2:00 p.m. prevailing time on April 23, 2024 at the Authority offices, 109 Green Street, Woodbridge, NJ 07095, at which time all bids will be publicly opened and read aloud. A Pre-bid meeting is scheduled for April 10, 2024 at 10:00 am at the project site, 418 School Street, Woodbridge, NJ 07095. Bidding documents including the Technical Specifications and Drawings may be obtained at no cost from the Authority website at https://www.woodbridgefirecommissioners.org/ . Bidders must be registered with the New Jersey Department of Treasury, Division of Revenue and with the New Jersey Department of Labor as a Public Works contractor at the time the bids are received. The Authority does not discriminate on the basis of race, religion, sex, national origin, creed, color, ancestry, age, marital status, affectional or sexual orientation, familial status, liability for service in the Armed Forces of the United States, or nationality.

The above and all other contract and bid requirements are described in the contract documents.

Advertised 3/31/24 and 4/8/24 in the Home News Tribune and The Star Ledger

EXHIBIT A MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE N.J.S.A. 10:5-31 et seq. (P.L.1975, c.127) and N.J.A.C. 17:27 et seq. GOODS, GENERAL SERVICES, AND PROFESSIONAL SERVICES CONTRACTS

During the performance of this contract, the contractor agrees as follows: The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause. The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union of the contractor's commitments under this chapter and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to N.J.S.A.10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act. The contractor or subcontractor agrees to make good faith efforts to meet targeted county employment goals established in accordance with N.J.A.C. l7:27-5.2. The contractor or subcontractor agrees to inform in writing its appropriate recruitment agencies including, but not limited to, employment agencies, placement bureaus, colleges, universities, and labor unions, that it does not discriminate on the basis of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, and that it will discontinue the use of any recruitment agency which engages in direct or indirect discriminatory practices. The contractor or subcontractor agrees to revise any of its testing procedures, if necessary, to assure that all personnel testing conforms with the principles of job related testing, as established by the statutes and court decisions of the State of New Jersey and as established by applicable Federal law and applicable Federal court decisions. In conforming with the targeted employment goals, the contractor or subcontractor agrees to review all procedures relating to transfer, upgrading, downgrading and layoff to ensure that all such actions are taken without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, consistent with the statutes and court decisions of the State of New Jersey, and applicable Federal law and applicable Federal court decisions. The contractor shall submit to the public agency, after notification of award but prior to execution of a goods and services contract, one of the following three documents: Letter of Federal Affirmative Action Plan Approval; Certificate of Employee Information Report; or Employee Information Report Form AA-302 (electronically provided by the Division and distributed to the public agency through the Division’s website at: http://www.state.nj.us/treasury/contract_compliance. The contractor and its subcontractors shall furnish such reports or other documents to the Division of Purchase & Property, CCAU, EEO Monitoring Program as may be requested by the office from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Purchase & Property, CCAU, EEO Monitoring Program for conducting a compliance investigation pursuant to N.J.A.C. 17:27-1.1 et seq.

AMERICANS WITH DISABILITIES ACT OF 1990
Equal Opportunity for Individuals with Disability

The contractor and the Woodbridge Board of Fire Commissioners Fire District No. 1 (hereafter “owner”) do hereby agree that the provisions of Title 11 of the Americans With Disabilities Act of 1990 (the "Act") *(42 U.S.C. S121 01* et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs, and activities provided or made available by public entities, and the rules and regulations promulgated pursuant there unto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the owner pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the Act. In the event that the contractor, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the contractor shall defend the owner in any action or administrative proceeding commenced pursuant to this Act. The contractor shall indemnify, protect, and save harmless the owner, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages, of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the owner’s grievance procedure, the contractor agrees to abide by any decision of the owner which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the owner, or if the owner incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

The owner shall, as soon as practicable after a claim has been made against it, give written notice thereof to the contractor along with full and complete particulars of the claim, If any action or administrative proceeding is brought against the owner or any of its agents, servants, and employees, the *owner shall* expeditiously forward or have forwarded to the contractor every demand, complaint, notice, summons, pleading, or other process received by the owner or its representatives.

It is expressly agreed and understood that any approval by the owner of the services provided by the contractor pursuant to this contract will not relieve the contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the owner pursuant to this paragraph.

It is further agreed and understood that the owner assumes no obligation to indemnify or save harmless the contractor, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the contractor expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the contractor’s obligations assumed in this Agreement, nor shall they be construed to relieve the contractor from any liability, nor preclude the owner from taking any other actions available to it under any other provisions of the Agreement or otherwise at law.

BUSINESS REGISTRATION CERTIFICATE

Pursuant to N.J.S.A. 52:32-44, Woodbridge Board of Fire Commissioners Fire District No. 1 ("Contracting Agency") is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of the Treasury.

Prior to contract award or authorization, the contractor shall provide the Contracting Agency with its proof of business registration and that of any named subcontractor(s).

Subcontractors named in a bid or other proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the Contracting Agency prior to the time a contract, purchase order, or other contracting document is awarded or authorized.

During the course of contract performance:

(1) the contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.

(2) the contractor shall maintain and submit to the Contracting Agency a list of subcontractors and their addresses that may be updated from time to time.

(3) the contractor and any subcontractor providing goods or performing services under the contract, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into the State. Any questions in this regard can be directed to the Division of Taxation at (609)292-6400. Form NJ-REG can be filed online at www.state.nj.us/treasury/revenue/busregcert.shtml.

Before final payment is made under the contract, the contractor shall submit to the Contracting Agency a complete and accurate list of all subcontractors used and their addresses.

Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration as required, or that provides false business registration information, shall be liable for a penalty of $25 for each day of violation, not to exceed $50,000, for each proof of business registration not properly provided under a contract with a contracting agency.

Emergency Purchases or Contracts

For purchases of an emergent nature, the contractor shall provide its Business Registration Certificate within two weeks from the date of purchase or execution of the contract or prior to payment for goods or services, whichever is earlier.

Model Public Works Bid Specification Language
Withdrawal of Bid
(N.J.S.A. 40A:11-23.3)

Permission for Bidder to Withdraw a Bid Due to a Mistake in Certain Circumstances

N.J.S.A. 40A:11-23.3 authorizes a bidder to request withdrawal of a public works bid due to a mistake on the part of the bidder. A mistake is defined by N.J.S.A. 40A:11-2(42) as a clerical error that is an **unintentional and substantial computational error** or **an unintentional omission of a substantial quantity of labor, material, or both, from the final bid computation.**

A bidder claiming a mistake under N.J.S.A. 40A:11-23.3 must submit a request for withdrawal, **in writing,** by certified or registered mail to:

Jack C. Kenny, President
109 Green Street
Woodbridge, NJ 07095

The bidder must request withdrawal of a bid due to a mistake, as defined by the law, within five business days after the receipt and opening of the bids. Since the bid withdrawal request shall be effective as of the postmark of the certified or registered mailing, the Purchasing Agent may contact all bidders, after bids are opened, to ascertain if any bidders wish to, or already have exercised a request to withdraw their bid pursuant to N.J.S.A. 40A:11-23.3.

A bidder's request to withdraw the bid **shall** contain evidence, including any pertinent documents, demonstrating that a mistake was made. Such documents and relevant written information shall be reviewed and evaluated by the public owner's designated staff pursuant to the statutory criteria of N.J.S.A. 40A:11-23.3.

The public owner will not consider any written request for a bid withdrawal for a mistake, as defined by N.J.S.A. 40A:11-2(42), by a bidder in the preparation of a bid proposal unless the postmark of the certified or registered mailing is within the five business days following the opening of bids.

Woodbridge Board of Fire Commissioners Fire District No. 1

Form of Bid

Addition at Woodbridge Fire Headquarters

Please refer to Section II, Technical Specifications

Woodbridge Board of Fire Commissioners Fire District No. 1

AFFIRMATIVE ACTION COMPLIANCE NOTICE

N.J.S.A. 10:5-31 and N.J.A.C. 17:27

GOODS AND SERVICES CONTRACTS (INCLUDING PROFESSIONAL SERVICES)

This form is a summary of the successful bidder's requirement to comply with the requirements of N.J.S.A. 10:5-31 and N.J.A.C. 17:27.

The successful bidder shall submit to the public agency, after notification of award but prior to execution of this contract, one of the following three documents as forms of evidence:

a. A photocopy of a valid letter that the contractor is operating under an existing Federally approved or sanctioned affirmative action program (good for one year from the date of the letter);

OR

b. A photocopy of a Certificate of Employee Information Report approval, issued in accordance with N.J.A.C. 17:27-4;

OR

c. A photocopy of an Employee Information Report (Form AA302) provided by the Division and distributed to the public agency to be completed by the contractor in accordance with N.J.A.C. 17:27-4.

The successful vendor may obtain the Affirmative Action Employee Information Report (AA302) from the contracting unit during normal business hours.

The successful vendor(s) must submit the copies of the AA302 Report to the Division of Contract Compliance and Equal Employment Opportunity in Public Contracts (Division). The Public Agency copy is submitted to the public agency, and the vendor copy is retained by the vendor.

The undersigned vendor certifies that he/she is aware of the commitment to comply with the requirements of N.J.S.A. 10:5-31 and N.J.A.C. 17:27 and agrees to furnish the required forms of evidence.

The undersigned vendor further understands that his/her bid shall be rejected as non-responsive if said contractor fails to comply with the requirements of N.J.S.A. 10:5-31 and N.J.A.C. 17:27.

COMPANY: _____ SIGNATURE: _____

PRINT NAME:_____TITLE: _____DATE: _____

Woodbridge Board of Fire Commissioners Fire District No. 1

STOCKHOLDER DISCLOSURE CERTIFICATION

This Statement Shall Be Included with Bid Submission

Name of Business_____

☐ I certify that the list below contains the names and home addresses of all stockholders holding 10% or more of the issued and outstanding stock of the undersigned.

OR

☐ I certify that no one stockholder owns 10% or more of the issued and outstanding stock of the undersigned.

Check the box that represents the type of business organization:

☐ Partnership ☐ Limited Liability Corporation ☐ Corporation ☐ Sole Proprietorship

☐ Limited Partnership ☐ Limited Liability Partnership ☐ Subchapter S Corporation

Sign and notarize the form below, and, if necessary, complete the stockholder list below.

Stockholders:

Name: _____ Name: _____

Home Address: _____ Home Address: _____

_____ _____

Name: _____ Name: _____

Home Address: _____ Home Address: _____

_____ _____

Subscribed and sworn before me this ___ day of _____ , 2024.

_____
(Affiant)

(Notary Public)

_____
(Print name & title of affiant)

My Commission expires:

(Corporate Seal)

Woodbridge Board of Fire Commissioners Fire District No. 1

NON-COLLUSION AFFIDAVIT

State of New Jersey
County of Middlesex

I, _____ residing in _____
(name of affiant) (name of municipality)
in the County of _____ and State of _____of full age, being duly sworn according to law on my oath depose and say that:

I am _____ of the firm of _____
(title or position) (name of firm)

_____ the bidder making this Proposal for the bid

entitled _____, and that I executed the said proposal with
(title of bid proposal)
full authority to do so that said bidder has not, directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above-named project; and that all statements contained in said proposal and in this affidavit are true and correct, and made with full knowledge that the _____relies upon the truth of the statements contained in said Proposal
(name of contracting unit)
and in the statements contained in this affidavit in awarding the contract for the said project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by _____.

Subscribed and sworn to before me this day _____
Date

Signature

_____
(Type or print name of affiant under signature)

Notary public of _____

My Commission expires _____

(Seal)

Woodbridge Board of Fire Commissioners Fire District No. 1
ACKNOWLEDGMENT OF RECEIPT OF ADDENDA

The undersigned Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Dated	Acknowledge Receipt (initial)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

☐ **No addenda were received**:

Acknowledged for: _____
(Name of Bidder)

By: _____
(Signature of Authorized Representative)

Name: _____
(Print or Type)

Title: _____

Date: _____

CERTIFICATION OF NON-INVOLVEMENT IN PROHIBITED ACTIVITIES IN RUSSIA OR BELARUS

Pursuant to N.J.S.A. 52:32-60.1, et seq. (L. 2022, c. 3) any person or entity (hereinafter "Vendor[i]") that seeks to enter into or renew a contract with a State agency for the provision of goods or services, or the purchase of bonds or other obligations, must complete the certification below indicating whether or not the Vendor is identified on the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, available here: https://sanctionssearch.ofac.treas.gov/. If the Department of the Treasury finds that a Vendor has made a certification in violation of the law, it shall take any action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

I, the undersigned, certify that I have read the definition of "Vendor" below, and have reviewed the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, and having done so certify:

(Check the Appropriate Box)

☐ A. That the Vendor is not identified on the OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus.

OR

☐ B. That I am unable to certify as to "A" above, because the Vendor is identified on the OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus.

OR

☐ C. That I am unable to certify as to "A" above, because the Vendor is identified on the OFAC Specially Designated Nationals and Blocked Persons list. However, the Vendor is engaged in activity related to Russia and/or Belarus consistent with federal law, regulation, license or exemption. A detailed description of how the Vendor's activity related to Russia and/or Belarus is consistent with federal law is set forth below.

_____

_____

_____

_____

_____

_____

(Attach Additional Sheets If Necessary.)

Signature of Vendor's Authorized Representative	Date
Print Name and Title of Vendor's Authorized Representative	Vendor's FEIN
Vendor's Name	Vendor's Phone Number
Vendor's Address (Street Address)	Vendor's Fax Number
Vendor's Address (City/State/Zip Code)	Vendor's Email Address

[i] Vendor means: (1) A natural person, corporation, company, limited partnership, limited liability partnership, limited liability company, business association, sole proprietorship, joint venture, partnership, society, trust, or any other nongovernmental entity, organization, or group; (2) Any governmental entity or instrumentality of a government, including a multilateral development institution, as defined in Section 1701(c)(3) of the International Financial Institutions Act, 22 U.S.C. 262r(c)(3); or (3) Any parent, successor, subunit, direct or indirect subsidiary, or any entity under common ownership or control with, any entity described in paragraph (1) or (2).

NJ Rev. 1.22.2024

Woodbridge Board of Fire Commissioners Fire District No. 1
EQUIPMENT CERTIFICATION

The undersigned Bidder hereby certifies as per N.J.S.A. 40A:11-20 the following:

The bidder owns or controls all the necessary equipment required to accomplish the work described in the specifications.

Name of Bidder: _____

By: _____
(Signature)

Name of above: _____
(Print)

Title: _____

Date:_____

Woodbridge Board of Fire Commissioners Fire District No. 1

REFERENCES

List at least 3 references. Please fill completely.

REFERENCE #1

Company Name _____

Contact Name/Title _____

Phone Number/Fax Number _____

REFERENCE #2

Company Name _____

Contact Name/Title _____

Phone Number/Fax Number _____

Reference #3

Company Name _____

Contact Name/Title _____

Phone Number/Fax Number _____

Woodbridge Board of Fire Commissioners Fire District No. 1
SUBCONTRACTOR LISTING

Please list the names of all subcontractors and/or sub-consultants to be used on this project (add additional sheets if necessary). The subcontractor certification form must be completed for each firm listed.

All subcontractors designated by the bidding company shall be capable of doing the work and must have adequate financial resources and experience to perform the work specified. Information regarding the work experience of the designated subcontractor shall also be provided in the bid. Specifically, the bidding company shall include a listing of all relevant jobs performed by the subcontractor within the past two (2) years.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

___ Check here if the bidding company will not be using any subcontractors.

THIS FORM MUST BE SIGNED, NOTARIZED AND SUBMITTED BY THE BIDDING COMPANY WITH THE BID.

_____ _____
Name of bidding company Signature of authorized representative

_____ _____
Printed name of authorized representative Title

Sworn and subscribed to me this _____ day of _____, 2024

_____ (SEAL)
Notary Public

Woodbridge Board of Fire Commissioners Fire District No. 1
SUBCONTRACTOR CERTIFICATION FORM pg 1

All subcontractors/consultants designated by the bidding company shall be capable of doing the work and must have adequate financial resources and experience to perform the work specified. Information regarding the work experience of the designated subcontractor shall also be provided in the bid. Specifically, the bidding company shall include a listing of all relevant jobs performed by the subcontractor within the past two (2) years.

Please print the following information legibly. NOTE: Provide this information on additional sheets, as required, in accordance with the following format.

How many years has the subcontractor been engaged in this particular field? ____ years.

Subcontractor/consultant
Firm Name _____

Address _____

_____

Contact Person _____

Telephone # _____

Fax # _____

Trade _____

State License # _____

THIS FORM MUST BE SIGNED, NOTARIZED AND SUBMITTED BY EACH SUBCONTRACTOR WITH THE BID.

_____ _____
Name of company Signature of authorized representative

_____ _____
Printed name of authorized representative Title

Sworn and subscribed to me this _____ day of _____, 2024

_____ (SEAL)
Notary Public

SUBCONTRACTOR CERTIFICATION FORM pg 2

Provide a list of relevant contracts (company/firm) completed by proposed subcontractors/consultants within the last two (2) years.

DO NOT INCLUDE WORK FOR THE WOODBRIDGE FIRE DEPARTMENT
(This form may be duplicated to include additional relevant contracts)

1. _____ _____ _____
   Company Name | Telephone # | Complete Date

   _____ _____
   Address | Contact Person

   _____ _____
   City/State/Zip | Contract Amount

2. _____ _____ _____
   Company Name | Telephone # | Complete Date

   _____ _____
   Address | Contact Person

   _____ _____
   City/State/Zip | Contract Amount

3. _____ _____ _____
   Company Name | Telephone # | Complete Date

   _____ _____
   Address | Contact Person

   _____ _____
   City/State/Zip | Contract Amount

4. _____ _____ _____
   Company Name | Telephone # | Complete Date

   _____ _____
   Address | Contact Person

   _____ _____
   City/State/Zip | Contract Amount

5. _____ _____ _____
   Company Name | Telephone # | Complete Date

   _____ _____
   Address | Contact Person

   _____ _____
   City/State/Zip | Contract Amount

BIDDER'S OR SUB-CONTRACTOR'S QUALIFICATIONS

Complete sets of qualification section must be submitted for each bidder and each sub-contractor. Photocopy this section as needed, and check the appropriate box to indicate bidder/subcontractor.

Bid for: Addition at Woodbridge Fire Headquarters

BIDDER ☐ SUBCONTRACTOR ☐

Name of Bidder or
Subcontractor:_____

Address: _____

_____

It shall be necessary for the bidder to present evidence that he is the general contractor and that he has been in business for at least 3 years in this particular field and can submit a suitable record of satisfactorily completing similar projects. In addition, he shall submit evidence that his company has the necessary equipment to carry out this type of operation.

How many years have you been or engage in construction under your present firm or trade name?

_____ Years.

How many years has your organization been performing the work required under this contract?

_____ Years.

If a corporation, answer the following:

Date of incorporation: _____

State of Incorporation: _____

President's Name: _____

Vice President's Name(s): _____

If a partnership, answer the following:

Date of Organization: _____

We normally perform _____ % of the work with our own forces. Describe the general character of work performed by your company.

_____

_____

_____

What equipment do you own that is available and intended to be used on this project? Provide a description as to the quantity, size, type and capacity of this equipment along with its present condition.

_____

_____

_____

What equipment to you intend to lease or purchase for use on this project should the contract be awarded to you? Provide a description of the quantity, size, type and capacity of the equipment you intend to lease or purchase.

_____

_____

_____

Have you ever failed to complete any work awarded to you? If so, state the circumstances.

_____

_____

_____

Has any officer or partner of your organization ever been an officer or partner of some other organization that failed to complete a construction contract? If so, state the name of the individual, the other organization and the circumstances.

_____

_____

_____

Has any officer or partner in your organization ever failed to complete a construction contract handled in his own name? If so, state the name of the individual and the circumstances.

_____

_____

_____

Are there any liens of any character filed against your company at this time? If so, specify the nature and amount of the lien.

_____

_____

_____

In what manner have you inspected the proposed project?

_____

_____

_____

The work, if awarded to you, will have the personal supervision of whom?

_____

Do you intend to subcontract any portion of the work? If so, state which portion is to be subcontracted and complete the Subcontractor Certification Form.

_____

_____

_____

Have you made contracts or received firm offers for all materials within price use regarding your proposal? Do not give names of dealers or manufacturers.

_____

_____

_____

Give Trade references.

_____

_____

_____

Give bank references.

_____

_____

_____

Give full information concerning all of your contracts in progress, whether private or government contracts, whether prime or sub-contracts, whether in construction or awarded but not yet begun, or whether you are the low bidder pending formal award of contract.

Owner - Location - Description - Contract Amount - % Completed - Estimated Completion Date

_____

_____

_____

_____

List the most important contracts completed by your company in the last five years, stating the gross cost for each and the month and year started and completed.

Owner - Location - Description Contract Amount - Start Date - Completion Date

_____

_____

_____

_____

_____

_____

AFFIDAVIT

State of _____

SS.

County of _____

_____ being first duly sworn deposes and says:
(Individual's name)

THAT he is _____,
(Owner, Officer or Partner of the firm of etc.)

the party making the foregoing proposal or bid for the Addition at Woodbridge Fire Headquarters; that all answers to the foregoing questions and all statements contained in this questionnaire are true and correct, and that he hereby authorizes and requests any person, firm or corporation to furnish any information requested by the Woodbridge Board of Fire Commissioners Fire District No. 1 in verification of the recitals contained in this questionnaire.

_____
(Signature of Bidder)

Subscribed and sworn to before me, this ___ day of _____, 2024.

_____
Notary Public

My Commission expires _____

BID DOCUMENT CHECKLIST

Woodbridge Board of Fire Commissioners Fire District No. 1

BID DOCUMENT CHECKLIST*

Required by owner	Submission Requirement	Initial each required entry and if required submit the item
☐	Bid Form	
☐	Bid Bond	
☐	Consent of Surety	
☐	Affirmative Action Compliance Certification	
☐	Stockholder Disclosure Certification	
☐	Non-Collusion Affidavit	
☐	Acknowledgement of Receipt of Addenda (regardless of issuance of addenda)	
☐	Disclosure of Investment Activities in Iran, Russia and Belarus	
☐	References	
☐	Subcontractor Listing/Certification Form(s)	
☐	Statements and Qualifications of Bidders and Subcontractors (one for each bidder and subcontractor)	
☐	Public Works Contractor Certificate (Prevailing Wage) for Bidder and Each Sub-Contractor	
☐	Business Registration Certificate(s)	

***This form must be submitted. Please submit this form as the first page of your bid and the Bid Form as the second page.**

ATTACHMENT A
SAMPLE CONTRACT-*do not submit with your bid!*

Form of Contract

Addition at Woodbridge Fire Headquarters

This CONTRACT made this ____ day of _____ in the year ___ by and between

(Name of Contractor)
(Address)

hereinafter the "Contractor," and the

Woodbridge Board of Fire Commissioners Fire District No. 1
109 Green Street
Woodbridge, NJ 07095

hereinafter the "Authority".

WITNESSETH that the Contractor and the Authority for the consideration stated herein mutually agree as follows:

Article 1. Statement of Services. The Contractor shall furnish all labor, materials, tools and equipment and shall perform and complete all work required for the Addition at Woodbridge Fire Headquarters as per the Technical Specifications and Drawings included in the Contract Documents dated April 23, 2024 which are incorporated herein by reference and made a part hereof.

Article 2. Term of Contract. The Contractor shall complete all work as specified within 120 days of receipt of a written Notice to Proceed or receipt of applicable permits, if any.

Article 3. Scope of Work. The scope of work includes the labor, materials and equipment to perform all work per the Scope of Work section of the Contract Documents, which are incorporated by reference and made a part hereof.

Article 4. Performance of Work, Work Requirements and Contractor's Responsibility. The Contractor shall be responsible for furnishing all materials, equipment, labor and transportation necessary to perform the work.

The Contractor shall not sub-contract any work under this contract without express prior written approval of the Authority or as listed in the subcontractor certificate.

Contractor will schedule and perform the work between the hours of 8:00 a.m. to 4:00 p.m., Monday through Friday, unless prior written permission is granted by the Authority to perform work at other times. The Contractor shall coordinate all his activities with the Authority. The Authority may charge to the contractor any additional costs for inspections or testing.

The Contractor shall at all times keep the work area orderly and free from accumulations of waste materials. After completing the work, the Contractor shall remove all equipment materials and tools that are not the property of the Authority and leave the work area in a neat, clean and orderly condition. The Contractor shall dispose of all debris off-site in accordance with all applicable Federal, State and local statutes, ordinances and regulations.

The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take all necessary health and safety precautions to protect the work, the workers, the public, and the property of others. The Contractor shall hold and save the Authority, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

The Contractor shall apply and pay for any applicable permits related to the work. Fees for Building permits issued through the City Code Enforcement office are waived. No final payments shall be processed without furnishing written documentation the work has been inspected and the Township of Woodbridge Code Enforcement Department has closed out the permit.

Article 5. Rates and Payments. The Authority shall pay the contractor a lump sum fee of _____ dollars and ____ cents ($_____.___) after all (or periodic) work has been satisfactorily completed and tested. The Authority shall make payments not more frequently than monthly upon the completion of work by the Contractor and the presentation of an invoice. The invoice must be accompanied by certified payrolls for the period that is invoiced. Payment shall be due within 30 days of receipt of the invoice by the Authority. No payments shall be processed without attached certified payrolls covering payment period.

Article 6. Insurance. Before performing any work, the Contractor shall furnish the Authority with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract:

1. Workers' Compensation, in accordance with New Jersey Workers' Compensation laws.
2. Commercial General Liability with a combined single limit for bodily injury and property damage of not less than $1,000,000.00 per occurrence to protect the Contractor and the Authority against claims for bodily injury or death and damage to the property of others. This shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under (3) below. If the Contractor has a "claims-made" policy, then the following additional requirements apply: the policy must provide a "retroactive date" which must be on or before the execution date of the Contract, and the extended reporting period may not be less than five years following the completion date of the Contract.
3. Automobile Liability on owned and non-owned motor vehicles used on the site(s) or in connection therewith for a combined single limit for bodily injury and property damage of not less than $500,000.000 per occurrence.

All Insurance shall be carried with companies, which are financially responsible and admitted to do business in the State of New Jersey. If any such insurance is due to expire during the construction period, the Contractor shall not permit the coverage to lapse and shall furnish evidence of coverage to the Authority. All certificates of insurance, as evidence of coverage, shall provide that no coverage maybe canceled or non-renewed by the insurance company until at least 30 days prior written notice has been given to the Authority.

Article 7. New Jersey Business Registration Requirements. The contractor shall provide to the Authority proof of the contractor's business registration with the New Jersey Division of Taxation before contract award. Bidders shall be registered, however, at the time of the bid opening.

The contractor shall provide written notice to its subcontractors and suppliers of the responsibility to submit proof of business registration to the contractor. The requirement of proof of business registration extends down through all levels (tiers) of the project.

Before final payment on the contract is made by the Authority, the contractor shall submit an accurate list and the proof of business registration of each subcontractor or supplier used in the fulfillment of the contract, or shall attest that no subcontractors were used.

For the term of this Agreement, the contractor and each of its affiliates and a subcontractor and each of its affiliates [N.J.S.A. 52:32-49(g)(3)] shall collect and remit to the Director, New Jersey Division of Taxation, the use tax pursuant to the Sales and Use Tax Act on all sales of tangible personal property delivered into this State, regardless of whether the tangible personal property is intended for a contract with a contracting agency.

A business organization that fails to provide a copy of a business registration as required pursuant to section 1 of P.L. 2001, c.34 (C.52:32-44 et al.) or subsection e. or f. of section 92 of P.L. 1977, c.110 (C.5:12-92), or that provides false business registration under the requirements of either of those sections, shall be liable for a penalty of $25 for each day of violation, not to exceed $50,000 for each business registration copy not properly provided under a contract with a contracting agency.

Article 8. Assignment of Contract. The Authority may at its sole discretion assign the contract, in whole or in part, to an affiliate or instrumentality of the Authority or an entity controlled by the Authority, its affiliate, or its instrumentality. Assignment of the contract by the Authority does not relieve the Contractor of responsibility for complying with any of the terms and conditions of the contract. The Authority's right to assign the contract is unilateral and does not create any assignment rights for the Contractor.

Article 9. Contract Documents. Contract Documents shall consist of the following component parts:

1. This instrument;
2. Contract Documents dated April 23, 2024;
3. Bid submitted by the contractor dated April 23, 2024;
4. Addenda (if any).

This instrument together with the document enumerated in this Article form the Contract, and they are fully a part of the Contract as if hereto attached or herein repeated. In the event that any provision in one of the component parts of the Contract conflicts with any provision of any other component part, the provision in the component part first enumerated in this Article shall govern, except as otherwise specifically stated.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed the date and year first above written.

In the presence of:

_____ by_____

(Name)
(Title)
(Company Name)
(Phone Number)

In the presence of:

_____ by_____

John C. Kenny
President
Woodbridge Board of Fire Commissioners Fire District No. 1

SECTION II

TECHNICAL SPECIFICATIONS

CREATED BY:

USA Architects
20 N. Doughty Avenue
Somerville, NJ 08876
908-722-2300

Please direct all questions pertaining to this section to:

kimlaw@lseacorp.com

Henryabderhalden@lseacorp.com

AND

bmsuper65@yahoo.com

The following technical specifications include:

TECHNICAL SPECIFICATIONS – 245 PAGES

DRAWINGS – 17 PAGES INCLUDING COVER

PROJECT MANUAL

for

ADDITION AT WOODBRIDGE FIRE HEADQUARTERS

for the

WOODBRIDGE FIRE COMPANY

Woodbridge, Middlesex County, New Jersey

USA Project No.: 2023-128

Dated: 04.03.2024

ISSUED FOR BID

USA ARCHITECTS, PLANNERS + INTERIOR DESIGNERS, LTD
20 N. Doughty Avenue
Somerville, NJ 08876

Paul R. Swartz, AIA
Armand T. Christopher, Jr. AIA
Peter C. Campisano, AIA
Andrew P. Adornato, AIA
Susan M. DeHart, AIA
Jim McAuliffe, AIA
Marlene Borruso, AIA

_____ No. AI16116
Andrew P. Adornato, AIA

TABLE OF CONTENTS

		NO.OF PAGES
DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS		
00 31 00	AVAILABLE PROJECT INFORMATION	1 + 26
00 42 00	FORM OF PROPOSAL	3
DIVISION 01 – GENERAL REQUIREMENTS		
01 11 00	SUMMARY OF WORK	4
01 21 00	ALLOWANCES	3
01 25 00	PRODUCT SUBSTITUTIONS	6
01 26 00	MODIFICATION PROCEDURES	3
01 29 00	APPLICATION FOR PAYMENT	6
01 31 13	PROJECT COORDINATION	5
01 31 19	PROJECT MEETINGS	5
01 33 00	SUBMITTALS	7
01 42 19	REFERENCE STANDARDS AND DEFINITIONS	3
01 50 00	TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS	5
01 70 00	PROJECT CLOSEOUT	4
01 73 29	CUTTING AND PATCHING	4
DIVISION 02 – EXISTING ONDITIONS		
02 41 00	DEMOLITION	4
DIVISION 03 – CONCRETE		
03 05 16	UNDERSLAB VAPOR BARRIERS	2
DIVISION 04 - MASONRY		
04 20 00	UNIT MASONRY	13
DIVISION 05 – NOT USED		
DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES		
06 10 00	ROUGH CARPENTRY	6
DIVISION 07 – THERMAL AND MOISTURE PROTECTION		
07 21 00	THERMAL INSULATION	5
07 41 13	METAL ROOF PANELS	10
07 62 00	SHEET METAL FLASHING AND TRIM	3
07 84 00	FIRESTOPPING	4
07 92 00	JOINT SEALANTS	8
DIVISION 08 – OPENINGS		
08 11 13	HOLLOW METAL DOORS AND FRAMES	7
08 36 13	SECTIONAL DOORS	5
08 80 00	GLAZING	6

DIVISION 09 – FINISHES
09 51 00 ACOUSTICAL CEILINGS 4
09 67 24 SPECIALTY RESINOUS FLOORING 5
09 91 23 INTERIOR PAINTING 8

DIVISION 10 – SPECIALTIES
10 14 19 DIMENSIONAL LETTER SIGNAGE 3

APPENDIX A – CIVIL TECHNICAL SPECIFICATIONS 64

SECTION 00 31 00 - AVAILABLE PROJECT INFORMATION

PART 1 GENERAL

1.1 EXISTING CONDITIONS

A. Certain information relating to existing surface and subsurface conditions and structures is available to bidders but will not be part of Contract Documents, as follows:

B. Subsurface Investigation Report: Prepared by SOR Consulting Engineers, Inc., dated June 20, 2023; 26 pages

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SOR CONSULTING ENGINEERS, INC.

Geotechnical Engineering - Materials Testing - Forensic Studies

98 Sand Park Rd., Cedar Grove, NJ 07009
(973) 239-6001 Fax (973) 239-8380
www.sorlabs.com

Kamil Sor, Ph.D.
Orhun Sor, P.E.
Atilla Sencar, P.E.

June 20, 2023
Job No. 23-C-18
Report No. 23-C-20

Neglia Engineering
200 Central Avenue, Suite 102
Mountainside, NJ 07092

Attention: Michael J. Gormley, EIT
E-Mail: mgormley@negliagroup.com

Re: Subsurface Investigation Report
Proposed Building Addition
Woodbridge Township, New Jersey

INTRODUCTION

Sor Consulting Engineers, Inc. (SCE) is pleased to present the results of a subsurface investigation performed for a proposed building addition to be constructed to the Woodbridge Township Firehouse. The firehouse is located at 418 School Street.

Based on information provided to us, it is desired to modify the existing structure by expanding Bay Doors Nos. 1 and 5 by approximately 10 feet to allow for longer fire truck housing. Also, oil/water separator unit will be installed on the side of the firehouse.

PURPOSE AND SCOPE OF WORK

The purpose of this study was to:

- explore the subsurface soil and groundwater conditions within the proposed building addition and oil/water separator areas;
- estimate the geotechnical engineering properties of the encountered subsurface materials;

- evaluate the foundation requirements for the structures considering the anticipated structural loads and encountered subsurface conditions;
- recommend an appropriate type of foundation for support of the proposed structure and present geotechnical related foundation design and installation criteria, including shallow and/or deep foundation design parameters and seismic site class;
- present recommendations relative to the support of slabs to be constructed on-grade, including modulus of subgrade reaction (Kv);
- estimate the post-construction performance of the recommended floor and foundation systems;
- recommend lateral earth pressure and drainage criteria for use in the design of below-grade walls; and
- discuss appropriate earthwork operations or consideration consistent with the proposed construction and encountered subsurface conditions.

To accomplish this, a subsurface exploration program consisting of three (3) test borings was conducted at the site on June 8, 2023. The borings were performed by Environmental Technical Drilling, Inc. using truck mounted hollow stem auger drilling equipment and extended to depths ranging from 14 to 21 feet beneath the ground surface. Soil samples suitable for identification and testing purposes were extracted from the borings in accordance with the procedures of the Standard Penetration Test. Upon their completion, all explorations were backfilled so as not to leave any open holes and the surface was patched with concrete at paved areas.

Our representative prepared logs of the explorations as the work proceeded and supervised the soil sampling operations so as to obtain the required subsurface information. The locations of the explorations are shown relative to the existing site features on the Boring Location Plan contained in Appendix I of this report. Detailed descriptions of the encountered subsurface conditions are presented on the individual

boring logs contained in Appendix II. The soils were visually classified in accordance with the Burmeister Soil Classification System also contained in Appendix II.

All soil samples were brought to our office where they were examined in our soil mechanics laboratory. Grain size analyses and moisture content tests were performed on selected samples to assist in evaluation of their engineering properties. The laboratory test results are included in Appendix III.

The results of the subsurface exploration and laboratory testing programs as well as our visual examination of the soil samples have provided the basis for our engineering analyses and geotechnical recommendations. The following discussions of our findings and recommendations are subject to the limitations contained in Appendix IV of this report.

SITE CONDITIONS

Surface Features: General observations indicate that the area is covered with concrete pavement or topsoil/vegetation. The concrete pavement and other surface area is generally level and slopes down gently towards School Street. There is a stream on the north side of the site that is approximately 8 feet lower than the site grades and the side slopes and bottom are covered by concrete.

Subsurface Conditions: The subsurface conditions encountered in the test borings performed for this study consisted of the following generalized strata in order of increasing depth:

1. Surface Layer: Concrete pavement area was measured to be between 8 to 9 inches in thickness and was underlain by 6 inches of sand. Topsoil was approximately 2 inches in thickness.
2. Fill: Fill material consisting of a mixture of sand, clayey silt with brick (B-2 only) was encountered in all of the explorations performed for this study. Standard Penetration Tests (N) values obtained from the borings indicated that the fill varies from a very loose to medium compact

condition. The fill extended to depths of 8 to10 feet beneath the existing surface.

3. Silty Sand/Clayey Silt: Gray silty sand or clayey silt was encountered beneath the fill and extended to depths of 13.5 to 15 feet beneath the surface. N values obtained from the borings indicate that this stratum was in a loose/soft condition.
4. Silty Clay: Reddish brown clayey silt mixed with sand/gravel was encountered beneath the silty sand and extended to maximum depths explored. N values obtained from the borings indicate that this stratum was in a stiff to hard consistency.

Groundwater was measured at depths ranging from 7 to 10 feet below existing grade in the borings performed for this study. Groundwater levels at this site will vary and may be influenced by seasonal variations in rainfall and temperature, water trapped in the existing fill, and other factors.

CONCLUSIONS AND RECOMMENDATIONS

General: The borings performed for this study revealed that the existing concrete pavement and surface layer is underlain by fill material composed of a mixture of silt, sand and debris. The upper portion of the fill was found to be relatively firm but became very loose with depth. We believe that future subsidence will occur unless remedial measures are performed.

A solution to provide adequate foundation support could include the complete removal of the in-place fill materials and soft natural soils for their full depth and extent from the foundation areas, followed by their replacement with controlled compacted fill to reach the proposed foundation subgrade level. This solution would virtually eliminate any post-construction settlements of the footings. The borings performed in the addition area indicates that the unsuitable soil extends to depths of 10.5 to 13.5 feet beneath the ground surface. Hence, removal of the unsuitable material would result in

significant excavation expenses. In addition, soil handling, water pumping and site accessibility constraints would also significantly add to these costs.

Deep Support System Considerations: We were notified by the owners that existing structure is pile supported, therefore, the following two deep support system is provided for your consideration.

1. Pile Foundation System: We recommend that the proposed additions be supported on a pile foundation system that derives its support from the natural silty clayey silt stratum. Several different pile types and methods of pile installation were considered based upon the anticipated structural loads, depth to suitable bearing soil, physical site constraints and other factors. It is our opinion that either helical auger piles or drilled in-place concrete filled steel pipe mini-piles would be the most appropriate pile types to support the addition at this site. Helical auger piles are installed by screwing the pile in-place using smaller high torque specialty drilling equipment and drilled in-place mini-piles are installed by specialty drilling equipment using a combination of rotary and low impact percussion drilling techniques to minimize vibrations. It is our professional opinion that helical auger piles or drilled in-place concrete filled steel pipe mini-piles designed for an allowable axial capacity of up to 10 tons would be appropriate to support the proposed new additions. We estimate that pile lengths would be approximately 15 to 20 feet beneath the existing floor slab. Steel pipe piles should have a nominal outside diameter of 4 inches, a minimum wall thickness of 0.164 inches and should conform to ASTM-D252 Grade 2 requirements. The piles should also have a steel closure plate continuously welded to the bottom. Upon completion and acceptance pipe piles should be filled with 4000 psi Portland cement concrete. Helical piles should have multiple helices with a minimum helix diameter of 10 inches and a minimum shaft diameter of 3½ inches. Helices should be structural quality steel conforming to ASTM-A36 and shaft pipe should conform to API 5CT Grade J55 pipe or ASTM-D252 Grade 2

requirements. Shaft pipe should be grouted solid with 4000 psi concrete upon pile completion and acceptance. Provided the auger or pipe piles extend at least 5 feet into the suitable bearing stiff to hard natural gravelly sandy clayey silt they may be designed for a lateral capacity of up to 2 tons per pile and an uplift capacity of 5 tons per pile. The capacity of piles may be increased by a factor of 1/3 for temporary loads (e.g. wind, earthquake). We estimate that post-construction settlements of the foundations supported on piles would be negligible. Piles should be installed by a specialty contractor having demonstrated experience in the installation of helical auger piles or steel pipe mini-piles. Helical pile installation should be by qualified manufacturer certified helical pile specialists using industry recognized equipment and means and methods.

2. Drilled Pier Foundation Design Criteria: The proposed new additions may also be supported on a drilled pier foundation system. Drilled piers should penetrate the existing fill and derive their support from the underlying competent natural residual material. The depth to the surface of the competent residual material encountered in the borings performed was approximately 13.5 to 15 feet. Drilled piers should extend a minimum of 5 feet into the competent residual material to develop both end bearing and lateral support capacity. We recommend that drilled piers established in the competent residual material be designed for an allowable end bearing capacity of up to 3 tons per square foot and a side friction of up to 400 pounds per square foot. A passive earth pressure of 400 pounds per square foot may be used to design piers to resist lateral movement. It may be necessary to temporarily case the drilled pier shafts through the fill and residual soils in order to prevent sloughing of these materials into the shafts. Furthermore, we recommend that the piers have a minimum shaft diameter of 30 inches to facilitate cleaning of loose material at the bottom. We recommend that all drilled pier shafts be examined by a qualified geotechnical

engineer prior to placement of reinforcing steel or concrete in order to verify the capability of the intended bearing material to support the design loads. Any water encountered within the drilled pier should be pumped out prior to placement of concrete.

We estimate that drilled pier foundations designed and installed in accordance with our recommendations would experience total settlements of less than ¼ of 1 inch and that post-construction differential settlements would be negligible.

New Slab-On-Grade Design Criteria: Site preparation procedures within the proposed floor slab areas should initially consist of removing the existing concrete and after cutting to subgrade in high areas but prior to filling in low areas the exposed soils should be leveled and thoroughly compacted and proofrolled by multiple passes of a heavy steel drum vibratory roller (Dynapac Model CA-150 or equivalent). In confined or limited access areas and along the existing utilities, compaction and proofrolling should be accomplished with a double drum walk behind vibratory roller (Wacker Neuson Model RD 7 or equivalent). Depending upon the soil conditions encountered at the time of construction, moisture conditioning of the exposed soils in the form of aerating, watering, and drying may be required prior to compacting and proofrolling. Any localized areas that cannot be compacted to a dense and unyielding condition or are observed to contain significant concentrations of deleterious materials should be excavated to expose suitable subsoils and the areas subsequently backfilled with controlled fill. We strongly recommend that the compaction and proofrolling operations as well as any subsequent placement of controlled fill or backfill be performed under the direct technical observation of a qualified geotechnical engineer to make sure that subgrade compacted to at least 95 percent of maximum dry density as determined by the Modified Proctor Moisture-Density test procedure (ASTM-D1557). The new slabs maybe designed using a vertical modulus of subgrade reaction (Kv) of 175 pounds per cubic inch. We recommend that slabs be underlain by a minimum 6-inch thick layer of clean ¾-inch size crushed stone to provide a capillary break as well as a porous

drainage layer beneath the slab. We estimate that post-construction settlements of slabs designed and supported on material prepared in accordance with our recommendations would be negligible.

Oil/Water Separator Unit

Based on our evaluation of the subsurface conditions encountered in the borings performed for this study, the existing fill and underlying soft clayey layer is not capable of providing uniform support for the proposed oil/water separator unit without the potential for unacceptable post-construction settlements. We believe that removing the fill and very soft clayey material and backfilling the excavation with controlled compacted fill would provide uniform support for the unit. Alternatively, providing a pile foundation support system as provided for the building addition would be appropriate if excavation and backfilling would not be suitable due to site constrains.

The excavation method would initially involve removing the surficial topsoil. The underlying fill and very soft clayey material should then be excavated and removed to a depth of approximately 10.5 feet below the surface and approximately 2 feet beyond the oil/water separator unit plan dimensions. All excavations should be performed in accordance with OSHA requirements. For this site, the on-site soils are classified as Type C. Therefore, excavation sides should not be steeper than 11/2 horizontal to 1 vertical. If steeper slopes are required due to site constraints or other factors, they should be adequately protected with sheeting, shoring or bracing. During excavation, care should be exercised not to disturb or undermine the existing foundations or other subsurface structures. The exposed soils should be observed by a geotechnical engineer and should be covered with geotextile fabric (mirafi 500 x or equivalent) and 12 inches of clean crushed stone and compacted with portable vibratory compaction equipment as directed. Any localized areas that cannot be compacted to a dense and unyielding condition or are detected to contain significant concentrations of deleterious materials should be excavated to expose suitable subsoils and the areas subsequently backfilled with controlled fill. We strongly recommend that the proofrolling and compaction operations as well as subsequent placement of controlled fill be performed

under the direct technical observation of a qualified geotechnical engineer. After the compaction operations, the excavation should be backfilled with controlled compacted fill to the desired new subgrade level.

Controlled compacted fill and backfill should be installed under the technical observation of a qualified geotechnical engineering firm. The fill installed within the oil/water separator unit area should be spread in horizontal layers of 8 to 12 inches in loose thickness and each layer uniformly compacted to at least 95 percent of maximum dry density as determined by the ASTM-D1557 test procedure. Controlled compacted fill may consist of granular portions of the excavated existing fill exclusive of any particles greater than 3 inches in nominal size, clay, organics or otherwise deleterious materials and provided the soils are at a moisture content suitable for proper compaction. If needed, any controlled fill and backfill imported to the site should consist of a relatively well-graded granular material containing less than 15 percent passing a U.S. Standard No. 200 sieve and having a maximum particle size of 2 inches. Imported fill should also meet the NJDEP clean fill requirements for its intended use and be at a moisture content suitable for proper compaction.

Following the site preparation procedures previously described, the oil/water separator unit may be supported on a new controlled fill. The unit deriving its support from the new controlled compacted fill placed over the densified existing soils may be designed using a standard modulus of subgrade reaction Kv of 200 pounds per cubic inch and a maximum allowable soil bearing pressure of up to 4000 pounds per square foot. Unit design should be established at least 3 feet below the adjacent exterior grades to provide protection from frost protection.

We estimate that the new unit supported on controlled compacted fill would experience post-construction total settlements of less than one-half of one inch. The unit should be designed to withstand lateral pressures equivalent to those imposed by a fluid having a unit weight of 40 pounds per cubic foot above the maximum anticipated water level and 80 pounds per cubic foot below this level.

Backfill Criteria: Any controlled fill or backfill installed within the structure areas should consist of granular material containing less than 15 percent by weight passing a U.S. Standard No. 200 sieve and having a maximum particle size of 2 inches. Controlled fill as well as backfill placed in confined areas such as foundation and utility trench excavations should be spread in horizontal layers on the order of 6 to 8 inches in loose thickness. Each layer of fill and backfill should be uniformly compacted to at least 95 percent of the maximum dry density as determined by ASTM-D1557 test procedure.

Seismic Design Considerations: Foundations must be designed in conformance with the applicable seismic design criteria of the New Jersey Edition of the 2021 International Building Code. In accordance with Section 1613 of the Code, the subsurface information obtained from the borings and the known geologic conditions in this area, the site is considered to have a soil profile identified as site class "C".

RECOMMENDED SERVICES

We recommend that Sor Consulting Engineers be provided the opportunity for a general review of the final design and specifications to assure that the foundation and earthwork recommendations are properly interpreted and implemented in the construction documents.

We also recommend that Sor Consulting Engineers be retained to provide continuous on-site observation services during the earthwork operations, subgrade preparation and foundation construction phases of the project. This would be to assure compliance with the project specifications and to identify and address field conditions that may affect the design in the event that the subsurface conditions differ significantly from those encountered in the borings performed for this study.

Sor Consulting Engineers appreciates the opportunity to be of assistance with this project. Should there be any questions concerning the information provided herein,

please do not hesitate to contact us. The following appendices are attached and complete this report:

Appendix I: Boring Location Plan
Appendix II: Boring Logs 1 through 3
Burmeister Soil Classification System
Appendix III: Laboratory Soil Test Results
Appendix IV: Limitations

Very truly yours,

SOR CONSULTING ENGINEERS, INC.

Atilla Sencar, P.E.
Senior Engineer

AS/gs

APPENDIX I

BORING LOCATION PLAN

LEGEND

B-1

Number and approximate location of test boring performed by SCE for this study.

NOTES

1. This drawing is part of Sor Consulting Engineers, Inc. Report No. 23-C-20 and should be read together with the report for complete evaluation.

BORING LOCATION PLAN
NEGLIA ENGINEERING ASSOCIATES
PROPOSED FIREHOUSE ADDITIONS
WOODBRIDGE, NEW JERSEY

SOR CONSULTING ENGINEERS, INC.

Geotechnical Engineering – Materials Testing – Forensic Studies

98 Sand Park Road, Cedar Grove, New Jersey 07009

Prepared By : A.S	Approved By :	DRAWING NO.
Date : 6/19/23	Date :	23-C-18-1
Scale : NTS	Report No. : 23-C-20	Sheet No. 1 of 1

APPENDIX II

BORING LOGS 1 THROUGH 3

BURMEISTER SOIL CLASSIFICATION SYSTEM

SOR CONSULTING ENGINEERS, INC.	TEST BORING LOG	BORING	B-1
CLIENT	Neglia Engineering	GSE	N/A
PROJECT	Firehouse Addition	DATUM	Ground Surface
LOCATION	Woodbridge, New Jersey	DATE START	06/08/23
		DATE FINISH	06/08/23
JOB NO.	23-C-18		
REPORT NO.	23-C-20		
	Sheet 1 of 1		

GROUND WATER					CAS.	SAMP.	CORE	TUBE
DATE	TIME	DEPTH	CASING	TYPE	HAS	SS		
8-Jun		7'-0"		DIA.	4 1/4"	2" OD		
				WT.		140 lb.		
				FALL		30"		

DEPTH (ft.)	CASING BLOWS	SAMPLE TYPE/NO.	DEPTH	SAMPLER BLOWS PER 6"	N VALUE	DESCRIPTION	REMARKS
1						Concrete 8"	
				4		Yellowish Brown coarse to fine SAND, trace Silt (Fill)	
2		S-1	1'-3'	4 5	9	Brown medium to fine Sand, and Clayey Silt (Fill)	
3				4			
				8			
4		S-2	3'-5'	4 5	9	Brown medium to fine SAND, trace Silt (Fill)	
5				7			
				3			
6		S-3	5'-7'	2 3	5	Brown Clayey SILT, some medium to fine Sand (Fill)	
7				2			
				1			
8		S-4	7'-9'	1 2	3	Brown Clayey SILT, some medium to fine Sand (Fill) 8'-0"	
9				1		Grayish Brown coarse to fine SAND, little Silt (Wet)	
				1			
10		S-5	9'-11'	2 2	4	Gray coarse to fine SAND, little Silt, trace fine Gravel	W=23.3%
11				12			
12							
13							
14							
				2			
15		S-6	14'-16'	6 7	13	15'-0"	
16				9		Reddish Brown coarse to fine Sand, and Clayey Silt, some coarse to fine Gravel	W=11.5%
17							
				12			
18		S-7	17'-19'	17 16	33	Same	
19				25			
				30			
20		S-8	19'-21'	30 50	80	Same	
21				50/2"			
22						Test Boring Completed at 20'-8"	
23							
24							
25							
26							
27							

S - SPLIT SPOON SAMPLER
U - UNDISTURBED SAMPLE
C - CORE DRILLED

DRILLING CONTRACTOR	ETD, Inc.
DRILLING EQUIPMENT	Truck Rig
STL REPRESENTATIVE	A. Sencar

SOR CONSULTING ENGINEERS, INC.	TEST BORING LOG	BORING B-2
CLIENT Neglia Engineering		GSE N/A
PROJECT Firehouse Addition		DATUM Ground Surface
LOCATION Woodbridge, New Jersey		DATE START 06/08/23

GROUND WATER					CAS.	SAMP.	CORE	TUBE	DATE FINISH 06/08/23
DATE	TIME	DEPTH	CASING	TYPE	HAS	SS			
8-Jun		7'-0"		DIA.	4 1/4"	2" OD			JOB NO. 23-C-18
				WT.		140 lb.			REPORT NO. 23-C-20
				FALL		30"			Sheet 1 of 1

DEPTH (ft.)	CASING BLOWS	SAMPLE TYPE/NO.	DEPTH	SAMPLER BLOWS PER 6"	N VALUE	DESCRIPTION	REMARKS
1						Concrete 9"	
2		S-1	1'-3'	5 9 8 7	17	Yellowish Brown coarse to fine SAND, trace Silt (Fill) Brown coarse to fine SAND, little Silt, little medium to fine Gravel	
3							
4		S-2	3'-5'	7 7 7 16	14	Brown medium to fine Sand, some Clayey Silt, some medium to fine Gravel/ shale fragments, brick (Fill)	
5							
6		S-3	5'-7'	7 4 3 4	7	Same w/ Rock Fragments (Fill)	
7							
8		S-4	7'-9'	4 3 4 3	7	Same (Wet) (Fill) 10'-0"	
9							
10							
11		S-5	10'-12'	4 2 3 8	5	Gray coarse to fine SAND, trace Silt, little fine Gravel 13'-6"	
12							
13		S-6	12'-14'	9 3 3 8	6		
14							
15		S-7	14'-16'	8 12 14 17	26	Reddish Brown Clayey SILT, some medium to fine Sand, some medium to fine Gravel	
16							
17		S-8	16'-18'	8 14 16 25	30	Same	
18							
19		S-9	18'-20'	22 30 30 50	60	Same	
20							
21						Test Boring Completed at 20'-0"	
22							
23							
24							
25							
26							
27							

S - SPLIT SPOON SAMPLER
U - UNDISTURBED SAMPLE
C - CORE DRILLED

DRILLING CONTRACTOR ETD, Inc.
DRILLING EQUIPMENT Truck Rig
STL REPRESENTATIVE A. Sencar

SOR CONSULTING ENGINEERS, INC.	TEST BORING LOG	BORING B-3

CLIENT	Neglia Engineering	GSE	N/A
PROJECT	Firehouse Addition	DATUM	Ground Surface
LOCATION	Woodbridge, New Jersey	DATE START	06/08/23
		DATE FINISH	06/08/23
		JOB NO.	23-C-18
		REPORT NO.	23-C-20
			Sheet 1 of 1

GROUND WATER					CAS.	SAMP.	CORE	TUBE
DATE	TIME	DEPTH	CASING	TYPE	HAS	SS		
8-Jun		10'-0"		DIA.	4 1/4"	2" OD		
				WT.		140 lb.		
				FALL		30"		

DEPTH (ft.)	CASING BLOWS	SAMPLE TYPE/NO.	DEPTH	SAMPLER BLOWS PER 6"	N VALUE	DESCRIPTION	REMARKS
1				2 4 6 4		Topsoil 2"	
2		S-1	0'-2'		10	Brown medium to fine SAND, trace Silt (Fill)	
3				4 3 5 6			
4		S-2	2'-4'		8	Brown medium to fine SAND, some Silt (Fill)	
5				3 2 3 2			
6		S-3	4'-6'		5	Same (Fill)	
7				2 2 2 2			
8		S-4	6'-8'		4	Same (Fill)	
						8'-0"	
9				1 1 1 1			
10		S-5	8'-10'		2	Gray Clayey SILT, some fine Sand, trace roots	
						10'-6"	
11				6 7 22 8			
12		S-6	10'-12'		29	Gray coarse to fine SAND, trace Silt, and medium to fine Gravel, trace roots	W=18.8%
13				6 6 7 7			
14		S-7	12'-14'		13	Same	
15						Test Boring Completed at 14'-0"	
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							

S - SPLIT SPOON SAMPLER
U - UNDISTURBED SAMPLE
C - CORE DRILLED

DRILLING CONTRACTOR	ETD, Inc.
DRILLING EQUIPMENT	Truck Rig
STL REPRESENTATIVE	A. Sencar

VISUAL IDENTIFICATION OF SAMPLES

The samples were identified in accordance with the American Society for Engineering Education System of Definition described by Professor Donald M. Burmeister in ASTM Special Technical Publication 479, 5th Edition, 1970.

I. Definition of Soil Components and Fractions

MATERIAL	SYMBOL	FRACTION	SIEVE SIZE	DEFINITION
Boulders	Bldr	--	9" +	Material retained on 9" sieve.
Cobbles	Cbl	--	3" to 9"	Material passing the 9" sieve and retained on the 3" sieve.
Gravel	G	Coarse (c) Medium (m) Fine (f)	1" to 3" 3/8" to 1" No. 10 to 3/8"	Material passing the 3" sieve and retained on the No. 10 sieve.
Sand	S	Coarse (c) Medium (m) Fine (f)	No.30 to No. 10 No.60 to No. 30 No.200 to No. 60	Material passing the No. 10 sieve and retained on the No. 200 sieve.
Silt	$	--	Passing No. 200 (0.074 mm)	Material passing the No. 200 sieve that is non-plastic in character and exhibits little or no strength when air dried.

Organic Silt (O$)

Material passing the No. 200 sieve which exhibits plastic properties within a certain range of moisture content, and exhibits fine granular and organic characteristics.

		PLASTICITY	PLASTICITY INDEX	CLAY-SOIL
Clayey SILT	Cy$	Slight (sl)	1 to 5	Material passing the No. 200 sieve which can be made to exhibit plasticity and clay qualities within a certain range of moisture content, and which exhibits considerable strength when air-dried.
SILT & CLAY	$&C	Low (l)	5 to 10	
CLAY & SILT	C&$	Medium (m)	10 to 20	
Silty CLAY	$yC	High (h)	20 t 40	
CLAY	C	Very High (vh)	40 plus	

II. Definition of Component Proportions

COMPONENT	WRITTEN	PROPORTIONS	SYMBOL	PERCENTAGE RANGE BY WEIGHT*
Principal	CAPITALS	--		50 or more
Minor	Lower Case	and some little trace	a.	35 to 50
			s.	20 to 35
			l.	10 to 20
			t.	1 to 10

*Minus sign (-) lower limit, plus sign (+) upper limit, no sign middle range.

III. Glossary of Modifying Abbreviations

CATEGORY	SYMBOL	TERM	SYMBOL	TERM	SYMBOL	TERM
A. Borings	U/D	Undisturbed	B	Exploratory	A	Auger
B. Samples	C D O.E.	Casing Denison Open End	L S	Lost Spoon	U W	Undisturbed Wash
C. Colors	bk bl br gr	black blue brown gray	gn or rd tn	green orange red tan	wh yw dk lt	white yellow dark light
D. Organic Soils	dec dec'g lig	decayed decaying lignite	o rts ts	organic roots topsoil	veg pt	Vegetation peat
E. Rocks	LS Gns	Limestone Gneiss	rk SS	rock Sandstone	Shst Sh	Schist Shale
F. Fill and Misc. Material	bldr(s) brk(s) cndr(s)	boulder(s) brick(s) cinder(s)	cbl (s) wd dbr	cobble (s) wood debris	gls misc rbl	glass miscellaneous rubble
G. Misc. Terms	do el, El fgmt (s) frqt lrg mtld no rec pen	ditto elevation fragment(s) frequent large mottled no recovery penetration	pp P.I. P pc(s) rec or R	pocket penetrometer Plasticity Index pushed pressed piece(s) recovered	ref sm W.L. W.H. W.R.	refusal small water level weight of hammer weight of rods
H. Stratified Soils	alt thk thn w prt seam lyr stra vvd c pkt lns occ freq	alternating thick thin with parting seam layer stratum varved Clay pocket lens occasional frequent	-) to 1/16" thickness - 1/16 to 1/2" thickness - 1/2 to 12" thickness - greater than 12" thickness - alternating seams or layers of sand, silt and clay - small, erratic deposit, usually less than 1 foot - lenticular deposit - one or less per foot of thickness - more than one per foot of thickness			

IV. Other Descriptive Criteria

A. Relative density of coarse-grained soils and non-plastic silts.

N-VALUE	DESCRIPTIVE TERM	RELATIVE DENSITY (%)
0-4	Very Loose	0-15
4-10	Loose	15-45
10-30	Medium Dense	45-70
30-50	Dense	70-85
50+	Very Dense	85-100

B. Consistency of fine-grained soils with some plasticity.

N-VALUE	DESCRIPTIVE TERM	UNCONFINED COMPRESSIVE STRENGTH (tsf)
0-2	Very Soft	Less than 0.25
2-4	Soft	0.25-0.50
4-8	Medium	0.50-1.00
8-16	Stiff	1.00-2.00
16-32	Very Stiff	2.00-4.00
32+	Hard	4.00+

APPENDIX III

LABORATORY SOIL TEST RESULTS

SOR TESTING LABORATORIES, INC.

98 Sand Park Road - Cedar Grove, NJ 07009
Tel.: (973) 239-6001 Fax: (973) 239-8380 http://www.sorlabs.com

PARTICLE SIZE DISTRIBUTION TEST REPORT

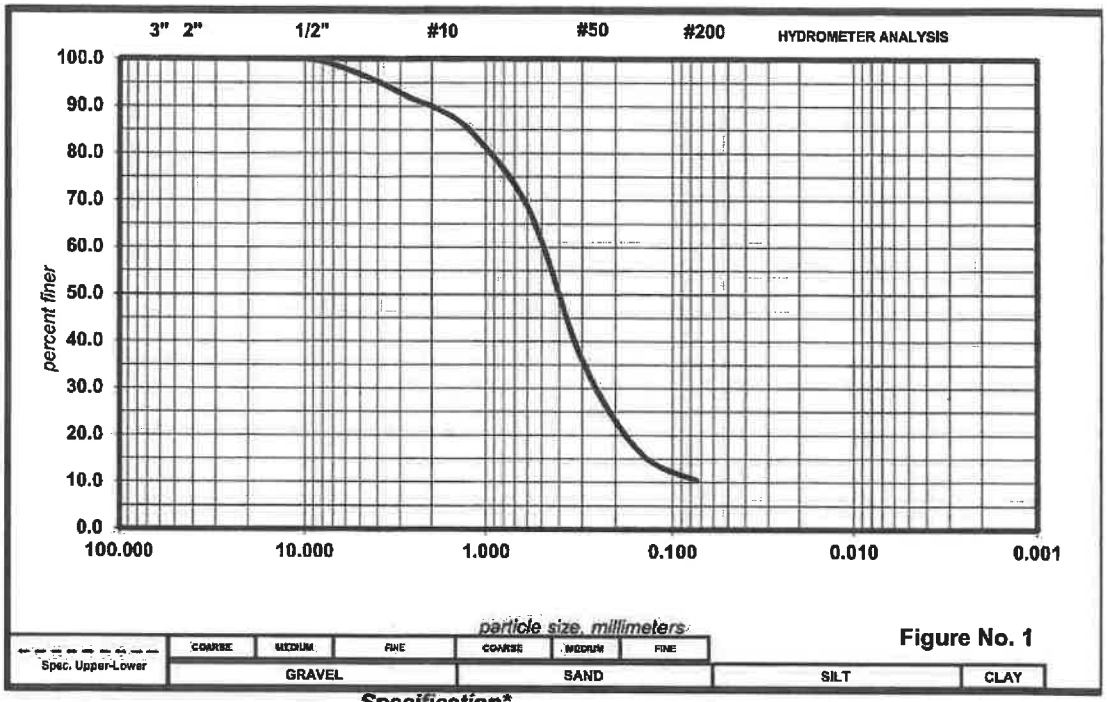

Figure No. 1

Sieve Size	% Finer	Specification* Min.(%)	Specification* Max.(%)
3" (75 mm)			
2 1/2" (63 mm)			
2" (50 mm)			
1 1/2" (38.1 mm)			
1" (25 mm)			
3/4" (19 mm)			
5/8" (16 mm)			
1/2" (12.5 mm)			
3/8" (9.5 mm)	100.0		
5/16" (8 mm)			
1/4" (6.3 mm)			
#4 (4.75 mm)	96.4		
#6 (3.35 mm)			
#8 (2.36 mm)	91.0		
#10 (2 mm)			
#14 (1.4 mm)			
#16 (1.18 mm)	84.4		
#20 (850 µm)			
#30 (600 µm)	68.2		
#40 (425 µm)			
#50 (300 µm)	35.7		
#60 (250 µm)			
#100 (150 µm)	16.4		
#200 (75 µm)	10.4		

Sample Identification

Sample No.: B-1, S-5
Lab No.: A23-073-01
Source/Location: 9'-11'
Description:
Brown cf SAND, little Silt, trace fine Gravel

sample description in accordance with Burmister System

LL :	PL :	PI :

As received Moisture Content: 23.3 %

Classification:
USCS: [SW-SM]
AASHTO:

Remarks:
Sample received in lab on June 09, 2023

Client: Neglia Engineering
Project: Firehouse Addition
Location: Woodbridge, New Jersey
Date: 13-Jun-23
Job No.: 23-C-18 **Report No.:** 23-C-20

SOR TESTING LABORATORIES, INC.

98 Sand Park Road - Cedar Grove, NJ 07009
Tel.: (973) 239-6001 Fax: (973) 239-8380 http://www.sorlabs.com

PARTICLE SIZE DISTRIBUTION TEST REPORT

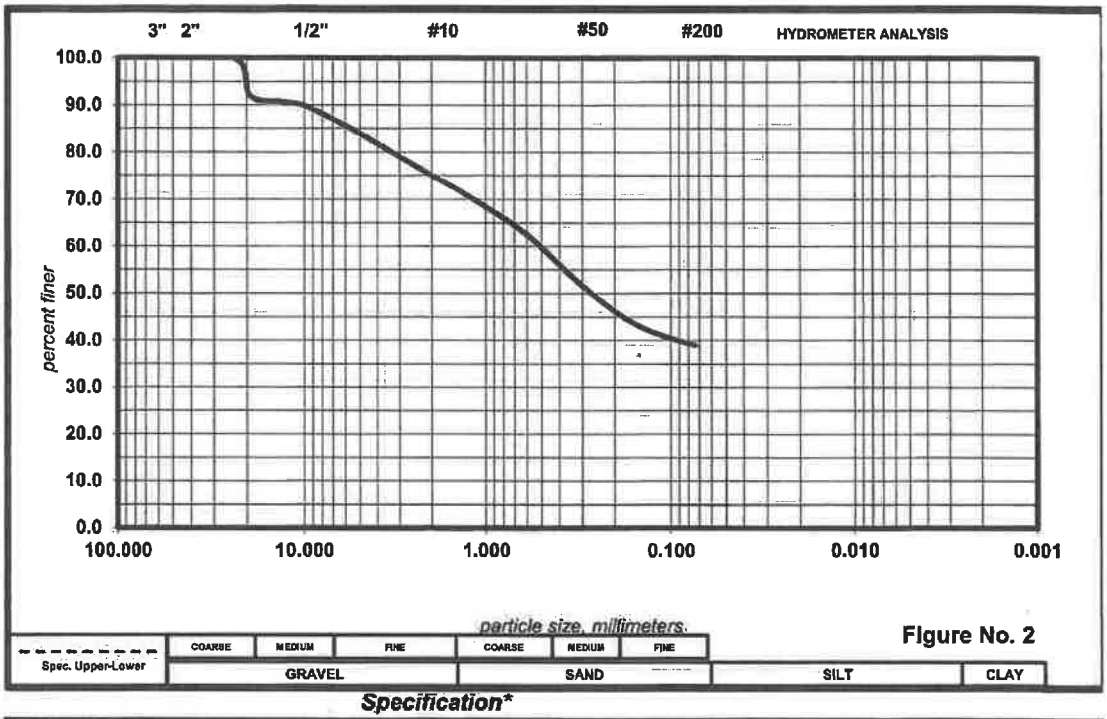

Figure No. 2

Specification*

Sieve Size	% Finer	Min.(%)	Max.(%)
3" (75 mm)			
2 1/2" (63 mm)			
2" (50 mm)			
1 1/2" (38.1 mm)			
1" (25 mm)	100.0		
3/4" (19 mm)	91.9		
5/8" (16 mm)			
1/2" (12.5 mm)	90.6		
3/8" (9.5 mm)	89.6		
5/16" (8 mm)			
1/4" (6.3 mm)			
#4 (4.75 mm)	83.5		
#6 (3.35 mm)			
#8 (2.36 mm)	76.7		
#10 (2 mm)			
#14 (1.4 mm)			
#16 (1.18 mm)	70.3		
#20 (850 µm)			
#30 (600 µm)	62.3		
#40 (425 µm)			
#50 (300 µm)	51.4		
#60 (250 µm)			
#100 (150 µm)	43.0		
#200 (75 µm)	39.0		

Sample Identification

Sample No.: B-1, S-6
Lab No.: A23-073-02
Source/Location: 14'-16'
Description:
Red.Br. cf Sand, and Clayey Silt, some mf Gravel

sample description in accordance with Burmister System

LL :	PL :	PI :

As received Moisture Content: 11.5 %

Classification:
USCS: [SM]
AASHTO:

Remarks:
Sample received in lab on June 09, 2023

Client: Neglia Engineering
Project: Firehouse Addition
Location: Woodbridge, New Jersey
Date: 13-Jun-23
Job No.: 23-C-18 **Report No.:** 23-C-20

SOR TESTING LABORATORIES, INC.

98 Sand Park Road - Cedar Grove, NJ 07009
Tel.: (973) 239-6001 Fax: (973) 239-8380 http://www.sorlabs.com

PARTICLE SIZE DISTRIBUTION TEST REPORT

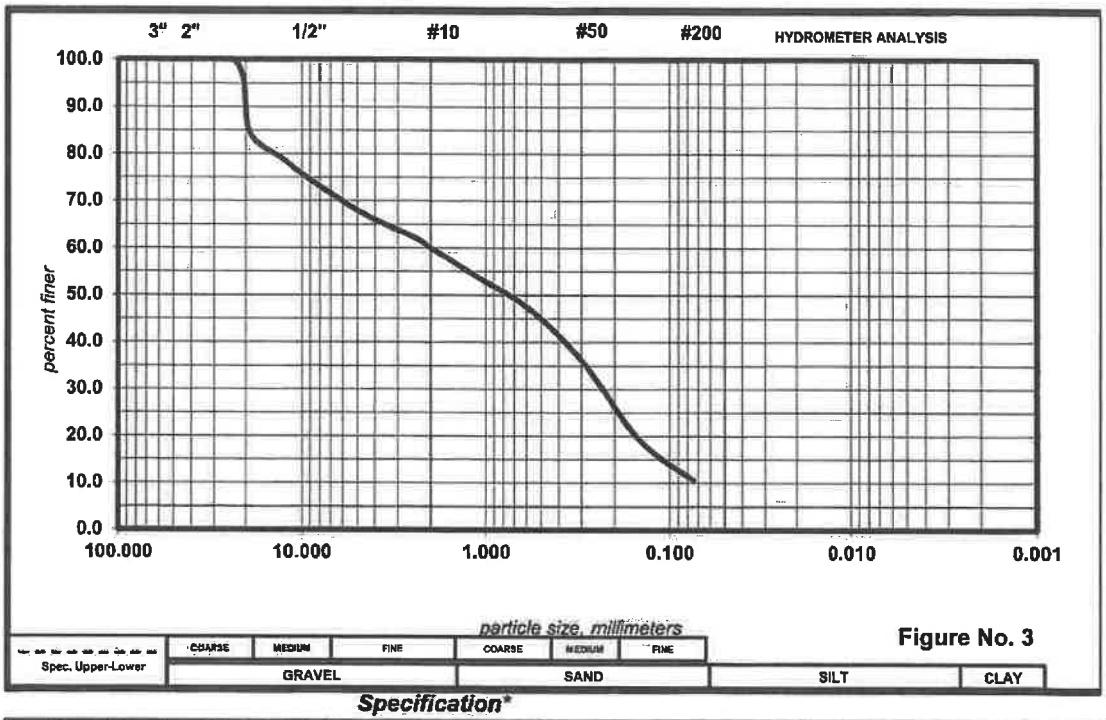

Figure No. 3

*Specification**

Sieve Size	% Finer	Min.(%)	Max.(%)
3" (75 mm)			
2 1/2" (63 mm)			
2" (50 mm)			
1 1/2" (38.1 mm)			
1" (25 mm)	100.0		
3/4" (19 mm)	84.7		
5/8" (16 mm)			
1/2" (12.5 mm)	79.0		
3/8" (9.5 mm)	75.2		
5/16" (8 mm)			
1/4" (6.3 mm)			
#4 (4.75 mm)	67.5		
#6 (3.35 mm)			
#8 (2.36 mm)	62.0		
#10 (2 mm)			
#14 (1.4 mm)			
#16 (1.18 mm)	54.5		
#20 (850 µm)			
#30 (600 µm)	47.3		
#40 (425 µm)			
#50 (300 µm)	35.9		
#60 (250 µm)			
#100 (150 µm)	19.5		
#200 (75 µm)	10.6		

Sample Identification

Sample No.: B-3, S-6
Lab No.: A23-073-03
Source/Location: 10'-12'
Description:
Brown cf Sand, little Silt, and mf Gravel

sample description in accordance with Burmister System

LL :	PL :	PI :

As received Moisture Content: 18.8 %

Classification:
USCS: [SW-SM]
AASHTO:

Remarks:
Sample received in lab on June 09, 2023

Client: Neglia Engineering
Project: Firehouse Addition
Location: Woodbridge, New Jersey
Date: 13-Jun-23
Job No.: 23-C-18 **Report No.:** 23-C-20

APPENDIX IV

LIMITATIONS

SOR CONSULTING ENGINEERS, INC

LIMITATIONS

The conclusions and recommendations contained in this geotechnical report no. 23-C-20 are based upon the applicable standards of our profession at the time this report was prepared.

The analyses and recommendations submitted in this report are based in part upon the data obtained from three test borings performed for this study. The stratification lines shown on the individual logs of the subsurface explorations represent the approximate boundaries between soil types. However, the transition between soil types may be gradual.

In our opinion, the number of explorations performed for this study are adequate for a general understanding of the site subsurface conditions. However, the nature and extent of variations between the explorations may not become evident until construction. If, during construction, variations become evident, it will be necessary to re-evaluate the recommendations of this report.

This report may be referred to or included in the project specifications for general information purposes only, but should not be solely used as the technical specifications for the work.

This geotechnical engineering report was prepared for the project by Sor Consulting Engineers, Inc. for design purposes only, and may not be sufficient to prepare an accurate bid. Contractors utilizing the information in the report should do so with the express understanding that its scope is limited to design considerations. Prospective bidders should obtain the owner's permission to perform whatever additional explorations or data gathering they deem necessary to prepare their bid accurately.

This report has been prepared in accordance with generally accepted geotechnical engineering practices for the exclusive use of Neglia Engineering and/or their authorized representatives for specific application to the design of the proposed building addition to be constructed at 418 School Street in Woodbridge, New Jersey. No other warranty, expressed or implied, is made.

00 42 00 FORM OF PROPOSAL- OVERALL (SINGLE PRIME) CONTRACT

Addition at Woodbridge Fire Headquarters
For the Woodbridge Fire Company
Middlesex County, New Jersey

Date:_____

A. BASE BID

We,_____ the Undersigned, will furnish all labor, material, equipment and services necessary for all construction work required to comprise the entire project, under a single prime contract, for **Addition at Woodbridge Fire Headquarters for the Woodbridge Fire Department** in strict accordance with the Contract Documents and Addenda thereto as furnished by USA Architects, P.A., for the total sum of:

_____Dollars ($_____).

Every bidder must indicate the bid price above in ink in both words and figures.

B. ALLOWANCES – See Section 01 21 00

The undersigned bidder hereby affirms that the specified allowances, as described and required in Specification Section 01 21 00 – Allowances are included in this bid proposal.

Allowance No. 01: (**Contingency Allowance) $50,000.00 (FIFTY THOUSAND DOLLARS).** Contractor to include a general repair allowance to address any unforeseen project conditions. All un-used allowances shall be fully credited back to the Owner up to 100% of the allowance. Allowance work shall be approved by written authorization prior to any work being performed.

C. AGREEMENT

We, the Undersigned, agree, if awarded the Contract, to execute an agreement within 10 days of award for the above stated work and compensation on the Standard Form of Agreement Between Owner and Contractor, as amended by Owner, AIA Document A101, and a Waiver of Liens in such form as the Owner will direct.

D. SURETY

We, the Undersigned, agree, if awarded the Contract, to execute and deliver to the Owner, prior to the signing of the Contract, the Bonds as required by the Supplementary General Conditions, written by

_____, Surety.

E. COMPLETION TIME

We, the Undersigned, agree, if awarded the Contract, to begin work within 10 calendar days after a notice to proceed/letter of intent and to substantially complete the work in accordance with the Division 01 Section, "Time of Completion."

F. LIQUIDATED DAMAGES

We, the Undersigned, agree, if awarded the Contract, that the sum of **$500.00 calendar per day** for liquidation damages, pursuant to the Supplementary General Conditions, will be inserted in the Agreement.

G. BID SECURITY

This bid is accompanied by bid security in a total sum of 10% of the maximum Bid set forth above, (not to exceed $20,000.00).

H. ACKNOWLEDGEMENT OF RECEIPT OF ADDENDA

We, the undersigned, certify that we have received all addenda listed below.

1. Received Addenda Number; _____Dated_____
2. Received Addenda Number; _____Dated_____
3. Received Addenda Number; _____Dated_____

I. STATEMENT

We, the Undersigned, have inspected the site, and acting through its authorized officers and intending to be legally bound, agree that this bid proposal shall constitute an offer by the Undersigned to enter into a Contract with the acts and things therein provided, which offer shall be irrevocable for 60 days, pursuant to N.J.S.A. 40A:11-1 et seq. from the date of opening hereof and that the Owner may accept this offer at any time during said period by notifying the Undersigned of the acceptance of said offer.

We, the Undersigned, a sole proprietor/partnership/ corporation created and existing under the laws of the State of:

_____, has its business address at

_____;

_____;
Address

Telephone; ( ) _____

Tel. (24HR); ( ) _____

Email;_____

Sign by;_____
Proprietor/Principal/President

_____
TYPE/Print Name

Attested by; _____
Secretary

_____
TYPE/Print Name

END OF SECTION 00 42 00

SECTION 01 11 00 - SUMMARY OF WORK (SINGLE PRIME CONTRACT)

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Sections, apply to work of this Section.

1.2 PROJECT DESCRIPTION

A. Project Description: Addition at Woodbridge Fire Headquarters for the Woodbridge Fire Company

B. Scope of work includes, but is not limited to the following:

1. The Project consists of an addition to the apparatus bays at the Woodbridge Fire Headquarters. Work will include, but not limited to the civil, architectural, mechanical, and electrical work as indicated by the Contract Documents. Successful bidder must comply with all Federal and State requirements contained in the project specifications. The extent of the contract work is indicated in the Contract Documents.

C. The extent of the contract work is indicated in the Contract Documents.

1. Local custom and trade union jurisdictional settlement do not control the Scope of Work included in each prime Contract. When a potential jurisdictional dispute or similar interruption of construction activities is first identified or threatened, the affected prime contacts shall promptly negotiate a reasonable settlement to avoid or minimize the pending interruption and its delays.

D. The Contractor may employ his workers for overtime work to meet the completion dates, at no additional cost to the Owner.

E. The scope of the work shall not be limited to what is specifically called out on the drawings or specifications, but shall include any and all selective demolition as well as any cutting and patching as may be required to accomplish the intended construction.

1.3 USE OF PREMISES

A. The Contractor shall limit his use of the premises to construction activities in areas indicated or as directed by the owner; allow for Owner occupancy and use by the public.

1. Confine operations to areas adjacent to the building, noting other contractors and the owner’s forces will also be on site restoring portions of the interior, as well as staff and the general public who require access during the normal work day. Portions of the site beyond areas in which construction operations are required are not to be disturbed. At

the beginning of the project, review the site requirements with the owner and owner's forces and coordinate this general contractor's work area with other contractors, temporary field offices, owner's trailers and the public.

2. Keep driveways, roadways and entrances serving the premises clear and available to the Owner and the Owner's employees at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

B. Maintain the existing building in a weather tight condition throughout the construction period. Repair damage caused by constructions operations. Take all precautions necessary to protect the building and its occupants during the construction period.

C. The Contractor is responsible for maintaining all temporary emergency egress routes. The Contractor shall obtain approval from the Building and Fire Departments for all temporary emergency egress routes.

D. All Personnel shall dress in clothing appropriate to the work they perform. All personnel are to wear shirts, hardhats, safety shoes, glasses, gloves, masks or respirators, noise protection devices, and other protective clothing and equipment as required by OSHA standards.

E. Alcoholic beverages and controlled substances are not allowed on or near the jobsite. Any personnel found violating these restrictions, or being belligerent, will be subject to removal from the site.

F. Contractor is not permitted to use any parking spaces designated for Owner's staff or visitors. Contractor shall review available on site parking locations prior to submitting bid.

1.4 OWNER OCCUPANCY

A. The Owner will occupy the site during the entire construction period. Cooperate with the Owner during construction operations to minimize conflicts and to facilitate Owner usage. Perform the work so as not to interfere with the Owner's operations.

1. Temporary protection by the general contractor is required for the staff and public throughout the entire duration of the project.

1.5 KNOWLEDGE OF CONTRACT REQUIREMENTS

A. The Contractor and his Subcontractor's, Sub-Subcontractor's and material men shall consult in detail the General Conditions, Supplementary Conditions, all Divisions and Sections of the Specifications, all Drawings and all Addenda for instructions and requirements pertaining to the Work, and at his and their cost, shall provide all labor, materials, equipment and services necessary to furnish, install and complete the work in strict conformance with all provisions thereof.

B. The Contractor will be held to have examined the site of the Work prior to submitting his proposal and informed himself, his Subcontractors, Sub-Subcontractors and material men of all existing conditions affecting the execution of the work.

C. The Contractor will be held to have examined the Contract Documents, and Modifications thereto, as they may affect subdivisions of the work and informed himself, his Subcontractors, Sub-Subcontractors and material men of all conditions thereof affecting the execution of the work.

D. The Scope of Work for the Contract is not necessarily limited to the description of each Section of the Specifications and the illustrations shown on the Drawings. Include all minor items not expressly indicated in the Contract Documents, or as might be found necessary as a result of field conditions, in order to complete the work as it is intended, without any gaps between the various subdivisions of work of the Contractor and his Subcontractors.

E. The Contractor will be held to be thoroughly familiar with all conditions affecting labor in the neighborhood of the project including, but not limited to, Unions, incentive pay, procurement, living and commuting conditions and to have informed his Subcontractors and Sub-Subcontractors thereof.

1.6 CONTRACT DOCUMENTS INFORMATION

A. The Contract Documents are prepared in accordance with available information as to existing conditions and locations. If, during construction, conditions are revealed at variance with the Contract Documents, notify the Architect immediately so that supplementary instructions may be issued.

B. The Specifications determine the kinds and methods of installation of the various materials, the Drawings establish the quantities, dimensions and details of materials, the schedules on the Drawings give the location, type and extent of the materials.

C. Should the Drawings, Specifications or schedules disagree in themselves or with either or both of the others, the better quality or greater quantity of work or materials shall be performed and provided, unless otherwise directed in writing by the Architect.

D. Dimensions given on the Drawings govern scale measurements and large scale drawings govern small scale drawings, except as to anything omitted unless such omission is expressly noted on the larger scale drawings.

E. The techniques or methods of specifying to record requirements varies throughout text, and may include "prescriptive", "open generic/descriptive", "compliance with standards", "performance", "proprietary", or a combination of these. The method used for specifying one unit of work has no bearing on requirements for another unit of work.

F. Whenever a material, article or piece of equipment is referred to in the singular number in the Contract Documents, it shall be the same as referring to it in the plural. As many such materials, articles or pieces of equipment shall be provided as are required to complete the work.

G. With the approval of the Architect and without additional cost to the Owner, the Contractor shall make all necessary changes or modifications to locations as may be necessary to suit requirements and conditions at the building and for the proper and conveniently accessible location of all parts of the system.

H. Small details not usually shown or specified, but necessary for the proper installation and operation of the work, shall be provided.

I. Cap all incomplete lines, ducts, conduits, openings, etc., until ready for final connection, after which they shall be thoroughly cleaned and left unobstructed.

PART 2 PRODUCTS (Not applicable).

PART 3 EXECUTION (Not applicable).

END OF SECTION 01 11 00

SECTION 01 21 00 - ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to the Contractor. If necessary, additional requirements will be issued by Change Order.

B. Types of allowances include the following:

1. Lump-sum allowances.

2. Unit price allowances

1.2 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Architect from the designated supplier.

1.3 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

C. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

D. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.4 COORDINATION

A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.5 LUMP-SUM ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.

B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials under allowance shall be included as part of the Contract Sum and not part of the allowance.

C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

D. Lump-Sum Allowances: The amounts herein specified are the amounts available for purchase of the materials specified, including taxes (if any), and each change order amount shall be based thereon. All other costs associated with the performance of the work under the allowance, including but not limited to installation, insurance, storage, handling, overhead, profit, etc., are NOT part of the allowance, and shall NOT be included in the allowance amount, but be part of the base bid amount.

1. In the event the actual purchase amount of the actual cost exceeds the specified allowance, the Owner will pay the excess; should the actual amount of the work, be less than the specified allowance, the Contractor shall credit the Owner with the difference.

1.6 ADJUSTMENT OF ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.

3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. Schedule:

1. Allowance No. 01: (Contingency Allowance) Fifty Thousand Dollars ($50,000.00) Contractor to include in the base bid a general repair allowance to address any unforeseen project conditions. All un-used allowances shall be fully credited back to the Owner up to 100% of the allowance. Allowance work shall be approved by written authorization prior to any work being performed.

END OF SECTION 01 21 00

SECTION 01 25 00 - PRODUCT SUBSTITUTIONS

PART 1 GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of the Contract.

B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section "Submittals."

C. Standards: Refer to Section "Reference Standards and Definitions" for applicability of industry standards to products specified.

D. Procedural requirements governing the Contractor's selection of products and product options are included under Section "Product Requirements."

1.2 DEFINITIONS

A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.

B. Substitutions Prior to Bid: This is the fourth phase of a window replacement project at this facility. The profile and performance of the basis of design is an integral part of the project. A request for alternate manufacturer window must be made prior to bid. If allowed, an addendum will be provided for all bidders indicating the specified alternate approved manufacturer.

C. Substitutions following Bid: Requests for changes in products, (other than window system manufacturer) materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions." The following are not considered substitutions:

1. Substitutions requested by Bidders during the bidding period, and accepted prior to award of Contract, are considered as included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.

2. Revisions to Contract Documents requested by the Owner or Architect.

3. Specified options of products and construction methods included in Contract Documents.

4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.3 SUBMITTALS

A. Substitution Request Submittal: Requests for substitution will be considered if received within 15 days after commencement of the Work. Requests received more than 15 days after commencement of the Work may be considered or rejected at the discretion of the Architect.

1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required for Change Order proposals.

2. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:

a. Product Data, including Drawings and descriptions of products, fabrication and installation procedures.

b. Samples, where applicable or requested.

c. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.

d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors, that will become necessary to accommodate the proposed substitution.

e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.

f. Cost information, including a proposal of the net change, if any in the Contract Sum.

g. Certification by the Contractor that the substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Contractor's waiver of rights to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.

3. Architect's Action: Within one week of receipt of the request for substitution, the Architect will request additional information or documentation necessary for evaluation of the request. Within 2 weeks of receipt of the request, or one week of receipt of the additional information or documentation, which ever is later, the Architect will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name. Acceptance will be in the form of a Change Order.

a. The Architect will review each request for substitution only once. The Contractor will be required to reimburse the Architect at his hourly rate, for any reviews which are required, or requested, beyond the initial review.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 SUBSTITUTIONS

A. Substitutions may be permitted by the Architect, if, in his opinion, the requirements of the proposed substitution comply with the requirements specified for the material, article or piece of equipment; however, the Architect is not required to permit substitution pursuant to the case of Whitten Corporation vs. Paddock, Incorporated, United States District Court, Massachusetts, April 12, 1974, affirmed by the Federal First Circuit Court, December 14, 1974, and the United States Supreme Court, 1988.

B. The Architect has no obligation, after award of contract, to consider any brand other than those named in the Contract Documents. However, the Contractor may submit substitutes to the Architect for review, fully documented and certified, and accompanied by his proposal for a deduction in the Contract Sum.

C. Conditions: The Contractor's substitution request will be received and considered by the Architect when one or more of the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.

1. Extensive revisions to Contract Documents are not required.

2. Proposed changes are in keeping with the general intent of Contract Documents.

3. The request is timely, fully documented and properly submitted.

4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.

5. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.

6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.

7. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional

compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.

8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.

9. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.

10. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.

11. Where a proposed substitution involves more than one prime Contractor, each Contractor shall cooperate with the other Contractors involved to coordinate the Work, provide uniformity and consistency, and to assure compatibility of products.

D. The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

END OF SECTION 01 25 00

REQUEST FOR SUBSTITUTION

PROJECT NAME: _____

USA PROJECT #: _____

SUBSTITUTION NO. _____

Submit a copy of this form for each requested substitution. Fill in all blanks, check all boxes that apply and attach all necessary supporting data.

Specified Item: _____

Specification Section(s)/Paragraph(s): _____

Drawing Number(s): _____

Proposed Substitute: _____
(include, as applicable, manufacturer's name & address, trade name & model number of product and name of fabricator or supplier)

Reason for Proposed Substitution: _____

_____

_____

Net Change to Contract Sum: ☐ No Change ☐ Deduct $_____ ☐ Add $ _____

Change to Contract Time: ☐ No Change ☐ _____ Days ☐

The following required supporting documents are attached (Check all that apply):

☐ Complete Product Data

☐ Itemized comparison of properties of proposed product to specified product.

☐ List of other projects on which proposed has been used, with project name, design professional's name and owner contact.

☐ List of maintenance services and replacement materials available.

☐ Statement of effect of substitution on construction schedule.

☐ Description of change that will be required in other work or products if substitute product is approved.

FOR SUBSTITUTION REQUEST

The undersigned testifies that he/she:

- Is submitting this substitution request within the limits set forth in the Contract Documents.
- Has investigated the proposed product and determined that it is equal or better than the specified product.
- Will provide the same warranty for the proposed product as for the specified product.
- Will coordinate installation and make other changes as required for the work to be complete in all respects, including: (a) redesign and (b) additional components and capacity required by other work affected by the change.
- Waives all claims for additional costs for evaluation of the substitution request, redesign if required, and reapproval by authorities having jurisdiction, if required.
- Waives reimburse the Owner for additional costs for evaluation of the substitution request, redesign if required, and reapproval by authorities having jurisdiction, if required.

Contractor's Signature: _____

Typed or Printed Name: _____

Title: _____

Company: _____

Address: _____

Phone Number: _____

Owner Approval: _____ Date: _____

Construction Manager Approval: _____ Date: _____

If Applicable

USA Architects, P.A. Approval: _____ Date: _____

Consulting Engineer Approval: _____ Date: _____

SECTION 01 26 00 - MODIFICATION PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

A. This section specifies administrative and procedural requirements for handling and processing Contract modifications.

B. Related Sections: The following sections contain requirements that relate to this section:

1. Division 01 Section "Submittals" for requirements for the Contractor's Construction Schedule.

2. Division 01 Section "Application for Payment" for administrative procedures governing applications for payment.

3. Division 01 Section "Product Substitutions" for administrative procedures for handling requests for substitutions made after award of the Contract.

1.2 CHANGE ORDER PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time will be issued by the Architect, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary.

1. Proposal requests issued by the Architect are for information only. Do not consider them an instruction either to stop work in progress, or to execute the proposed change.

2. Unless otherwise indicated in the proposal request, within 20 days of receipt of the proposal request, submit to the Architect for the Owner's review an estimate of cost necessary to execute the proposed change.

a. Include a list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.

b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.

B. Contractor-Initiated Change Order Proposal Requests: When latent or other unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Architect.

1. Include a statement outlining the reasons for the change 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.
2. Include a list of quantities of products to be purchased and unit costs along with the total amount of purchases to be made.
3. Indicate applicable taxes, delivery charges, equipment rental, amounts of trade discounts.
4. Comply with requirements in Section "Product Substitutions" if the proposed change in the Work requires the substitution of one product for a product or system specified.

C. Proposal Request Form: Use AIA Document G 709 for Change Order Proposal Requests.

1.3 CHANGES IN THE WORK

A. Tabulate cost breakdown into subcontracts and trades for each of which the quantity, labor, material, other cost and resulting final cost per unit shall be indicated. Quantity, labor, material, other cost and cost per unit generally include but are not necessarily limited to the following:

1. Quantity; total number of items for each portion of work as determined from the change.
2. Labor; on site labor for the handling and installation of material.
3. Material; cost of material as delivered to the site for installation and erection.
4. Other cost; rental equipment, site office, administration, overhead and profit, testing survey and layout, samples and all other costs not included in labor and material.

B. When a change in the work includes a category or categories of work both added to and deducted from the Contract, the total quantities of added work and of deleted work shall be determined separately for each category and the appropriate unit price or net cost of the work shall be applied to the difference between the two total quantities.

C. Unit prices shall be inclusive of all costs and shall be applied to units of measure as defined in the specifications for each category of work.

D. For all extra work performed by the Contractor, refer to the General Conditions.

E. For all extra work performed by a Subcontractor, refer to the General Conditions.

F. Gross costs shall be net costs plus the allowances described above, such allowances being including of all cost of superintendence, supervision, engineering, overhead, profit, administrative and site office expenses and all other general expenses.

1.4 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: When the Owner and Contractor are not in total agreement on the terms of a Change Order Proposal Request, the Architect may issue a Construction Change

Directive on AIA Form G714, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. The Construction Change Directive will contain a complete description of the change in the Work and designate the method to be followed to determine change in the Contract Sum or Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.5 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 Contractor on AIA Form G701, as provided in the Conditions of the Contract.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION 01 26 00

SECTION 01 29 00 - APPLICATIONS FOR PAYMENT

PART 1 GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.

1. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, List of Subcontracts, and Submittal Schedule.

1.2 SCHEDULE OF VALUES

A. The Contractor shall coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:

a. Contractor's construction schedule.

b. Application for Payment form.

c. List of subcontractors.

d. Schedule of alternates.

e. List of products.

f. List of principal suppliers and fabricators.

2. Submit the Schedule of Values to the Engineer/Architect and Owner at the earliest feasible date, but in no case later than 7 days before the date scheduled for submittal of the initial Application for Payment.

a. Submit 3 copies of Schedule of Values to Engineer/Architect and Owner.

B. Format and Content: Use the Project Manual Table of Contents as a guide to establish the format for the Schedule of Values.

1. Identification: Include the following Project identification on the Schedule of Values:

a. Project name and location.

b. Name of the Architect.

c. Project number.

d. Contractor's name and address.

e. Date of submittal.

2. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:

   a. Generic name.

   b. Related Specification Section.

   c. Name of subcontractor.

   d. Name of manufacturer or fabricator.

   e. Name of supplier.

   f. Change Orders (numbers) that have affected value.

   g. Dollar value.

   h. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.

3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items.

4. Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.

5. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

6. Tabulate schedule into subcontracts and trades for each of which the quantity, labor, materials, other cost and resulting final cost per unit shall be indicated. Quantity, labor, materials, other cost and cost per unit generally include but are not necessarily limited to the following:

   a. Quantity; total number of times for each portion or unit of work as determined from the Contract Documents.

   b. Labor; on site labor for the handling and installation of material from point of delivery at site.

   c. Material; cost of materials as delivered to the site for installation and erection.

   d. Other cost; rental equipment, depreciation, site office, administration, overhead and profit, testing, survey and layout, samples and all other costs not included in labor and material.

e. Cost per unit; total of labor, material and other Cost for each portion or unit of work derived from the total quantity of same.

1.3 PROGRESS PAYMENTS

A. Based upon application for payments submitted to the Architect and Owner, by the Contractor, on the specified day of each month and Certificate of Payment certified by the Engineer/Architect, the Owner will make progress payments on account of the Contract Sum to the Contractor as follows:

1. In making progress payments, there shall be retained two percent (2%) of the approved amount, until final completion and acceptance of all work covered by the Contract, including the completion of all corrective or punch list items.

2. For each day delay in the Contractor's submission of an application for payment acceptable to the Engineer/Architect and Owner, the Owner may delay one day in making his progress payment.

1.4 APPLICATIONS FOR PAYMENT:

A. The Contractor's monthly application for payment shall be in the same schedule form as the schedule of values, reflecting the same items. Unit costs shall be realistic for their part of the work.

B. Each Application for Payment shall be consistent with previous applications and payments as approved by and paid for by the Owner.

1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.

C. Payment Application Times: Each Payment Application shall be made at the end of each month and shall be based upon the entire month’s completed work. A “pencil copy” shall be submitted on or about the 25th of each month showing the projected completion of work for the month, for review.

D. Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703 as the form for Application for Payment.

E. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Contractor. Incomplete applications will be returned without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.

2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.

F. Transmittal: Submit 3 executed copies of each Application for Payment to the Owner by means ensuring receipt within 24 hours; each copy shall be complete, including waivers of lien and similar attachments, when required.

1. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Architect.

G. Waivers of Mechanics Lien: Submit waivers of mechanics lien from every entity who may lawfully be entitled to file a mechanics lien arising out of the Contract, and related to the Work covered by the payment.

1. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of Work covered by the application who could lawfully be entitled to a lien.

2. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment.

1. Include the following:

a. List of subcontractors.

b. List of principal suppliers and fabricators.

c. Schedule of Values.

d. Contractor's Construction Schedule (preliminary if not final).

e. Schedule of principal products.

f. Schedule of unit prices.

g. Submittal Schedule (preliminary if not final).

h. List of Contractor's staff assignments.

i. List of Contractor's principal consultants.

j. Copies of building permits

k. Copies of authorizations and licenses from governing authorities for performance of the Work.

l. Initial progress report.

m. Report of pre-construction meeting.

n. Certificates of insurance and insurance policies.

o. Performance and payment bonds (if required).

p. Data needed to acquire Owner's insurance.

I. Final Payment Application: Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment.

1. Include the following:

a. Completion of Project closeout requirements.

b. Completion of punch list items.

c. Transmittal of required Project construction records to Owner.

d. Proof that taxes, fees and similar obligations have been paid.

e. Removal of temporary facilities and services.

f. Removal of surplus materials, rubbish and similar elements.

g. Contractor's Affidavit of Payments of Debts & Claims - AIA Document G706.

h. Contractor's Affidavit of Release of Liens - AIA Document G706A.

i. Consent of Surety to Final Payment - AIA Document G707.

1.5 WAIVER OF LIENS

A. The Contractor, for himself, and for all Subcontractors and material men, agrees that no mechanic's lien or other claim shall be filed or maintained by the Contractor or by any Subcontractor, material man, laborer or any other person whatsoever for, or on account of any work performed or materials furnished under this Contract. This agreement shall execute and deliver a separate waiver of Liens in form and substance satisfactory to the Owner contemporaneously with the execution of the Owner-Contractor Agreement and before any work is begun at the site.

B. In every subcontract entered into by the Contractor after execution of this Contract or in connection herewith, the Contractor shall incorporate a provision, similar to the foregoing paragraph, to the effect that neither the Subcontractor nor any party acting through or under him shall file or maintain any mechanic's lien or other claim against the Owner in connection with the Work.

1.6 RELEASE OF PAYMENT

A. Following receipt of this Application for Payment by the Architect and review thereof, the Architect, if satisfied, shall authorize payment of that bill by executing a Project Certification for Payment to the Fire Company Officer acting on behalf of the Owner. Payment shall be made by the

B. Fire Company to the Contractor within 30 days of the Construction Manager's receipt of the Application for Payment for Work unless there is an Owner objection pursuant to paragraph "B" below.

C. The Fire Company shall have the right to withhold all or a portion of the Application for Payment amounts if, within 20 days of receipt of the Application for Payment for Work by the Construction Manager, the Architect submits, on behalf of the Fire Company a written statement to the Contractor explaining the reasons for withholding such sum.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION 01 29 00

SECTION 01 31 13 - PROJECT COORDINATION

PART 1 GENERAL

1.1 SUMMARY

A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:

1. Coordination as a responsibility of each contractor.
2. Special responsibility of the General Contractor for coordination.
3. Administrative and supervisory personnel.
4. General installation provisions.
5. Cleaning and protection.

B. Progress meetings, coordination meetings and pre-installation conferences are included in Section "Project Meetings".

C. Requirements for the Contractor's Construction Schedule are included in Section "Submittals".

1.2 COORDINATION

A. Coordination: Each Contractor shall coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.

1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

1.3 SPECIAL RESPONSIBILITIES OF THE GENERAL CONTRACTOR AS PRINCIPAL PROJECT COORDINATOR

A. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules.

2. Installation and removal of temporary facilities.

3. Delivery and processing of submittals.

4. Progress meetings.

5. Project Close-out activities.

C. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1. Salvage materials and equipment involved in performance of, but not actually incorporated in, the w Work. Refer to other sections for disposition of salvaged materials that are designated as Owner's property.

1.4 SUBMITTALS

A. Coordination Drawings: The General Contractor shall prepare and submit coordination Drawings based on appropriate information from each prime, where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components.

1. Show the interrelationship of components shown on separate Shop Drawings.

2. Indicate required installation sequences.

3. Comply with requirements contained in Section "Submittals."

4. Refer to Division-23 Section "Basic Mechanical Requirements," and Division-26 Section "Basic Electrical Materials and Methods" for specific coordination Drawing requirements for mechanical and electrical installations, for each building.

B. Staff Names: Within 15 days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.

1. Post copies of the list in the Project meeting room, the temporary field office, and each temporary telephone.

PART 2 PRODUCTS (Not Applicable).

PART 3 EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.

E. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

F. Recheck measurements and dimensions, before starting each installation.

G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.2 CLEANING AND PROTECTION

A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

1. Where applicable, such exposures include, but are not limited to, the following:

a. Excessive static or dynamic loading.

b. Excessive internal or external pressures.

c. Excessively high or low temperatures.

d. Thermal shock.

e. Excessively high or low humidity.

f. Air contamination or pollution.

g. Water or ice.

h. Solvents.

i. Chemicals.

j. Light.

k. Radiation.

l. Puncture.

m. Abrasion.

n. Heavy traffic.

o. Soiling, staining and corrosion.

p. Bacteria.

q. Rodent and insect infestation.

r. Combustion.

s. Electrical current.

t. High speed operation,

u. Improper lubrication,

v. Unusual wear or other misuse.

w. Contact between incompatible materials.

x. Destructive testing.

y. Misalignment.

z. Excessive weathering.

aa. Unprotected storage.

bb. Improper shipping or handling.

cc. Theft.

dd. Vandalism.

END OF SECTION 01 31 13

SECTION 01 31 19 - PROJECT MEETINGS (SINGLE PRIME CONTRACT)

PART 1 GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:

1. Pre-Construction Conference.
2. Pre-Installation Conferences.
3. Coordination Meetings.
4. Progress Meetings.

1.2 PRE-CONSTRUCTION CONFERENCE

A. The Architect shall schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than 10 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.

B. Attendees: The Owner, Architect and their consultants, the General Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.

C. Agenda: Attendees shall discuss items of significance that could affect progress including such topics as:

1. Tentative construction schedule.
2. Critical Work sequencing.
3. Designation of responsible personnel.
4. Procedures for processing field decisions and Change Orders.
5. Procedures for processing Applications for Payment.
6. Distribution of Contract Documents.
7. Submittal of Shop Drawings, Product Data and Samples.
8. Preparation of record documents.

9. Use of the premises.
10. Office, Work and storage areas.
11. Equipment deliveries and priorities.
12. Safety procedures.
13. First aid.
14. Security.
15. Housekeeping.
16. Working hours.

1.3 PRE-INSTALLATION CONFERENCES

A. The Architect shall conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting.

1. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:

a. Contract Documents.
b. Options.
c. Related Change Orders.
d. Purchases
e. Deliveries.
f. Shop Drawings, Product Data and quality control Samples.
g. Possible conflicts.
h. Compatibility problems.
i. Time schedules.
j. Weather limitations.
k. Manufacturer's recommendations.
l. Compatibility of materials.

m. Acceptability of substrates.

n. Temporary facilities.

o. Space and access limitations.

p. Governing regulations.

q. Safety.

r. Inspection and testing requirements.

s. Required performance results.

t. Recording requirements.

u. Protection.

2. The Architect shall record significant discussions and agreements and disagreements of each conference, along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner and Contractor.

3. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

1.4 COORDINATION MEETINGS

A. The Architect shall conduct Project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.

B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

C. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.5 PROGRESS MEETINGS

A. The Architect shall conduct progress meetings at the Project site bi-weekly. Notify the Owner and Contractor of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.

1. The Architect shall preside at each meeting, and shall record results of meetings and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

B. Attendees: In addition to representatives of the Owner and Architect, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.

C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.

1. Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

2. Review the present and future needs of each entity present, including such items as:

a. Interface requirements.

b. Time.

c. Sequences.

d. Deliveries.

e. Off-site fabrication problems.

f. Access.

g. Site utilization.

h. Temporary facilities and services.

i. Hours of Work.

j. Hazards and risks.

k. Housekeeping.

l. Quality and Work standards.

m. Change Orders.

n. Documentation of information for payment requests.

D. Reporting: No later than 3 days after each progress meeting date, distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

1. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION 01 31 19

SECTION 01 33 00 - SUBMITTALS

PART 1 GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including;
   1. Each Prime Contractor's construction schedule.
   2. The Overall Project Schedule.
   3. Submittal schedule.
   4. Daily construction reports.
   5. Shop Drawings.
   6. Product Data.
   7. Samples.

B. Administrative Submittals: Refer to other Division-01 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:
   1. Permits.
   2. Applications for payment.
   3. Performance and payment bonds.
   4. Insurance certificates.
   5. List of Subcontractors.

C. The Schedule of Values submittal is included in Section "Applications for Payment."

D. Inspection and test reports are included in Section "Quality Control Services."

1.2 SUBMITTAL PROCEDURES

A. Shop drawings, product data and samples will not be processed by Architect until list of subcontractors, material suppliers and fabricators is submitted as required by General and Supplementary Conditions.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
   2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.

      a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
   3. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.

a. Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the Contractor when a submittal being processed must be delayed for coordination.

b. If an intermediate submittal is necessary, process the same as the initial submittal.

c. Allow two weeks for reprocessing each submittal.

d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.

C. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.
2. Include the following information on the label for processing and recording action taken.

a. Project name.

b. Date.

c. Name and address of Architect.

d. Name and address of Contractor.

e. Name and address of subcontractor.

f. Name and address of supplier.

g. Name of manufacturer.

h. Number and title of appropriate Specification Section.

i. Drawing number and detail references, as appropriate.

D. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Architect using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.
1. On the transmittal Record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

E. Contractor is responsible for all printing and distribution to all interested Contractors, subcontractors and suppliers. After Architect's review, prints bearing Architect's review stamp shall be forwarded by Contractor directly to Owner, Owner's Representative and Contractor's

Superintendent at site. Contractor shall forward additional approved copies to all interested Contractors, subcontractors and suppliers on project.

1.3 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Each prime contractor shall prepare a fully developed, horizontal bar-chart type Contractor's construction schedule, and submit same to the General Contractor within 15 days of the date established for "Commencement of the Work". The General Contractor/Project Coordinator will appropriately adjust each primes schedule to incorporate it into the Overall Project Construction Schedule as indicated below:
   1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values".
   2. Within each time bar indicate estimated completion percentage in 10 percent increments. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion.
   3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
   4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically sequences necessary for completion of related portions of the Work.
   5. Coordinate the Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests and other schedules.
   6. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Architect's procedures necessary for certification of Substantial Completion.

B. Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by requirements for phased completion to permit Work by separate Contractors and partial occupancy by the Owner prior to Substantial Completion.

C. Work Stages: Indicate important stages of construction for each major portion of the Work, including testing and installation.

D. Area Separations: Provide a separate time bar to identify each major construction area for each major portion of the Work. Indicate where each element in an area must be sequenced or integrated with other activities.

E. Distribution: Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.

F. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.4 SUBMITTAL SCHEDULE

A. After development and acceptance of the Contractor's construction schedule and the Overall Project Schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for establishment of the Contractor's construction schedule. All submittals shall be made within 60 days of the date of Notice to Proceed.
   1. Coordinate submittal schedule with the list of subcontracts, schedule of values and the list of products as well as the Contractor's construction schedule.
   2. Prepare the schedule in chronological order; include submittals required during the first 90 days of construction. Provide the following information:

      a. Scheduled date for the first submittal.

      b. Related Section number.

      c. Submittal category.

      d. Name of subcontractor.

      e. Description of the part of the Work covered.

B. Distribution: Following response to initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.

C. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.5 DAILY CONSTRUCTION REPORTS

A. Prepare a daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Architect at weekly intervals:
   1. List of subcontractors at the site.
   2. Approximate count of personnel at the site.
   3. High and low temperatures, general weather conditions.
   4. Accidents and unusual events.
   5. Meetings and significant decisions.
   6. Stoppages, delays, shortages, losses.
   7. Meter readings and similar recordings.
   8. Emergency procedures.
   9. Orders and requests of governing authorities.
   10. Change Orders received, implemented.
   11. Services connected, disconnected.
   12. Equipment or system tests and start-ups.
   13. Partial Completions, occupancies.
   14. Substantial Completions authorized.

1.6 SHOP DRAWINGS

A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.

B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
   1. Dimensions.
   2. Identification of products and materials included.
   3. Compliance with specified standards.
   4. Notation of coordination requirements.
   5. Notation of dimensions established by field measurement.
   6. Sheet Size: Except for templates, patterns and similar full- size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 36" x 48".
   7. Initial Submittal: Submit six (6) blue- or black-line prints for the Architect's review; all but one print will be returned.
      a. One of the prints returned shall be marked-up and maintained as a "Record Document".
   8. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.

C. Coordination drawings are a special type of Shop Drawing that show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or function as intended.
   1. Preparation of coordination Drawings is specified in section "Project Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
   2. Submit coordination Drawings for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.

1.7 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."
   1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
      a. Manufacturer's printed recommendations.
      b. Compliance with recognized trade association standards.
      c. Compliance with recognized testing agency standards.

d. Application of testing agency labels and seals.

e. Notation of dimensions verified by field measurement.

f. Notation of coordination requirements.

2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
3. Submittals: Submit six (6) copies of each required submittal; The Architect or Engineer will retain one, and will return the others marked with action taken and corrections or modifications required.

   a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
4. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.

   a. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.

   b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.8 SAMPLES

A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.
   1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Include the following:

      a. Generic description of the Sample.

      b. Sample source.

      c. Product name or name of manufacturer.

      d. Compliance with recognized standards.

      e. Availability and delivery time.
   2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

      a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.

b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.

3. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.

a. Preliminary submittals will be reviewed and returned with the Architect's mark indicating selection and other action.

4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 3 sets; one will be returned marked with the action taken.

5. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.

a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

b. Sample sets may be used to obtain final acceptance of the construction associated with each set.

B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.

1. Field Samples specified in individual Sections are special types of Samples. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.

a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.9 ARCHITECT'S ACTION

A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return promptly.

1. Compliance with specified characteristics is the Contractor's responsibility.

B. Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action stamp.

PART 2 PRODUCTS (Not Applicable).

PART 3 EXECUTION (Not Applicable).

END OF SECTION 01 33 00

SECTION 01 42 19 - REFERENCE STANDARDS AND DEFINITIONS

PART 1 GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. Indicated: The term "indicated" refers to graphic representations, notes or schedules on the Drawings, or other Paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help the reader locate the reference; no limitation on location is intended.

C. Directed: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean "directed by the Architect," "requested by the Architect," and similar phrases.

D. Approve: The term "approved," where used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in the Conditions of the Contract.

E. Regulation: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

F. Furnish: The term "furnish" is used to mean "supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."

G. Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."

H. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."

I. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

1. The term "experienced," when used with the term "Installer," means having a minimum of five previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of the authority having jurisdiction.

2. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.
3. Assignment of Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.
    a. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.

J. Project Site is the space available to the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.

K. Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.2 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 50-Division format and MASTERFORMAT numbering system.

B. Specification Content: This Specification uses certain conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
1. Abbreviated Language: Language used in Specifications and other Contract Documents is the abbreviated type. Words and meanings shall be interpreted as appropriate. Words that are implied, but not stated shall be interpolated as the sense required. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and the context of the Contract Documents so indicates.
2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mode are to be performed by the Contractor.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with the standard in effect as of the date of the Contract Documents.

C. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.
   1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.

D. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision.

1.4 SUBMISSIONS

A. For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the work.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

END OF SECTION 01 42 19

SECTION 01 50 00 - TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.
   1. Pay for all fees and permits, to be reimbursed by the owner. Pay all usage costs required for temporary services.

B. Temporary construction and support facilities required include but are not limited to:
   1. Field offices and storage sheds.
   2. Sanitary facilities, including drinking water.
   3. Temporary heat.
   4. Ventilation.
   5. Telephone service.
   6. Temporary enclosures, including building security.
   7. Hoists.
   8. Temporary Project identification signs and bulletin boards.
   9. Waste disposal services.
   10. Construction aids and miscellaneous services and facilities.

C. Security and protection facilities required include but are not limited to:
   a. Temporary fire protection.
   b. Barricades, warning signs, lights.
   c. Environmental protection.

1.2 DIVISION OF RESPONSIBILITIES

A. Contractor is responsible for:
   1. Installation, operation, maintenance and removal of each temporary service or facility usually considered as its own normal construction activity, as well as the costs and use charges associated with each such service or facility.
   2. Plug in electric power cords and extension cords, and supplementary plug in task lighting and special lighting necessary exclusively for its own activities.
   3. Telephone service
   4. Hoisting requirements.
   5. Secure lockup of its own tools, materials and equipment.
   6. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.

1.3 USE CHARGES

A. Electric power from the Owner's existing system may be used.

1.4 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
   1. Building Code requirements.
   2. Health and safety regulations.
   3. Utility company regulations.
   4. Police, Fire Department and Rescue Squad rules.
   5. Environmental protection regulations.

B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities."
   1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC, for industry recommendations.
   2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).
   3. Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with the normal application of trade regulations and union jurisdiction.

C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

PART 2 PRODUCTS

2.1 MATERIALS

A. General: Provide new materials; if acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.

B. Tarpaulins: For protection of the façade during construction, provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less, or similar protection. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.

C. Water: Provide potable water approved by local health authorities.

2.2 EQUIPMENT

A. General: Provide new equipment; if acceptable to the Architect, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.

B. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.

C. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.

D. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.

E. Temporary Toilet Units: Provide self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.

F. First Aid Supplies: Comply with governing regulations.

G. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.
1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

H. TEMPORARY HEAT
1. The General Contractor shall provide temporary heating, equipment and fuel, when required for temporary protection of masonry finishes and other work including the work of their subcontracts, by methods meeting approval of the CM and/or Architect in conformance with NFPA Pamphlet No. 241.
2. The General Contractor shall maintain proper ventilating as required and as necessary so that the structure/scaffolding, or other will have the circulation of air necessary for proper curing and protection of the work. Protection of the work, including an envelope to maintain proper minimum temperatures is required by the contractor during cold weather conditions as defined by the project specifciations.
3. The General Contractor shall furnish and pay for all fuel.

PART 3 EXECUTION

3.1 INSTALLATION

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.2 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Temporary Fire Protection: Install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations."
   1. Locate fire extinguishers where convenient and effective for their intended purpose.
   2. Store combustible materials in containers in fire-safe locations.
   3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
   4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
   5. No welding, cutting by torch, or Work utilizing or causing inflammable waste shall be done unless adequate fire protection is provided and maintained for the duration of the Work in the area or operations.
   6. No fires for any purpose will be permitted on the Project. Remove all refuse from the Owner's property.

B. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.

C. The Contractor shall provide barricades, guard lights and other appurtenances in the area of his operations for the protection of workmen and public as required by applicable regulations, and for the protection of streets, lighting, hydrants, walks, curbs and adjacent grounds and planting, for the duration of such operations. He shall bear the costs of damage caused by him, his Subcontractor or the employees of each. Warning lights shall be blinker type, battery or electrically operated. Open flame torches are not permitted.

D. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.3 OPERATION, TERMINATION AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

B. Maintenance: Maintain facilities in good operating condition until removal.

C. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.
   1. Materials and facilities that constitute temporary facilities are property of the Contractor. The Owner reserves the right to take possession of Project identification signs.
   2. If the Contractor fails to carry out his responsibilities in providing temporary utilities, as set forth above, the Owner shall have the right to take such action as he deems proper for the protection and conduct of the Work, and to deduct the cost thereof from the amount due the Contractor.

END OF SECTION 01 50 00

SECTION 01 70 00 - PROJECT CLOSEOUT

PART 1 GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for project closeout.
   1. Including but not limited to:
      a. Inspection procedures.
      b. Project record document submittal.
      c. Operating and maintenance manual submittal.
      d. Submittal of warranties.
      e. Final cleaning.

B. Other administrative submittals required for project closeout (Final Payment) are enumerated in the Division 01 Section, Applications for Payment.

C. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions-2 through -49.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
   1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
      a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
   2. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
   3. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
   4. Submit record drawings, maintenance manuals, final damage or settlement survey, property survey, and similar final record information.
   5. Deliver tools, spare parts, extra stock, and similar items.
   6. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.

B. Inspection Procedures: On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Architect will repeat inspection when requested and assured that the Work has been substantially completed.
2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.3 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
   1. Contractors Affidavit of Payments, Debts and Claims. AIA Document G706
   2. Submit Contractor's Affidavit of Release of liens AIA DocumentG706A
   3. Submit consent of surety to final payment. AIA Document G707
   4. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
   5. Submit a certified copy of the Architect's final inspection list (punch 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.
   6. Submit Contractor's statement that his final application, as presented, is the final bill and no other claims will be presented.
   7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Re-inspection Procedure: The Architect will re-inspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.
   1. Upon completion of re-inspection, the Architect will prepare a certificate of final acceptance, or advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
   2. If necessary, re-inspection will be repeated, but at the expense of the Contractor who will reimburse the Owner for these services by the Architect.

1.4 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure location; provide access to record documents for the Architect's reference.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
   1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.
   2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
   3. Note related Change Order numbers where applicable.

4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.

C. Record Product Data: Maintain one copy of each Product Data submittal. Mark documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work which cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.
1. Upon completion of mark-up, submit complete set of record Product Data to the Architect for the Owner's records.

D. Record Sample Submitted: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with the Architect and the Owner's personnel to determine which of the submitted Samples that have been maintained during progress of the Work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's Sample storage area.

E. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Architect for the Owner's records.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 FINAL CLEANING

A. General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities".

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
   a. Remove labels that are not permanent labels.
   b. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition.
   c. Clean the site, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.
   d. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.

C. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning.
   1. Where extra materials of value remaining after completion of associated Work have become the Owner's property, arrange for disposition of these materials as directed.

3.2 WARRANTIES & GUARANTEES

A. In connection with Contractor's correction of warranted work which has failed, remove and replace other work of project which has been damaged as a result of such failure, or must be removed and replaced to provide access for correction of warranted work.

B. Provide a written warranty covering all work performed by contractor for a period of one year.

END OF SECTION 01 70 00

SECTION 01 73 29 - CUTTING AND PATCHING

PART 1 GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for cutting and patching.

B. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

C. Demolition of selected portions of the building for alterations is included in Section “Demolition."

1.2 SUBMITTALS

A. Cutting and Patching Proposal: Where approval of procedures for cutting and patching is required before proceeding, submit a proposal describing procedures well in advance of the time cutting and patching will be performed and request approval to proceed. Include the following information, as applicable, in the proposal:
   1. Describe the extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.
   2. Describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
   3. List products to be used and firms or entities that will perform Work.
   4. Indicate dates when cutting and patching is to be performed.
   5. List utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
   6. Where cutting and patching involves addition of reinforcement to structural elements, submit details and engineering calculations to show how reinforcement is integrated with the original structure.
   7. Approval by the Architect to proceed with cutting and patching does not waive the Architect's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.

1.3 QUALITY ASSURANCE

A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.
   1. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:
      a. Bearing and retaining walls.
      b. Structural concrete.
      c. Structural steel.
      d. Lintels.
      e. Timber and primary wood framing.
      f. Structural decking.

g. Stair systems.
h. Miscellaneous structural metals.
i. Equipment supports.
j. Piping, ductwork, vessels and equipment.

B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.
1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
a. Primary operational systems and equipment.
b. Air or smoke barriers.
c. Water, moisture, or vapor barriers.
d. Membranes and flashings.
e. Fire protection systems.
f. Noise and vibration control elements and systems.
g. Control systems.
h. Communication systems.
i. Electrical wiring systems.

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Architect's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.

PART 2 PRODUCTS

2.1 MATERIALS

A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 EXECUTION

3.1 INSPECTION

A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.
1. Before proceeding, meet at the site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage.

C. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.

D. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

E. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

3.3 PERFORMANCE

A. General: A Contractor, subcontractor or sub-subcontractor requiring changes in existing work shall have such changes performed by the trades skilled in performing the particular work and such changes shall be at the expense of the Contractor, subcontractor or sub-subcontractor requiring the change. Review changes with the Architect prior to proceeding with the work and include installation of such reinforcement of the work as the Architect may direct.

B. Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.
   1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

C. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.
   1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

D. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
   1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
   2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
   3. Firestopping and draftstopping.
      a. Where fire rated and/or smoke barrier construction (walls, floors or ceilings) are penetrated, all penetrations shall be fire-safed and sealed using appropriate fire rated materials and approved methods.
      b. Where non-fire rated construction (walls, floors or ceilings) are penetrated, the penetration shall be sealed tight with approved draftstopping materials.

3.4 CLEANING

A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 01 73 29

SECTION 02 41 00 - DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Selective demolition of built site elements.

B. Selective demolition of building elements for alteration purposes.

C. Abandonment and removal of existing utilities and utility structures.

1.2 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations 2022, with Errata (2021).

1.3 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Demolition Plan: Submit demolition plan as required by OSHA and local AHJs.
   1. Indicate extent of demolition, removal sequencing, bracing and shoring, and location and construction of barricades and fences.
   2. Demolition firm qualifications.

C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.4 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Company specializing in the type of work required.

PART 2 PRODUCTS -- NOT USED

PART 3 EXECUTION

3.1 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Comply with applicable requirements of NFPA 241.

3. Use of explosives is not permitted.
4. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
5. Provide, erect, and maintain temporary barriers and security devices.
6. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
7. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
8. Do not close or obstruct roadways or sidewalks without permits from authority having jurisdiction.
9. Conduct operations to minimize obstruction of public and private entrances and exits. Do not obstruct required exits at any time. Protect persons using entrances and exits from removal operations.
10. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon, or limit access to their property.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Do not begin removal until built elements to be salvaged or relocated have been removed.

D. Protect existing structures and other elements to remain in place and not removed.
1. Provide bracing and shoring.
2. Prevent movement or settlement of adjacent structures.
3. Stop work immediately if adjacent structures appear to be in danger.

E. Minimize production of dust due to demolition operations. Do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

F. Perform demolition in a manner that maximizes salvage and recycling of materials.
1. Dismantle existing construction and separate materials.
2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

G. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.2 EXISTING UTILITIES

A. Coordinate work with utility companies. Notify utilities before starting work, comply with their requirements, and obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone. Identify and mark, in same manner as other utilities to remain, utilities to be reconnected.

3.3 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Existing construction and utilities indicated on drawings are based on casual field observation and existing record documents only.
   1. Verify construction and utility arrangements are as indicated.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Separate areas in which demolition is being conducted from areas that remain occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 01 50 00 in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure, except for interruptions required for replacement or modifications; prevent water and humidity damage.

D. Remove existing work as indicated and required to accomplish new work.
   1. Remove rotted wood, corroded metals, and deteriorated masonry and concrete; replace with new construction indicated.
   2. Remove items indicated on drawings.

E. Services including, but not limited to, HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications: Remove existing systems and equipment as indicated.

F. Protect existing work to remain.
   1. Prevent movement of structure. Provide shoring and bracing as required.
   2. Perform cutting to accomplish removal work neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.
   4. Patch to match new work.

3.4 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 03 05 16 - UNDERSLAB VAPOR BARRIER

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Sheet vapor barrier under concrete slabs on grade.

1.2 REFERENCE STANDARDS

A. ASTM E1643 - Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs 2018a.

B. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs 2017 (Reapproved 2023).

1.3 SUBMITTALS

A. See Section 01 33 00 - Submittals, for submittal procedures.

B. Product Data: Submit manufacturers' data on manufactured products.

C. Manufacturer's Installation Instructions: Indicate installation procedures and interface required with adjacent construction.

PART 2 PRODUCTS

2.1 MATERIALS

A. Underslab Vapor Barrier: Extruded polyolefin.
   1. Water Vapor Permeance: Not more than 0.020 perms, maximum.
   2. Complying with ASTM E1745 Class A.
   3. Thickness: 15 mils.
   4. Manufacturers:
      a. Henry Company; Fortifiber Building Systems Group, Moistop Ultra 15: www.henry.com.
      b. ISA Building Products; Viper Vaporcheck II: www.isibp.com.
      c. Raven Industries VaporBlock Series VB15: www.ravenefd.com.
      d. Reef Industries, Inc; Griffolyn 15 Mil: www.reefindustries.com.
      e. Stego Industries LLC; Stego Wrap Vapor Barrier (15-mil): www.stegoindustries.com.
      f. W.R. Meadows; Perminator 15 Mil: www.wrmeadows.com.
      g. Approved equal.

B. Accessory Products: Vapor barrier manufacturer's recommended tape, adhesive, mastic, etc., for sealing seams and penetrations in vapor barrier.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that surface over which vapor barrier is to be installed is complete and ready before proceeding with installation of vapor barrier.

3.2 INSTALLATION

A. Install vapor barrier in accordance with manufacturer's instructions and ASTM E1643.

B. Install vapor barrier under interior slabs on grade; lap sheet over footings and seal to foundation walls.

C. Lap joints minimum 6 inches.

D. Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions.

E. No penetration of vapor barrier is allowed except for reinforcing steel and permanent utilities.

F. Repair damaged vapor retarder before covering with other materials.

END OF SECTION

SECTION 04 20 00 - UNIT MASONRY

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Concrete block.

B. Clay facing brick.

C. Mortar and grout.

D. Reinforcement and anchorage.

E. Flashings.

F. Lintels.

G. Accessories.

1.2 RELATED REQUIREMENTS

A. Section 07 92 00 - Joint Sealants: Sealing control and expansion joints.

1.3 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2023.

B. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire 2019.

C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2023.

D. ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement 2022.

E. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete 2022.

F. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units 2023.

G. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units 2023.

H. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar 2018.

I. ASTM C150/C150M - Standard Specification for Portland Cement 2022.

J. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes 2018.

K. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale) 2023.

L. ASTM C270 - Standard Specification for Mortar for Unit Masonry 2019a, with Editorial Revision.

M. ASTM C404 - Standard Specification for Aggregates for Masonry Grout 2018.

N. ASTM C476 - Standard Specification for Grout for Masonry 2023.

O. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete 2016.

P. ASTM C1714/C1714M - Standard Specification for Preblended Dry Mortar Mix for Unit Masonry 2019a.

Q. BIA Technical Notes No. 7 - Water Penetration Resistance – Design and Detailing 2017.

R. BIA Technical Notes No. 13 - Ceramic Glazed Brick Exterior Walls 2017.

S. BIA Technical Notes No. 28B - Brick Veneer/Steel Stud Walls 2005.

T. BIA Technical Notes No. 46 - Maintenance of Brick Masonry 2017.

U. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures 2022, with Errata.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all relevant installers.

1.5 SUBMITTALS

A. See Section 01 33 00 Submittals for submittal procedures.

B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.

C. Samples: Submit four samples of facing brick units to illustrate color, texture, and extremes of color range.

D. Verification Samples: Submit 4 inch strip of mortar to illustrate color and texture.

1.6 QUALITY ASSURANCE

A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.

B. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section with minimum ten years of experience.

C. Installer Qualifications: Company specializing in performing work of the type specified and with at least ten years of documented experience.

1.7 MOCK-UPS

A. Construct a masonry wall as a mock-up panel sized 8 feet long by 6 feet high; include mortar, accessories, structural backup, and flashings (with lap joint, corner, and end dam) in mock-up.

B. Do not proceed with work until mock-up has been approved.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

PART 2 PRODUCTS

2.1 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Standard units with nominal face dimensions of 16 by 8 inches and nominal depths as indicated on drawings for specific locations.
   2. Special Shapes: Provide nonstandard blocks configured for corners, lintels, headers, control joint edges, and other detailed conditions.
      a. Provide bullnose units for outside corners.
   3. Nonloadbearing Units: ASTM C129.
      a. Hollow block.
      b. Normal weight.

2.2 BRICK UNITS

A. Manufacturers:
   1. Substitutions: See section 01 60 00 - Product Requirements.

B. Facing Brick: ASTM C216, Type FBS Smooth, Grade SW.
   1. Nominal size: As indicated on drawings.
   2. Special shapes: Molded units as required by conditions indicated, unless standard units can be sawn to produce equivalent effect.

2.3 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C150/C150M, Type I; color as required to produce approved color sample.

B. Hydrated Lime: ASTM C207, Type S.

C. Mortar Aggregate: ASTM C144.

D. Grout Aggregate: ASTM C404.

E. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979/C979M.
1. Color(s): As selected by Architect from manufacturer's full range.

F. Water: Clean and potable.

G. Packaged Dry Material for Mortar for Unit Masonry: Premixed Portland cement, hydrated lime, and sand; complying with ASTM C1714/C1714M and capable of producing mortar of the specified strength in accordance with ASTM C270 with the addition of water only.
1. Color: Mineral pigments added as required to produce approved color sample.

H. Packaged Dry Material for Grout for Masonry: Premixed cementitious materials and dried aggregates; capable of producing grout of the specified strength in accordance with ASTM C476 with the addition of water only.

2.4 REINFORCEMENT AND ANCHORAGE

A. Joint Reinforcement: Use ladder type joint reinforcement where vertical reinforcement is involved and truss type elsewhere, unless otherwise indicated.

B. Single Wythe Joint Reinforcement: ASTM A951/A951M.
1. Type: Truss or ladder.
2. Material: ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M Class 3.
3. Size: 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not less than 5/8 inch of mortar coverage on each exposure.

C. Flexible Anchors: 2-piece anchors that permit differential movement between masonry and building frame, sized to provide not less than 5/8 inch of mortar coverage from masonry face.
1. Concrete frame: Dovetail anchors of bent steel strap, nominal 1 inch width x 0.024 in thick, with trapezoidal wire ties 0.1875 inch thick, hot dip galvanized to ASTM A 153/A 153M, Class B.
2. Steel frame: Crimped wire anchors for welding to frame, 0.25 inch thick, with trapezoidal wire ties 0.1875 inch thick, hot dip galvanized to ASTM A 153/A 153M, Class B.

D. Two-Piece Wall Ties: Formed steel wire, 0.1875 inch thick, adjustable, eye and pintle type, hot dip galvanized to ASTM A 153/A 153M, Class B, sized to provide not less than 5/8 inch of mortar coverage from masonry face and to allow vertical adjustment of up to 1-1/4 in.

E. Masonry Veneer Anchors: Thermally broken 2-piece wing nut anchors with insulation retention washers that permit differential movement between masonry veneer and structural backup, stainless steel.
   1. Wire ties: Manufacturer's standard shape, 0.1875 inch thick.
   2. Vertical adjustment: Not less than 1.25 inches.
   3. Manufacturers:
      a. Heckman; Pos-I-Tie with ThermalClip: www.heckmannbuildingprods.com.
      b. Hohman & Barnard, Inc; 2-Seal Thermal Wingnut: www.h-b.com.
      c. Substitutions: See Section 01 60 00 - Product Requirements.

2.5 FLASHINGS

A. Metal Flashing Materials:
   1. Stainless Steel Flashing: ASTM A666, Type 304, soft temper; 26 gauge, 0.0187 inch thick; finish 2B to 2D.

B. Shop- or Factory-Fabricated Flashing Corners and End Dams: Stainless steel.

C. Flashing Sealant/Adhesives: Silicone, polyurethane, or silyl-terminated polyether/polyurethane or other type required or recommended by flashing manufacturer; type capable of adhering to type of flashing used.
   1. Manufacturers:
      a. Mortar Net Solutions; BTL-1 Butyl Sealant: www.mortarnet.com.
      b. York Manufacturing, Inc; UniverSeal US-100 Liquid Tape: www.yorkmfg.com.
      c. Substitutions: See Section 01 60 00 - Product Requirements.

D. Termination Bars: Aluminumn; compatible with membrane and adhesives.
   1. Size: 1 inch by 0.125 inch, punched 8 inches on center for fasteners.

E. Drip Edge: Stainless steel; angled drip with hemmed edge; compatible with membrane and adhesives.

2.6 ACCESSORIES

A. Preformed Control Joints: Rubber material. Provide with corner and tee accessories, fused joints.
   1. Manufacturers:
      a. Blok-Lok Limited; RS Series: www.blok-lok.com.
      b. Hohmann & Barnard, Inc; RS Series: www.h-b.com.
      c. WIRE-BOND; Rubber Control Joints: www.wirebond.com.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

B. Cavity Mortar Control: Semi-rigid polyethylene or polyester mesh panels, sized to thickness of wall cavity, and designed to prevent mortar droppings from clogging weeps and cavity vents and allow proper cavity drainage.
   1. Mortar Diverter: Semi-rigid mesh designed for installation at flashing locations.
      a. Manufacturers:
         1) Advanced Building Products Inc; Mortar Break DT : www.advancedbuildingproducts.com.
         2) Hohmann & Barnard, Inc; Mortar Trap: www.h-b.com.
         3) Mortar Net Solutions; MortarNet: www.mortarnet.com.
         4) Substitutions: See Section 01 60 00 - Product Requirements.

C. Weeps:
   1. Type: Polyester mesh.
   2. Color(s): As selected by Architect from manufacturer's full range.
   3. Manufacturers:
      a. CavClear/Archovations, Inc: www.cavclear.com.
      b. Mortar Net Solutions; WeepVent: www.mortarnet.com.
      c. Substitutions: See Section 01 60 00 - Product Requirements.

D. Cavity Vents:
   1. Type: Polyester mesh.
   2. Color(s): As selected by Architect from manufacturer's full range.
   3. Manufacturers:
      a. CavClear/Archovations, Inc: www.cavclear.com.
      b. Mortar Net Solutions; CellVent: www.mortarnet.com.
      c. Substitutions: See Section 01 60 00 - Product Requirements.

E. Drainage Fabric: Polyester or polypropylene mesh.
   1. Manufacturers:
      a. Advanced Building Products, Inc; Mortairvent : www.advancedbuildingproducts.com.
      b. Archovations, Inc; CavClear Masonry Mat: www.archovations.com.
      c. Mortar Net Solutions; WallNet: www.mortarnet.com.
      d. York Manufacturing, Inc; Weep Armor Weep Vent Protection: www.yorkmfg.com.
      e. Substitutions: See Section 01 60 00 - Product Requirements.

F. Multicomponent Cavity Wall Drainage System: Combination mortar diverter, flashing and weep system.
   1. May be used in lieu of flashing, cavity mortar control, and weeps described above.
   2. Membrane Type: Stainless steel.
   3. Drip Edge: Stainless steel.
   4. Termination Bar: Stainless steel.
   5. Manufacturers:
      a. Mortar Net Solutions; TotalFlash Panel: www.mortarnet.com.
      b. York Manufacturing, Inc; Flash-Vent: www.yorkmfg.com.
      c. Substitutions: See Section 01 60 00 - Product Requirements.

G. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

2.7 LINTELS

A. Brickwork Support System: Offset steel relief angles or lintels with hanger brackets for support of brickwork above horizontal masonry joints and openings to allow insulation to span continuously behind brick and eliminate continuous thermal bridges associated with support systems that interrupt continuous insulation.
   1. Configuration: Relief angle or lintel with welded hanger brackets anchored to structure.
   2. Sizes: Component and anchor sizes and spacing to be determined by manufacturer from calculations or prescriptive design tables to suit project loading conditions and cavity width indicated on drawings.
   3. Materials: Steel, hot dip galvanized to ASTM A153/A153M class B.
   4. Manufacturers:
      a. Fero Corporation; FAST: www.ferocorp.com.
      b. Halfen; FK4 Brickwork Support Systems: www.halfen.com.
      c. Hohmann & Barnard, Inc; TBS - Thermal Brick System: www.h-b.com.
      d. Substitutions: See Section 01 60 00 - Product Requirements.

2.8 MORTAR AND GROUT MIXING

A. At Contractor's option, mortar and grout may be field-mixed from packaged dry materials, made from factory premixed dry materials with addition of water only, or ready-mixed.
   1. Exception at colored mortar: Use only factory premixed packaged dry materials for mortar and grout, with addition of water only at project site.

B. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.
   1. Masonry below grade and in contact with earth: Type S.
   2. Exterior, non-loadbearing masonry: Type N.
   3. Interior, loadbearing masonry: Type N.

C. Grout: ASTM C476; consistency required to fill completely volumes indicated for grouting; fine grout for spaces with smallest horizontal dimension of 2 inches or less; coarse grout for spaces with smallest horizontal dimension greater than 2 inches.

D. Mixing: Use mechanical batch mixer and comply with referenced standards.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

D. Verify that weather barrier has been installed over substrate completely and correctly, and that testing has been completed.

3.2 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

3.3 COLD AND HOT WEATHER REQUIREMENTS

A. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.

B. Maintain materials and surrounding air temperature to maximum 90 degrees F prior to, during, and 48 hours after completion of masonry work.

3.4 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:
1. Bond: Running.

D. Brick Units:
1. Bond: Running.

3.5 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

B. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

C. Remove excess mortar and mortar smears as work progresses.

D. Interlock intersections and external corners.

E. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

F. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

G. Cut mortar joints flush where wall tile is scheduled or resilient base is scheduled.

H. Isolate masonry partitions from vertical structural framing members with a control joint as indicated.

I. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.

3.6 WEEPS/CAVITY VENTS

A. Install weeps in veneer and cavity walls at 24 inches on center horizontally on top of through-wall flashing above shelf angles and lintels and at bottom of walls.

B. Install cavity vents in veneer and cavity walls at 32 inches on center horizontally below shelf angles and lintels and near top of walls.

3.7 CAVITY MORTAR CONTROL

A. Do not permit mortar to drop or accumulate into cavity air space or to plug weep/cavity vents.

B. Install cavity mortar diverter at base of cavity and at other flashing locations as recommended by manufacturer to prevent mortar droppings from blocking weep/cavity vents.

3.8 REINFORCEMENT AND ANCHORAGE - GENERAL, SINGLE WYTHE MASONRY, AND CAVITY WALL MASONRY

A. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement 16 inches on center.

B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.

C. Place continuous joint reinforcement in first and second joint below top of walls.

D. Lap joint reinforcement ends minimum 6 inches.

E. Fasten anchors to structural framing and embed in masonry joints as masonry is laid. Unless otherwise indicated on drawings or closer spacing is indicated under specific wall type, space anchors at maximum of 36 inches horizontally and 24 inches vertically.

3.9 REINFORCEMENT AND ANCHORAGE - MASONRY VENEER

A. Masonry Back-Up: Embed anchors to bond veneer at maximum 16 inches on center vertically and 16 inches on center horizontally. Place additional anchors at perimeter of openings and ends of panels, so maximum spacing of anchors is 8 inches on center.

B. Stud Back-Up: Secure veneer anchors to stud framed back-up and embed into masonry veneer at maximum 1.77 sq ft of wall surface per anchor. Place additional anchors at perimeter of openings and ends of panels, so maximum spacing of anchors is 8 inches on center.

3.10 MASONRY FLASHINGS

A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.
   1. Extend flashings full width at such interruptions and at least 6 inches, minimum, into adjacent masonry or turn up flashing ends at least 1 inch, minimum, to form watertight pan at nonmasonry construction.
   2. Remove or cover protrusions or sharp edges that could puncture flashings.
   3. Seal lapped ends and penetrations of flashing before covering with mortar.

B. Terminate flashing up 8 inches minimum on vertical surface of backing:
   1. Install vertical leg of flashing behind water-resistive barrier sheet over backing.
   2. Install vertical leg of flashing over fluid-applied or self-adhered air/vapor barriers over backing or per manufacturer’s directions.
   3. Anchor vertical leg of flashing into backing with a termination bar and sealant.
   4. Apply cap bead of sealant on top edge of self-adhered flashing.

C. Install flashing in accordance with manufacturer's instructions and BIA Technical Notes No. 7.

D. Extend metal flashings through exterior face of masonry and terminate in an angled drip with hemmed edge. Install joint sealer below drip edge to prevent moisture migration under flashing.

E. Lap end joints of flashings at least 6 inches, minimum, and seal watertight with flashing sealant/adhesive.

3.11 LINTELS

A. Install loose steel lintels over brick openings.

B. Install reinforced unit masonry lintels over concrete masonry openings where steel or precast concrete lintels are not scheduled.
   1. Openings to 42 inches: Place two, No. 3 reinforcing bars 1 inch from bottom web.
   2. Openings from 42 inches to 78 inches: Place two, No. 5 reinforcing bars 1 inch from bottom web.
   3. Do not splice reinforcing bars.
   4. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.
   5. Place and consolidate grout fill without displacing reinforcing.
   6. Allow masonry lintels to attain specified strength before removing temporary supports.

C. Maintain minimum 8 inch bearing on each side of opening.

D. Install thermal brick support system in accordance with manufacturer's instructions at locations indicated on drawings

3.12 GROUTED COMPONENTS

A. Lap splices minimum 24 bar diameters.

B. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.

C. Place and consolidate grout fill without displacing reinforcing.

D. At bearing locations, fill masonry cores with grout for a minimum 12 inches either side of opening.

3.13 CONTROL AND EXPANSION JOINTS

A. Concrete Masonry Unit Control Joints: Place control joints in exposed above grade masonry walls consistent with lines of building spaces and as follows unless indicated otherwise:
1. At changes in wall height.
2. At changes in wall thickness, such as at pipe and duct chases and pilasters.
3. Above movement joints in foundations and floors.
4. Below movement joints in roofs and floors that bear on a wall.
5. Near one or both sides of door and window openings.
6. Adjacent to corners of walls or intersections within a distance equal to half the control joint spacing.

B. Brick Control Joints: Place control joints no more than 25 feet on center and as follows unless indicated otherwise:
1. At 20 feet on center in walls with multiple openings.
2. At 15 feet on center in parapets.
3. At or near corners.
4. At offsets and setbacks.
5. At wall intersections.
6. At changes in wall height.
7. Where backing system changes.
8. Where support of brick veneer changes.
9. Immediately below shelf angles.
10. Around elements that are rigidly attached to the frame and project into the veneer, such as windows and doorframes.

C. Do not continue horizontal joint reinforcement through control or expansion joints.

D. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.

E. Size control joints as indicated on drawings; if not indicated, 3/4 inch wide and deep.

F. Form expansion joint as detailed on drawings.

3.14 BUILT-IN WORK

A. As work progresses, install built-in metal door frames and glazed frames and other items to be built into the work and furnished under other sections.

B. Install built-in items plumb, level, and true to line.

C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.
1. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.

D. Do not build into masonry construction organic materials that are subject to deterioration.

3.15 TOLERANCES

A. Install masonry within the site tolerances found in TMS 402/602.

B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.

C. Maximum Variation from Plane of Wall: 1/4 inch in 10 ft and 1/2 inch in 20 ft or more.

D. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

E. Maximum Variation from Level Coursing: 1/8 inch in 3 ft and 1/4 inch in 10 ft; 1/2 inch in 30 ft.

F. Maximum Variation of Mortar Joint Thickness: Head joint, minus 1/4 inch, plus 3/8 inch.

G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

3.16 CUTTING AND FITTING

A. Cut and fit for chases, pipes, conduit, sleeves, and grounds. Coordinate with other sections of work to provide correct size, shape, and location.

B. Obtain approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.17 PARGING

A. Dampen masonry walls prior to parging.

B. Scarify each parging coat to ensure full bond to subsequent coat.

C. Parge masonry walls in two uniform coats of mortar to a total thickness of 3/4 inch.

D. Steel trowel surface smooth and flat with a maximum surface variation of 1/8 inch per foot.

E. Strike top edge of parging at 45 degrees.

3.18 CLEANING

A. Remove excess mortar and mortar droppings.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution.

D. Use non-metallic tools in cleaning operations.

3.19 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Nonstructural dimension lumber framing.

B. Preservative treated wood materials.

C. Fire retardant treated wood materials.

D. Concealed wood blocking, nailers, and supports.

1.2 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2023.

B. ASTM D2898 - Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing 2010 (Reapproved 2017).

C. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs 2022.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023c.

E. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings 2018, with Errata (2019).

F. AWPA U1 - Use Category System: User Specification for Treated Wood 2023.

G. FM 1-49 - Perimeter Flashing 2016.

H. PS 1 - Structural Plywood 2023.

I. PS 20 - American Softwood Lumber Standard 2021.

1.3 SUBMITTALS

A. See Section 01 33 00 Submittals for submittal procedures.

B. Product Data: Provide technical data on fire retardant treatment, wood preservative materials, adhesives, and application instructions.

1.4 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
   2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.2 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Sizes: Nominal sizes as indicated on drawings, S4S.

B. Moisture Content: S-dry or MC19.

C. Stud Framing (2 by 2 through 2 by 6):
   1. Grade: No. 2.

D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
   1. Lumber: S4S, No. 3 or Utility Grade.
   2. Boards: Standard or No. 3.
   3. Coordinate with Section 09 21 16 - Gypsum Board Assemblies for metal backing and flexible wood backing.

2.3 CONSTRUCTION PANELS

A. Parapet Sheathing: Plywood, PS 1, Grade C-D, Exposure I.

B. Communications and Electrical Room Mounting Boards: PS 1 A-D plywood, or medium density fiberboard; 3/4 inch thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

2.4 ACCESSORIES

A. Fasteners and Anchors:

1. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for use with galvanized metals and stainless steel complying with ASTM F593 Group 2 for use with stainless steel metals, for high humidity and preservative-treated wood locations; unfinished steel elsewhere.
2. Drywall Screws: Bugle head, hardened steel, power driven type, length three times thickness of sheathing.
3. Anchors: Bolt or ballistic fastener for anchorages to steel.

2.5 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
   2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Fire Retardant Treatment:
   1. Exterior Type: AWPA U1, Category UCFB, Commodity Specification H, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes both before and after accelerated weathering test performed in accordance with ASTM D2898.
      a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
      b. Treat wood in exterior walls and parapets.
      c. Treat wood in contact with roofing, flashing, or waterproofing.
      d. Do not use treated wood in direct contact with the ground.

C. Preservative Treatment:
   1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative.
      a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
      b. Treat lumber exposed to weather.
      c. Treat lumber in contact with masonry or concrete.

PART 3 EXECUTION

3.1 PREPARATION

A. Coordinate installation of rough carpentry members specified in other sections.

3.2 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

3.3 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.

E. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

F. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.4 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

C. Where ceiling-mounting is indicated, provide blocking and supplementary supports above ceiling, unless other method of support is explicitly indicated.

3.5 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

B. Provide wood curb at each roof opening except where specifically indicated otherwise; form corners by alternating lapping side members.

C. Fasten roof-related carpentry to resist wind uplift.
   1. Secure minimum 2 by 6 wood nailers to structural concrete or reinforced concrete masonry unit walls or continuous structural steel or angle using 1/2 inch or 3/8 inch steel headed or plate anchor bolts with bolts and washers spaced 24 inches on center. Embed anchor bolts a minimum of 5 inches and countersink bolt holes a maximum of 3/4 inch. Stagger anchor bolts if the nailer is wider than 6 inches.
   2. For fastening to steel or structural concrete deck, provide two staggered rows of screws with maximum fastener spacing within each row of 24 inches. Fasten into top flange of deck with fasteners of sufficient length to protrude 3/4 inch through the deck or minimum of 1 inch embedment into concrete.
   3. Secure wood members, such as fascias, cant strips, and top nailers, up to 8 inches wide, to lower wood nailers using minimum 10 penny common nails or number 8 screws, minimum length of 3 inches and long enough to penetrate at least 1-1/2 inches into the lower wood nailer. Fasten in two staggered rows. Space fasteners within each row a maximum of 12 inches.

3.6 INSTALLATION OF CONSTRUCTION PANELS

A. Wall and Parapet Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using nails, screws, or staples.

B. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches on center on all edges and into studs in field of board.
   1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
   2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
   3. Install adjacent boards without gaps.

3.7 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment compatible with factory applied treatment at site-sawn cuts, complying with manufacturer's instructions.

B. Allow preservative to dry prior to erecting members.

3.8 CLEANING

A. Waste Disposal:
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.

4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 07 21 00 - THERMAL INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Board insulation and integral vapor retarder at cavity wall construction, perimeter foundation wall, underside of floor slabs, over roof deck, over roof sheathing, exterior wall behind rainscreen wall finish, and interior wall with facer providing exposed finish.

B. Batt insulation in exterior wall, ceiling, and roof construction.

C. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

1.2 REFERENCE STANDARDS

A. ASTM C240 - Standard Test Methods for Testing Cellular Glass Insulation Block 2021.

B. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus 2021.

C. ASTM C552 - Standard Specification for Cellular Glass Thermal Insulation 2022.

D. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications 2013 (Reapproved 2019).

E. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation 2023.

F. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation 2014 (Reapproved 2019).

G. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing 2023.

H. ASTM D1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics 2016 (Reapproved 2023).

I. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023c.

J. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 °C 2022.

K. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components 2023.

1.3 SUBMITTALS

A. See Section 01 33 00 Submittals for submittal procedures.

B. Product Data: Provide data on product characteristics, performance criteria, product limitations, and NFPA 285 compliance.

C. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.

PART 2 PRODUCTS

2.1 APPLICATIONS

A. Insulation Under Concrete Slabs: Extruded polystyrene (XPS) board.

B. Insulation at Perimeter of Foundation: Extruded polystyrene (XPS) board.

C. Insulation Inside Masonry Cavity Walls: Expanded polystyrene (EPS) board.

D. Insulation Over Metal Stud Framed Walls, Continuous: Mineral fiber board.

E. Insulation Over Roof Deck: Polyisocyanurate board.

2.2 FOAM BOARD INSULATION MATERIALS

A. Expanded Polystyrene (EPS) Board Insulation: Comply with ASTM C578.
1. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
2. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.

B. Extruded Polystyrene (XPS) Board Insulation: Comply with ASTM C578 with either natural skin or cut cell surfaces.
1. Type and Compressive Resistance: Type IV, 25 psi (173 kPa), minimum.
2. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
3. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
4. Type and Thermal Resistance, R-value: Type IV, 5.0 (0.88) per 1 inch thickness at 75 degrees F mean temperature.
5. Complies with fire resistance requirements specified as part of an exterior non-load-bearing exterior wall assembly when tested in accordance with NFPA 285.
6. Exterior Wall Boards: Square edges.
7. Foundation Boards: Shiplap or tongue-and-groove edges with grooved faces.
8. Type and Water Absorption: Type IV, 0.3 percent by volume, maximum, by total immersion.

9. Products:
    a. DuPont de Nemours, Inc; Styrofoam Brand Cavitymate Plus; Styrofoam Brand Scoreboard: building.dupont.com.
    b. Owens Corning Corporation; FOAMULAR NGX Type 250 Next Generation Extruded; FOAMULAR NGX Type INSUL-DRAIN Next Generation Extruded : www.ocbuildingspec.com.
    c. Substitutions: See Section 01 60 00 - Product Requirements.

C. Cellular Polyurethane Thermal Break Board Insulation: High-strength closed-cell structure board with following characteristics.
1. Board Size: 48 by 96 inches.
2. Board Thickness: 2 inches unless indicated otherwise.
3. Thermal Resistance: R-value of 3.85 per inch, minimum, at 75 degrees F, minimum, in accordance with ASTM C518 test methods.
4. Apparent Thermal Conductivity: K-value of 0.26 Btu inch/hr sq ft degrees F, minimum, in accordance with ASTM C518 test methods.
5. Compressive Strength: 210 psi, minimum, in accordance with ASTM D1621 test methods.
6. Compressive Modulus: 6,155 psi, minimum, in accordance with ASTM D1621 test methods.
7. Products:
    a. Armatherm{CH#385927}: www.armatherm.com.
    b. Fabreeka; Thermal Insulation Material (TIM) RF Series 1020: www.fabreeka.net.
    c. Substitutions: See Section 01 60 00 - Product Requirements.

2.3 MINERAL FIBER BLANKET INSULATION MATERIALS

A. Flexible Glass Fiber Blanket Thermal Insulation: Preformed insulation, complying with ASTM C665; friction fit.
1. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
2. Facing: Unfaced.
3. Products:
    a. CertainTeed Corporation; CertaPro AcoustaTherm Batts: www.certainteed.com.
    b. Johns Manville; Fiberglass: www.jm.com.
    c. Owens Corning Corporation; EcoTouch PINK FIBERGLAS Insulation : www.ocbuildingspec.com.
    d. Substitutions: See Section 01 60 00 - Product Requirements.

B. Mineral Wool Blanket Thermal Insulation: Flexible or semi-rigid preformed insulation, complying with ASTM C665.
1. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
2. Thickness: As indicated on drawings.
3. Products:
    a. Johns Manville; Mineral Wool TempControl Batts: www.jm.com.
    b. ROCKWOOL; COMFORTBATT: www.rockwool.com.

c. Thermafiber, Inc; Ultrabatt: www.thermafiber.com.
d. Substitutions: See Section 01 60 00 - Product Requirements.

2.4 ACCESSORIES

A. Insulation Fasteners: Impaling clip of galvanized steel with washer retainer and clips, to be mechanically fastened to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.

B. Insulation Fasteners: Appropriate for purpose intended and approved by roofing manufacturer.
1. Length as required for thickness of insulation material and penetration of deck substrate.

C. Continuous Insulation (CI) Support Systems: Specified in Section 070543 - Cladding Support Systems.

D. Adhesive: Type recommended by insulation manufacturer for application.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.2 BOARD INSTALLATION AT FOUNDATION PERIMETER

A. Install boards horizontally on foundation perimeter.
1. Butt edges and ends tightly to adjacent boards and to protrusions.

B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.3 BOARD INSTALLATION AT CAVITY WALLS

A. Secure impale fasteners to substrate at following frequency:
1. One per insulation board in center of board.

B. Install boards to fit snugly between wall ties with wall tie washers holding board in place.

C. Install boards horizontally on walls.
1. Place boards to maximize adhesive contact.
2. Install in running bond pattern.
3. Butt edges and ends tightly to adjacent boards and protrusions.
4. Fill gaps larger than 1/4 inch with spray foam insulation.

5. Place impale fastener locking discs.

D. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.4 BOARD INSTALLATION UNDER CONCRETE SLABS

A. Place insulation under slabs on grade after base for slab has been compacted.

B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

C. Prevent insulation from being displaced or damaged while placing slab.

3.5 BATT INSTALLATION

A. Install insulation in accordance with manufacturer's instructions.

B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

E. Coordinate work of this section with construction of air barrier seal, see Section 07 27 00.

3.6 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 07 41 13 – METAL ROOF PANELS

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Furnish and install roofing panels, clips, fasteners, flashing, closures, insulation and related accessories required for a complete roofing system as indicated on the contract documents.

1.3 QUALITY ASSURANCE

A. Manufacturer's Qualifications:

1. Prior to bidding the manufacturer shall have had at least (15) ten years' experience in architectural and industrial roofing systems.
2. The materials outlined herein are the basis of design and the type of materials to be used on this project.
3. Replacement of the existing roof panel must be of "like-kind". Tee-shape, Batten Seam, Double Lock, and Snap Seam type panel will not be acceptable.

B. Installer Qualifications:

1. Prior to bidding the installer shall have a minimum of (10) ten years experience of installation with structural field-formed concealed clip roofing systems.
2. The installer must submit five (5) projects of similar size, scope, and complexity. Failure to provide sufficient job references will result in rejection of bid.
3. Manufacturer must train and certify the installer so as to provide a single source responsibility for this portion of the work.
4. Successful contractor is required to maintain a full-time supervisor/foreman who is on the jobsite at all times during installation of new roof system.
5. Successful contractor must obtain all components of roof system from a single manufacturer, including any roll good materials if required. Any secondary products that are required which cannot be supplied by the specified manufacturer must be recommended and approved in writing by primary manufacturer prior to bidding.

C. Source Limitation: Obtain components for roofing system from or approved by roofing system manufacturer.

D. Sheet Metal Roofing Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.

E. Preinstallation Conference: Conduct conference at Project site. Comply with requirements in Division 01. Review methods and procedures related to roofing system including, but not limited to the following:

1. Meet with the Architect, General Contractor, Construction Manager, Engineer, Authority's insurer if applicable; testing and inspecting agency representative; roofing Installer; roofing system manufacturer's representative; deck Installer; and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.4 REFERENCE LATEST EDITIONS OF PUBLICATIONS AND STANDARDS

A. Building Design Codes – Uplift, Live and Dead Loads

1. ASCE 7 (current edition unless specified elsewhere) Minimum Loads for Buildings and Other Structures

B. Reference Standards

1. American Iron and Steel Institute (AISI), Specification for the Design of Cold-Formed Steel Structural Members (2017).

2. Aluminum Association Design Manual.

3. American Society for Testing and Materials (ASTM) (Current Edition).

a. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding by Uniform Static Air Pressure Difference.
b. ASTM E1680 - Standard Test Method for Rate of Air Leakage through Exterior Metal Roof Panel Systems.
c. ASTM E1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.
d. ASTM E2140 - Standard Test Method for Water Penetration of Metal Panel Roof Systems by Static Water Pressure Head.
e. ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
f. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
g. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
h. ASTM A792 - Standard Specification for Steel Sheet, 55 percent Aluminum-Zinc Alloy-Coated by the Hot- Dip Process.
i. ASTM B69 - Standard Specification for Rolled Zinc.
j. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
k. ASTM B221 - Standard Specification for Aluminum and Aluminum Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
l. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction.

4. Underwriters Laboratory, USA (UL LLC).

a. UL 580 - Tests for Uplift Resistance of Roof Assemblies.

5. FM Global (FM): FM 4471 - Approval Standard for Class 1 Panel Roofs.

6. Florida Building Code - current edition, product approvals.

7. MCA Metal Roof Installation Manual.

1.5 SUBMITTALS

A. Provide the following:

1. Submit the following Test Reports certified by an independent testing laboratory or an independent professional engineer to verify that the proposed roofing will meet the performance requirements of this specification.

a. ASTM E1592 Structural Performance Test Results.
b. Halter/Clip Fastener Pull-Out Tests and Calculations.
c. UL 90 Classification Test Data.
d. Concentrated Load Test Results.
e. Air Infiltration ASTM E1680 and Water Penetration ASTM E1646 Test Results.
f. Clip Cycling Test Results.
g. ASTM E2140 Water Penetration Test Results.

B. With the Proposal: Qualification and/or exceptions to the drawings and specifications.

C. Prior to Fabrication:

1. Shop Drawings: Submit complete shop drawings preprepared by the manufacturer, catalog cuts, calculations with all details, roof plans, wall elevations and field installation notes clearly indicated. Drawings must be approved before fabrication can begin.

a. Show fabrication and installation layouts of sheet metal roofing, including plans, elevations, and keyed references to termination points. Distinguish between shop- and field-assembled work.

b. Include the following:
1. Details for forming sheet metal roofing, including seams, thicknesses and dimensions.
2. Details for joining and securing sheet metal roofing, including layout of fasteners, clips, and other attachments. Include pattern of seams.
3. Details of termination points and assemblies, including fixed points.
4. Details of expansion joints, including showing direction of expansion and contraction.
5. Details of roof penetrations.
6. Details at connection to rainscreen, if applicable.
7. Details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counter flashings.
8. Details of special conditions.
9. Details of connections to adjoining work.
10. Details of the following accessory items, at a scale of not less than 1-1/2 inches per 12 inches
11. Roof tie-offs.
12. Flashing and trim.
13. Roof curbs.
14. Snow guards.

D. Performance Requirements. Submit structural design calculations and test reports certified by a registered professional structural engineer licensed in the State of New Jersey to verify load carrying capacities and thermal movement allowance of the panel system.

E. Furnish certified laboratory test reports showing that the proposed system has been tested and conforms to applicable provisions specified herein.

F. Samples and descriptive date:

1. Roof panel: Full panel width, 12 inches long.
2. System Clips/Halters: Two Required.
3. Fasteners: Two of each type to be used with a statement identifying the intended use of each.
4. Closure: One metal and one neoprene
5. Insulation: 12 inch square sample of specified thickness.
6. Sealants: One sample of each type and statement identifying the intended use of each.
7. Snow guards.

G. Qualifications Data: For installer and manufacturer.

H. Maintenance Data: For roofing system to include in maintenance manuals.

I. Inspection Report: Sample copy of roofing system manufacturer's inspection report of completed roofing installation.

1.6 WARRANTY

A. Manufacturer's Warranty: Standard performance warranty provided by the manufacturer to warrant all panels, flashings, sealants, fasteners, and accessories against defective materials and/or workmanship for a period of two (2) years. Manufacturer's standard warranty must accompany submittal package.

B. Manufacturer's Weather-tight Warranty: Standard performance warranty provided by the manufacturer to warrant all panels, flashings, sealants, fasteners, and accessories against defective materials and/or workmanship for a period of twenty (20) years. Manufacturer's Weather-Tightness standard warranty must accompany submittal package.

1. Manufacturer must prepare shop drawings for all warranty projects.
2. Inspections required by panel system manufacturer technical representative.

A. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal roofing that shows evidence of deterioration of factory- applied finishes within specified warranty period. This is a pass-through warranty from the paint coating manufacturer.

1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: Twenty (20) years from date of Substantial Completion.

C. Special Material Substrate Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including rupturing, or perforating.

b. Deterioration of metals and other materials beyond normal weathering.

2. Warranty Period: Twenty (20) years and six (6) months from date of Substantial Completion.

D. Special Installer's Warranty: Roofing Installer's warranty, signed by Roofing Installer, in which Roofing Installer agrees to repair or replace components of custom-fabricated sheet metal roofing that fail in materials or workmanship within specified warranty period.

3. Failures include, but are not limited to, the following:

a. Structural failures.
b. Loose parts.
c. Wrinkling or buckling.
d. Distortion or disengagement of fasteners.
e. Failure to remain weathertight, including uncontrolled water leakage.
f. Deterioration of metals, metal finishes, and other materials beyond normal weathering, including nonuniformity of color or finish.
g. Galvanic action between sheet metal roofing and dissimilar materials.

4. Warranty Period: Five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Basis of Design: BEMO USA Corporation, 1755 N. 48th Street, Mesa, Arizona 85205. Tel 877-530-BEMO (2366) or 480-545-7900; www.bemousa.com.

1. Profile: BEMO 65/400
2. Panel Width: 400mm (15.75”)
3. Seam Height: 65 mm (2.55”) minimum
4. Shape: Straight
5. Texture: Smooth
6. Anti-capillary Groove: Integrated into all panels
7. Joint Type: Mechanically Seamed Bulb with Factory Applied Seam Sealant

B. Or approved equal.

C. Requests to use alternate systems must be submitted in writing to the project designer at least twelve (12) days prior to the bid date. Performance requirements, certified statements, panel samples, sample warranties, list of pre-approved authorized installers with completed project references, and complete test reports must accompany the request for substitution.

D. Manufacturers listed in this section are prequalified manufacturers. Substitution of manufacturers product in lieu of those specified or pre-approved will not be allowed after the bid date.

E. Being listed as a prequalified manufacturer does not release the manufacturer from providing complete and acceptable performance data as indicated in this specification.

F. Requests for substitutions must include names of authorized installers and project references completed with the manufacturer.

G. Tee Shape Profiles, Batten Style Profiles, Double Lock Profiles, Single Lock Profiles, and Snap Seam Profiles will not be accepted.

H. Requests for substitutions must include a letter from the manufacturers' engineering department manager confirming that they have reviewed the complete project bid documents and the system they are proposing meets or exceeds the performance requirements of this specification.

I. Requests for substitutions must include the name and qualifications of the Technical Field Representative that will conduct the daily inspections. See Paragraph 3.2. The architect reserves the right to reject the Technical Field Representative should he/she not possess acceptable qualifications necessary for this type of project.

2.2 PERFORMANCE REQUIREMENTS

A. General: Provide complete sheet metal roofing system, including, but not limited to sub-framing, clips, anchors and fasteners, sheet metal flashing and drainage components related to sheet metal roofing, fascia panels, soffit panels, trim, cleats, underlayment, insulation, coverboard, snow guards, walkway, fall protection,lightning protection, roof penetrations, and accessories as indicated and as required for a weathertight installation.

B. The standing seam roof system shall be designed to safely resist the positive and negative loads as required for the location and type of project designed.

C. Structural-uniform uplift load capacity of the panel system shall be determined in accordance with the principles of ASTM E1592, "Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference" as follows:

The Factor of Safety on the test results shall be 1.65 for the panel and clip/halter ultimate loads with no increase for wind.

1. The Factor of Safety for fasteners shall be 3.0 for single fastener in each connection, 2.25 for 2 or more fasteners in each connection and 4.0 in masonry.
2. Design uplift capacity for condition of gage, span or loading other than those tested may be determined by interpolation of test results.
3. Deflection shall be l/180 for positive loading.

D. Wind Loads: As indicated on Drawings or as calculated by the SSMR panel manufacturer.

E. Snow Loads: As indicated on Drawings or as calculated by the SSMR panel manufacturer.

F. Water penetration of the panel assembly at 20 psf pressure for 15 minutes shall have "no uncontrollable leakage" when tested in accordance with ASTM E1646.

G. Air infiltration of panel assembly at 20 psf pressure shall be no more than 0.02 cfm/sf of panel when tested in accordance with ASTM E1680.

H. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E 2140.

I. The panel system shall have a U.L. Class 90 rating.

J. Cycle Thermal Test: Provide metal roof panel assemblies that have been tested a minimum 100,000 cycles of 1" movement using 10 lbs positive load at 5'-0" spans with no signs of wear through the panel clip. Any clip attachment that causes any direct wear on the panel itself will not be approved or allowed on this project.

K. Concentrated Load Performance: Provide metal roof panel system that withstand a concentrated load

of 300 lbs (136 kg) applied to a 4 sq. in. (2580 sq. mm) at mid-span and center of the panel halfway between supports without causing deformation, buckling or side lap separation.

L. FMG Listing: Comply with FMG 4471. Provide metal roof panel assembly listed in FMG's "Approval Guide."
   1. Fire and Windstorm Classification: Class 1A-90
   2. Hail Resistance: SH.

M. Panels are to be fabricated full length with absolutely no end lap conditions allowed unless approved otherwise in writing by the architect.

N. The manufacturing equipment must be owned and operated by the manufacturer who must also train and certify the installer and take complete responsibility for the entire work scope.

O. Fire Performance for Roof Assembly: Meet requirements of ASTM E108, Class A.

P. Fasten the roofing panels to the structure through the use of concealed halters/clips which are designed to allow for up to and including a full 3-3/4" of panel movement without impeding the performance of the panel.

Q. Removable for replacement. Panels shall be designed to allow for replacement of individual panels without removing adjacent panels using manufacturer's un-seaming tool.

R. Roll Forming Equipment to have a minimum of 12 hardened tooling roll forming stations with a profiled post shear. Pre-shearing and portable roll forming equipment is strictly prohibited.

S. Panels that are Roofing Installer roll formed, coil supplier roll formed, private label roll formed or toll formed panels will not be accepted.

T. Thermal Movements: Provide sheet metal roofing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, distortion and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of sheet metal roofing thermal movements. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

   1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

U. Energy Performance: Provide roofing system with Solar Reflectance Index (SRI) minimum 78 for roof slopes of 2:12 or less and 29 for roof slopes greater than 2:12 when calculated according to ASTM E 1980 based on testing identical products by a qualified testing agency.

2.3 MATERIALS

A. Metal Roof panels are to be BEMO Structural Standing Seam Metal Roof System as manufactured BEMO USA and installed by trained and certified contractors or approved equal.

   1. Fabricate metal roof panels, soffit panels, gutter, and downspout from a minimum of:

      Aluminum: .040" thick aluminum alloy 3004-H14 (or 3105-H34) conforming to ASTM B209.

B. Concealed Clips

   1. Fasten standing seam roofing to structure with specially designed and tested clips manufactured exclusively for the roofing system.

2. Clips/halters must be designed to allow the roofing materials free movement in either direction parallel to the standing leg of the panel.

3. Clips must be designed to allow for a minimum of 5/8” air space under the pan of the panels and the substrate materials.

4. See Paragraph 2.07 for additional clip requirements.

C. Exposed Coil Coated Finish for Roof Panels, Soffit Panels, Gutter and Downspout

1. Fluoropolymer Two-Coat System: Nominal 1.0 mil total dry film thickness consisting of a 0.2-mil primer with a 0.8-mil 70 percent PVDF fluoropolymer color coat, AAMA [620] [621].

2. Color shall selected from: Manufacturers Standard.

3. Interior Surface: Manufacturer's standard two coat system consisting of a nominal 0.2 mil primer and nominal 0.3 ml acrylic or polyester backer finish for a nominal 0.5 mil total dry film thickness.

2.4 UNDERLAYMENT MATERIALS

A. Basis of Design: BEMO-XTREME HT Ice and Water Shield as supplied by BEMO USA Corporation, Mesa, Arizona tel 480-545-7900; www.bemousa.com.

B. Self-Adhering, High-Temperature Sheet: 40 mils thick minimum, consisting of a white face sheet comprised of a Tri-laminate woven HDPE. In accordance with ASTM D412 Die C - Ultimate elongation MD/XD (%) – 88/55 and Tensile Strength minimum of MD/XD (%) – 11200/13100 (1624/1900psi). Membrane must be proven to not “flow” at 250F. Material is able to be left exposed for up to 180 days.

2.5 ROOF ACCESORY MOUNTING CLAMPS

A. BEMO Utility Clamps: 12ga. Type 301 stainless steel UL rated horizontal or vertical flange clamps of roof manufacturer’s standard design used for attachment of roof accessories. Other clamp types are not acceptable.

1. Required for attachment of lightening protection components, walkways, and guy wires.

2.6 ACCESSORIES

A. Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.
2. Joint Sealant: Manufacturer's standard or recommended liquid and preformed sealers and tapes and as follows:
   a. Factory-Applied Seam Sealant: Manufacturer’s continuously applied standard hot-melt type.
   b. Concealed Joint Sealant: Non-curing butyl, AAMA 809.2.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311

B. Sheet Metal Roofing Accessories: Provide components required for a complete sheet metal roofing assembly including trim, copings, fasciae, corner units, ridge closures, clips, flashings, sealants,

gaskets, fillers, closure strips, and similar items. Match material and finish of sheet metal roofing, unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as sheet metal roofing. Ridge, headwall, hip, etc. shall use a combination foam and metal closure.
2. Panel Clips: Minimum 18ga Type 301 stainless steel hook and galvanized steel base panel clips designed to withstand negative-load requirements.
3. Bearing Plates: Install bearing plates directly over rigid board insulation/underlayment at each clip location (not required over ½" minimum mineral board).
    a. Bearing plates shall be three by five (3 x 5) inch by twenty-two (22) gage steel.
    b. Bearing plates shall be pre-punched with a hole pattern matching the panel clip.
4. Cleats: For mechanically seaming into joints and formed from the following materials:
    a. Aluminum Roofing: 0.0250-inch- thick stainless steel or as required by the SSMR panel manufacturer.

C. Flashing, Trim, Gutter and Downspout: Formed from same material and with same finish as sheet metal roofing. Provide flashing, trim, gutter and downspout as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers.

1. Pipe and Penetration Flashing: Premolded, flashing sleeve or pipe collar with flexible metal ring bonded to sloped base. Intended to provide weatherproof seal and to isolate pipe movement from vibration and expansion/contraction.

D. Roof Curbs: Fully welded or wet sealed and riveted or as required by the manufacturer for weathertightness warranty. Curb backpan, sidepan, apron flashing and counter flashing shall be fabricated from same material and finish as sheet metal roofing, minimum thickness matching the sheet metal roofing; with bottom of skirt profiled to match roof panel profiles; with weatherproof top box and integral full-length cricket (or manufacturer standard). Fabricate curb sub framing of nominal 0.062-inch-thick, angle-, C-, or Z-shaped galvanized steel or stainless steel sheet. Fabricate curb and sub framing to withstand indicated loads of size and height indicated. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1. Factory insulate curbs with 1-inch- thick, rigid insulation.
2. Factory install wood nailers at tops of curbs.
3. Fabricate curb units with water diverter or cricket and with height tapered to match slope to level tops of units or as required by the manufacturer.
4. Curb base flashing shall be a minimum eight (8) inches above the horizontal roof surface.
5. Curbs must be installed to accommodate panel thermal movement with a 1" minimum clearance.

2.7 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for a complete roofing system and as recommended by fabricator for sheet metal roofing. Provide accessories made of the same or compatible materials as the items to which they are applied.

B. Fasteners: Self-tapping screws, self drilling screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads. Use the same metal or a metal compatible with the item fastened. At any location where dissimilar metals are to be fastened, provide stainless steel fasteners.
1. Concealed Fasteners: Corrosion resistant steel fasteners (zinc plated, stainless steel or equal) designed to meet structural loading requirements. Provide #14 as a minimum fastener size.
2. Exposed Fasteners: Heads matching color of sheet metal roofing by means of plastic caps or factory-applied coating.
3. Fasteners for Flashing and Trim: 300 series stainless steel self-drilling screws with hex washer

head and bonded washer.

4. Blind Fasteners: 300 series stainless steel rivets or aluminum.

PART 3 - EXECUTION

3.1 DELIVERY AND STORAGE

A. Secure suitable facilities for storage and protection on site before delivery of materials.

3.2 INSPECTION AND FIELD QUALITY CONTROL

A. The manufacturer/installer shall examine the building to verify that the structure is ready for roofing installation.

a. Manufacturer/installer cannot proceed until all structural supports and/or substrates are satisfactorily installed in accordance with the drawings, specifications and applicable industry standards.

B. The manufacturer's Technical Field Representative shall conduct periodic inspections of the work three (3) times per week during installation and shall furnish written photo documentation of all such inspections. The frequency of the inspections shall be three (3) times per week inclusive of a start-up inspection and a final inspection.

3.3 INSTALLATION

A. The manufacturer must train and certify the installer.

B. All attachments shall allow for thermal expansion and contraction of the roofing materials.

C. Install all panels in one continuous unbroken length for any length of 250' or less.

D. Panels are to be mechanically seamed after installation in the field.

3.4 DAMAGED MATERIAL AND CLEANING

A. Replace any materials or components that are damaged beyond repair prior to completion.

B. Each area will be wiped down as it is completed.

C. Remove all metal shavings from panel surface on a daily basis.

D. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dent, creases, waves, scratch marks or other damage to the finish.

End of Section

SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counterflashings, gutters, downspouts, sheet and other items indicated on drawings.

B. Sealants for joints within sheet metal fabrications.

1.2 RELATED REQUIREMENTS

A. Section 04 20 00 - Unit Masonry: Metal flashings embedded in masonry.

B. Section 06 10 00 - Rough Carpentry: Field fabricated roof curbs.

1.3 REFERENCE STANDARDS

A. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2023.

B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.

C. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free 2007 (Reapproved 2018).

D. SMACNA (ASMM) - Architectural Sheet Metal Manual 2012.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.5 SUBMITTALS

A. See Section 01 33 00 - SUBMITTALS for submittal procedures.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

1.6 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) requirements and standard details, except as otherwise indicated.

B. Fabricator and Installer Qualifications: Company specializing in sheet metal work with ten years of experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

B. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.1 SHEET MATERIALS

A. Stainless Steel: ASTM A666, Type 304 alloy, soft temper, 28 gauge, 0.0156 inch thick; smooth No. 4 - Brushed finish.

2.2 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Hem exposed edges on underside 1/2 inch; miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18-inch long legs; seam for rigidity, seal with sealant.

F. Fabricate flashings to allow toe to extend 2 inches over roofing gravel. Return and brake edges.

2.3 ACCESSORIES

A. Fasteners: Stainless steel, with soft neoprene washers.

B. Primer: Zinc chromate type.

C. Concealed Sealants: Non-curing butyl sealant.

D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.

E. Asphalt Roof Cement: ASTM D4586/D4586M, Type I, asbestos-free.

F. Reglets: Recessed type, stainless steel; face and ends covered with plastic tape.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.2 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil, 0.015 inch.

3.3 INSTALLATION

A. Insert flashings into reglets to form tight fit; secure in place with plastic wedges.

B. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted..

C. Apply plastic cement compound between metal flashings and felt flashings.

D. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

E. Seal metal joints watertight.

END OF SECTION

SECTION 07 84 00 - FIRESTOPPING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Firestopping systems.

B. Firestopping of all joints and penetrations in fire resistance rated and smoke resistant assemblies, whether indicated on drawings or not, and other openings indicated.

1.2 REFERENCE STANDARDS

A. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials 2022.

B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems 2023a.

C. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems 2015 (Reapproved 2019).

D. ASTM E2174 - Standard Practice for On-Site Inspection of Installed Firestop Systems 2020a.

E. ASTM E2393 - Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers 2020a.

F. ASTM E2307 - Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus 2023a.

G. ASTM E2837 - Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies 2023.

H. ITS (DIR) - Directory of Listed Products Current Edition.

I. FM 4991 - Approval Standard of Firestop Contractors 2013.

J. FM (AG) - FM Approval Guide Current Edition.

K. UL 1479 - Standard for Fire Tests of Penetration Firestops Current Edition, Including All Revisions.

L. UL 2079 - Standard for Tests for Fire Resistance of Building Joint Systems Current Edition, Including All Revisions.

M. UL (FRD) - Fire Resistance Directory Current Edition.

1.3 SUBMITTALS

A. See Section 01 33 00 - SUBMITTALS for submittal procedures.

B. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.

C. Product Data: Provide data on product characteristics, performance ratings, and limitations.

D. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.

E. Manufacturer's qualification statement.

F. Installer's qualification statement.

1.4 QUALITY ASSURANCE

A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
   1. Listing in UL (FRD), FM (AG), or ITS (DIR) will be considered as constituting an acceptable test report.
   2. Valid evaluation report published by ICC Evaluation Service, Inc. (ICC-ES) at www.icc-es.org will be considered as constituting an acceptable test report.
   3. Submission of actual test reports is required for assemblies for which none of the above substantiation exists.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Installer Qualifications: Company specializing in performing the work of this section and:
   1. Trained by manufacturer.
   2. Approved by Factory Mutual Research Corporation under FM 4991, or meeting any two of the following requirements:
   3. Verification of minimum three years documented experience installing work of this type.
   4. Verification of at least five satisfactorily completed projects of comparable size and type.
   5. Licensed by local authorities having jurisdiction (AHJ).

1.5 FIELD CONDITIONS

A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.

B. Provide ventilation in areas where solvent-cured materials are being installed.

PART 2 PRODUCTS

2.1 MATERIALS

A. Firestopping Materials: Any materials meeting requirements.

B. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of materials as required for tested firestopping assembly.

C. Fire Ratings: Refer to drawings for required systems and ratings.

2.2 FIRESTOPPING ASSEMBLY REQUIREMENTS

A. Perimeter Fire Containment Firestopping: Use system that has been tested according to ASTM E2307 to have fire resistance F Rating equal to required fire rating of floor assembly.

B. Head-of-Wall (HW) Joint System Firestopping at Joints Between Fire-Rated Wall Assemblies and Non-Rated Horizontal Assemblies: Use system that has been tested according to ASTM E2837 to have fire resistance F Rating equal to required fire rating of wall assembly.

C. Floor-to-Floor (FF), Floor-to-Wall (FW), Head-of-Wall (HW), and Wall-to-Wall (WW) Joints, Except Perimeter, Where Both Are Fire-Rated: Use system that has been tested according to ASTM E1966 or UL 2079 to have fire resistance F Rating equal to required fire rating of the assembly in which the joint occurs.

D. Through Penetration Firestopping: Use system that has been tested according to ASTM E814 to have fire resistance F Rating equal to required fire rating of penetrated assembly.

2.3 FIRESTOPPING SYSTEMS

A. Firestopping: Any material meeting requirements.
   1. Fire Ratings: Use system that is listed by FM (AG), ITS (DIR), or UL (FRD) and tested in accordance with ASTM E814, ASTM E119, or UL 1479 with F Rating equal to fire rating of penetrated assembly and minimum T Rating Equal to F Rating and in compliance with other specified requirements.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify openings are ready to receive the work of this section.

3.2 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other materials that could adversely affect bond of firestopping material.

B. Remove incompatible materials that could adversely affect bond.

C. Install backing materials to prevent liquid material from leakage.

3.3 INSTALLATION

A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

B. Do not cover installed firestopping until inspected by authorities having jurisdiction.

C. Install labeling required by code.

3.4 FIELD QUALITY CONTROL

A. Independent Testing Agency: Inspection agency employed and paid by Owner, will examine penetration firestopping in accordance with ASTM E2174 and ASTM E2393.

B. Repair or replace penetration firestopping and joints at locations where inspection results indicate firestopping or joints do not meet specified requirements.

3.5 CLEANING

A. Clean adjacent surfaces of firestopping materials.

3.6 PROTECTION

A. Protect adjacent surfaces from damage by material installation.

END OF SECTION

SECTION 07 92 00 - JOINT SEALANTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Self-leveling pourable joint sealants.

C. Joint backings and accessories.

1.2 REFERENCE STANDARDS

A. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants 2018 (Reapproved 2022).

B. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications 2022.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.

D. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems 2023.

E. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016 (Reapproved 2023).

F. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants 2022.

G. ASTM C1311 - Standard Specification for Solvent Release Sealants 2022.

H. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants 2023.

I. ASTM C1521 - Standard Practice for Evaluating Adhesion of Installed Weatherproofing Sealant Joints 2019 (Reapproved 2020).

J. SCAQMD 1168 - Adhesive and Sealant Applications 1989, with Amendment (2022).

K. SWRI (VAL) - SWR Institute Validated Products Directory Current Edition.

1.3 SUBMITTALS

A. See Section 01 33 00 – SUBMITTALS for submittal procedures.

B. Product Data: Submit manufacturer's technical datasheets for each product to be used; include the following:
   1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
   2. List of backing materials approved for use with the specific product.
   3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
   4. Substrates the product should not be used on.
   5. Substrates for which use of primer is required.
   6. Substrates for which laboratory adhesion and/or compatibility testing is required.
   7. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
   8. Sample product warranty.
   9. Certification by manufacturer indicating that product complies with specification requirements.
   10. SWRI Validation: Provide currently available sealant product validations as listed by SWRI (VAL) for specified sealants.

C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

E. Samples for Verification: Where custom sealant color is specified, obtain directions from Architect and submit at least two physical samples for verification of color of each required sealant.

F. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.

G. For exterior sealants: Installation Plan: Submit at least four weeks prior to start of installation.

H. Preinstallation Field Adhesion Test Plan: Submit at least two weeks prior to start of installation.

I. Field Quality Control Plan: Submit at least two weeks prior to start of installation.

J. Preinstallation Field Adhesion Test Reports: Submit filled out Preinstallation Field Adhesion Test Reports log within 10 days after completion of tests; include bagged test samples and photographic records.

K. Field Quality Control Log: Submit filled-out log for each length or instance of sealant installed, within 10 days after completion of inspections/tests; include bagged test samples and photographic records, if any.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section and with at least three years of documented experience.

C. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

D. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
   1. Adhesion Testing: In accordance with ASTM C794.
   2. Compatibility Testing: In accordance with ASTM C1087.
   3. Stain Testing: In accordance with ASTM C1248; required only for stone substrates.
   4. Allow sufficient time for testing to avoid delaying the work.
   5. Deliver sufficient samples to manufacturer for testing.
   6. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.

E. Preinstallation Field Adhesion Test Plan: Include destructive field adhesion testing of one sample of each combination of sealant type and substrate, except interior acrylic latex sealants, and include the following for each tested sample.
   1. Identification of testing agency.
   2. Name(s) of sealant manufacturer's field representatives who will be observing.
   3. Preinstallation Field Adhesion Test Log Form: Include the following data fields, with known information filled out.
      a. Test date.
      b. Copy of test method documents.
      c. Age of sealant upon date of testing.
      d. Test results, modeled after the sample form in the test method document.
      e. Indicate use of photographic record of test.

F. Field Quality Control Plan:
   1. Visual inspection of entire length of sealant joints.
   2. Nondestructive field adhesion testing of sealant joints, except interior acrylic latex sealants.
      a. Test the entire length of every sealant joint.
   3. Destructive field adhesion testing of sealant joints, except interior sealant joints.
      a. For each different sealant and substrate combination, allow for one test every 100 feet in the first 1,000 linear feet, and one test per 1,000 linear feet thereafter, or once per floor on each elevation.
      b. If any failures occur in the first 1,000 linear feet, continue testing at frequency of one test per 500 linear feet at no extra cost to Owner.
   4. Field testing agency's qualifications.

5. Field Quality Control Log Form: Show same data fields as on Preinstallation Field Adhesion Test Log, with known information filled out and lines for multiple tests per sealant/substrate combinations; include visual inspection and specified field testing; allow for possibility that more tests than minimum specified may be necessary.

G. Field Adhesion Test Procedures:
1. Allow sealants to fully cure as recommended by manufacturer before testing.
2. Have a copy of the test method document available during tests.
3. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
4. When performing destructive tests, also inspect the opened joint for proper installation characteristics recommended by manufacturer, and report any deficiencies.
5. Deliver the samples removed during destructive tests in separate sealed plastic bags, identified with project, location, test date, and test results, to Owner.
6. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Architect.

H. Nondestructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Nondestructive Spot Method.

I. Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Destructive Tail Procedure.
1. Sample: At least 18 inches long.
2. Minimum Elongation Without Adhesive Failure: Consider the tail at rest, not under any elongation stress; multiply the stated movement capability of the sealant in percent by two; then multiply 1 inch by that percentage; if adhesion failure occurs before the 1-inch mark is that distance from the substrate, the test has failed.
3. If either adhesive or cohesive failure occurs before minimum elongation, take necessary measures to correct conditions and retest; record each modification to products or installation procedures.

PART 2 PRODUCTS

2.1 JOINT SEALANT APPLICATIONS

A. Scope:
1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to:
a. Wall expansion and control joints.
b. Joints between door, window, and other frames and adjacent construction.
c. Joints between different exposed materials.
d. Openings below ledge angles in masonry.
e. Other joints indicated below.

2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
   a. Joints between door, window, and other frames and adjacent construction.
   b. In sound-rated wall and ceiling assemblies, gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction; and other flanking sound paths.
      1) Exception: Such gaps and openings in gypsum board and plaster finished stud walls and suspended ceilings.
      2) Exception: Through-penetrations in sound-rated assemblies that are also fire-rated.
   c. Other joints indicated below.
3. Do not seal the following types of joints:
   a. Intentional weep holes in masonry.
   b. Joints indicated to be treated with manufactured expansion joint cover, or some other type of sealing device.
   c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
   d. Joints where installation of sealant is specified in another section.
   e. Joints between suspended panel ceilings/grid and walls.

B. Exterior Joints: Use nonsag nonstaining silicone sealant, unless otherwise indicated.
1. Lap Joints in Sheet Metal Fabrications: Butyl rubber, noncuring.
2. Lap Joints between Manufactured Metal Panels: Butyl rubber, noncuring.
3. Control and Expansion Joints in Concrete Paving: Self-leveling polyurethane traffic-grade sealant.

C. Sound-Rated Assemblies: Walls and ceilings identified as STC-rated, sound-rated, or acoustical.

2.2 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

2.3 NONSAG JOINT SEALANTS
1. FDA suitable for indirect food additives, NSF recognized for direct food contact, or USDA accepted for use in meat and poultry processing plants.
2. Products:
   a. Pecora Corporation; Pecora 898 NST (Non-Staining Technology) : www.pecora.com.
   b. Polymeric Systems; 601 FG: www.polymericsystems.com.
   c. Sika Corporation; Sikasil GP: www.usa-sika.com.
   d. Substitutions: See Section 01 60 00 - Product Requirements.
   e. Approved equal.

B. Noncuring Butyl Sealant: Solvent-based, single component, nonsag, nonskinning, nonhardening, nonbleeding; non-vapor permeable; intended for fully concealed applications.

2.4 SELF-LEVELING JOINT SEALANTS

A. Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; single or multicomponent; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion .
   1. Movement Capability: Plus and minus 25 percent, minimum.
   2. Color: To be selected by Architect from manufacturer's full range.
   3. Products:
      a. Pecora
      b. Sherwin-Williams Company; Stampede 1SL Polyurethane Sealant: www.sherwin-williams.com.
      c. Sika Corporation; Sikaflex-1c SL: www.usa-sika.com.
      d. Substitutions: See Section 01 60 00 - Product Requirements.
      e. Approved equal.

2.5 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
   1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
   2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
   3. Open Cell: 40 to 50 percent larger in diameter than joint width.
   4. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Masking Tape: Self-adhesive, nonabsorbent, nonstaining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

D. Joint Cleaner: Noncorrosive and nonstaining type, type recommended by sealant manufacturer; compatible with joint forming materials.

E. Primers: Type recommended by sealant manufacturer to suit application; nonstaining.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

D. Preinstallation Adhesion Testing: Install a sample for each test location indicated in the test plan.
   1. Test each sample as specified in PART 1 under QUALITY ASSURANCE article.
   2. Notify Architect of date and time that tests will be performed, at least seven days in advance.
   3. Arrange for sealant manufacturer's technical representative to be present during tests.
   4. Record each test on Preinstallation Adhesion Test Log as indicated.
   5. If any sample fails, review products and installation procedures, consult manufacturer, or take other measures that are necessary to ensure adhesion; retest in a different location; if unable to obtain satisfactory adhesion, report to Architect.
   6. After completion of tests, remove remaining sample material and prepare joints for new sealant installation.

3.2 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.3 INSTALLATION

A. Install this work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Provide joint sealant installations complying with ASTM C1193.

C. Install acoustical sealant application work in accordance with ASTM C919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

E. Install bond breaker backing tape where backer rod cannot be used.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

G. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

H. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.4 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements for additional requirements.

B. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.

C. Non-Destructive Adhesion Testing: If there are any failures in first 100 linear feet, notify Architect immediately.

D. Destructive Adhesion Testing: If there are any failures in first 1,000 linear feet, notify Architect immediately.

E. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

F. Repair destructive test location damage immediately after evaluation and recording of results.

3.5 POST-OCCUPANCY

A. Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width, i.e., at low temperature in thermal cycle. Report failures immediately and repair them.

END OF SECTION

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Non-fire-rated hollow metal doors and frames.

B. Hollow metal frames for wood doors.

C. Fire-rated hollow metal doors and frames.

D. Thermally insulated hollow metal doors with frames.

E. Hollow metal borrowed lites glazing frames.

1.2 RELATED REQUIREMENTS

A. Section 08 80 00 - Glazing: Glass for doors and borrowed lites.

1.3 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design 2010.

B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors 2022.

C. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames 2020.

D. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100) 2023.

E. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames 2020.

F. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2023.

G. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable 2023.

H. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength 2023.

I. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete 2020.

J. ASTM C476 - Standard Specification for Grout for Masonry 2023.

K. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023c.

L. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames 2016.

M. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

N. ITS (DIR) - Directory of Listed Products Current Edition.

O. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames 2002.

P. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames 2011.

Q. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames 2017.

R. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames 2014.

S. NFPA 80 - Standard for Fire Doors and Other Opening Protectives 2022.

T. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies 2022.

U. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames 2023.

V. UL (DIR) - Online Certifications Directory Current Edition.

W. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies Current Edition, Including All Revisions.

1.4 SUBMITTALS

A. See Section 01 33 00 - SUBMITTALS for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide hollow metal doors and frames from SDI Certified manufacturer: www.steeldoor.org/sdicertified.php.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

C. Maintain at project site copies of reference standards relating to installation of products specified.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Requirements for Hollow Metal Doors and Frames:
1. Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
2. Accessibility: Comply with ICC A117.1 and ADA Standards.
3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
4. Typical Door Face Sheets: Flush.
5. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturer's standard.
6. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
7. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
    a. Based on SDI Standards: Provide at least A40/ZF120 (galvannealed) when necessary, coating not required for typical interior door applications, and at least A60/ZF180 (galvannealed) for corrosive locations.

B. Hollow Metal Panels: Same construction, performance, and finish as doors.

C. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.2 HOLLOW METAL DOORS

A. Exterior Doors: Thermally insulated.
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
a. Level 3 - Extra Heavy-duty.
b. Physical Performance Level A 1 000 000 cycles; in accordance with ANSI/SDI A250.4.
c. Model 2 - Seamless.
d. Door Face Metal Thickness: 16 gauge, 0.053 inch, minimum.
e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.
2. Door Core Material: Polyurethane, 1.8 lbs/cu ft minimum density.
a. Foam Plastic Insulation: Manufacturer's standard board insulation with maximum flame spread index (FSI) of 75, and maximum smoke developed index (SDI) of 450 in accordance with ASTM E84, and completely enclosed within interior of door.
3. Door Thickness: 1-3/4 inches, nominal.
4. Weatherstripping: Refer to Section 08 71 00.

B. Interior Doors, Non-Fire Rated:
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
a. Level 3 - Extra Heavy-duty.
b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
c. Model 1 - Full Flush.
d. Door Face Metal Thickness: 16 gauge, 0.053 inch, minimum.
2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
3. Door Thickness: 1-3/4 inches, nominal.

C. Fire-Rated Doors:
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
a. Level 3 - Extra Heavy-duty.
b. Physical Performance Level A, 1,000,000 cycles; in accordance with ANSI/SDI A250.4.
c. Model 1 - Full Flush.
d. Door Face Metal Thickness: 16 gauge, 0.053 inch, minimum.
2. Fire Rating: As indicated on Door Schedule, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
3. Provide units listed and labeled by UL (DIR) or ITS (DIR).
a. Attach fire rating label to each fire rated unit.
4. Door Core Material: Mineral board.

5. Door Thickness: 1-3/4 inches, nominal.

2.3 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Frame Finish: Factory primed and field finished.

C. Exterior Door Frames: Full profile/continuously welded type, thermally broken.
1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A40/ZF120 coating.
2. Frame Metal Thickness: 18 gauge, 0.042 inch, minimum.
3. Weatherstripping: Separate, see Section 08 71 00.

D. Interior Door Frames, Non-Fire Rated: Knock-down type at gypsum board walls, and face welded type at masonry walls.
1. Frame Metal Thickness: 18 gauge, 0.042 inch, minimum.

E. Door Frames, Fire-Rated: Face welded type.
1. Fire Rating: Same as door, labeled.
2. Frame Metal Thickness: 16 gauge, 0.053 inch, minimum.

F. Frames for Wood Doors: Comply with frame requirements in accordance with corresponding door.

G. Borrowed Lites Glazing Frames: Construction and face dimensions to match door frames, and as indicated on drawings.

H. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.

I. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inches high to fill opening without cutting masonry units.

J. Frames Wider than 48 inches: Reinforce with steel channel fitted tightly into frame head, flush with top.

2.4 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

B. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15 mil, 0.015 inch dry film thickness (DFT) per coat; provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.5 ACCESSORIES

A. Louvers: Roll formed steel with overlapping frame; finish same as door components ; factory-installed.
   1. In Fire-Rated Doors: UL (DIR) or ITS (DIR) listed fusible link louver, same rating as door.
   2. Style: Sightproof inverted V blade.

B. Glazing: As specified in Section 08 80 00, factory installed.

C. Mechanical Fasteners for Concealed Metal-to-Metal Connections: Self-drilling, self-tapping, steel with electroplated zinc finish.

D. Grout for Frames: Mortar grout complying with ASTM C476 with maximum slump of 4 inches as measured in accordance with ASTM C143/C143M for hand troweling in place; plaster grout and thinner pumpable grout are prohibited.

E. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

F. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.2 PREPARATION

A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.3 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Install fire rated units in accordance with NFPA 80.

C. Coordinate frame anchor placement with wall construction.

D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

E. Install door hardware as specified in Section 08 71 00.
   1. Comply with recommended practice for hardware placement of doors and frames in accordance with ANSI/SDI A250.6 or NAAMM HMMA 861.

F. Coordinate installation of electrical connections to electrical hardware items.

3.4 TOLERANCES

A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.

B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.5 ADJUSTING

A. Adjust for smooth and balanced door movement.

END OF SECTION

SECTION 08 36 13 - SECTIONAL DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Overhead sectional doors, electrically operated.

B. Operating hardware and supports.

C. Electrical controls.

1.2 RELATED REQUIREMENTS

A. Section 09 91 23 – Interior Painting.

1.3 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process 2023.

B. ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen 2004 (Reapproved 2012).

C. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference 2014 (Reapproved 2021).

D. DASMA 102 - American National Standard Specifications for Sectional Doors 2018.

E. ITS (DIR) - Directory of Listed Products Current Edition.

F. NEMA ICS 2 - Industrial Control and Systems Controllers, Contactors and Overload Relays Rated 600 Volts 2008 (Reaffirmed 2020).

G. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.

H. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

I. UL (DIR) - Online Certifications Directory Current Edition.

J. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems Current Edition, Including All Revisions.

1.4 SUBMITTALS

A. See Section 01 33 00 – SUBMITTALS, for submittal procedures.

B. Shop Drawings: Indicate opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.

C. Product Data: Show component construction, anchorage method, and hardware.

D. Manufacturer's Installation Instructions: Include any special procedures required by project conditions.

E. Operation Data: Include normal operation, troubleshooting, and adjusting.

F. Maintenance Data: Include data for motor and transmission, shaft and gearing, lubrication frequency, spare part sources.

1.5 QUALITY ASSURANCE

A. Products Requiring Electrical Connection: Listed and classified by ITS (DIR), UL (DIR), or testing firm acceptable to authorities having jurisdiction, as suitable for purpose specified.

PART 2 PRODUCTS

2.1 STEEL DOORS

A. Steel Doors: Flush steel, insulated; standard lift operating style with track and hardware; complying with DASMA 102, Commercial application.
   1. Performance: Withstand positive and negative wind loads equal to 1.5 times design wind loads specified by local code without damage or permanent set, when tested in accordance with ASTM E330/E330M, using 10 second duration of maximum load.
   2. Door Nominal Thickness: 2 inches thick.
   3. Thermal Transmittance: U-factor of 0.31 Btu/hr sq ft degrees F, maximum, in accordance with DASMA 102.
   4. Air Leakage Rate: Less than 0.40 cfm/sf when tested in accordance with ASTM E283 at test pressure difference of 1.57 psf.
   5. Exterior Finish: Factory finished with standard factory finish; color as selected by Architect.
   6. Interior Finish: Factory finished with acrylic baked enamel; color as selected by Architect.
   7. Electric Operation: Electric control station.

B. Door Panels: Steel construction; outer steel sheet of 20 gage, 0.0359 inch minimum thickness, flush profile; inner steel sheet of 20 gage, 0.0359 inch minimum thickness, flat profile; core reinforcement sheet steel roll formed to channel shape, rabbeted weather joints at meeting rails; polyurethane insulation.

C. Manufacturers:
1. Clopay Building Products; Model 3722: www.clopaydoor.com.
2. Entrematic; Amarr 2042 Polyurethane Insulated Steel Door: www.amarr.com/commercial.
3. Fimbel Architectural Door Specialties; ISO-DOOR S12424A: www.fimbelads.com.
4. Overhead Door Corporation; Model 596: www.overheaddoor.com.
5. Raynor Garage Doors; ThermalSeal, Model TM220: www.raynor.com.
6. Approved equal.

2.2 COMPONENTS

A. Sill Weatherstripping: Resilient hollow rubber strip, one piece; fitted to bottom of door panel, full length contact.

B. Jamb Weatherstripping: Roll formed steel section full height of jamb, fitted with resilient weatherstripping, placed in moderate contact with door panels.

C. Head Weatherstripping: EPDM rubber seal, one piece full length.

D. Panel Joint Weatherstripping: Neoprene foam seal, one piece full length.

E. Lock: Inside center mounted, adjustable keeper, spring activated latch bar with feature to retain in locked or retracted position; interior and exterior handle.

2.3 MATERIALS

A. Lumber: Softwood; manufacturer's standard species; kiln dried, preservative treated.

B. Plywood: Softwood plywood with veneer core, waterproof glue, 1/4 inch thick.

C. Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G60/Z180 coating, plain surface.

D. Insulation: Foamed-in-place polyurethane, bonded to facing.

2.4 ELECTRIC OPERATION

A. Operator, Controls, Actuators, and Safeties: Comply with UL 325; provide products listed by ITS (DIR), UL (DIR), or testing agency acceptable to authorities having jurisdiction.
1. Provide interlock switches on motor operated units.

B. Electric Operators:
1. Mounting: Side mounted on cross head shaft.
2. Motor Enclosure:
3. 1/2 hp; manually operable in case of power failure, transit speed of 12 inches per second.
4. Motor Voltage: 120 volts, single phase, 60 Hz.
5. Motor Controller: NEMA ICS 2, full voltage, reversing magnetic motor starter.

6. Controller Enclosure: NEMA 250, Type 1.
7. Opening Speed: 12 inches per second.
8. Brake: Adjustable friction clutch type, activated by motor controller.
9. Manual override in case of power failure.
10. Refer to Division 26 for electrical connections.

C. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated; enclose terminal lugs in terminal box sized to comply with NFPA 70.

D. Control Station: Provide standard three button (Open-Close-Stop) momentary-contact control device for each operator complying with UL 325.
1. 24 volt circuit.
2. Surface mounted, at interior door jamb.
3. Entrapment Protection Devices: Provide sensing devices and safety mechanisms complying with UL 325.
a. Primary Device: Provide electric sensing edge, wireless sensing, NEMA 1 photo eye sensors, or NEMA 4X photo eye sensors as required with momentary-contact control device.

E. Safety Edge: Located at bottom of sectional door panel, full width; electro-mechanical sensitized type, wired to stop and reverse door direction upon striking object; hollow neoprene covered to provide weatherstrip seal.

F. Safety Edge: Located at bottom of sectional door panel, full width; electro-mechanical sensitized type, wired to stop and reverse door direction upon striking object; hollow neoprene covered to provide weatherstrip seal.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.

B. Verify that electric power is available and of the correct characteristics.

3.2 PREPARATION

A. Prepare opening to permit correct installation of door unit to perimeter air and vapor barrier seal.

B. Apply primer to wood frame.

3.3 INSTALLATION

A. Install door unit assembly in accordance with manufacturer's instructions.

B. Anchor assembly to wall construction and building framing without distortion or stress.

C. Securely brace door tracks suspended from structure. Secure tracks to structural members only.

D. Fit and align door assembly including hardware.

E. Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

3.4 TOLERANCES

A. Maximum Variation from Plumb: 1/16 inch.

B. Maximum Variation from Level: 1/16 inch.

C. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch from 10 ft straight edge.

D. Maintain dimensional tolerances and alignment with adjacent work.

3.5 ADJUSTING

A. Adjust door assembly for smooth operation and full contact with weatherstripping.

3.6 CLEANING

A. Clean doors and frames and glazing.

B. Remove temporary labels and visible markings.

3.7 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

B. Do not permit construction traffic through overhead door openings after adjustment and cleaning.

END OF SECTION

SECTION 08 80 00 - GLAZING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Insulating glass units.

B. Glazing units.

C. Plastic sheet glazing units.

D. Glazing compounds.

1.2 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials Current Edition.

B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test 2015 (Reaffirmed 2020).

C. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures Most Recent Edition Cited by Referring Code or Reference Standard.

D. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers 2005 (Reapproved 2019).

E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.

F. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass 2019.

G. ASTM C1193 - Standard Guide for Use of Joint Sealants 2016 (Reapproved 2023).

H. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass 2021a.

I. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings 2016.

J. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation 2019.

K. ASTM F1233 - Standard Test Method for Security Glazing Materials And Systems 2021.

L. ASTM F1642/F1642M - Standard Test Method for Glazing and Glazing Systems Subject to Airblast Loadings 2017.

M. ASTM F1915 - Standard Test Methods for Glazing for Detention Facilities 2005 (Reapproved 2019).

N. ASTM F2248 - Standard Practice for Specifying an Equivalent 3-Second Duration Design Loading for Blast Resistant Glazing Fabricated with Laminated Glass 2019.

O. GANA (SM) - GANA Sealant Manual 2008.

P. ICC (IBC) - International Building Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

Q. ITS (DIR) - Directory of Listed Products Current Edition.

R. NFRC 100 - Procedure for Determining Fenestration Product U-factors 2023.

S. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence 2023.

T. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems 2023.

U. UFC 4-010-01 - DoD Minimum Antiterrorism Standards for Buildings 2018, with Editorial Revision (2022).

V. UL (DIR) - Online Certifications Directory Current Edition.

W. UL 752 - Standard for Bullet-Resisting Equipment Current Edition, Including All Revisions.

X. UL 972 - Standard for Burglary Resisting Glazing Material Current Edition, Including All Revisions.

1.3 ADMINISTRATIVE REQUIREMENTS

A. SUBMITTALS
1. See Section 01 30 00 Submittals for submittal procedures.
2. Product Data on Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.
3. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.
4. Samples: Submit two samples 12 by 12 inch in size of glass units.
5. Samples: Submit a 6-inch-long bead of glazing sealant.
6. Warranty Documentation: Submit manufacturer’s warranty and ensure forms have been completed in Owner’s name and registered with the manufacturer.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

A. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.
   1. Design Pressure: Calculated in accordance with ASCE 7.
   2. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
   3. Seismic Loads: Design and size glazing components to withstand seismic loads and sway displacement in accordance with the requirements of ASCE 7
   4. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.
   5. Glass thicknesses listed are minimum.

B. Weather-Resistive Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure water-resistive barrier, vapor retarder, and/or air barrier.
   1. In conjunction with weather barrier related materials described in other sections, as follows:
   2. To utilize inner pane of multiple pane insulating glass units for continuity of vapor retarder and/or air barrier seal.

C. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:
   1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
   2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 6.3 computer program.
   3. Solar Optical Properties: Comply with NFRC 300 test method.

2.2 GLASS MATERIALS

A. Float Glass: Provide float glass based glazing unless otherwise indicated.
   1. Thicknesses: As indicated; provide greater thickness as required for exterior glazing wind load design.

B. Laminated Glass: Float glass laminated in accordance with ASTM C1172.
   1. Laminated Safety Glass: Complies with ANSI Z97.1 - Class B or 16 CFR 1201 - Category I impact test requirements.

2.3 INSULATING GLASS UNITS

A. Manufacturers:
   1. Viracon, Apogee Enterprises, Inc; VE1-2M: www.viracon.com.

2. Vitro Architectural Glass (formerly PPG Glass); Solarban 60: www.vitroglazings.com.
3. Approved equal.

B. Insulating Glass Units: Types as indicated.
1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
3. Warm-Edge Spacers: Low conductivity thermoplastic warm-edge technology design.
   a. Spacer Width: As required for specified insulating glass unit.
   b. Spacer Height: Manufacturer's standard.
4. Spacer Color: Black.
5. Edge Seal:
   a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone sealant as secondary seal applied around perimeter.
6. Color: Black.
7. Purge interpane space with dry air, hermetically sealed.

2.4 GLAZING COMPOUNDS

A. Type GC-5 - Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C920 Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 25 to 35; black color.

B. Manufacturers:
1. Dow Corning Corporation; 795: www.dowcorning.com/construction.
2. Momentive Performance Materials, Inc; SCS2700 SilPruf LM: www.momentive.com.
3. Pecora Corporation; 895: www.pecora.com.
4. Tremco Commercial Sealants & Waterproofing; Proglaze SSG: www.tremcosealants.com.
5. Approved equal.

2.5 ACCESSORIES

A. Setting Blocks: Silicone, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.

B. Glazing Splines: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.

PART 3 EXECUTION

3.1 VERIFICATION OF CONDITIONS

A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.

B. Verify that the minimum required face and edge clearances are being provided.

C. Verify that surfaces of glazing channels or recesses are clean, free of obstructions that may impede moisture movement, weeps are clear, and support framing is ready to receive glazing system.

D. Proceed with glazing system installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean contact surfaces with appropriate solvent and wipe dry within maximum of 24 hours before glazing. Remove coatings that are not tightly bonded to substrates.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

3.3 INSTALLATION, GENERAL

A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.

B. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.

C. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.

D. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.

E. Set glass lites in proper orientation so that coatings face exterior or interior as indicated.

F. Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, etc.

3.4 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

A. Application - Exterior and/or Interior Glazed: Set glazing infills from either the exterior or the interior of the building.

B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.

D. Install removable stops without displacing glazing gasket; exert pressure for full continuous contact.

3.5 CLEANING

A. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.

B. Remove nonpermanent labels immediately after glazing installation is complete.

C. Clean glass and adjacent surfaces after sealants are fully cured.

D. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.6 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION

SECTION 09 51 00 - ACOUSTICAL CEILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Suspended metal grid ceiling system.

B. Acoustical units.

1.2 REFERENCE STANDARDS

A. ASTM C635/C635M - Standard Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings 2022.

B. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels 2019.

C. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions 2022.

D. ASTM E1264 - Standard Classification for Acoustical Ceiling Products 2023.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Do not install acoustical units until after interior wet work is dry.

1.4 SUBMITTALS

A. See Section 01 33 00 - SUBMITTALS for submittal procedures.

B. Product Data: Provide data on suspension system components and acoustical units.

C. Samples: Submit two samples 4 by 4 inch in size illustrating material and finish of acoustical units.

D. Samples: Submit two samples each, 12 inches long, of suspension system main runner, cross runner, and perimeter molding.

E. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.5 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acoustic Tiles/Panels:
   1. Armstrong World Industries, Inc: www.armstrong.com.
   2. CertainTeed Corporation: www.certainteed.com/ceilings-and-walls.
   3. USG Corporation: www.usg.com.
   4. Approved equal.

B. Suspension Systems:
   1. Same as for acoustical units.
   2. Approved equal.

2.2 ACOUSTICAL UNITS

A. Acoustical Units - General: ASTM E1264, Class A.

B. Acoustical Panels Type: As indicated on drawings.

2.3 SUSPENSION SYSTEM(S)

A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.

B. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold down clips, stabilizer bars, clips, and splices as required.

C. Exposed Steel Suspension System Type W: Formed steel, commercial quality cold rolled; intermediate-duty.
   1. Profile: Tee; 15/16 inch wide face.
   2. Construction: Double web.
   3. Finish: White painted.

2.4 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application and ceiling system flatness requirement specified.

B. Hanger Wire: 12 gauge, 0.08 inch galvanized steel wire.

C. Perimeter Moldings: Same metal and finish as grid.

D. Metal Edge Trim for "Cloud" Suspension Systems: Steel or extruded aluminum; provide attachment clips, splice plates, and preformed corner pieces for complete trim system.
   1. Finish: Baked enamel.
   2. Color: White.
   3. Products:
      a. Armstrong World Industries, Inc; Axiom: www.armstrong.com.
      b. CertainTeed Corporation; Cloud Permeter Trim: www.certainteed.com.
      c. USG Corporation; Compasso Suspension Trim: www.usg.com/ceilings.
      d. Approved equal.

E. Touch-up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

3.2 PREPARATION

A. Install after major above-ceiling work is complete.

B. Coordinate the location of hangers with other work.

C. Provide hanger clips during steel deck erection. Provide additional hangers and inserts as required.

3.3 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions and as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.

D. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

E. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

F. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

G. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

H. Do not eccentrically load system or induce rotation of runners.

3.4 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

E. Cutting Acoustical Units:
   1. Cut to fit irregular grid and perimeter edge trim.
   2. Make field cut edges of same profile as factory edges.
   3. Double cut and field paint exposed reveal edges.

F. Where round obstructions occur, provide preformed closures to match perimeter molding.

G. Install hold-down clips on panels within 20 ft of an exterior door.

3.5 TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

SECTION 09 67 24 – SPECIALTY RESINOUS FLOORING

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Specialized epoxy-resin flooring. (Starquartz System)

1.2 SUBMITTALS

A. Product Data: For each type of product specified. Include manufacturer's technical data, installation instructions, and recommendations for each resinous flooring component required.

B. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.

C. Maintenance Data: For resinous flooring to include in the maintenance manuals specified in Division 01.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer (applicator) who has specialized in installing resinous flooring similar in material, design, and extent to that indicated for this Project and who is acceptable to resinous flooring manufacturer.
   1. Engage an installer who employs only persons trained and approved by resinous flooring manufacturer for installing resinous flooring systems specified.
   2. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to install resinous flooring systems specified.

B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, and sealing or finish coats, through one source from a single manufacturer. Provide secondary materials including patching and fill material, joint sealant, and repair materials of type and from source recommended by manufacturer of primary materials.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.

B. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring installation.

B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring installation.

C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application, unless manufacturer recommends a longer period.

D. Floor must be tested prior to installation using calcium chloride vapor test kit to determine moisture content. Use 1 kit per 1,000 square feet.

E. All doorways must be flush and level prior to commencement of work.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, those indicated in the Resinous Flooring Schedule at the end of Part 3.

2.2 MATERIALS

A. Resinous Flooring: Resinous floor surfacing system consisting of primer; body coat(s) including resin, hardener, aggregates, and colorants, if any; and sealing or finish coat(s). Comply with requirements indicated in the Resinous Flooring Schedule.

B. Patching and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated.

C. Joint Sealant: Type recommended or produced by resinous flooring manufacturer for type of service and joint condition indicated.

D. Moisture insensitive primer: 2100 VB or Cri-Vapor Block 4000. If 2100 VB primer is used it must consist of a blend of the following:
   1. Emulsifiable liquid epoxy resin with reactive surfactant.
   2. Epoxy dispersion of a polymer particle with an average size of 8 microns or less.
   3. If Cri-Vapor Block 4000 is applied, broadcast aggregate and allow to cure.

PART 3 EXECUTION

3.1 PREPARATION

A. General: Prepare and clean substrate according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry, and neutral substrate for resinous flooring application.

B. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.

C. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions. Fill any cracks or imperfections using 100% solids epoxy matrix <Starquartz 2000 Crack Fill>

D. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written recommendations.

3.2 APPLICATION

A. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
   1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate and optimum intercoat adhesion.
   2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
   3. At substrate expansion and isolation joints, provide joint in resinous flooring to comply with resinous flooring manufacturer's written recommendations.
      a. Apply joint sealant to comply with manufacturer's written recommendations.

B. Apply self-leveling slurry body coat(s) in thickness indicated.
   1. Broadcast aggregates and, after resin is cured, remove excess aggregates to provide surface texture indicated.
   2. Apply Starquartz 2000 Base Coat high performance chemical and abrasion resistant self-leveling advanced cycloaliphatic epoxy polymer system.
   3. Broadcast aggregate to provide impact and abrasion resistance to system.

C. Allow system to cure and remove excess aggregate.

D. Power sand floor surface to remove excess aggregate.

E. Apply Starquartz 2000 a self-leveling epoxy as a fill coat.

F. Apply Starquartz 2000 Thane two-component chemical and abrasion resistant urethane.

G. Integral Cove Base: Apply cove base mix to wall surfaces at locations indicated. Round internal and external corners. Install cove base according to manufacturer's written instructions and details including taping, mixing, priming, troweling, sanding, and topcoating of cove base.

H. Apply sealing or finish coat(s), including grout coat, if any, of type recommended by resinous flooring manufacturer to produce finish indicated. Apply in number of coats and at spreading rates recommended in writing by manufacturer.

3.3 CLEANING AND PROTECTING

A. Protect resinous flooring from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.

B. Clean resinous flooring not more than 4 days before dates scheduled for inspections intended to establish date of Substantial Completion in each Project area. Use cleaning materials and procedures recommended in writing by resinous flooring manufacturer.

3.4 RESINOUS FLOORING SCHEDULE

A. Epoxy Flooring: Manufacturer's standard industrial type floor surfacing system consisting of primer; topping including epoxy resin, hardener, coloring agent and selected fine aggregates; and finish coat or coats.
   1. Product listed is the basis of design, no substitutions allowed.
      a. Starquartz 2000 System (basis of design)
      b. Firehouse Flooring Systems, LLC
         1300 Russell St.
         Baltimore, Maryland 21230
   2. Physical Properties: Provide flooring system in which physical properties of topping including aggregate, when tested in accordance with standards or procedures referenced below, are as follows:

      Izod impact strength: 2.40 ft-lb/in.
      Compressive Strength (ASTM C 579): 14,000 psi @ yield, 46,200 psi @ failure.
      Shore hardness, 0-10 sec: 76-73
      Tensile Strength (ASTM C 307): 9,500 psi
      Flexural Strength (ASTM C 580): 15,600 psi

   3. Chemical Resistance of cured resin as indicated below when immersed 7 days in re-agents listed (FS 406, Method 7011).
      a. No effect from the following: Acetic acid (5%), ammonium hydroxide (10%), citric acid (50%), cola syrup, fatty acid, motor oil (20W), and hydrochloric acid (10%), salt water, sodium hydroxide (10%), sulfuric acid (10%), trisodiumn phosphate 5%, and water (distilled).
      b. Slight softening from the following: Ethyl alcohol (95%), jet fuel JP-4C, and mineral spirits.
      c. No effect, but slight stain from nitric acid (10%).

B. Base: Integral cove base.

C. Color : Architect to select from manufacturer’s full range of standard colors.

END OF SECTION 096724

SECTION 09 91 23 - INTERIOR PAINTING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints.

C. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
   1. Both sides and edges of plywood backboards for electrical and telecom equipment before installing equipment.
   2. Prime surfaces to receive wall coverings.
   3. Mechanical and Electrical:
      a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
      b. In finished areas, paint shop-primed items.
      c. Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
      d. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.

D. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
   5. Stainless steel, anodized aluminum, bronze, terne-coated stainless steel, and lead items.
   6. Marble, granite, slate, and other natural stones.
   7. Floors, unless specifically indicated.
   8. Ceramic and other tiles.
   9. Brick, architectural concrete, cast stone, integrally colored plaster, and stucco.
   10. Glass.
   11. Acoustical materials, unless specifically indicated.
   12. Concealed pipes, ducts, and conduits.
   13. Operating and moving parts of operating equipment, including valve and damper operators, linkages, sensing devices, and motor and fan shafts.

1.2 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency current edition.

B. ASTM D4442 - Standard Test Methods for Direct Moisture Content Measurement of Wood and Wood-Based Materials 2020.

C. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual Current Edition.

D. SSPC-SP 1 - Solvent Cleaning 2015, with Editorial Revision (2016).

E. SSPC-SP 2 - Hand Tool Cleaning 2018.

F. SSPC-SP 6 - Commercial Blast Cleaning 2007.

G. SSPC-SP 13 - Surface Preparation of Concrete 2018.

1.3 SUBMITTALS

A. See Section 01 33 00 SUBMITTALS, for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Manufacturer's name, product name and/or catalog number, and general product category (e.g., "alkyd enamel").
   2. Cross-reference to specified paint system(s) product is to be used in; include description of each system.

C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
   1. Where sheen is specified, submit samples in only that sheen.

D. Manufacturer's Instructions: Indicate special surface preparation procedures.

E. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Paint and Finish Materials: 1 gallon of each color and type; from the same product run, store where directed.
   3. Label each container with color, type, and room locations in addition to the manufacturer's label.

1.4 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the type of work specified with minimum five years experience and approved by manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.6 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Do not apply materials when relative humidity exceeds 85 percent, at temperatures less than 5 degrees F above the dew point, or to damp or wet surfaces.

D. Minimum Application Temperatures for Paints: 50 degrees F for interiors unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Provide paints and finishes used in any individual system from the same manufacturer; no exceptions.

B. Paints:
1. Benjamin Moore: www.benjaminmoore.com.
2. PPG Paints: www.ppgpaints.com.
3. Sherwin-Williams Company: www.sherwin-williams.com.

C. Primer Sealers: Same manufacturer as top coats.

D. Approved equal.

2.2 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready-mixed, unless intended to be a field-catalyzed paint.
1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
4. Supply each paint material in quantity required to complete entire project's work from a single production run.
5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Volatile Organic Compound (VOC) Content:
1. Provide paints and finishes that comply with the most stringent requirements specified in the following:
a. 40 CFR 59, Subpart D--National Volatile Organic Compound Emission Standards for Architectural Coatings.
b. Ozone Transport Commission (OTC) Model Rule, Architectural, Industrial, and Maintenance Coatings; www.otcair.org; specifically:
1) Opaque, Flat: 50 g/L, maximum.
2) Opaque, Nonflat: 150 g/L, maximum.
3) Opaque, High Gloss: 250 g/L, maximum.
2. Determination of VOC Content: Testing and calculation in accordance with 40 CFR 59, Subpart D (EPA Method 24), exclusive of colorants added to a tint base and water added at project site; or other method acceptable to authorities having jurisdiction.

C. Colors: As indicated on drawings.
1. Extend colors to surface edges; colors may change at any edge as directed by Architect.
2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling under which they are mounted.

2.3 PAINT SYSTEMS - INTERIOR

A. Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board, concrete, concrete masonry units, brick, wood, plaster, uncoated steel, shop primed steel, galvanized steel, aluminum, and acoustical ceilings.
1. Two top coats and one coat primer.
2. Top Coat(s): High Performance Architectural Interior Latex.
a. Products:
1) Benjamin Moore Ultra Spec 500, 537, Eggshell.

2) Benjamin Moore Scuff-X, 485, Eggshell.
3) Sherwin-Williams Pre-Catalyzed Waterbased Epoxy, K45 Series, Eg-Shel.
4) Sherwin-Williams ProMar 200 HP Series, Low Gloss Eg-Shel.
5) Approved equal.

3. Top Coat(s): Institutional Low Odor/VOC Interior Latex.
   a. Products:
      1) Benjamin Moore Ultra Spec 500, 535, Flat.
      2) Sherwin-Williams ProMar 200 Zero VOC Interior Latex, Flat.
      3) Approved equal.
4. Top Coat Sheen:
   a. Flat; use this sheen for ceilings and other overhead surfaces.
   b. Semi-Gloss; Use this sheen at all locations unless indicated otherwise.
5. Primer: As specified under "PRIMERS" below.

B. Medium Duty Door/Trim: For surfaces subject to frequent contact by occupants, including metals:
1. Medium duty applications include doors, door frames, railings, handrails, guardrails, and balustrades.
2. Two top coats and one coat primer.
3. Top Coat(s): Interior Urethane or Epoxy-Modified Latex.
   a. Products:
      1) Benjamin Moore Corotech Polyamide Epoxy Coating, V400, Gloss.
      2) PPG Paints Aquapon WB EP Two-Component Waterborne Epoxy Coating, 98E-1/98E-98 Series, Gloss.
      3) Sherwin-Williams Waterbased Catalyzed Epoxy, B73 Series, Gloss.
      4) Approved equal.
4. Top Coat Sheen:
   a. Gloss: Use this sheen unless indicated otherwise.
5. Primer: As specified under "PRIMERS" below.

2.4 PRIMERS

A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
1. Interior/Exterior Latex Block Filler; For Rough Concrete and Masonry.
   a. Products:
      1) Benjamin Moore Insl-x Aqua Lock Primer Sealer.
      2) PPG Paints: 6-15XI Speedhide Masonry Hi Fill Latex Block Filler.
      3) Sherwin-Williams Loxon Block Surfacer, A24W00200.
      4) Approved equal.

2.5 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin application of paints and finishes until substrates have been adequately prepared.

B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

E. Test shop-applied primer for compatibility with subsequent cover materials.

F. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:
1. Gypsum Wallboard: 12 percent.
2. Plaster and Stucco: 12 percent.
3. Masonry, Concrete, and Concrete Masonry Units: 12 percent.
4. Interior Wood: 15 percent, measured in accordance with ASTM D4442.
5. Concrete Floors and Traffic Surfaces: 8 percent.

3.2 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

D. Seal surfaces that might cause bleed through or staining of topcoat.

E. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Concrete:

1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
2. Prepare surface as recommended by top coat manufacturer and according to SSPC-SP 13.

G. Masonry:
1. Remove efflorescence and chalk. Do not coat surfaces if moisture content, alkalinity of surfaces, or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
2. Prepare surface as recommended by top coat manufacturer.

H. Ferrous Metal:
1. Solvent clean according to SSPC-SP 1.
2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
3. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.

I. Metal Doors to be Painted: Prime metal door top and bottom edge surfaces.
1. Fill joints of knock-down frames.

3.3 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions.

C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

D. Apply each coat to uniform appearance in thicknesses specified by manufacturer.

E. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.

F. Sand wood and metal surfaces lightly between coats to achieve required finish.

G. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

H. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.4 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.5 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

SECTION 10 14 19 - DIMENSIONAL LETTER SIGNAGE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Dimensional letter signage.

1.2 REFERENCE STANDARDS

A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines current edition.

B. ADA Standards - 2010 ADA Standards for Accessible Design 2010.

C. ICC A117.1 - Accessible and Usable Buildings and Facilities 2017.

D. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. UL 879 - Electric Sign Components Current Edition, Including All Revisions.

1.3 SUBMITTALS

A. See Section 01 33 00 SUBMITTALS for submittal procedures.

B. Product Data: Manufacturer's product literature for each type of dimensional letter sign, indicating style, font, colors, locations, and overall dimensions of each sign.

C. Shop Drawings:
1. Include dimensions, locations, elevations, materials, text and graphic layout, and attachment details.
2. Show locations of electrical service connections.
3. Include diagrams for power, signal, and control wiring.

D. Samples: Submit one sample of each type of dimensional letter sign of size similar to that required for project, indicating sign style, font, and method of attachment.

E. Selection Samples: Where materials, colors, and finishes are not specified, submit two sets of selection charts or chips.

F. Manufacturer's Installation Instructions: Include installation templates and attachment devices.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Package dimensional letter signs as required to prevent damage before installation.

B. Store under cover and elevated above grade.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Dimensional Letter Signs:
1. FASTSIGNS International, Inc; www.fastsigns.com/#sle.
2. Inpro Corporation; www.inprocorp.com/#sle.
3. Approved equal.

2.2 REGULATORY REQUIREMENTS

A. Accessibility Requirements: Comply with ADA Standards and ICC A117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most restrictive requirements.

2.3 DIMENSIONAL LETTERS

A. Applications: Building identification.
1. Use individual metal letters.
2. Mounting Location: Exterior as indicated on drawings.

B. Metal Letters:
1. Material: Stainless steel sheet, fabricated reverse channel.
2. Thickness: 1/8 inch minimum.
3. Letter Height: As per drawings.
4. Text and Typeface:
   a. Character Font: Helvetica, Arial, or other sans serif font.
5. Finish: Brushed, satin.
6. Color: As selected by Architect from manufacturer's full range..
7. Mounting: Concealed screws.

2.4 ACCESSORIES

A. Concealed Screws: Noncorroding metal; stainless steel, galvanized steel, chrome plated, or other.

B. Exposed Screws: Stainless steel.

C. Electrical Components and Devices: Listed and labeled as defined in NFPA 70 by a qualified testing agency.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

B. Verify that electrical service is correctly sized and located to accommodate dimensional letter signs.

C. Notify Architect if conditions are not suitable for installation of signs; do not proceed until conditions are satisfactory.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install with horizontal edges level.

C. Locate dimensional letter signs and mount at heights indicated on drawings and in accordance with ADA Standards and ICC A117.1.

END OF SECTION

APPENDIX A

CIVIL TECHNICAL SPECIFICATIONS FOR ADDITION AT WOODBIRDGE FIRE HEADQUATERS

This project shall be governed by the "Local Public Contracts Law ('LPCL'). Any conflict between the specs and LPCL shall be reconciled in favor of the LPCL. The civil/site portion of this project shall be governed by "New Jersey Department of Transportation, Standard Specifications for Road and Bridge Construction, 2019" using U.S. Customary English Units except as noted in the following specification.

Payment descriptions within the following civil/site specifications shall prevail over the "New Jersey Department of Transportation Standard Specifications for Road and Bridge Construction 2019."

All unit prices shall be in accordance with the Bidder's Proposal. Any unit prices not included in the Bidder's Proposals shall be assumed distributed across all unit prices.

Any references in this specification to a specific product line or proprietary item, it is understood that the specification refers to that product or an approved equal. The lack of the phrase "or approved equal" does not imply that the specified product is the only product that will be allowed. However, it will be the successful bidder's burden to prove that an alternate product meets the specification called for.

Should there be a conflict between the plans and specifications, the items shall govern in the following order.

- Addendums to the bid to include changes to the plans
- Technical Specifications
- Plans

TABLE OF CONTENTS

TABLE OF CONTENTS....2
SECTION 011100 – CONTRACT ALLOWANCE....3
SECTION 011813 – UTILITY COORDINATION AND/OR RESETTING....4
SECTION 012110 – TESTING & DISPOSAL OF UNSUITABLE SOILS....5
SECTION 013220 – SUBMITTALS....6
SECTION 013233 – PRE-CONSTRUCTION PHOTOGRAPHS....9
SECTION 014126 – REGULATORY PERMITS....10
SECTION 015526 – MAINTENANCE AND PROTECTION OF TRAFFIC....11
SECTION 015527 – TRAFFIC DIRECTORS....12
SECTION 017113 – MOBILIZATION / DEMOBILIZATION....13
SECTION 017123 – CONSTRUCTION LAYOUT....14
SECTION 017329 – SAWCUTTING....15
SECTION 017423 – FINAL CLEANUP / SITE RESTORATION....16
SECTION 023219 – TEST PITS....17
SECTION 024113 – SITE CLEARING / DEMOLITION....18
SECTION 310000 – EARTHWORK....20
SECTION 312200 – SITE GRADING....30
SECTION 312316 – EXCAVATION, UNCLASSIFIED....31
SECTION 312319 – DEWATERING....32
SECTION 312500 – EROSION AND SEDIMENT CONTROL....33
SECTION 321123 – DENSE GRADED AGGREGATE....35
SECTION 321216 – HOT MIX ASPHALT BASE COURSE 19M64....36
SECTION 321217 – HOT MIX ASPHALT SURFACE COURSE 9.5M64....38
SECTION 321540 – CLEAN CRUSHED STONE....40
SECTION 321613 – CONCRETE CURBS....41
SECTION 321623 – CONCRETE SIDEWALK / APRON....42
SECTION 321624 – REINFORCED CONCRETE....44
SECTION 321723 – PAVEMENT MARKINGS....45
SECTION 329113 – TOPSOILING, SEED, STRAW MULCH, AND SOD....46
SECTION 330520 – PIPE AND PIPE FITTINGS....49
SECTION 331143 – DUCTILE IRON & CAST IRON FITTINGS, TEES, SPECIALS AND BRANCHES....59
SECTION 331153 – DUCTILE IRON WATER PIPE....60
SECTION 334913 – STORM AND SANITARY SEWER STRUCTURES....62
SECTION 341000 - YELLOW CURB PAINT....64

SECTION 011100 – CONTRACT ALLOWANCE

PART 1 – GENERAL

1.1 DESCRIPTION

A. Under the Contract this item shall be utilized by the contractor for unforeseen conditions and for testing and disposal of unsuitable soils with this project including any materials, services or appurtenances not specifically described in the specifications but as required for completion of the project. All work must be ordered by the Engineer to qualify for payment. This item is intended to be utilized to compensate the contractor for the unknown areas of the work or other facilities not specified, but necessary to complete the work not called for or shown on the plans.

1.2 ALLOWANCE FOR UNFORESEEN CONDITIONS

A. The work shall include the portion of the stipulated amount, as indicated in the Proposal as an allowance for unforeseen conditions as directed and approved by the Engineer.

B. Submittal Requirements

1. The Contractor shall provide all invoices from labor, subcontractors and material to the Engineer for his review and approval. The Contractor shall not be reimbursed under the allowance for any work, which he/she has not demonstrated is part of the work authorized by the Engineer.
2. The Contractor shall not proceed with the work associated with the cash allowance until all costs associated with the work have been authorized in writing by the Engineer.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

END OF SECTION

SECTION 011813 – UTILITY COORDINATION AND/OR RESETTING

PART 1 – GENERAL

1.1 DESCRIPTION

A. This work shall consist of the resetting of all existing valve boxes and castings to finished grade during the construction of proposed improvements, as shown on the Contract Drawings, and shall include, but not be limited to, the reconstruction of valve boxes, utility connections, and structures as required, in accordance with all utility provider requirements. The Contractor shall coordinate the resetting of any castings and the reconstruction of any valves and the construction of all utility connections with the respective utility company and the Engineer within the limits of construction in accordance with the Contract Drawings.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Portland cement concrete shall conform to Section 903 – Concrete and Section 909 - Drainage of the 2019 NJDOT Standard Specifications for Road and Bridge Construction.

PART 3 – EXECUTION

3.1 CONSTRUCTION

A. Castings shall be reset in a manner covered under Division 650 – Utilities and Section 602 – Drainage Structures of the 2019 NJDOT Standard Specifications for Road and Bridge Construction.

B. Castings will be reset once for this project. They will be set flush with the asphalt base course for the settling period and then again in the final wearing course elevation. The Contractor shall provide new a frame and casting for each utility valve/manhole in accordance with the Contract Drawings and as directed by the Engineer.

C. Contractor shall be responsible for obtaining appropriate public utility provider contact information and coordinate with the same during construction operations.

END OF SECTION

SECTION 012110 – TESTING & DISPOSAL OF UNSUITABLE SOILS

PART 1 - GENERAL

1.1 DESCRIPTION

A. This work shall consist of excavating, temporary stockpiling, testing, and disposing of all materials excavated, inclusive of any volatile organic compounds, that are unsuitable for backfill as set forth at NJAC 7:14A-2.13 and at the discretion of the engineer and not considered to be solid waste pursuant to NJAC 7:26-1.6.

a. Stockpile locations will be chosen by the owner for the project within the Township of Woodbridge.

b. The boundary of the stockpile area shall be clearly marked by hay bales, silt fencing or another appropriate method. Where fill is to be stored in excess of 10 days, a suitable means of protecting excavated material from wind and water erosion shall be employed. Erosion control methods may include one or more of the following: mulching, sprinkling, silt fencing, hay bailing and stone covering.

c. Excess excavated material which is not considered to be solid waste pursuant to NJAC 7:26-1.6 shall be removed from the site and disposes of it at an approved site in accordance with the following:

i. Disposal sites selected by the contractor shall be approved by the project sponsor prior to their use. The project sponsor, may, at its discretion, conduct periodic inspection of disposal sites to ensure compliance with the requirements of this subsection during the off-site disposal operation.

ii. The disposal of excess excavated material in wetlands, vernal habitats, stream corridors and floodplains is strictly prohibited, even if the permission of the property owner is obtained. The contractor shall be responsible to remove any fill improperly placed by the contractor at the contractor's expense and restore the area impacted.

iii. If excess excavated material is placed on private property, a hold harmless release in favor of the project sponsor shall be obtained from the property owner, to be obtained by the Contractor.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION - Not Applicable.

END OF SECTION

SECTION 013220 – SUBMITTALS

PART 1 – GENERAL

1.1 DESCRIPTION

A. This section specifies the general methods and requirements of submissions applicable to the following work-related submittals: Shop Drawings, Product Data, and Samples.

B. Shop Drawings:

1. Shop drawings as specified in individual work sections include, but are not necessarily limited to, data such as fabrication and drawings, scheduled information, setting diagrams, actual shopwork manufacturing instructions, custom templates, coordination of drawings, individual system or equipment inspection and test reports including performance curves and certifications, as applicable to the Work.

2. All shop drawings submitted by subcontractors for approval shall be sent directly to the Contractor for preliminary checking. The Contractor shall be responsible for their submission at the proper time so as to prevent delays in delivery of materials.

3. The Contractor shall check all subcontractor's shop drawings regarding measurements, size of members, materials and details to satisfy himself that they conform to the intent of the Contract Drawings and Specifications. Drawings found to be inaccurate or otherwise in error shall be returned to the subcontractors for correction before submission thereof.

4. All details on shop drawings submitted for approval shall show clearly the elevations of the various parts to the main members and lines of the structure and where correct fabrications of the work depends upon field measurements, such measurements shall be made and noted on the drawings before being submitted for approval.

C. Product Data:

1. As specified in individual sections, include but are not necessarily limited to standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specifications and installation instructions and manufacturer's printed statements of compliances and applicability, catalog cuts, product photographs, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommend spare parts listing, and printed product warranties, as applicable to the Work.

D. Samples:

1. Samples specified in individual sections include but are not necessarily limited to physical examples of the work, such as sections of manufactured or fabricated work, of pattern swatches and as applicable to the Work.

E. Contractor's Responsibilities:

1. The Contractor shall review shop drawings, product data and samples prior to submission to determine and verify the following: Field measurements, field construction criteria, catalog numbers and similar data, and conformance with the specifications.

2. Each shop drawing, working drawing, sample and catalog submitted by the Contractor shall have affixed to it the following Certification Statement, signed by the Contractor: "Certification Statement: By this submittal, I hereby represent that I have determined and verified all field

measurements, field construction criteria, materials, dimensions, catalog numbers and similar data and I have checked and coordinated each item with other applicable approved shop drawings and all Contract requirements."

3. Notify the Owner in writing, at the time of submittal, of any deviations in the submittals from the requirements of the contract documents.
4. No portion of the work requiring a shop drawing, working drawing, sample or catalog data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased or on-site construction accomplished which does not conform to approved shop drawings and data shall be at the Contractor's risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.
5. Project work, materials, fabrication and installation shall confirm with approved shop drawings, working drawings, applicable samples and catalog data.

F. Submission Requirements:

1. Make submittals promptly in accordance with approved schedule and in such sequence as to cause no delay in the Work or in the work of any other Contractor.
2. Number of submittals required:
   a. Shop Drawings – submit three (3) copies.
   b. Product Data – submit three (3) copies.
   c. Samples – submit the number stated in the respective Specification Section.
3. Submittals shall contain:
   a. The date of submission and the dates of any previous submissions.
   b. The project title and number.
   c. Contractor identification.
   d. The names of the Contractor, Supplier and Manufacturer.
   e. Identification of the product, with the specification section number.
   f. Field dimensions, clearly identified as such.
   g. Relation to adjacent or critical features of the Work or materials.
   h. Applicable standards, such as ASTM or Federal Specification numbers.
   i. Identification of deviations from Contract Documents.
   j. Identification of revisions or resubmittals.
   k. A 5-inch by 4-inch blank space for Contractor and Engineer Stamp.

G. Resubmission Requirements:

1. Make any corrections or changes in the submittals required by the Engineer and resubmit until approved.
2. Shop Drawings and Product Data:
   a. Revise initial drawings or data and resubmit as specified for the initial submittal.
   b. Indicate any changes which have been made other than those requested by the Engineer.
3. Samples: submit new samples as required for initial submittal.

H. Distribution:

1. Distribute reproductions of approved shop drawings and copies of approved product data and samples, where required, to the job site file and elsewhere as directed by the Engineer. Number of copies shall be as directed by the Engineer but shall be a minimal of three (3) copies.

I. General Procedure for Submittals:

1. Coordination of Submittal Times – Prepare and transmit each submittal sufficiently in advance of performing the related work or other applicable activities, or within the time specified in the individual work sections of the Specifications, so that the installation will not be delayed by processing times including disapproval and resubmittal (if required), coordination with other submittals, testing, purchasing, fabricating, delivery and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals sufficiently in advance of the work.

2. Workmanship Bonds – Where specific units of work require the issuance of a bond or similar provision, as a means of assuring the Owner that certain possible failures of the work to perform as represented will be rectified at someone else's expense, submit fully executed bond backed by a surety company acceptable to the Owner and in the principal amount indicated. Include information sheet for the Owner's maintenance/operating personnel outlining proper procedures in case of failure or other instances which might affect the validity of the bond; list names, addresses and telephone numbers for the Owner's emergency and follow-up in connection with the implementation of each bond.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

END OF SECTION

SECTION 013233 – PRE-CONSTRUCTION PHOTOGRAPHS

PART 1 – GENERAL

1.1 DESCRIPTION

A. The Contractor shall furnish photographs, taken by a professional photographer acceptable to the Engineer, to show the condition of the site prior to construction, as well as to show the progress of the work.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Prints of pre-construction and construction photographs shall be 3 inch by 5-inch size, mounted on cardboard and provided with reinforced 1inch wide flap, punched with 2 holes for binding, spaced 4 ¼ inches apart. The binding flap shall be located along the 8-inch dimension, and at the lower right hand corner on the front. The title shall include the name of the photographer, name of the project, contract number, station or other description, direction of view and date the picture was taken. The photographs shall also be numbered consecutively. Negatives of all photographs shall be furnished to the Engineer.

PART 3 – EXECUTION

3.1 METHODS OF PHOTOGRAPHS

A. Pre-construction photographs shall be taken where directed by the Engineer to especially note the character of all easements and the condition of any structures, lawns, trees, streets, sidewalks, etc., which might be damaged, and shall average at least one photograph for each 50 feet of street or easement in the contract. The Engineer shall be provided with one matte print of each photograph. A minimum of thirty-six construction photographs shall be taken each month at regular intervals while the work is in progress. Photographs shall be taken at such times and at such locations as may be determined by the Engineer. One matte print of each picture taken during the month shall be submitted to the Engineer at the time of submitting the periodic estimate for progress payment.

END OF SECTION

SECTION 014126 – REGULATORY PERMITS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Neglia Engineering Associates will apply for an exemption from the Freehold County Soil Conservation District. A copy of said exemption form will be provided prior to commencement of construction.

B. The Contractor shall not exceed the approved limits of disturbance shown on the plans. If the Contractor requires additional area in which to construct the proposed improvements, Freehold County Soil Conservation District approval may be required, the cost of which shall be borne by the Contractor, at no additional expense to the Owner.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION

3.1 ADDITIONAL REGULATORY PERMITS REQUIRED

A. If the Contractor requires additional area in which to construct the proposed improvements Freehold County Soil Conservation District approval may be required. The cost of obtaining any required Freehold County Soil Conservation District re-approval shall be borne solely by the Contractor, at no additional expense to the Owner.

END OF SECTION

SECTION 015526 – MAINTENANCE AND PROTECTION OF TRAFFIC

PART 1 – GENERAL

1.1 DESCRIPTION

A. Under this Contract this item shall mean that the Contractor shall provide for the safe passage of vehicles and pedestrians for safe ingress and egress to properties abutting the right-of-way within the limits of the project, including but not limited to the use of police officer-man hours, flagmen, cones, barrels, etc., in any and all areas where contractor deems it necessary. The portion of the project which is opened to traffic shall be kept in such condition that traffic is adequately accommodated. Contractor must provide for emergency vehicle access during construction until project has been completely turned over to the Owner and keep on-site telephone numbers of all local emergency personnel. Access to the DPW shall be provided at all times unless otherwise coordinated with the DPW.

B. This item shall also include the maintenance and protection of highway traffic and shall include any and all materials necessary to provide for this passage, and that the Contractor shall abide to all of the rules and regulations as set forth in the Traffic Control section of the current New Jersey State Highway Department Standard Specifications. The Contractor shall be responsible for implementing a detour, if not shown on the plans, in accordance with applicable Sections and Subsections for Detours of the 2019 NJDOT Standard Specifications. Any detour plans and/or new routes shall be submitted to the Township of Woodbridge, and Neglia Engineering Associates for review and approval.

C. Any damage to construction equipment, materials and vehicles are the sole responsibility of the contractor.

D. The contractor may utilize outside agencies to maintain traffic. Any outside agencies must be certified with the Township of Woodbridge.

E. The contractor is responsible for all maintenance, safety and protection of traffic until the project is complete and turned over to the project owner. The contractor shall hold harmless the County of Middlesex, Township of Woodbridge, and Neglia Engineering Associates for any safety incidents during the project construction period.

F. The contractor is responsible for ensuring uninterrupted access for all Borough personnel to the remaining portion of Borough Hall will be provided, during construction.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION – Not Applicable

END OF SECTION

SECTION 015527 – TRAFFIC DIRECTORS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Under this Contract, this item shall mean that the Contractor shall provide a safe passage of vehicles and pedestrians for ingress and egress to properties abutting the right-of-way within the limits of the project, when the Contractor is unable to utilize flagmen for traffic control.

B. Traffic Directors shall be off-duty Police Officers from within the Municipality of where the work is being performed. The Traffic Directors shall be located in a strategic location as determined by the Municipal Traffic Officer and/or Engineer in order to safely and efficiently control traffic during construction hours. The Contractor shall contact the Municipal Police Department in order to obtain the services of Traffic Directors. The name, address and telephone number of the Municipal Traffic Officer is listed below:

Woodbridge Police Department
1 Main Street
Woodbridge Township, NJ 07095
732-634-7700

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION – Not Applicable

END OF SECTION

SECTION 017113 – MOBILIZATION / DEMOBILIZATION

PART 1 – GENERAL

1.1 DESCRIPTION

A. Mobilization / demobilization shall consist of the cost of initiating the contract, including preparatory work and operations, necessary for the movement of personnel, equipment, supplies and incidentals to the Project site, and other work performed or costs incurred prior to beginning work and completing work. In any case of inconsistencies with the N.J.A.C. 7:14-2.9, the NJ Administrative Code shall govern.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION – Not Applicable

END OF SECTION

SECTION 017123 – CONSTRUCTION LAYOUT

PART 1 – GENERAL

1.1 DESCRIPTION

A. Under this item the Contractor shall provide all work required in connection with the layout for construction of the project, using the control points and data furnished by the project Licensed Surveyor.

B. All work shall be constructed according to the lines and grades shown and approved. At the site, the Owner's Engineer will lay-out and mark upon the ground a base line and bench mark, from which the Contractor shall be responsible for staking/laying out the construction lines, in accordance with N.J.A.C. 7:14-2.5. For sewers, the Engineer will lay out and mark suitable number of control points and bench marks, averaging about one every 500 feet. The Contractor shall employ the services of a land surveyor, licensed to practice in this state, for laying out the work, including setting of key or principal stakes, markers and levels, and preparation of cut sheets, if required, on a form approved by the Engineer.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION

3.1 METHOD OF STAKEOUT

A. The Contractor shall submit all necessary computations to establish the exact position of all the work from the control points furnished by the project Licensed Surveyor, along with construction grade sheets, prepared by a licensed land surveyor hired by the Contractor, to Neglia Engineering Associates for approval prior to the start of construction.

B. The Contractor shall maintain the line and grade stakes furnished by the project Surveyor for his use in staking out the work. If such control points are damaged, lost, displaced or removed, they shall be reset or replaced at a charge to the Contractor for the actual cost of the work.

C. The Contractor shall be responsible for maintaining the points he has established. Any error or apparent discrepancies found in the plans or specifications shall be called to the attention of Neglia Engineering Associates in writing for interpretation prior to proceeding with the work.

D. Should any inconsistencies arise during layout by the Contractor's surveyor, Neglia Engineering Associates must be advised prior to construction. Any downtime costs incurred by the contractor due to inconsistencies will not be absorbed by Neglia Engineering Associates.

END OF SECTION

SECTION 017329 – SAWCUTTING

PART 1 – GENERAL

1.1 DESCRIPTION

A. Sawcutting shall consist of the cutting of sidewalks, concrete, driveways, curbs and pavements of whatever nature in order to maintain a clean finished look when matching into existing areas of concrete and asphalt where directed by Neglia Engineering Associates.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION

3.1 MATERIALS – METHODS OF CONSTRUCTION

A. Concrete or bituminous surfaces shall be cut through the entire pavement thickness in a straight, neat line using diamond-tipped blades with water, as approved by Neglia Engineering Associates.

***PLEASE NOTE THAT JACK-HAMMERED OR BROKEN EDGES WILL NOT BE ACCEPTED UNDER ANY CIRCUMSTANCES.**

END OF SECTION

SECTION 017423 – FINAL CLEANUP / SITE RESTORATION

PART 1 – GENERAL

1.1 DESCRIPTION

A. Under this item the Contractor shall restore the work site and access area to its original condition including, but not limited to, installation of both temporary and permanent striping, removal and resetting of plaques and bases, street and road signs, relocate existing monuments and setting them on 6-inch-thick concrete pads, removal and disposal of all lights, signs, bollards, topsoil, seeding, fences, hedges, re-grading, repairing of driveways (both bituminous and concrete), removal and resetting/reinstallation of generators and HVAC units, sidewalks, roadways, curbs, cleaning and removal of stockpiles and equipment, any underground electrical conduit servicing traffic signals and all else not specifically covered elsewhere in these specifications. All concrete aprons shall be restored.

PART 2 – PRODUCTS

2.1 MATERIALS

NJDOT 2019 Standard Specifications

A. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

A. The site shall be returned to its original condition. Fences shall be reinstalled with posts in concrete footings in accordance with the plans and specifications herein. Hedges shall be reinstalled where possible or replaced in kind and in the same locations as existing. Lawn areas disturbed by Contractor's activities shall be re-graded, seeded and mulched as specified by Neglia Engineering Associates.

B. All pavement and sidewalks, where construction fence was previously located, shall be repaired. Cleaning shall include hand-brooming of sidewalk and pavement areas. Adjacent structures shall be cleaned, as necessary, by a method approved by Neglia Engineering Associates and/or County Engineers. Sidewalks shall be replaced with concrete walk in evenly-sized slabs, saw-cut where necessary, only to the extent damaged by the construction. Both concrete and bituminous concrete shall be repaired as specified by Neglia Engineering Associates and/or County Engineers, saw-cut where necessary, only to the extent damaged by the construction. All construction equipment and stockpiles shall be removed from the site and disposed of by the Contractor in a suitable and timely manner.

END OF SECTION

SECTION 023219 – TEST PITS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Test pits shall consist of the furnishing all materials, labor, equipment necessary for the performance of all work to properly perform test pits to locate any uncertainties in existing subsurface structures to determine if these structures interfere or affect the proposed construction and to locate / verify the depth of the existing fill material located on site to work in conjunction with the project geotechnical report.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Borrow material required for backfill of test pits shall conform to applicable Sections of the 2019 NJDOT Standard Specifications. The Contractor shall provide Neglia Engineering Associates with certification attesting that said material is free of contaminants and suitable for this application. The soil shall be smooth, soft and free of depressions, clods, mounds, stones, or other debris as approved by Neglia Engineering Associates.

B. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements

PART 3 – EXECUTION

3.1 METHOD OF CONSTRUCTION

A. When backfilling the test pit, the soil shall be placed uniformly in layers not to exceed 12 inches loose thickness. Each layer shall be compacted to 95% density in accordance with the NJDOT 2019 Standard Specifications.

B. The contractor shall make provisions to implement approved dust control measures while performing this work so as not to impact surrounding residences. Should the contractor fail to implement these measures, he will be responsible to power-wash all structures, at no additional cost to the owner.

C. Excavated areas are to be restored in-kind with existing conditions.

END OF SECTION

SECTION 024113 – SITE CLEARING / DEMOLITION

PART 1 – GENERAL

1.1 DESCRIPTION

A. Under this item the Contractor shall remove and dispose of all existing building foundation remains, disconnection of existing utilities, fences, gates, electric card readers, guide rails, ramps, HVAC units. Signage, drainage pipes, drainage structures, sewer pipes, sewer structures, water pipes, utility poles, gas pipes, conduits, valves (all utilities), curbs, walls, sidewalks, asphalt pavement, dirt, stones, concrete pads, all debris, all else indicated on the demolition plan; the removal of which is required to carry out the work of this project, shall be removed and legally disposed of off-site. The contractor shall perform test pits to locate any uncertainties in existing subsurface structures to determine if these structures interfere or affect the proposed construction.

B. The Contractor shall remove and dispose of pipes, inlets, manholes, reinforced concrete pavement, bituminous pavement, concrete and bituminous sidewalk, curb, and utility boxes. The Contractor shall remove and reset street and road signs, not otherwise paid for; remove and reset any monuments, shrubs and fences; remove and reset to grade manhole and catch basin frames, fire hydrants, guide rail, gas and water valves; and complete all other removals and relocations required for the work and not specifically covered elsewhere for payment.

C. The Contractor shall remove all trees and existing vegetation as indicated on the demolition plan and located within the existing lot lines where the removal of which is required to carry out the work of this project.

D. The Contractors are advised to make a site visit, check the existing site conditions, and determine the detail scope of work for the site clearing before the bidding of this project.

E. This item shall include a temporary 8-foot chain link construction fence around the entire perimeter of the project line, along with access gates, as directed by the engineer or required for safe construction operations..

F. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

A. The lights, signs, inlets, sidewalk, pavement, bollards, curb, unclassified excavation material, and all other such material(s) generated by demolition shall be disposed of outside of the limits of the contract at no extra cost to the Owner.

B. Trees and shrubs removed by the Contractor shall be cut and the roots and stumps, to be removed by grubbing, shall be refilled with suitable material which shall be solidly compacted so as to make the surface at these points conform to the adjoining grade. No trees shall be cut outside the specified limits without permission of Neglia Engineering Associates.

C. Street and road signs shall be removed carefully and shall be reset at the exact locations and in the manner required by the public authorities having jurisdiction, thereof. Site signs along with their foundations and any electrical components shall be removed in their entirety and shall be submitted to the owner unless owner requests complete disposal off-site.

D. Manhole frames, catch basin frames, fire hydrants, guide rail, gas valves, water valves, and other structures shall be removed and carefully reset to match proposed grades, unless otherwise indicated to be removed.

E. The Contractor shall abide by all of the rules and regulations as set forth in Section 201 – Clearing Site of the 2019 NJDOT State Standard Specifications and the respective amendments.

END OF SECTION

SECTION 310000 – EARTHWORK

PART 1 – GENERAL

1.1 DEFINITIONS

A. The following terms shall have the meanings ascribed to them in this Article, wherever they appear in this Section.

B. Excavation, Unclassified: The removal of all surface and subsurface material not classified as rock (as defined below). Shall consist of the excavation, removal, export and disposal of all materials of whatever nature, bituminous concrete, concrete, pavement, regulated waste, brick, stone, concrete masonry, small structures, removal of pipe where directed, removal of any other materials encountered of whatsoever nature, required for the proposed construction, the stockpiling and disposal of all excavated materials unsuitable for fill, the transportation of the excavated material, the construction of embankments with the material excavated when so required, the disposal of unsuitable and surplus materials, and all other work as herein described.

C. Rock Excavation, Unclassified: Rock excavation, unclassified shall mean removal of all rock, boulders or pieces of concrete, and solid ledge rock and masonry, which in the opinion of Neglia Engineering Associates requires for its removal, drilling and blasting, wedging, sledging, barring, or breaking up with a power-operated tool. Soft or disintegrated rock which can be removed with a pick or power-operated excavator or shovel, loose, shaken or previously blasted rock, broken stone in rock fill or elsewhere, and rock exterior to the maximum limits allowed, or which may fall in the excavation, shall not be included as rock excavation. Pavements, curbs, gutters, sidewalks and driveways shall not be included as rock excavation.

D. Subgrade Surface: Surface upon which subbase or topsoil is placed.

E. Subbase: Select granular material or subbase course Type 2 which is placed immediately beneath pavement or concrete slabs.

F. Maximum Density: The dry unit weight in pounds per cubic foot of the soil at "Optimum Moisture Content" when determined by ASTM D 1557 (Modified Proctor Test).

G. Landscaped Areas: Areas not covered by structures, walks, roads, paving, or parking.

H. Unauthorized Excavation: The removal of material below required elevation indicated on the Drawings or beyond lateral dimensions indicated or specified without specific written direction by Neglia Engineering Associates.

I. It shall be noted that the earthwork quantities indicated in the Contract Documents and in the Bid Proposal form are the quantities of in-place, compacted soil material (compacted to 95% Modified Proctor density) required to construct the improvements shown on the Contract Documents. For all imported soils, it is the Contractor’s responsibility to provide a certification that the imported soil complies with all applicable local, County, State, and Federal regulations with respect to “certified clean” soil. In addition, due to the varying nature of “certified clean” soil materials that may be imported onto the site, it is the Contractor’s responsibility to account for soil shrinkage and swell in order to provide the quantities of soil indicated in the Contract Documents.

J. Site Grading: The grading, excavation, preparing and compacting all material required for construction of the sub-grade of the entire disturbed area and all incidental work necessary to the satisfaction of the Engineer. All excavated soils in excess of what is required to grade the site shall be

disposed of off-site in accordance with Local, County, State, and Federal standards. It is the Contractor's responsibility to excavate and dispose of all soils and regrade materials as necessary to install the proposed improvements as per the plans and details.

1.2 SUBMITTALS

A. Product Data:

1. Filter Fabric: Manufacturer's catalog sheets, specifications, and installation instructions.
2. The Contractor shall provide to the Owner and Engineer the name, location, contact information, and permit/licenses numbers of the proposed off-site disposal facility a minimum of five (5) working days in advance of the proposed soil removal operations.
3. Numbers, types, and specifications for compacting equipment to be used.
4. Samples: Submit samples as follows:
    a. Take the samples in the presence of the Engineer, and complete a Granular Material Sample Information Form for each sample. Forms and field sample designation numbers will be furnished by Neglia Engineering Associates. Samples shall be provided in the following quantities:
        i. Select Granular Material: 10 lb.
        ii. Selected Fill: 10 lb.
        iii. Subbase Course Type 2: 10 lb.

1.3 PROJECT CONDITIONS

A. Cold Weather Requirements:

1. When freezing temperatures are predicted, do not excavate to final required elevations for concrete or backfill work unless concrete or backfill can be placed immediately. Retain enough earth over the bottom elevation of footings to prevent frost penetration. If excavation has progressed to subgrade elevations and concrete or backfill cannot be placed immediately, cover the bottom of the excavations with protective material to adequately insulate the exposed earth surface from frost. Remove protective material immediately before placing concrete or backfill.
2. Do not backfill between November 1 and April 1, except with written permission of Neglia Engineering Associates.

B. Contractors shall assume OSHA Level D modified for Earthwork.

C. A site specific HASP plan is required and should be submitted by the Contractor performing the work prior to the commencement of work.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Select Granular Material: Stockpiled, sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials. Comply with NJDOT Standard Specifications for subbase course material.

Sieve Size	Percent Passing

2 inch	100%
1/4 inch	30-65%
No. 40	5-40%
No. 200	0-10%

B. Magnesium Sulfate Soundness Test: 20 percent maximum loss by weight after 4 test cycles.

C. Plasticity Index: The plasticity index of the material passing the No. 40 mesh sieve shall not exceed 5.0.

D. Elongated Particles: Not more than 30 percent, by weight, of the particles retained on a 1/2 inch sieve shall consist of flat or elongated particles. A flat or elongated particle is defined as one which has its greatest dimension more than 3 times its least dimension.

E. Selected Fill: Sound, durable, sand, gravel, stone, or blends of these materials, free from organic and other deleterious materials.

Sieve Size	Percent Passing
4 inch	100%
No. 40	0-70%
No. 200	0-15%

F. Subbase Course Type 2: Stockpiled, crushed ledge rock or approved blast furnace slag. Comply with NJDOT 2019 Standard Specifications for Subbase Course material.

Sieve Size	Percent Passing
2 inch	100%
1/4 inch	25-60%
No. 40	5-40%
No. 200	0-10%

G. Magnesium Sulfate Soundness Test: 20 percent maximum loss by weight after 4 test cycles.

H. Plasticity Index: The plasticity index of the material passing the No. 40 mesh sieve shall not exceed 5.0.

I. Elongated Particles: Not more than 30 percent, by weight, of the particles retained on a 1/2 inch sieve shall consist of flat or elongated particles. A flat or elongated particle is defined as one which has its greatest dimension more than 3 times its least dimension.

J. Suitable Material (Fill and Backfill for Landscaped Areas): Material consisting of mineral soil (inorganic), blasted or broken rock and similar materials of natural or man-made origin, including mixtures thereof. Maximum particle size shall not exceed 2/3 of the specified layer thickness prior to compaction. NOTE: Material containing cinders, industrial waste, sludge, building rubble, land fill, muck, and peat shall be considered unsuitable for fill and backfill, except topsoil and organic silt may be used as suitable material in landscaped areas provided it is placed in the top layer of the subgrade surface.

K. Filter Fabric (Separation, Drainage, Slope Protection): Amoco CEF 4545, CEF 4551; Exxon Chemical Co. GTF 150 EX; Mirafi Inc. 140N, 140NL; Nicolon Corp. Filterweave 70/06; Phillips Fibers Corp. Supac 4NP, 5NP, 7NP; Wellman Quline Inc. Q60, Q80, Q100 or approved equal.

L. Filter Fabric (Stabilization): Amoco CEF 2002 & 2006; Exxon Chemical Co. GTF 350; Mirafi Inc. 500X, 600X, 700X; Nicolon Corp. 500; Phillips Fibers Corp. Supac 3WS, 4WS, 5WS, 6WS; Wellman Quline Inc. Q160 or approved equal.

M. Lightweight Fill and Backfill: Contractor is advised to follow the specifications of lightweight fill and backfill material if proposed under this project. The placement of this and all fill material must meet the requirements of the Project Engineer.

N. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements.

PART 3 – EXECUTION

3.1 CLEARING AND GRUBBING

A. Clear and grub the site of trees, shrubs, brush, other prominent vegetation, debris, and obstructions except for those items indicated to remain. Completely remove stumps and roots protruding through the ground surface.

B. Any clearing of vegetation in said areas not within the limits indicated on the plans is strictly prohibited.

C. Fill depressions caused by the clearing and grubbing operations in accordance with the requirements for filling and backfilling, unless further excavation is indicated.

3.2 UNDERGROUND UTILITIES

A. Locate existing underground utilities and service connections prior to commencing excavation Work. Determine exact utility locations by hand-excavated test pits or other means such as geophysical methods. Support and protect utilities to remain in place.

B. Remove inactive, abandoned utilities within the limits of the areas to be excavated. Cap or plug open ends of abandoned utilities extending outside the excavation limits.

3.3 EXCAVATION

A. 2019 NJDOT Standard Specifications, Excavation, Unclassified.

B. Maintain sides and slopes of excavations in a safe condition until completion of backfilling. The Contractor shall comply with Code of Federal Regulations CFR Title 29 - Labor, Part 1926 (OSHA).

C. Stockpile excavated materials classified as suitable material where directed, until required for fill. Place, grade, and shape stockpiles for proper drainage as approved by Neglia Engineering Associates.

D. Excavation for Structures: Conform to elevations, lines, and limits indicated on the Construction Documents. Excavate to a vertical tolerance of plus or minus 1 inch. Extend excavation a sufficient lateral distance to provide clearance to execute the work. If over excavation is required, the contractor shall ensure to backfill with suitable soils.

E. Footings and Foundations: Trim bottoms to required lines and elevations. Excavate to final elevations by hand just prior to concrete placement. Leave solid undisturbed base for concrete.

F. Slabs and Floors: Excavate to the following depths below bottom of concrete for addition of select granular material:

1. Interior Floors: 6 inches unless otherwise indicated.
2. Exterior Slabs and Steps: 12 inches unless otherwise indicated.

G. Pipe Trenches: Open only enough trench length required to facilitate laying pipe or conduit sections. Unless otherwise indicated on the Drawings, excavate trenches approximately 24 inches wider than the outside pipe diameter, equally divided on each side of pipe centerline. Cut trenches to cross section, elevation, profile, line, and grade indicated. Accurately grade and shape trench bottom for uniform bearing of pipe.

H. Pavement: Excavate to subgrade surface elevation.

I. Unauthorized Excavations: Unless otherwise directed, backfill unauthorized excavation under footings, foundation bases, and retaining walls with compacted select granular material without altering the required footing elevation. Elsewhere, backfill and compact unauthorized excavation as specified for authorized excavation of the same classification, unless otherwise directed by Neglia Engineering Associates.

J. Over-Excavation: This work shall consist of the excavation of wet material for the construction of pipes, inlets, manholes and utility relocations, and similar subsurface structures. Same should include the furnishing and installation of Dense Graded Aggregate Backfill to support proposed structure. The excavation and disposal shall be in accordance with Section 202 –Excavation of NJDOT Standard Specifications.

3.4 ROCK EXCAVATION

A. No blasting shall be performed by the Contractor, except upon written permission of Neglia Engineering Associates. Any request by the Contractor for permission to blast must be submitted to Neglia Engineering Associates at least 24 hours prior to start of said proposed blasting.

B. If blasting permission is granted, the Contractor shall adhere strictly to all required Federal, State and Local safety regulations. In no case shall blasting caps or other exploders be kept at the same place where dynamite or other explosives are stored. A watchman shall be stationed at all times at the place of storage of said explosives.

C. The prepared blast shall be carefully covered with a heavy woven wire blasting mat, placed so that the area affected by the explosion is positively confined. Should a gas, water or any other conduit intersect the line of trench, the rock must be removed without blasting from a distance of 10 feet on each side of such pipe or conduit.

D. The contractor shall be responsible for any damage to adjacent structures and property caused by his operations. He shall inspect all structures adjacent to the site of blasting and, when ordered by Neglia Engineering Associates, he shall take clear, close-up photographs of these structures before and after blasting. Copies of these photographs shall be submitted to Neglia Engineering Associates. Neglia Engineering Associates or their representative must be present at all times during blasting operations.

3.5 DEWATERING

A. Prevent surface and subsurface water from flowing into excavations and trenches and from flooding the site and surrounding area.

3.6 PLACING FILTER FABRIC

A. Place and overlap filter fabric in accordance with the manufacturer's installation instructions, unless otherwise shown. Backfill over fabric in accordance with the manufacturer's instructions and in a manner so as to prevent damage to the fabric.

3.7 PLACING FILL AND BACKFILL

A. Surface Preparation of Fill Areas: Strip topsoil, remaining vegetation, and other deleterious materials prior to placement of fill. Continue to remove existing fill and other soils as required by the project Geotechnical Engineer.

B. Contractor shall be advised that existing fill and silty sand is unsuitable for reuse as backfill or controlled fill.

C. Granular portions of the existing fill materials and stockpiled materials on site may be reused as fill or backfill provided its reuse is approved by the project Geotechnical Engineer, larger materials greater than 4 inches or deleterious materials shall be completely removed from the material before reuse, and the material is moisture conditioned to permit adequate compaction to 95 percent of the maximum dry density as determined by the Modified Proctor Test.

D. The Contractor shall supply the Owner and Engineer with the results and a letter which states: the name of the affiant and relationship to the source of the fill; the location where the fill was obtained, including the street, town, lot and block, county, and state, and a history of the site which is the source of the fill; and a statement (certification) that to the best of the affiant's knowledge and belief the fill being provided is not contaminated pursuant to any applicable remediation standards and the steps taken to confirm such. The material must be pre-approved by the Owner, Engineer and the Project Engineer prior to the date of its intended use as backfill at the property.

E. The Contractor shall provide to the Owner and Engineer the name, location, contact information, and permit/licenses numbers of the proposed source of each material type to be imported to the property, a minimum of ten (10) working days in advance of the proposed material importation.

F. The Contractor shall provide to the Owner and Consultant/Engineer clean fill documentation as identified in the NJDEP Alternative and Clean Fill Guidance for SRP Sites, latest edition, for each individual material type; a minimum of ten (10) working days in advance of the proposed material importation. Inclusive to this presentation shall be laboratory analytical results (in both hard copy and electronic format (including EDD).

G. The Owner and Engineer shall review the clean fill documentation for each individual material type, and provide approval/comment regarding the proposed use of the material(s). The material must be approved by the Owner and the Engineer prior to the date of its intended use as backfill at the property.

H. The Owner and Engineer have the discretion to deny the proposed material for any reason. Should the material be denied by the Owner and/or Engineer, the Contractor at their own expense, is responsible for identifying another material and/or source, and repeating the submission efforts.

I. The Owner and/or Engineer reserve the right to sample the proposed fill material and perform laboratory analysis prior to same entering the property.

J. The contractor is responsible for submitting weigh tickets for all Clean Fill to the project Engineer for review and approval.

K. Excavations: Backfill as promptly as practicable, but only after approval by Neglia Engineering Associates. Do not backfill with excavated material unless said material meets the requirements of this Section.

L. Place backfill and fill materials in layers not more than 12 inches thick in loose depth unless otherwise specified. Before compaction, moisten or aerate each layer as necessary to facilitate compaction to the required density. Do not place backfill or fill material on surfaces that are muddy, frozen, or covered with ice.

M. Place fill and backfill against foundation walls, and in confined areas (such as trenches) not easily accessible by larger compaction equipment, in maximum 6-inch-thick (loose depth) layers.

N. Prevent wedging action of backfill against structures by placing backfill uniformly around structure to approximately same elevation in each layer. Place backfill against walls of structures containing basements or crawl spaces only after the first floor structural members are in place.

O. Under Exterior Concrete Slabs and Steps:

1. Up to Subgrade Surface Elevation: Place selected fill when fill or backfill is required.
2. Subbase Material: Place 12 inches of select granular material over subgrade surface.

P. Under Interior Concrete Slabs:

1. Up to Subgrade Surface Elevation: Place selected fill when fill or backfill is required.
2. Subbase Material: Place 6 inches of select granular material over subgrade surface.

Q. Under Pavements and Walks:

1. Up to Subgrade Surface Elevation: Place selected fill when fill or backfill is required.
2. Subbase Material: Place as indicated.

R. Landscaped Areas: Place suitable material when required to complete fill or backfill areas up to subgrade surface elevation. Do not use material containing rocks over 4 inches in diameter within the top 12 inches of suitable material.

S. Plastic Pipe and Cement Water Pipe in Trenches: Place cushion material a minimum of 4 inches deep under pipe, 4 inches on both sides, and 4 inches over top of pipe. Complete balance of backfill as specified.

T. Copper Tubing and Steel Gas Pipe in Trenches: Place cushion material a minimum of 6 inches deep under pipe, 6 inches on both sides, and 4 inches over top of pipe. Complete balance of backfill as specified.

U. Rigid Non-Metallic Conduit: Except where concrete encasement is required, place cushion material a minimum of 4 inches deep under conduit, 4 inches on both sides, and 12 inches over top of conduit. Complete balance of backfill as specified.

V. Select Backfill: This work shall consist of the furnishing, transporting, placing, and compacting select backfill material required for backfill in trenches with improper in-situ fill. This item shall also include the importing of select backfill and the exporting of unsuitable excavated material. This item shall be required as necessary by the Engineer. The excavation and disposal of unsuitable material and the import and placement of select backfill shall be in accordance with the 2019 NJDOT Standard Specification.

3.8 COMPACTION

A. Compact each layer of fill and backfill for the following area classifications, including areas which are to be over excavated, to the percentage of maximum density specified below and at a moisture content suitable to obtain the required densities, but at not less than 3 percent drier or more than 2 percent wetter than the optimum content as determined by 1557. The Compaction testing shall be performed in accordance with ASTM D 6938 (nuclear gauge) or D-1556 (sand cone test)::

Structures: 95%
Concrete Slabs and Steps: 95%
Landscaped Areas: 90%
Pavements and Sidewalks: 95%
Pipes: 95%

3.9 SITE GRADING

A. The site shall be graded within the limits shown on the Plans or as directed by the Engineer. The Contractor shall grade the sub-grade according to the elevations shown on the Plans, taking into account the thickness of the layers above. The soil shall be placed uniformly in layers not to exceed 12 inches loose thickness. Each layer shall be compacted to 95% of its maximum dry density determined by the Modified Proctor Test.

B. Rough Grading: Trim and grade area required by this Contract to a level of 4 inches below the finished grades indicated, unless otherwise specified herein, or where greater depths are indicated. Provide smooth uniform transition to adjacent areas.

C. Finish Grading: Finish surfaces free from irregular surface changes, and as follows:

1. Grassed Areas: Finish areas to receive topsoil to within 1 inch above or below the required subgrade surface elevations.

2. Walks and Pavements: Place and compact subbase material as specified. Shape surface of areas to required line, grade and cross section, with the finish surface not more than 1/2 inch above or below the required subbase elevation.

3. Building Slabs: Grade subbase material smooth and even, free of voids, compacted as specified to within 1/4 inch above or below required subbase elevation.

D. The Contractor shall make provisions to implement approved dust control measures while performing this work as not to impact surrounding residences. Should the Contractor fail to implement these measures, he will be responsible to power wash all structures at no additional cost to the Owner.

3.10 SUBGRADE SURFACE FOR WALKS AND PAVEMENT

A. Shape and grade subgrade surface as follows:

1. Walks: Shape the surface of areas under walks to required line, grade and cross-section, with the finish surface not more than 1 inch above or below the required subgrade surface elevation.

2. Pavements: Shape the surface of areas under pavement to required line, grade and cross-section, with the finish surface not more than 1/2 inch above or below the required subgrade surface elevation.

B. Grade Control: During construction, maintain lines and grades including crown and cross-slope of subbase course.

C. Thoroughly compact subgrade surface for walks and pavement by mechanical rolling, tamping, or with vibratory equipment as approved to the density specified.

3.11 TESTING AND DISPOSAL OF EXCESS AND UNSUITABLE MATERIALS

A. Remove from the project site and dispose of excess and unsuitable materials, including materials resulting from clearing and grubbing, stripping of topsoil, and removal of existing improvements.

B. Transport excess and unsuitable materials, including materials resulting from clearing and grubbing, stripped topsoil, and removal of existing improvements, to spoil areas away from the project site.

3.12 FIELD QUALITY CONTROL

A. Compaction Testing: Notify Neglia Engineering Associates at least 3 working days in advance of all phases of filling and backfilling operations. Compaction testing will be performed by an independent lab retained by the Contractor to ascertain the compacted density of the fill and backfill materials. Compaction testing will be performed on layers of the fill and backfill as determined by the Project Engineer and in general accordance with ASTM-6938 (nuclear gauge) or D-1556 (sand cone). If a compacted layer fails to meet the specified percentage of maximum density, the layer shall be recompacted and will be retested. No additional material may be placed over a compacted layer until the specified density is achieved. If the required density is not achieved, removal and replacement of the material should be performed in accordance with the Owner's Engineer.

3.13 PROTECTION

A. Protect areas from traffic and erosion, and keep them free of trash and debris.

3.14 SUPPORT OF EXCAVATION (SOE) / TEMPORARY SHORING AND EXCAVATIONS

A. Dewatering

1. Prior to the commencement of the work, dewatering design plans should be provided to the Project Engineer for review which includes dewatering equipment and methods, layout, treatment and/or disposal means and methods.

2. Contractor shall be responsible for continuous (24/7) dewatering as needed to maintain the levels of the groundwater a minimum of 2 feet below the excavation.

3. Dewatering design and construction shall consider settlement on adjacent structures and be performed in a manner that mitigates settlement, and that any damages on adjacent structures due to dewatering operations will be the responsibility of the Contractor. The dewatering design shall include a Construction Impact Plan which shall consider and provide for dewatering phased lateral and horizontal deflection, providing estimates of impact and stability of all structures with 50 feet of the construction actives.

B. Instrumentation and Monitoring

1. Prior to the start of work, the contractor shall perform and submit to the Project Engineer, a pre-construction survey of any structures (retaining walls, buildings, foundations, utilities) within 50 feet of intrusive activities including SOE/sheeting installation, excavation, dewatering. After the work is complete a post-construction survey of the same shall be completed and submitted to the Engineer for review and comment. This shall include documenting existing conditions by photographing and measuring defects within basements, finished space, structural foundations, and retaining walls to provide a quantifiable baseline prior to construction.

2. Prior to the start of intrusive activities and after the completion of the pre-construction survey, the Contractor shall prepare and submit to the Engineer an Instrumentation & Monitoring Plan detailing vibration, horizontal deflection & settlement, crack, and/or tilt monitoring of any SOE elements, existing retaining walls, homes/buildings, utilities, and any structures within 50 feet of the proposed intrusive work activities. The plan shall identify any structures within a 50 feet radius of the proposed work activities, include description of the instruments, location on a scaled drawing, provide monitoring frequency, monitoring notification and stop work thresholds, and methods of alerting the Engineer and Owner representatives of any exceedances of set thresholds.

3. After the project Engineer reviews and accepts the Instrumentation & Monitoring Plan and prior to intrusive work activities, Contractor shall coordinate access agreements with neighbors and property owners, install tell-tales, crack gages, vibration monitors, and/or survey points at approved locations, and perform the approved monitoring throughout the project duration on regular intervals until the vibration-inducing construction is complete.

4. Vibration monitoring shall be performed continuously during intrusive activities.

5. Optical survey for horizontal deflection and settlement as well as tilt, shall be measured a minimum of once per day (7 days per week) from the start of any below grade work until the permanent below grade structures are installed and dewatering systems are removed.

6. Crack monitoring shall be performed a minimum of twice per week.

7. Results of the monitoring shall be submitted to the Project Engineer within 24 hours of the readings.

END OF SECTION

SECTION 312200 – SITE GRADING

PART 1 – GENERAL

1.1 DESCRIPTION

A. Site Grading shall include grading, excavation, preparing and compacting all material required for construction of the sub-grade of the entire disturbed area and all incidental work necessary to the satisfaction of the Engineer. All excavated soil in excess of what is required to grade the site shall be disposed of off-site in accordance with local, State and Federal standards. It is the Contractor's responsibility to excavate and dispose of this soil to install the turf, stone and underdrainage system per the plans and details.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Borrow material required for site grading shall conform to NJDOT Standard Specifications. The Contractor shall provide the Engineer with certification attesting that the said material is free of contaminants and suitable for this application. The soil shall be smooth, soft and free of depressions, clods, mounds, stones, or other debris as approved by the Engineer.

B. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

A. The site shall be graded within the limits shown on the Plans or as directed by the Engineer. The Contractor shall grade the sub-grade according to the elevations shown on the Plans, taking into account the thickness of the layers above, and if necessary borrow materials as approved by the Engineer. The soil shall be placed uniformly in layers not to exceed 12 inches loose thickness. Each layer shall be compacted to 95% density in accordance with Section 204 of the NJDOT Standard Specifications.

B. The Contractor shall make provisions to implement approved dust control measures while performing this work as not to impact surrounding residences. Should the contractor fail to implement these measures, he will be responsible to power wash all structures at no additional cost to the owner.

END OF SECTION

SECTION 312316 – EXCAVATION, UNCLASSIFIED

PART 1 – GENERAL

1.1 DESCRIPTION

A. Excavation, Unclassified shall consist of the excavation, removal, export and disposal of all materials of whatever nature, bituminous concrete, concrete, pavement, regulated waste, rock, boulders, brick, stone, and concrete masonry, small structures, removal of pipe where directed, removal of any other materials encountered of whatsoever nature, required for the proposed construction, the stockpiling and disposal of all excavated materials, the transportation of the excavated material, the construction of embankments with the material excavated when so required, the disposal of unsuitable and surplus materials, and all other work as herein described.

PART 2 – PRODUCTS

2.1 MATERIALS

A. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements as well as the following documents:

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

A. 2019 NJDOT Standard Specifications, Excavation, Unclassified.

END OF SECTION

SECTION 312319 – DEWATERING

PART 1 – GENERAL

1.1 DESCRIPTION

A. The Contractor shall at all times provide ample means and equipment with which to promptly remove and dispose of all water and drainage entering the excavations or other parts of the work, and to keep such excavations dry until the structures to be built therein are completed. In no case will the placing of masonry be permitted with water in the excavation.

B. Dewatering methods and equipment shall be subject to the approval of Neglia Engineering Associates, and all water removed from the work shall be disposed of in a manner without damage to adjacent properties.

C. All applicable NJDEP regulations must be maintained with respect to dewatering and discharge. Any applicable construction permits must be obtained prior to construction.

D. Contractor shall note that dewatering may be necessary for the construction of the proposed improvements and must be anticipated when bidding of the project.

PART 2 – PRODUCTS – Not Applicable.

PART 3 – EXECUTION – Not Applicable.

END OF SECTION

SECTION 312500 – EROSION AND SEDIMENT CONTROL

PART 1 – GENERAL

1.1 DESCRIPTION

A. The work performed under this item shall include construction of all soil erosion structures, improvements, temporary seeding or mulching, temporary matting, and general soil stabilization as shown on the plans.

B. A soil erosion and sediment control certification will be obtained for the project based on the Soil Erosion and Sediment Control Plan included in the Contract Documents. In the event that the Contractor deviates from the previously-approved plan, it shall be their responsibility to obtain subsequent approval from the Freehold County Soil Conservation District, at no cost to the Owner.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Materials shall be in conformance with the Plan and Details, and shall include silt fences, inlet filters, stabilized construction accesses, jute matting, floating turbidity barriers, soil stockpiles, soil membrane, hay bales, and soil stabilization. All materials shall be approved by Neglia Engineering Associates or the Freehold County Soil Conservation District.

B. Temporary matting for construction operations shall be as manufactured by Mabey, or approved equal.

C. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

A. State Standard Specifications and Freehold County Soil Conservation District Regulations.

B. Contractor is advised that a 48-hour notice prior to construction activities must be given to the Freehold County Soil Conservation District.

C. All erosion and sedimentation control measures shall be in-place prior to any soil disturbances, grading operations or construction of proposed facilities, and shall be maintained until construction is complete and the construction area is stabilized. After restoration is complete, temporary control measures shall be removed and disposed of properly.

D. All erosion and sedimentation control measures shall be constructed and maintained in accordance with the "Standards for Soil Erosion and Sediment Control in New Jersey," prepared by the New Jersey State Soil Conservation Committee, current edition.

E. Disturbed areas that will be exposed in excess of 14 days shall be temporarily seeded and/or mulched until proper weather conditions exists for establishment of a permanent vegetative cover except in

areas where final restoration is expected to be completed within seven days after the completion of construction, in which case no temporary protective measures will be required. If final restoration is expected to begin more than seven days and completed more than 30 days after the start of construction, seeding shall be required for temporary protection, except where seasonal conditions are not suitable for growing vegetation. In this case, mulch may be applied until conditions are suitable for establishing vegetative cover or until final restoration is implemented.

END OF SECTION

SECTION 321123 – DENSE GRADED AGGREGATE

PART 1 – GENERAL

1.1 DESCRIPTION

A. This item shall include the placement of a ¾-inch certified clean dense graded aggregate or quarry process stone, as directed by the Project Engineer, at thicknesses shown within the plans and details, including all necessary excavation and removal of all earth, rock, boulders, brick, stone and concrete masonry, including small structures and other materials encountered. It shall also include all necessary transportation, grading, placement and disposal of material.

PART 2 – PRODUCTS

2.1 MATERIALS

A. The stone shall be free from pieces coated with clay, caked stone dust and other objectionable materials. It shall not contain more than 5% of weathered and decomposed rock, not more than 5% of stone of types other than the type being used, in accordance with the Specifications, and not more than 7% by weight of flat or elongated pieces. A flat piece shall be one in which the ratio of the width to thickness of its circumscribing rectangular prism is greater than 5:1, and an elongated piece shall be one in which the ratio of the length to width of its circumscribing rectangular prism is greater than 5:1. The percentage of wear shall be determined in accordance with AASHTO Designation T3.

B. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Excavation and backfill of the certified clean Dense Graded Aggregate or Quarry Process Stone shall be in accordance with the applicable Sections and/or Subsection for Roadway Excavation of the current NJDOT 2019 Standard Specifications.

END OF SECTION

SECTION 321216 – HOT MIX ASPHALT BASE COURSE 19M64

PART 1 – GENERAL

1.1 DESCRIPTION

A. Hot Mix Asphalt Base Course shall be 19M64, as shown on the Construction Drawings. This work shall consist of the furnishing and placing of bituminous stabilized base course, at the various thicknesses after compaction as indicated on the plans, on the prescribed surfaces, and locations in accordance with the Plans, Details and Specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

A. The composition of the Hot Mix Asphalt Base Course shall be coarse aggregate, fine aggregate, mineral filler and asphalt cement. These shall be as shown in the Standard Specifications, except that the materials shall conform to the requirements as shown for "Stone Mix". All reference to gravel mix is deleted.

B. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements.

PART 3 – EXECUTION

3.1 CONSTRUCTION

A. After spreading and strike off, and while hot, each course shall be compacted thoroughly and uniformly by rolling. The rolling shall be done with a three-wheeled, 10-ton roller until the mixture is thoroughly compacted to the satisfaction of Neglia Engineering Associates.

B. A tack coat shall be applied to any one or more layers of the Hot Mix Asphalt Base Course, if in the opinion of the Engineer such layer or layers become coated with dust, dirt, or other foreign material sufficiently to prevent a good bond between the layers of Base Course or between the completed Base Course and Surface Course.

C. The construction of all hot mix asphalt shall be in accordance with the 2019 NJDOT Standard Specifications.

D. The quantity for which payment will be made, will be the actual tonnage delivered and used. In computing the tonnage, proven truck weights shall govern. The net weight mixture delivered in each truckload shall be determined in the following manner. Each truckload of material delivered shall be weighted by a certified weigh master, on certified scales approved by the Division of Weights and Measures, Department of Law and Public Safety. The weigh master shall furnish to the truck driver duplicate weight slips showing the gross, tare and net weight. To each weight slip shall be affixed his signature and official seal or approved commissioned stamp attesting that he is a duly constituted weigh master. One of these delivery slips shall be furnished to the Engineer's Representative on the project.

E. No material will be accepted unless accompanied by such a delivery slip, which shall be completely

legible and clearly indicate the title of the project for which delivery is intended.

F. The Engineer shall deduct the weight of all material lost, wasted, damaged or rejected, or laid in excess of the Engineer's direction or contrary to the Specifications, in determining the quantity for payment.

END OF SECTION

SECTION 321217 – HOT MIX ASPHALT SURFACE COURSE 9.5M64

PART 1 – GENERAL

1.1 DESCRIPTION

A. Hot Mix Asphalt Surface Course shall be M9.5M64, as shown on the Construction Drawings. This work shall consist of the furnishing and placing of a bituminous surface course, at the various thicknesses after compaction as indicated on the plans, on the prescribed surfaces, locations, in accordance with the Plans, Details and Specifications.

PART 2 – PRODUCTS

2.1 MATERIALS

A. The composition of the Hot Mix Asphalt Surface Course shall be coarse aggregate, fine aggregate, mineral filler and asphalt cement. These shall be as shown in the Standard Specifications, except that the materials shall conform to the requirements as shown for "Stone Mix". All reference to gravel mix is deleted.

B. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements.

PART 3 – EXECUTION

3.1 CONSTRUCTION

A. After spreading and strike-off, and while hot, each course shall be compacted thoroughly and uniformly by rolling. The rolling shall be done with a three-wheeled, 10-ton roller until the mixture is thoroughly compacted to the satisfaction of Neglia Engineering Associates.

B. A tack coat shall be applied to any one or more layers of the Hot Mix Asphalt Surface Course, if in the opinion of the Engineer such layer or layers become coated with dust, dirt, or other foreign material sufficiently to prevent a good bond between the layers of Base Course or between the completed Base Course and Surface Course.

C. The construction of all hot mix asphalt shall be in accordance with the 2019 NJDOT Standard Specifications.

D. Each truckload of material delivered shall be weighted by a certified weigh master, on certified scales approved by the Division of Weights and Measures, Department of Law and Public Safety.

E. The weigh master shall furnish to the truck driver duplicate weight slips showing the gross, tare and net weight. To each weight slip shall be affixed his signature and official seal or approved commissioned stamp attesting that he is a duly constituted weigh master. One of these delivery slips shall be furnished to the Engineer's Representative on the project.

F. No material will be accepted unless accompanied by such a delivery slip, which shall be completely legible and clearly indicate the title of the project for which delivery is intended.

G. The Engineer shall deduct the weight of all material lost, wasted, damaged or rejected, or laid in excess of the Engineer's direction or contrary to the Specifications, in determining the quantity for payment.

END OF SECTION

SECTION 321540 – CLEAN CRUSHED STONE

PART 1 GENERAL

1.1 DESCRIPTION

A. The ¾-inch Clean Crushed Stone shall include the furnishing and placing of stones as indications on the Construction Details.

PART 2 – PRODUCTS – Not Applicable

PART 3 – EXECUTION

3.1 MATERIALS – METHODS OF CONSTRUCTION

A. Clean Crushed Stone shall be uniform in texture and quality and shall conform to the 2019 NJDOT Standard Specifications for Broken Stone and Pipes.

B. The embankment/erosion control fabric shall be Mirafi 140S, or approved equivalent.

C. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements.

END OF SECTION

SECTION 321613 – CONCRETE CURBS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Concrete, Depressed and Barrier Curbs shall include the excavation and removal of all earth, rock, boulders, brick, stone and concrete masonry, including small structures and other materials encountered of whatever nature, required for the construction of concrete curb of whatever reveal is proposed and as shown on the plans and details. It shall also include the transportation and disposal of the excavated materials; the construction of embankments with the materials excavated; the disposal of unsuitable and surplus materials; and other work as shown on the plans or specified herein.

PART 2 – PRODUCTS

2.1 MATERIALS

A. 2019 NJDOT Standard Specifications.

B. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Construction shall be in accordance with the applicable Sections and/or Subsections for Curbs within the 2019 NJDOT Standard Specifications.

B. On-site and Off-site curb shall be as per the Plans and Details.

C. Excavation and backfill shall conform to the applicable Sections and/or Subsections for Roadway Excavation of the NJDOT Standard Specifications. The backfill and curb foundation shall be well compacted by means of flat-faced mechanical tampers, or by other means to be approved by Neglia Engineering Associates, and in accordance with the applicable Sections and/or Subsections of the 2019 NJDOT Standard Specifications.

D. Curbs at handicap ramps shall be depressed so that the top is flush with the adjacent pavement or shoulder surface.

E. Barrier curbs shall include the required reinforced per the construction details.

END OF SECTION

SECTION 321623 – CONCRETE SIDEWALK / APRON

PART 1 – GENERAL

1.1 DESCRIPTION

A. This item shall include the construction of Portland Cement Concrete sidewalk, sub-base, and the subgrade therefore, the excavation and removal of all earth, rock, brick, stone and other materials encountered of whatever nature, required for the construction of concrete sidewalk. It shall also include the transportation of excavated materials; the construction of embankments with the materials excavated; the disposal of unsuitable and surplus materials; and other work as herein described. Portland Cement Concrete Sidewalk is hereinafter termed concrete sidewalk. The width of the concrete sidewalks shall be as shown in the site plans.

B. Concrete Pads / Sidewalks / Aprons, Reinforced, shall include the construction of Portland Cement Concrete landings and slabs (6” to 8” thick) as shown on the plans for the proposed site improvements and shall include the excavation and removal of all earth, rock, boulders, brick, sawcutting, stone and concrete masonry, including small structures and other materials encountered of whatever nature, required for the construction of reinforced concrete aprons. Concrete pads shall be constructed as shown on the plans and details. It shall also include the transportation and disposal of the excavated materials; the construction of embankments with the materials excavated; the disposal of unsuitable and surplus materials; and other work as shown on the plans or specified herein.

1.2 SUBMITTALS

A. Design Mixes: For each type of concrete.

B. Qualification Data: For firms indicated in "Quality Assurance" Article, including list of completed projects.

C. Scaled shop drawing of scoring pattern.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer shall have a minimum of 20-years’ experience in manufacture of specified products.

B. Installer Qualifications: An installer with a minimum of 10 years of experience with a minimum of three jobs of similar scope and quality.

C. Comply with the requirements of ACI 301.

D. Obtain each specified material from same source and maintain high degree of consistency in workmanship throughout Project.

E. Notification of manufacturer's authorized representative shall be given at least 1-week before start of Work.

PART 2 – PRODUCTS

2.1 MATERIALS

A. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Methods of construction shall be in accordance with applicable Sections and/or Subsections for Sidewalks and Driveways of the 2019 NJDOT State Standard Specifications.

B. Excavation shall be in accordance with applicable Sections and/or Subsections of the 2019 NJDOT Standard Specifications.

C. All concrete sidewalks on-site shall have saw-cut joints, ½-inch-deep, every 5 feet or as indicated on the drawings. Contractor shall provide a saw-cut joint pattern in the form of a shop drawing submittal.

D. All operations pertaining to handling, measuring, and batching materials, and mixing concrete, shall conform to the requirements specified in applicable Sections and/or Subsections for Handling, Measuring, and Batching Materials; and applicable Sections and/or Subsections for Mixing Concrete in the 2019 NJDOT Standard Specifications.

E. Concrete sidewalks shall be 4 inches thick, to the dimensions specified on the plans.

F. Concrete curb ramps and sidewalks (either ADA-compliant pedestrian ramps or driveway aprons) shall be 6 inches thick and concrete pads (generator and transformer) shall be 8 inches thick, with reinforcement (per 2019 NJDOT Standard Specifications).

3.2 PROTECTION OF FINISHED WORK

A. Contractor shall protect the finished work as required to ensure no damage until final inspection and acceptance by Owner.

B. Prohibit foot or vehicular traffic on the newly poured concrete surface.

C. Barricade area to protect newly poured concrete.

END OF SECTION

SECTION 321319 – REINFORCED CONCRETE

PART 1 – GENERAL

1.1 DESCRIPTION

A. This Reinforced Concrete shall include the construction of the driveway aprons (8" thick), as shown on the plans, steel mesh reinforcement, and shall include the excavation and removal of all earth, rock, boulders, brick, sawcutting, stone and concrete masonry, including small structures and other materials encountered of whatever nature, required for the construction of reinforced concrete ramps aprons. It shall also include the transportation and disposal of the excavated materials; the construction of embankments with the materials excavated; the disposal of unsuitable and surplus materials; and other work as shown on the plans or specified herein.

B. The contractor shall replace any damaged or removed roof leaders with in-kind sizes, with PVC material that daylights into the existing street.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Materials shall be as those specified for Concrete Sidewalk and Driveways, as specified in Section 606, Sidewalks and Driveways of the N. J. Department of Transportation Standard Specifications.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Methods of construction shall be the same as for Concrete Sidewalk, as specified in Section 606, Sidewalks and Driveways of the N. J. Department of Transportation Standard Specifications.

B. Excavation shall be in accordance with applicable Sections and/or Subsections of the 2007 NJDOT Standard Specifications.

END OF SECTION

SECTION 321723 – PAVEMENT MARKINGS

PART 1 – GENERAL

1.1 DESCRIPTION

A. In this item, the Contractor shall be responsible for applying of white, blue and yellow lines, including, but not limited to, line-striping, handicap parking spaces, parking spaces, center lines, parking striping at fire hydrants, directional arrows, stop lines, or crosswalks, the cleaning of surfaces, furnishing and placing of paint, protecting the wet paint against deformation, smear or smudge, maintenance of traffic on the pavement surfaces and in accordance with layout as shown on plans, or as directed by the Engineer. All striping and pavement marking shall be hot-applied, extruded, long-life, thermoplastic, 90 mils thick.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Materials shall conform with applicable Sections and Subsections for, Long-Life Thermoplastic Traffic Markings of the 2019 NJDOT Standard Specifications.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Pavement Line-striping shall be in accordance with applicable Sections and Subsections for, Long-Life Thermoplastic Traffic Markings of the 2019 NJDOT Standard Specifications.

B. Immediately prior to striping, all dirt, loose chalky paint, or other foreign matter shall be removed from the pavement surface by method to be approved by Neglia Engineering Associates.

C. Striping shall not be applied until Neglia Engineering Associates has approved the degree of cleanliness or condition of the pavement surface.

D. All painted lines laid improperly, whether they have to do with alignment, pattern, or pavement cleanliness shall be removed, to the satisfaction of Neglia Engineering Associates, and properly repainted.

E. The Contractor shall be responsible for the chalking and/or the layout of lines, in accordance with the Plans, or as directed by Neglia Engineering Associates.

F. Striping shall not start until 1½ hours has elapsed after sunrise, nor shall it continue after 3:00 p.m., unless otherwise specified by Neglia Engineering Associates or their Representatives.

G. Striping shall be applied only on a thoroughly dry surface and during period of favorable weather.

END OF SECTION

SECTION 329113 – TOPSOILING, SEED, STRAW MULCH, AND SOD

PART 1 – GENERAL

1.1 DESCRIPTION

A. Provide topsoil, seed, straw mulch, and sod as shown and as directed by Neglia Engineering Associates.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Topsoil obtained from stripping within limits of the project, or furnished from outside the project, shall contain no stones, lumps, roots, or similar objects larger than 2 inches in any dimension, and shall have a pH value of not less than 5.8. When the pH value of the topsoil is less than 5.8, it shall be increased by applying ground limestone at a rate necessary to attain a pH value of 6.5.

B. Material stripped from the following sources shall not be considered suitable for use as topsoil.

1. Soils having a pH value less than 4.1
2. Chemically contaminated soils.
3. Areas from which the original surface has been stripped and/or covered over, such as borrow pits, open mines, demolition sites, dumps, and sanitary landfills.
4. Unacceptable wet excavation.

C. Topsoil furnished from sources outside the limits of the project shall have a minimum organic content of not less than 2.75 percent by weight. When the organic content of the topsoil furnished from sources outside the limits of the project is less than 2.75 percent, it shall be increased by adding peat at a rate necessary to attain this minimum organic content. The organic content of soils shall be determined by the Laboratory using the chromic acid titration method, as described in the United States Department of Agriculture's Circular 757.

D. The organic content of all topsoil used for planting shall conform to the requirements specified above.

E. The gradation of the topsoil furnished from sources outside the limits of the project shall be determined by the Laboratory, using the Bouyoucos Hydrometer Analysis conforming to the requirements of current A.A.S.H.O. Designation T88. The gradation of the topsoil shall be within the following ranges:

Sand (1.00 MM to 0.25 MM) 70% to 80%
Silt and Clay (less than .25 MM) 20% to 30%

F. A percolation rate of 1 inch/Hour to 2 inch/Hour is required after root growth by the sod after establishment.

G. The materials to be used for topsoiling shall conform to the appropriate articles as follows:

Fertilizer, 5-10-5 Commercial Designation..... Sec. 909.02
Ground Limestone ..... Sec. 909.03
Mulch, Hay ..... Sec. 909.04

Grain Seed..... Sec. 909.06
Topsoil..... Sec. 909.10
Grass Seed Mixture ..... Hydroseed Lesco 3 Rye

I. The materials for Sodding shall conform to the requirements of the appropriate Articles as follows:

Fertilizer .....Sec. 917.03
Ground Limestone .....Sec. 917.04
Sod ..... As specified below.

A. Sod:

Shall be New Jersey certified sod containing approved blends, free from noxious weeds and objectionable grasses. It shall not contain all the dense root system of the grass and shall not be less than 1 1/2 inches thick. Before removing the sod, the grass shall be cut to a height of 2 inches and its surface shall be raked clean of all debris. It shall be cut with suitable tools in uniform strips not less than 12 inches wide.

Sod shall be mineral grown on a sandy loam soil from approved sources in the locality of the work where the soil is of such character that it will not break up or crumble during cutting, transportation or laying.

Sod Blend:
Sod blend shall be one of the following blends selected based on site conditions:

Tall Fescue:
85% Rembrandt Tall Fescue
15% Bluegrass(mixture of P105 and Midnight II Bluegrass)

Penntrio Bentgrass:
33% Pennlinks II
33% Penneagle II
33% Pureformance

Bluegrass Short-Cut:
25% Midnight Star
25% Moonlight
25% Award
25% Liberator

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

A. The topsoil shall be spread over the surface in a uniform layer that will produce the prescribed compacted thickness of at least six (6") inches. When required, ground limestone which has been protected from moisture and is dry and free flowing, shall be evenly spread over the area to be seeded at a rate that will produce a pH value of the soil of 6.5. The area shall then be raked, disked or otherwise worked to incorporate the limestone into the upper 3 to 4 inches of soil to remove stones, roots, debris and other unsuitable material and to form an even surface. The soil shall be in a pliable condition at the time of seeding.

B. Section Removed.

C. The contractor shall hydro-seed (only when directed by the Engineer) only on a calm day. No seeding shall be performed on frozen ground or when the temperature is 32 degrees Fahrenheit or lower. Schedules for fertilizing and seeding must be submitted to Neglia Engineering Associates for approval prior to the work. Hydroseeding shall be done within ten days following soil preparation.

   Fertilizer shall be 5-10-5 and shall be applied at a rate of 325 lbs. per acre.

   Virgin wood fiber mulch shall be applied at a rate of 1500 lbs. per acre.

   ECT tackifier shall be applied at a rate of 5 lbs. per acre.

   Hydroseed mix shall be Lesco 3 Rye.

D. The Sod shall be placed on a 6-inch-thick bed of topsoil, soon after being cut. Immediately before placing the sod, the topsoil shall be fertilized at the rate of 600 pounds of 5-10-5 fertilizer per acre. The sod shall be laid with staggered joints, and on slopes the placing shall start at the bottom.

E. The sod pieces shall be pressed closely together, and at the top of a slope the upper edge of the sod strips shall be turned into the soil and covered with earth. On slopes steeper than 4:1, the sod shall be held in place with pegs driven flush with the surface of the sod. The pegs shall be not more than 1 foot apart, and not less than 2 pegs shall be used for each strip of sod. The sod shall be pressed into the underlying soil by thorough tamping and rolling, after which a thin layer of topsoil, and 5-10-5 fertilizer applied at the rate of 600 pounds per acre, shall be spread evenly over all sodded areas shall be thoroughly watered.

F. The finished surface shall be smooth, even and to the prescribed lines and contour. The sod shall be kept moist until growth is established. Sod showing evidence of dying or other defects before acceptance of the project shall be replaced.

G. Sod shall be watered by the contractor until established. The watering of the sod may require watering trucks.

END OF SECTION

SECTION 330520 – PIPE AND PIPE FITTINGS

PART 1 – GENERAL

1.1 DESCRIPTION

A. Under this Section, the Contractor shall furnish all labor, equipment and materials necessary to install, test and place into satisfactory service, all piping, fittings and accessories required for complete piping works and ready for use as shown on the Contract Drawings and as specified herein.

1.2 Related Work Described Elsewhere

A. Select Fill and Foundation Material Section 310000 (EARTHWORK)

B. Excavation, Backfilling and Compaction Section 310000 (EARTHWORK)

C. Valves Section 333650

1.2 QUALITY ASSURANCE

A. Comply with ANSI, OSHA, ASTM, AWWA and all applicable Federal, State and Municipal codes, including revisions to date of contract.

B. In all cases where an item of equipment, or part thereof, is referred to in this Section by a singular number (such as “gasket”), it is intended that such references shall apply to as many parts as are required to complete the installation.

1.3 SUBMITTALS

A. Submit shop drawings in accordance with Section 013220, SUBMITTALS.

B. For pipe, pipe fittings and appurtenances, the Contractor shall furnish to the Engineer, at the time of shop drawing submission, certified records of physical, chemical and other pertinent tests and/or certified statements from the manufacturer that the materials have been manufactured and tested in conformity with the specifications. Where such a small quantity of material is required as to make physical testing and chemical analysis impractical, a certified analysis of similar materials which were concurrently produced, may at the discretion of the Engineer, be considered as the basis for acceptance of such materials.

1.4 PRODUCT HANDLING

A. All pipe units shall be identified as to the following:

1. Pipe class
2. Date of manufacture
3. Manufacturer’s name or logo
4. Inside pipe diameter
5. Pipe material

1.5 DELIVERY AND STORAGE

A. The Contractor is responsible for storing any equipment the Owner furnishes from the time the Owner delivers it to him.

1.6 PROTECTION

A. The Contractor shall use all means necessary to protect the materials of this Section, before, during and after installation and to protect installed work and materials of all other trades.

1.7 REPLACEMENT

A. In the event of damage, the Contractor shall make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

PART 2– PRODUCTS

2.1 DESIGN

A. The names of manufacturers and specific catalog numbers are given only as an indication of the quality of materials and workmanship to be used. Equal products by other manufacturers approved by the Engineer shall be acceptable in accordance with the General Conditions of the Contract.

2.2 COUPLINGS

A. Grooved or Shouldered Fittings, Flanges and Coupling

1. All interior piping, including piping in valve vault; shall be furnished and installed with grooved or shouldered fittings and couplings.
2. The pipe and fitting couplings or flanges shall be the mechanical type, to mechanically engage and lock the grooved or shouldered pipe ends in a positive couple and to allow for some degree of angular deflection and contraction and expansion. Each coupling shall consist of malleable iron housing-clamps in two or more parts, a single C-shaped composition sealing gasket with internal sealing lips projecting diagonally inward so that internal pressure serves to increase the tightness of seal when installed, and two or more trackhead steel bolts as required to assemble the housing-clamps. Where required, rigid couplings shall be furnished. Flanges shall conform to the bolt hole circle and strength requirements of ANSI A21.10 and/or ANSI B16.1.
3. Grooves shall conform to the coupling manufacturer's standards.
4. All couplings, flanges and appurtenances for the assembly shall be the models and styles of Victaulic Co. of America, Gruvagrip manufactured by Gustin-Bacon Mfg. Co., Eastern Malleable Iron Co., or equal.

2.3 FLEXIBLE PIPE ASSEMBLY

A. Flexible pipe assemblies shall be installed in the locations indicated on the Drawings and shall be manufactured of ductile iron conforming to the material properties of ANSI/AWWA C153/A21.53. Flexible pipe assembly shall be pressure tested against its own restraint to a minimum of 350 psi (250 psi for flexible expansion joints 30 inches and larger).

B. Each flexible pipe assembly shall consist of an expansion joint designed and cast as an integral part of a ball and socket type flexible joint, having a minimum of 15 degrees deflection per ball and 4 inches minimum expansion. All flexible pipe assemblies shall be double ball, mechanical joint type.

C. All external surfaces shall be coated with a catalyzed coal tar epoxy conforming to the material requirements of AWWA C210.

D. All flexible pipe assemblies shall be FLEX-TEND as manufactured by EBAA Iron Inc., Eastland, TX, or equal.

2.4 MISCELLANEOUS PIPING

A. Flexible couplings for pipe shall be installed where shown, specified or required. Type "A" couplings shall be Dresser Manufacturing Division Style 38 couplings, without pipe stop, or equivalent models of Smith-Blair, Inc., R.H. Baker & Co., Inc. or equal. Type "B" couplings shall be for grooved end pipe. Couplings shall be installed in accordance with the recommendations of the manufacturer.

2.5 EXPANSION IN PIPE LINES

A. Ample provisions shall be made for flexibility in all pipe lines, to compensate for expansion. Unless other forms of expansion joints are specified, all runs of pipe subject to change in length, shall be fabricated shorter than their theoretical length to the extent of one-half of the expansion and shall be so erected that there may be freedom to expand without increasing the stresses imposed when cold. When the foregoing method of compensation for expansion is not adequate, the Contractor shall furnish and install in the pipe lines, expansion devices that will be adequate to allow the lines to expand and contract freely without injury to any part of the piping system. The devices may in the form of expansion joints, swivel or swing joints, or pipe bends, and shall include such anchors as may be shown, specified or required to make the devices effective.

B. Expansion joints shall be of the internally guided, packless type. The traverse shall be adequate for the maximum estimated expansion movement. Unless otherwise specified, the expansion joints on all pipe lines, two (2") inches or smaller, shall be all brass with screwed ends, and on all lines two and one-half (2 ½") inches and larger, they shall be of the iron body pattern with flanged ends and covered brass expansion element. They shall be Flexonic, Adsco, Zallea or equal.

C. Rubber expansion joints shall be the Garlock Packing Co., Style 204, full faced, teflon-lined, rubber expansion joints with control unit for flanged installation, equivalent model of Peabody Dore, or equal.

D. Expansion devices or appurtenances shall be, at minimum, suitable for 300 lb. pressure.

2.6 DUCTILE IRON PIPE AND FITTINGS

A. Ductile iron pipe used for buried sewage piping shall be push-on type connection. Ductile iron pipe for exposed interior piping shall be flange type connection.

B. Ductile iron pipe shall be Pressure Class 350. Ductile iron pipe shall be in conformance with ANSI A.21.51 and AWWA C151 for "Ductile Iron Pipe Centrifugally Cast In Metal or Sand Lined Molds, for Water or Other Liquids". The pipe shall be cast utilizing iron conforming to Grade 60-42-10 as required in the above noted ANSI specification. Pipe shall be furnished in nominal 16 foot to 20 foot lengths.

C. Ductile iron pipe shall be as manufactured by United States Pipe and Foundry Company or equal.

D. Ductile iron fittings used for the buried mains shall be push-on type or mechanical joint connection.

E. Ductile iron fittings used for exposed interior pipe shall be flanged end.

F. Fittings as required for ductile iron pipe shall be ductile iron or gray iron mechanical joint fittings only conforming to the requirements of ANSI Standard A21.10.

G. Ductile iron fittings shall be Pressure Class 350. Ductile iron fittings shall be in conformance with ANSI A.21.10-93 and AWWA C110 for "Ductile Iron Fittings For Water Service". The fittings shall be cast utilizing iron conforming to Grade 60-42-10 as required in the above noted ANSI specification.

H. Ductile iron fittings shall be as manufactured by United States Pipe and Foundry Company or equal.

2.7 RUBBER GASKET JOINTS

A. Gaskets shall be provided at all pipe and fitting joints. Gaskets shall be field locking type to provide maximum pipe restraint. Gaskets shall be furnished in accordance with ANSI A21.11 and AWWA C111 for rubber gasket joints for ductile iron pipe and fittings.

2.8 LINING

A. Pipe and fitting lining shall consist of cement-mortar of double thickness (1/8") for the entire length of pipe and shall conform with ANSI A.21.4 and AWWA C104 for cement-mortar lining for ductile iron pipe and fittings for water. The pipe interior shall receive a

B. Bituminous seal coating. The interior seal coat shall be continuous and shall adhere to the mortar lining at all points. The pipe exterior shall receive a bituminous coating of either coal, tar or asphalt base approximately one (1) mil thick.

2.9 HIGH DENSITY POLYETHYLENE PIPE AND FITTINGS

A. The Contractor shall furnish a High Density Polyethylene Pipe and Fittings conforming to ANSI/AWWA Standard C906-90 and ASTM D3350-02. The pipe shall be PE 4710 high density polyethylene pipe with an SDR of 11 or less as directed by the Owner and be rated for a pressure of 200 psi or more. The carbon black content shall measure 2% to 3% by weight when tested according to ANSI/ASTM D 1603 or ASTM D4211. The pipe shall be provided in ductile iron sizes. The pipe shall be produced by Drescoplex HDPE Performance Pipe, a division of Chevron Phillips Chemical Co., or equal. Pipe shall be "prisma" coated with a green exterior color or the pipe shall have a green stripe impregnated into the wall of the pipe to make it easily identifiable when excavated. The manufacturer shall have an ISO 9001 listing covering the HDPE manufacturing facility, as well as the corporate office. The Owner at no additional cost may require quality audits. All pipe will be provided in standard straight lengths. No coiled pipe will be accepted for installation on the project.

B. Solid wall pipe shall be produced with plain end construction for heat-joining (butt fusion) conforming to ASTM D2657. Utilize controlled temperatures and pressures for joining to produce a fused leak-free joint.

C. Furnish solid wall pipe for sanitary sewer force mains Ductile Iron Pipe Size with minimum working pressure rating indicated in this Section and with inside diameter equal to or greater than nominal

pipe size indicated on Drawings. Pipe shall be marked in accordance with ASTM F714. Markings shall indicate the pipe's Pressure Raters (PR) and/or Pressure Class (PC).

2.10 QUALITY AND INSPECTION

A. All pipe shall be smooth on both the interior and exterior surfaces; be free of noticeable imperfections such as cracks, blisters, or kinks in the pipe. The Owner, if Owner so chooses, shall be able to inspect the pipe at the pipe plant, trench, and other various storage sites. Based on these observations, the Owner will have the right to reject any and all piping not conforming to these stated requirements, independent of laboratory tests. Field repair of any damaged pipe shall not be permitted. The Owner reserves the right to require the removal of fused connections for destructive testing to verify the integrity of fused joints, etc.

2.10 FITTINGS

A. The fittings shall meet all of the requirements of the pipe to which they are to be fused. They shall be homogeneous throughout and essentially uniform in color, opacity, density and other properties. Fittings should also be free of such defects as cuts, cracks, or holes.

B. Fabricated fittings will not be allowed where molded or machined fittings are available. All fittings will be manufactured in accordance with AWWA C906 with a minimum pressure class equal to that of the pipe.

2.11 HDPE COUPLINGS

A. Flange Couplings: Flange assemblies shall consist of a metal back-up flange or ring and a polyethylene flange adapter. The back-up flange shall be slipped over the pipe profile flange adapter and then be fused into the plain end pipe.

B. Mechanical Joint: Mechanical joints are to be made with stiffeners which are inserted into the HDPE pipe. Stiffener manufacturer's directions shall be followed when installing stiffeners and mechanical joints. Stiffeners shall be Romac Industries 501-H & RC-501-H or equal.

C. Restrained Mechanical Joints: Restrained mechanical joints shall be made using mechanical joint adapters manufactured by Performance Pipe, or equal.

D. Electrofusion Couplings: Electrofusion couplings and saddles will not be used on this project without written approval of Owner.

PART 3 – EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions under which work of this Section will be installed. Correct conditions detrimental to proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. All pipe shall be installed as shown on the drawings, or required.

B. After installation and testing have been completed, all lines shall be flushed clean.

3.3 HANDLING OF PIPE

A. Proper and suitable equipment for the safe and convenient handling and laying of all pipes and fittings shall be used. Care shall be taken to prevent the pipe coating from being damaged, particularly on the inside of pipes and fittings and any damage shall be remedied as directed by the Engineer. No pipe and/or fittings shall be laid which are known to be defective. If any defective pipe is discovered after having been laid, it shall be removed and replaced with sound pipe or fitting in a satisfactory manner by the Contractor at his own expense.

B. All pipe shall be installed to proper line and grade. Open ends of pipe shall be kept plugged with a bulkhead during construction.

3.4 INSTALLATION OF PIPE

A. Pipe shall be carefully installed to the lines and grades shown on the Contract Drawings or as ordered by the Engineer.

3.5 CLEANING PIPE

A. The inside of all pipe and fittings shall be cleaned by brushing and by thoroughly blowing out with air to remove slag, dirt and other sediment, as well as other foreign materials, before being installed. During installation, sufficient care shall be exercised to prevent foreign matter from entering the lines. Use temporary closures during construction to protect open ends of pipe. After installation and testing have been completed, all lines shall be flushed clean.

3.6 LINE AND GRADE

A. The Contractor shall establish the benchmark and position of control point as shown on the Contract Drawings. The Contractor shall furnish all horizontal and vertical measurement from this control point including inverts and grade.

3.7 CUTTING OF PIPE

A. Whenever pipe requires cutting, it shall be done with an approved pipe cutter in such a manner as to leave a smooth end at right angles to the axis of the pipe. Cutting by hammer and cold chisel shall not be permitted. When a piece of pipe is cut, no direct compensation will be made for the portion cut off and not used in the line.

3.8 PIPE CAPS AND PLUGS

A. All caps and plugs shall be thrusted, braced, staked, anchored, wired on or otherwise secured to the pipe to prevent leakage under the maximum anticipated thrust from internal abnormal operating conditions or test pressures from water or air.

3.9 INSTALLATION OF HDPE PIPE

A. Joining Method:

1. The pipe and fittings shall be joined by butt or electrofusion, mechanical joint adapters, or by flange connections in accordance with manufacturer's recommendations. All joints shall be fused, not including connections to existing utilities unless otherwise shown on Drawings or requested by the Owner.

    a. Fusion: The pipe shall be joined by heat fusion of the ends. Prior to the fusion, the pipe shall be clean and the ends shall be cut square. Fusion system operators shall be trained in the use of the equipment by the pipe manufacturer of the fusing machine and be experienced in the operation of the equipment.

    b. All fuses shall be recorded, the recording of the information must be provided to the Owner, and the recorded information must meet the standard requirements of the pipe manufacturer. All fusions failing to meet these requirements shall be removed and refused.

    c. Butt fusion shall be recorded by the use of McElroy Datalogger or approved equal.

    d. Electrofusion are to be recorded by the electrofusion processor and fusion information is to be surrendered upon request of the Engineer or Owner.

    e. Flange: A flange assembly consists of a metal back-up flange or ring and a polyethylene flange adapter.

    f. The back-up flange is slipped over the pipe profile and the stub-end, or flange adapter, is then fused into the plain end pipe.

    g. Connection to Ductile Iron Pipe or Valves: Connections to ductile iron pipe and valves shall be mechanical joints or flanges. All connections to ductile iron pipe, valves or fire hydrants must be restrained.

        1. Restrained Mechanical Joints: Restrained mechanical joints shall be made using mechanical joint adapters and shall incorporate a factory installed stiffener manufactured by Performance Pipe, or equal.

        2. Flange: Flange connections shall be described above in paragraph (2).

3.10 COLD (FIELD) BENDING

A. Contractor shall not bend the pipe to fit a trench more than that allowed by the pipe manufacturer.

3.11 PROTECTION OF PIPE OPENINGS

A. During installations, the Contractor will ensure that pipe ends that have not been fused will be protected against dirt, debris, animals, and other foreign materials. Plastic caps held in place with duct tape or other methods as approved by the Owner may be used.

3.12 BLOCKING AND RESTRAINING

A. Contractor shall fully restrain the pipe through the use of fully restrained joints by means of butt fusion. M-J adapters, or flange adapters. Do not use thrush blocks with HDPE pipe installations.

3.13 CLEANING

A. Before acceptance of any line, the line must be clean. If the Contractor fails to close the pipe or debris is found to be in the line, the Contractor shall clean the line by pigging or other suitable means at the Contractor's expense. The Contractor shall be prepared to pig the lines installed within this project in order to remove the HDPE pipe shavings, etc.

3.14 TESTING

A. Testing of the HDPE and ductile iron pipe installations will include destructive testing, as well as final pressure testing to ensure no leaks are present in the line.

   1. At the direction of the Owner, the Contractor will perform destructive strap testing on selected fuses to determine if the fuses meet with manufacturer's requirements. Pipe used in this testing will not be installed in the Project.

   2. The testing of the HDPE pipe will be performed in accordance with AWWA C906-90 (as amended) and the manufacturer's recommendations. Contractor will submit a test protocol to the Owner for approval prior to implementing any testing.

3.4 FIELD TESTING

A. The piping systems of this Specification shall be tested as indicated on the attached piping schedule and in the manner described below. Each test shall be performed in the presence of the Engineer. The Contractor shall provide water, air and all labor, equipment and accessories required to perform the tests and retest at no additional cost to the Owner.

B. Upon completion of the installation and as a condition of its acceptance, the Contractor shall provide all necessary equipment and personnel to perform all tests and retests, making all adjustments necessary for the equipment to operate as specified.

C. All noticeable leaks in the completed lines shall be satisfactorily repaired. After installation of the pipe, including the placing of the backfill, but prior to the placing of pavement materials and plantings, the pipelines shall be tested in accordance with the piping schedule. All piping shall be tested.

D. For sections of pipe which do not pass the test; the pipe shall be repaired and retested at no additional cost to the Owner until the requirements have been satisfied. The Contractor shall be responsible for furnishing all labor, equipment and accessories necessary for testing and retesting and making all adjustments required.

E. Test appurtenances shall include, but not be limited to, pressure relief devices and certified gauges.

F. All tests shall be performed in the presence of the Engineer.

G. The Contractor, at his own expense, with sound material shall replace defective pipes and fittings. All joints examined during the tests and found to be leaking shall be repaired in a satisfactory manner, in the opinion of the Engineer. Tests shall continue until a passing test is achieved.

H. All test gauges shall be certified for accuracy.

I. All instruments other than test instruments shall be disconnected during testing to prevent damage.

3.5 HYDROSTATIC TESTING

A. The system shall be so pressurized to the hold test pressure specified for a given system on the attached piping schedule. In no case shall the internal hydrostatic pressure developed for the test be less than 200 psi or 1.5 times the working pressure, whichever is greater. Test pressure shall not exceed thrust restraint design. Valves shall not be operated during the test. Pressure shall be applied to the piping by means of a hand pump or other approved method, with all air expelled out of the

line. The pump, pipe connections, certified gauges; the Contractor shall furnish test bulkheads and all necessary apparatus. Duration of the test shall be at least two (2) hours of sustained pressure unless otherwise permitted in the specific testing procedures of individual pipe sections of these specifications. Test pressure shall not vary by more than ±5 psi for the duration of the test.

B. The hydrostatic leakage test shall be performed in strict accordance with AWWA C 600.

C. If losses in pressure exceed the allowable specified, the system shall be examined and soap tested until the leak is found and corrected. All visible leaks are to be repaired regardless of the amount of leakage. No leakage is allowed for interior piping.

3.5 FINAL ACCEPTANCE

A. In no case shall final acceptance be given until the Contractor has complied with all requirements set forth and the Engineer has made his final inspection of the entire work and is satisfied that the entire work is properly and satisfactorily constructed and shall operate in accordance with the requirements of the Contract Documents.

B. All test results shall be submitted to the Engineer and to the Owner.

3.6 PIPING

A. Sewage Gravity Line
   1. 4-inch and larger (SDR-35 PVC)
      a. Location: Inside & Outside
      b. Testing Method – Air, 5 PSIG

B. Stormwater Gravity Line
   1. 4-inch and larger (SCH-40 PVC)
      a. Location: Outside
   2. 12-inch and larger (HDPE)
      a. Location: Outside

C. Potable Water
   1. 3 inches and smaller Water (Copper)
      a. Location: Inside
      b. Testing Method – Water, 150 PSIG
      c. Thrust Block – Type L
   2. 3 inches and smaller Water (Copper)
      a. Location: Outside
      b. Testing Method Water, 150 PSIG
      c. Thrust Block – Type K
   3. 3 inches and larger Water (Ductile Iron Pipe)
      a. Location: Outside

b. Testing Method – Water, 200 PSIG

c. CI 53

D. Building Services

A. Seal Water (Galvanized Steel)

a. Location: Inside

b. Testing Method Water, 100 PSIG

c. Sched. 40

END OF SECTION

SECTION 331143 – DUCTILE IRON & CAST IRON FITTINGS, TEES, SPECIALS AND BRANCHES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Ductile and Cast Iron Fittings, Tees, Specials, and Branches shall consist of the excavation and installation of the various sizes of fittings, tees, couplings, reducers, and specials, as shown on the Contract Plans, or as otherwise directed by the Engineer.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Ductile and Cast Iron Fittings, Tees, Couplings, Reducers, Specials, and Branches shall be "Centrifugally Cast," and shall be Class 200 conforming to Specifications ANSI/AWWA C110/A21.10 or ANSI//AWNA C153/A21.53, and ANSI/AWWA C111/A21.11 of latest revision. They shall be subject to a hydrostatic proof test in accordance with said specifications at a pressure of 500 pounds per square inch, and shall have bell and spigot ends.

B. Cement mortar lining shall be applied to all cast iron fittings, specials, and branches, in the manner set forth and with materials specified in accordance with ANSI/AWWA C104/A21.4 of latest revision. The thickness of lining shall be nowhere less than 1/16-inch for pipes 3 to 12 inches in diameter, and 1/8-inch for pipes 30 to 48 inches in diameter. The linings may be tapered at the ends. The lengths of the taper shall be as short as practicable, and shall not exceed 2 inches, in accordance with specifications ANSI/AWWA C104/A21.4 of latest revision.

C. The lining shall be cured in such a manner as to produce a properly Hydrated Mortar Lining that is hard and durable. The cure may be effected by the application of a seal coat to the still moist lining. The finished lining shall conform with Section 4 13 of A.S.A. Specifications A21.4 1964 (A.W.W.A. C104 64) of latest revision.

D. The seal coating shall conform to all the requirements, and have all the characteristics as set forth in Section 14 4 of A.S.A. Specifications A21.4 1964 (A.W.W.A. C104 64) of latest revision.

E. The Governing Body, upon the recommendation of the Engineer, may appoint an Inspector who, under the direction of the Engineer, will inspect the cast iron fittings, tees, specials, and branches at the factory. He shall have unrestricted access to all parts of the work as necessary in the performance of his duties.

F. The cost of inspection of rejected materials shall be borne by the Contractor, and will be deducted from his estimates.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Ductile and Cast Iron Fittings, Tees, Couplings, Reducers, Specials, and Branches shall be constructed in accordance with Division 650 - Utilities, Section 651.03.01 – Water Pipe of the N. J. Department of Transportation Standard Specifications – 2019.

END OF SECTION

SECTION 331153 – DUCTILE IRON WATER PIPE

PART 1 - GENERAL

1.1 DESCRIPTION

A. Ductile Iron Water Pipe shall consist of the installation of the ductile iron pipe and it's mechanical restraining collars, mega lugs, threaded rods where necessary, and/or thrust blocks where necessary as shown on the Contract Plans, or as otherwise directed by the Engineer or Superintendent of the Water Department. Ductile Iron Water Pipe shall also consist of sawcutting, excavation, testing and disposal of soil, installation of a minimum 6-inch-thick bed of ¾-inch clean crushed stone of DGA below the entire length of pipe, backfilling, borrow excavation (if necessary), compaction, dewatering, installation of thrust blocks, pressure testing and water main disinfection. All elbows, bends, special connections and fittings and water main disinfection shall also be included in the prices bid for the installation of various sizes of the proposed pipe unless otherwise itemized in the bid.

B. The contractor must dispose any excess soil off-site upon testing, as per local, state and federal standards.

C. All soil, stone, and other fill materials either imported onto or exported from the property shall comply with all applicable local, County, State, and Federal regulations and requirements.

D. Contractor shall use Ductile Iron Pipe Class 56 for this project.

1.2 SUBMITTALS

A. Product Data: Manufacturer's specifications including dimensions and coatings.

PART 2 – PRODUCTS

2.1 DUCTILE IRON PIPE

A. Ductile Iron Pipe shall be "Centrifugally Cast," U.S. Tyton Joint Pipe, or approved equivalent, and shall be Class 56, conforming to Specifications ANSI/AWWA C151/A21.51, F.S. WW-P-421C, 150. They shall be subject to a hydrostatic proof test in accordance with said specifications at a pressure of 500 pounds per square inch, and shall have push-on joints, in accordance with ANSI 4211.11 and cast in lengths of 18 feet. Restraining collars shall be installed at the joints where necessary and mega lugs or threaded rods shall be installed for additional bracing.

B. The outside coating shall be a bituminous coating of either coat-tar or asphalt base, approximately one (1) mil thick and shall be applied in the manner set forth and with materials specified, in accordance with ANSI/AWWA C151/A21.51 of latest revision for pipe and ANSI/AWWA C110/A21.10 or ANSI/AWWA C153/A21.53 for fittings of the latest revision.

C. Cement mortar lining shall be applied to all ductile iron pipe in the manner set forth and with materials specified in accordance with ANSI/AWWA C104/A21.4 of latest revision. The thickness of lining for ductile iron pipe shall be no less than 1/16-inch for water pipe 3 to 12 inches in diameter, and 1/8-inch for water pipe 30 to 48 inches in diameter. The linings may be tapered at the ends. The lengths of the taper shall be as short as practical, and shall not exceed 2 inches, in accordance with specifications ANSI/AWWA C104/A21.4 of latest revision.

D. The lining shall be cured in such a manner as to produce a properly-hydrated mortar lining that is hard and durable. The cure may be affected by the application of a seal coat to the still moist lining. The finished lining shall conform to Section 4-13 of specifications ANSI/AWWA C104/A21.4 of latest revision.

E. The seal coating shall conform to all the requirements and have all the characteristics as set forth in Section 14-4 of specifications ANSI/AWWA C104/A21.4 of latest revision.

F. The Governing Body, upon the recommendation of the Engineer, may appoint an Inspector who, under the direction of the Engineer, will inspect the pipe and special castings at the foundry. He shall have unrestricted access to all parts of the work as necessary in the performance of his duties.

G. The cost of inspection of rejected pipe shall be borne by the Contractor, and will be deducted from his estimates. If foundry rejections exceed fifteen (15%) percent of the total tonnage inspected, the Engineer may require that the remainder of the pipe required be procured from another manufacturer, and the Contractor shall have no redress for any additional expense thereby resulting to him.

PART 3 – EXECUTION

3.1 INSPECTION

A. Inspect pipe prior to installation to preclude installation of defective materials.

3.2 METHODS OF CONSTRUCTION

A. The excavation and disposal for the proposed water main construction shall be in accordance with Section 207 - Subsurface Structure Excavation of the NJDOT Standard Specifications. The water main shall be laid on a 6-inch-thick bed of ¾-inch clean stone or DGA as shown on plans or as directed by the Engineer. Six 6 inches of stone bedding or DGA shall also be laid above the pipe (measured from the highest point of the pipe.)

B. All pipelines shall be tested before backfilling trenches. Tests shall be made between valves, and, as far as practicable, in sections approximately 1,000 feet long, or as may be directed by the Engineer, and within 12 working days of the completion of such sections of mains. Testing shall be in accordance with ANSI / AWWA Standard C600-05 “Installation of Ductile Iron Water Mains and Their Appurtenances” - Section 5.2 Hydrostatic Testing. It should be noted that the normal operating pressure for water mains within this project’s limits are approximately 90 to 100 psi.

C. The Contractor shall perform the tests under the supervision of the Engineer and Superintendent of the Water Department. Means shall be provided for accurately measuring the water pumped into the pipelines while under test. A careful record of all tests shall be kept by the Contractor in a manner designated by the Engineer, which record shall at all times be available to the Engineer, and shall become the property of the Engineer upon completion of the contract.

D. Pipe lines shall be flushed clean before testing, and all valves on hydrant branches shall be closed immediately after testing and shall be kept closed; except as permitted or directed. If the leakage is found at a greater rate than specified, the Contractor shall make all necessary repairs at his own expense. After repair, this section of pipe shall be tested again.

END OF SECTION

SECTION 334913 – STORM AND SANITARY SEWER STRUCTURES

PART 1 – GENERAL

1.1 DESCRIPTION

A. Sanitary and Storm structures shall consist of the construction of these structures, reconstruction of these structures, reconstruction of existing undersized inlets to standard NJDOT regulation size, stone bedding, backfilling and backfill material, and the furnishing, installing, resetting, and placing of new castings, heads, and grates. The reconstruction of existing manholes or inlets shall mean the complete reconstruction of these structures, installation of new castings, N-Eco curb pieces and bicycle safe grates. Rehabilitation of manholes or inlets itemized as to be reconstruction within the roadway plans will not be accepted. Manhole Covers shall contain a water tight gasket/seal to prevent inflow and infiltration within the drainage structure. Contractor shall submit gasket/seal shop drawing for approval by the engineer prior to ordering of materials.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Precast concrete storm and sanitary manholes (all sizes and types), precast concrete inlets (all sizes and types) may be used as approved by Neglia Engineering Associates.

B. All materials used in the construction of manholes (all sizes and types), inlets, trench drains, and catch basins, shall conform to Section 602 - Drainage Structures of the 2019 NJDOT Standard Specifications. All structural reinforcing shall be epoxy-coated.

C. All Type ‘A’ Inlets shall be equipped with bicycle-safe grate, as manufactures by Campbell Foundry Pattern No. 3405 or Neenah Foundry, or approved equal.

D. All Type 'B' Inlets shall be equipped with Type-N Eco curb piece (with bicycle-safe grates) as manufactured by Campbell Foundry Pattern No. 2618 or Neenah Foundry or approved equal.

E. Type ‘E’ Inlets located within driveways or parking areas shall be equipped with bicycle-safe grates, as manufactured by Campbell Foundry Pattern No. 3425 or Neenah Foundry, or approved equal.

F. Trench Drain Grates within driveways or parking areas shall be equipped with grates, as manufactured by Campbell Foundry Pattern No. 4526, or approved equal. The contractor shall ensure to follow the plan and details for trench drain construction.

G. All castings shall have the name of the Municipality, the date, and the words “Sanitary” or “Storm” stamped or cast clearly and legibly thereon. Units not so furnished will not be accepted for use on Municipal projects. Concrete blocks shall conform to the compressive strength and absorption requirements of ASTM C139.

H. Recycled Concrete aggregate shall conform to the requirements of the application Sections and/or Subsections of the 2019 NJDOT Standard Specifications; Course aggregate shall be broken stone or washed gravel conforming to the requirements of applicable Sections and/or Subsections of the 2019 NJDOT Standard Specifications.

PART 3 – EXECUTION

3.1 METHODS OF CONSTRUCTION

A. Construction for manholes (all sizes and types), inlets, area drains, chamber units, catch basins, and doghouse structures shall be in accordance with applicable Sections and/or Subsections for Inlets and Manholes of the 2019 NJDOT Standard Specifications. Particular attention should be brought to precast concrete inlets and manholes, and Reconstruction and Conversion of Existing Structures, of the NJDOT Standard Specifications.

B. Excavation and Backfilling shall be in accordance with the applicable Sections and/or Subsections of the 2019 NJDOT Standard Specifications.

END OF SECTION

SECTION 341000 - YELLOW CURB PAINT

PART 1 – GENERAL

1.2 DESCRIPTION

A. This item shall be utilized as needed to delineate existing yellow curb areas where new concrete curb is proposed. The curb painting shall be coordinated with the Police Department to ensure existing delineated areas are maintained.

PART 2 – PRODUCTS

A. Materials shall conform with Section 912 – Paints, Coatings, Traffic Stripes, and Traffic Markings of the 2019 NJDOT Standard Specifications.

PART 3 – EXECUTION

A. Painting shall not start until one and one half (1 ½) hours has elapsed after sunrise, nor shall it continue after 3:00 pm unless otherwise specified by the Engineer or his Representatives. Striping shall be applied only on a thoroughly dry surface and during period of favorable weather.

END OF SECTION

PROJECT LOCATION:

418 SCHOOL STREET,
WOODBRIDGE TOWNSHIP, NJ 07095

LOCATION MAP
SCALE: N.T.S.

ADDITION
AT
WOODBRIDGE FIRE HEADQUATERS
FOR THE
WOODBRIDGE FIRE COMPANY

418 SCHOOL STREET
WOODBRIDGE TOWNSHIP, NJ 07095

PROJECT AREA
(ADDITION 360 SQ.FT.)

KEY PLAN
SCALE: N.T.S.

USA Architects

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t 908.722.2300
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CSI DIVISION

DIVISION 00 PROCUREMENT

00.01 ALL BIDDERS, UPON SUBMITTING BIDS, HEREBY CERTIFY THAT THEY HAVE REVIEWED THE ENTIRE SET OF CONTRACT DOCUMENTS, (CONTRACT DOCUMENTS CONSIST OF A COMPLETE SET OF DRAWINGS AND THE ENTIRE PROJECT MANUAL, INCLUDING ALL DIVISIONS & ANY/ALL ADDENDA) AND ARE AWARE OF, AND AGREE TO MEET THE INTENT OF THE CONTRACT DOCUMENTS WHETHER EXPRESSED OR IMPLIED.

00.02 PRODUCT MANUFACTURERS IN CONJUNCTION WITH SUBCONTRACTORS AND PRIME CONTRACTOR(S) ARE RESPONSIBLE FOR ALL COMPONENTS AND CALCULATIONS AND/OR CERTIFICATIONS OF THEIR PRODUCT AND FOR PROVIDING COMPLETE SYSTEMS/ASSEMBLIES TO MEET THE DESIGN INTENT OF THE PROJECT.

00.03 THE BIDDER/CONTRACTOR IS REQUIRED TO VISIT THE SITE & EXAMINE THE EXISTING CONDITIONS TO HIS COMPLETE SATISFACTION PRIOR TO BIDDING. THE BIDDER/CONTRACTOR SHALL COMPARE THE EXISTING CONDITIONS TO THE DESIGN INTENT OF THE CONTRACT DOCUMENTS & SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY/ALL DISCREPANCIES BEFORE SUBMITTING A BID. FAILURE TO DO SO WILL PLACE THE BURDEN OF RESPONSIBILITY ON THE CONTRACTOR TO PERFORM THE WORK AS INTENDED BY THE CONTRACT DOCUMENTS, AT NO ADDITIONAL COST TO THE OWNER.

DIVISION 01 AVAILABLE INFORMATION

01.01 ANY ADDITIONAL INFORMATION THAT IS NOT PART OF THE CONSTRUCTION DOCUMENTS, SUCH AS, BUT NOT LIMITED TO, SOIL REPORT(S), HAZARDOUS MATERIALS REPORT(S), EXISTING DRAWINGS, ETC., ARE INTENDED FOR REFERENCE ONLY AND ARE TO BE USED BY THE CONTRACTOR(S) AT HIS/HER OWN DISCRETION.

01.02 THE INDICATION OF SUBSTRATE & CONFIGURATION OF CONCEALED ITEMS & MATERIALS SHOWN ON THE CONSTRUCTION DOCUMENTS IS FOR GENERAL REFERENCE ONLY. THE CONTRACTOR(S) SHALL NOT BE ENTITLED TO ADDITIONAL COMPENSATION FOR ANY VARIANCE BETWEEN ACTUAL EXISTING CONDITIONS AND THAT REPRESENTED ON THE CONSTRUCTION DOCUMENTS.

01.03 ALL DIMENSIONS INDICATED ON THE CONSTRUCTION DOCUMENTS, OF EXISTING CONDITIONS, ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR(S) PRIOR TO SUBMITTING A BID.

GENERAL REQUIREMENTS

01.04 THE CONTRACTOR(S) SHALL DISCUSS & VERIFY, WITH ALL GOVERNING AUTHORITIES ALL CODE REQUIREMENTS INDICATED AND/OR REQUIRED FOR THE COMPLETE EXECUTION OF THE WORK AS INTENDED BY THE CONSTRUCTION DOCUMENTS.

01.05 THE CONTRACTOR(S) SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION OVER THE PROJECT. THE CONTRACTOR(S) SHALL OBTAIN PERMITS & GIVE NOTICES TO SUCH AGENCIES IN AMPLE TIME FOR OFFICIALS TO CONDUCT INSPECTIONS AND OBTAIN TIMELY APPROVALS. FAILURE TO COMPLY WILL SOLELY BE THE RESPONSIBILITY OF THE CONTRACTOR(S).

01.06 THE CONTRACTOR(S) SHALL PROVIDE PROTECTION FOR THE PUBLIC, OWNER'S STAFF, AND CONSTRUCTION WORKERS IN AND AROUND THE CONSTRUCTION AREA & ADJACENT PROPERTY. ADEQUATE BARRIERS & SIGNAGE SHALL BE PROVIDED TO EXERCISE CONTROL OF SAFE INGRESS & EGRESS OF PREMISES. FIRE EXITS SHALL NOT BE BLOCKED. PROPER SITE SECURITY DURING WORKING & OFF-HOURS SHALL BE MAINTAINED. BARRICADE ALL UNSAFE OR POTENTIALLY DANGEROUS CONDITIONS. THE CONTRACTOR(S) SHALL FOLLOW O.S.H.A. STANDARDS DURING THE COURSE OF THE PROJECT.

01.07 DO NOT SCALE THE DRAWINGS. USE CALCULATED DIMENSIONS ONLY. NOTE THAT NOT ALL DIMENSIONS ARE GIVEN ON THE CONSTRUCTION DOCUMENTS. SOME DIMENSIONS ARE IMPLIED. IF THE CONTRACTOR IS NOT SURE OF A GIVEN DIMENSION, HE/SHE SHALL SUBMIT A REQUEST FOR INFORMATION (R.F.I.) AND/OR SHALL FIELD VERIFY EXISTING DIMENSIONS.

01.08 ALL INFORMATION FOR ALL TRADES CONTAINED WITHIN THE CONSTRUCTION DOCUMENTS SHALL BE USED TOGETHER & IN CONCERT WITH ONE ANOTHER AS A WHOLE BODY OF INFORMATION FOR THE PROJECT. THE DRAWINGS & PROJECT MANUAL ARE COMPLEMENTARY & WHAT IS REQUIRED BY ONE, SHALL BE REQUIRED BY BOTH. NEITHER THE PRIME CONTRACTOR(S) NOR ANY SUBCONTRACTOR(S) SHALL BE RELIEVED OF THE RESPONSIBILITY TO PROVIDE ALL ITEMS REQUIRED BY THE INFORMATION & DESIGN INTENT INDICATED & IMPLIED. IN THE EVENT OF CONFLICTS BETWEEN DOCUMENTS, THE GREATER QUANTITY OR HIGHER QUALITY OF WORK SHALL PREVAIL AND BE PROVIDED.

01.09 ALL ITEMS LABELED "EXISTING" ARE EXISTING "TO REMAIN" UNLESS OTHERWISE INDICATED. ITEMS NOT LABELED "EXISTING" ARE TO BE PROVIDED. THE TERM "PROVIDE" SHALL MEAN FURNISH & INSTALL AS IT IS USED THROUGHOUT THE CONTRACT DOCUMENTS.

SUMMARY WORK

01.10 THE SCOPE OF THIS SINGLE OVERALL PRIME CONTRACT INCLUDES ALL THE WORK AS INDICATED ON THE DRAWINGS AND IN THE PROJECT MANUAL. THE SINGLE OVERALL PRIME CONTRACTOR BEARS SOLE SOURCE RESPONSIBILITY FOR THE DELIVERY OF THE PROJECT TO 100% COMPLETION.

PROJECT COORDINATION

01.11 THE SINGLE OVERALL PRIME CONTRACTOR BEARS SOLE SOURCE RESPONSIBILITY FOR THE COORDINATION OF THE ACTIVITIES OF ALL SUBCONTRACTORS, SUB-SUBCONTRACTORS, MATERIAL SUPPLIERS, AND ALL PARTIES INVOLVED IN THE EXECUTION OF THE PROJECT.

01.12 ENGINEERING DRAWINGS (STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, COMMUNICATIONS, AND SECURITY SYSTEM DRAWINGS, ETC.) ARE SHOWN DIAGRAMMATICALLY AND ARE NOT TO SCALE, NOR DO THEY SHOW THE EXACT LOCATION OF THEIR COMPONENTS. THE EXACT LOCATION AND CLEARANCES FOR EACH SUCH SYSTEM OF COMPONENTS SHALL BE COORDINATED BY THE CONTRACTOR(S). ALL PRIME CONTRACTORS, PRIOR TO PURCHASE, FABRICATION, OR INSTALLATION OF THESE ITEMS SHALL PREPARE COORDINATION DRAWINGS SHOWING THE DIFFERENT TRADES BY COLORS AND SHALL CONDUCT A COORDINATION MEETING WITH ALL OTHER CONTRACTOR(S) AFFECTED FOR A TOTAL UNDERSTANDING OF THE DESIGN INTENT. THE ARCHITECTS AND THE ENGINEERS(S) SHALL BE INVITED TO ATTEND THIS MEETING AND OFFER INPUT PRIOR TO ANY WORK BEING FABRICATED OR INSTALLED.

QUALITY REQUIREMENTS

01.13 THE CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, SERVICES, ETC. TO COMPLETE THE ENTIRE WORK IN A MANNER ACCEPTABLE TO THE OWNER AND THE ARCHITECT. IT IS UNDERSTOOD THAT NOT EVERY DETAIL OR DIMENSION IS SHOWN IN THE CONTRACT DOCUMENTS, NOR ARE THEY NECESSARY FOR THE CONTRACTOR(S) TO PROVIDE A QUALITY PRODUCT. THE CONTRACTOR SHALL SUBMIT A REQUEST FOR INFORMATION (R.F.I.) IF NEEDED TO CLARIFY THE INTENT OF ANY DETAIL OR OTHER INFORMATION. HOWEVER, SUCH REQUEST FOR INFORMATION SHALL NOT CONSTITUTE A CHANGE IN THE SCHEDULE, OR IN THE CONTRACT AMOUNT. NO WORK SHOULD BE INSTALLED IF THE CONTRACTOR IS UNSURE OF THE DESIGN INTENT. INSTALLATION OF ANY WORK THAT DOES NOT COMPLY WITH THE DESIGN INTENT, AS DETERMINED BY THE ARCHITECT, SHALL BE SUBJECT TO REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

01.14 ALL CONSTRUCTION, EQUIPMENT, CONTENTS, ETC. SHALL BE PROTECTED BY EACH CONTRACTOR DURING THE ENTIRE PERFORMANCE OF THE WORK. AREAS DISTURBED OR DAMAGED BY THE CONTRACTOR SHALL BE COMPLETELY RESTORED, REPAIRED, OR REPLACED BY THE CONTRACTOR. TO THE OWNER'S COMPLETE SATISFACTION AT NO ADDITIONAL COST.

01.15 ALL UNUSED MATERIAL AND DEBRIS SHALL BE COMPLETELY REMOVED FROM THE SITE AND LEGALLY DISPOSED OF. NO ON-SITE STORAGE, BURNING, OR BURIAL OF DEBRIS SHALL BE PERMITTED. THE CONSTRUCTION SITE SHALL BE KEPT IN A CLEAN AND SAFE MANNER, INCLUDING, BUT NOT LIMITED TO DAILY BROOM CLEANING THROUGHOUT THE DURATION OF THE CONSTRUCTION PROJECT.

TEMPORARY FACILITIES & ACCESS

01.16 CONSTRUCTION ACCESS ROADS, CURB CUTS, SOIL EROSION CONTROL, & THE LOCATION OF ALL TEMPORARY FACILITIES (INCLUDING POWER, TELEPHONE, WATER, WASTE, ETC.) SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR (UNLESS OTHERWISE NOTED), & SHALL BE COORDINATED WITH UTILITY COMPANIES, MUNICIPAL AUTHORITIES, ETC. AS REQUIRED.

PRODUCT REQUIREMENTS

01.17 ALL MATERIALS AND PRODUCTS SHALL BE PROTECTED AND PROPERLY STORED AS PER MANUFACTURER'S RECOMMENDATION. ALL MATERIALS AND PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S CURRENT PRINTED RECOMMENDATIONS TO MAINTAIN THE PROPER WARRANTIES.

01.18 PRIOR TO THE INSTALLATION OF ALL MAJOR BUILDING COMPONENTS, THE PRIME CONTRACTOR(S) SHALL CONDUCT A PRE-INSTALLATION AND COORDINATION MEETING WITH THE MANUFACTURER'S REPRESENTATIVE. INCLUDED IN THE MEETING SHALL BE ANY SUBCONTRACTOR AND PRODUCT MANUFACTURER AFFECTED BY THE SPECIFIC WORK. FAILURE OF THE PRIME CONTRACTOR(S) TO CONDUCT SUCH A MEETING, AND PROPERLY COORDINATE THE PROCESS, SHALL PLACE THE BURDEN FOR ANY & ALL PROBLEMS, RESULTING FROM SAID INSTALLATION, UPON THE PRIME CONTRACTOR(S) RESPONSIBLE FOR THAT PORTION OF THE WORK.

01.19 LONG LEAD ITEMS SHALL BE IDENTIFIED BY THE CONTRACTOR(S) WITH NOTIFICATION TO THE ARCHITECT IN A TIMELY MANNER. FAILURE BY THE CONTRACTOR(S) TO OBTAIN SUBMITTAL APPROVALS, AND TO ORDER LONG LEAD ITEMS, SO AS NOT THE DELAY THE PROGRESS OF THE WORK, WILL NOT JUSTIFY AN EXTENSION OF THE SCHEDULE FOR COMPLETION, NOR WILL IT CAUSE PRODUCT SUBSTITUTIONS IN ORDER TO MEET THE SCHEDULE.

EXECUTION REQUIREMENTS

01.20 MISCELLANEOUS WOOD, COLD FORMED, OR ROLLED STEEL SHAPES, WHETHER BLOCKING OR SUB-FRAMING WHICH ARE REQUIRED FOR THE INSTALLATION OF OTHER ITEMS NECESSARY FOR A COMPLETE PACKAGE SHALL BE PROVIDED WHETHER OR NOT SPECIFICALLY INDICATED ON THE DRAWINGS.

01.21 DIMENSIONS GIVEN FOR MASONRY OPENINGS ARE NOMINAL. GENERAL CONTRACTOR(S) SHALL COORDINATE THE FABRICATION OF DOOR, WINDOW, AND VISION PANEL FRAMES AND OTHER ITEMS TO BE INSTALLED IN MASONRY TO ACCOMMODATE ACTUAL DIMENSIONS VERIFIED IN THE FIELD WITH AND WITHOUT MORTAR JOINTS AS THEY OCCUR.

01.22 EACH PRIME CONTRACTOR SHALL PROVIDE ALL NECESSARY SHORING & BRACING TO SUPPORT EXISTING OR NEW CONSTRUCTION NOT FULLY SET UNTIL PERMANENT SUPPORTS ARE ERECTED. TAKE ALL NECESSARY MEASURES TO PREVENT COLLAPSE OF ANY ELEMENT OF NEW OR EXISTING CONSTRUCTION.

01.23 EACH PRIME CONTRACTOR SHALL FIRE STOP/SMOKE PROOF ANY/ALL PENETRATIONS AS REQUIRED TO MAINTAIN THE DESIGNATED FIRE RATING/SMOKE PROOFING OF THE CONSTRUCTION WHETHER EXISTING OR NEW. THE GENERAL CONTRACTOR SHALL ALSO EXTEND RATED CONSTRUCTION TO MAINTAIN CONTINUITY OF SAME THROUGH CONCEALED SPACES (VERTICAL & HORIZONTAL) AS REQUIRED.

01.24 ANY/ALL EQUIPMENT PROVIDED SHALL BE INSTALLED TO BE COMPLETELY FUNCTIONAL. EACH PIECE OF EQUIPMENT PROVIDED BY A PRIME CONTRACTOR, REQUIRING SERVICE CONNECTIONS BY ANOTHER PRIME CONTRACTOR SHALL BE COORDINATED BY THE GENERAL CONTRACTOR. STARTUP & TESTING OF EQUIPMENT SHALL BE PERFORMED & DOCUMENTED BY FACTORY AUTHORIZED PERSONNEL.

01.25 DETAILS & SECTIONS ON THE DRAWINGS ARE SHOWN AT SPECIFIC LOCATIONS & ARE INTENDED TO SHOW GENERAL REQUIREMENTS THROUGHOUT. DETAILS NOTED "TYPICAL" IMPLY ALL "LIKE-CONDITIONS" ARE TO BE TREATED SIMILARLY.

01.26 WORK NOT INDICATED IN PART OF THE DRAWING, BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING PLACES SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST.

01.27 MINOR DETAILS OR INCIDENTAL ITEMS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER & COMPLETE EXECUTION OF ANY PART OF THE WORK SHALL BE INCLUDED AS IF THEY WERE SPECIFICALLY INDICATED IN THE CONSTRUCTION DOCUMENTS.

CUTTING AND PATCHING

01.28 UNLESS OTHERWISE INDICATED: CUTTING AND PATCHING (EXCEPT FOR FINISHES) IS TO BE PERFORMED BY THE PRIME CONTRACTOR REQUIRING CUTTING AND PATCHING, WHETHER AS SELECTIVE DEMOLITION, OR AS A MEANS OF ACCESSING OR CORRECTING UNSATISFACTORY WORK. PATCHING OF THE SUBSTRATE IS ALSO THE WORK OF THAT PRIME CONTRACTOR, HOWEVER THE PATCHING OF ALL FINISHES EXPOSED TO VIEW IS TO BE DONE BY THE GENERAL CONTRACTOR USING SKILLED TRADESMAN TRAINED FOR PATCHING THE PARTICULAR FINISH INVOLVED.

SUBMITTALS AND SUBSTITUTIONS

01.29 THE PROJECT HAS BEEN DESIGNED TO MEET A CERTAIN PROFESSIONAL STANDARD AND PRODUCTS HAVE BEEN SELECTED TO MEET SUCH STANDARDS. THE PRODUCTS SPECIFIED ARE THE PRODUCTS INTENDED TO BE USED. IN THE EVENT THAT SUBSTITUTIONS ARE SUBMITTED FOR REVIEW, A PROPER COMPARATIVE INFORMATION SHEET SHALL ALSO BE SUBMITTED. ALL REQUESTS FOR SUBSTITUTION SHALL BE MADE WITHIN THE FIRST 90 DAYS AFTER THE CONTRACTOR HAS BEEN AWARDED THE CONTRACT FOR CONSTRUCTION. NO SUBSTITUTION WILL BE CONSIDERED AFTER THIS PERIOD.

01.30 THE PRIME CONTRACTOR SHALL PROVIDE ALL REQUIRED SCHEDULES, SUCH AS BUT NO LIMITED TO: SUBMISSION SCHEDULE, CONSTRUCTION SCHEDULE, & SCHEDULE OF VALUES PRIOR TO SUBMISSION OF THE FIRST APPLICATION FOR PAYMENT. NO APPLICATION FOR PAYMENT WILL BE APPROVED BY THE ARCHITECT UNTIL THIS PREREQUISITE IS COMPLIED WITH PROPERLY.

01.31 THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS SUFFICIENTLY IN ADVANCE OF THE WORK TO ALLOW PROPER TIME FOR REVIEW. MATERIALS SHALL NOT BE FABRICATED OR DELIVERED TO THE SITE BEFORE THE SHOP DRAWINGS HAVE BEEN APPROVED.

01.32 SHOP DRAWINGS SHALL BE REVIEWED BY THE ARCHITECT/ENGINEER FOR BASIC CONFORMANCE TO THE DESIGN INTENT ONLY AFTER PRIOR APPROVAL BY THE RESPONSIBLE PRIME CONTRACTOR. THIS REVIEW DOES NOT RELIEVE THE CONTRACTOR OR HIS SUB-CONTRACTOR(S) OF RESPONSIBILITY FOR FULL COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DIMENSIONS & CLEARANCES.SHALL BE CONFIRMED & CORRELATED AT THE JOB SITE, FOR MATERIALS QUANTITIES & PROPER FABRICATION, FOR PROPER MEANS & METHODS, FOR PROPER SEQUENCES OF CONSTRUCTION, FOR THE PROPER COORDINATION WITH OTHER TRADES, AND FOR PROVIDING SAFE AND SATISFACTORY CONSTRUCTION OPERATIONS.

01.33 EACH CONTRACTOR IS ADVISED THAT CERTAIN COLOR SCHEDULE SELECTIONS MAY HAVE PREVIOUSLY BEEN MADE, REVIEWED, AND APPROVED BY THE OWNER & RETURNED TO THE CONTRACTOR FOR EXECUTION. ALL CONTRACTORS SHALL TAKE NOTE & HEREAFTER STRONGLY BE ADVISED THAT MATERIAL SUBSTITUTIONS SUBMITTED LATER MAY BE REQUIRED TO BE PROVIDED WITH CUSTOM COLORS, TEXTURES, & FINISHES BASED UPON SELECTIONS PREVIOUSLY APPROVED. MATERIAL SUBSTITUTIONS ARE SUBJECT TO REJECTION SOLELY ON APPEARANCE.

01.34 THE ARCHITECT WILL TAKE APPROPRIATE ACTION UP TO THREE (3) TIMES FOR EACH ITEM SUBMITTED. SUBMITTALS REQUIRING MORE THAN THREE (3) REVIEWS DUE TO INCORRECT OR INCOMPLETE INFORMATION SHALL BE SUBJECT TO A REVIEW FEE FOR EACH SUBSEQUENT SUBMITTAL. THIS FEE SHALL BE AT THE HOURLY RATE OF THE ARCHITECT & ENGINEER, AND SHALL BE PRE-PAID TO THE ARCHITECT BY THE CONTRACTOR PRIOR TO ANY ADDITIONAL CONSIDERATION. FEES PAID SHALL IN NO WAY CONSTITUTE AN OBLIGATION BY THE ARCHITECT TO APPROVE ANY SUBMITTAL THAT IN HIS/HER OPINION DOES NOT COMPLY WITH THE DESIGN INTENT OF THE CONTRACT DOCUMENTS. FURTHERMORE, ANY SUCH ADDITIONAL REVIEW TIME SHALL NOT BE A BASIS FOR AN EXTENSION OF TIME.

01.35 IF SUBSTITUTIONS ARE APPROVED, THE CONTRACTOR SHALL NOTIFY ALL OTHER TRADES AFFECTED BY THE SUBSTITUTION & FULLY COORDINATE THE IMPACT ON THE PROJECT. ANY ADDITIONAL COST RESULTING FROM SUBSTITUTIONS SHALL BE PAID BY THE CONTRACTOR PROPOSING THE SUBSTITUTION.

STANDARD WARRANTY

01.36 EACH PRIME CONTRACTOR SHALL PROVIDE, AS PART OF ITS REQUIRED CLOSE-OUT DOCUMENTS, A STANDARD WARRANTY COVERING ALL MATERIALS, PRODUCTS, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE ARCHITECT. THIS STANDARD WARRANTY IS A BASIC REQUIREMENT OF EACH PRIME CONTRACT AND SHALL BE EXTENDED BY SPECIFIC WARRANTY REQUIREMENTS OF THE VARIOUS PRODUCTS AND SYSTEMS AS INDICATED THROUGHOUT THE CONTRACT DOCUMENTS.

DIVISION 02 DEMOLITION

02.01 THE ACTUAL SCOPE OF DEMOLITION SHALL NOT BE LIMITED TO WHAT IS SPECIFICALLY INDICATED ON THE DRAWINGS OR WITHIN THE PROJECT MANUAL, BUT SHALL INCLUDE ANY AND ALL COMPLETE OR SELECTIVE DEMOLITION AS MAY BE NECESSARY TO ACCOMPLISH THE INTENDED CONSTRUCTION. THIS APPLIES TO THE WORK OF ALL TRADES.

DIVISION 05 EXTERIOR FERROUS METALS

05.01 ALL FERROUS METAL USED ON OR EXPOSED TO THE EXTERIOR OF THE BUILDING INCLUDING BUT NOT LIMITED TO: STRUCTURAL AND MISCELLANEOUS FRAMING, WINDOWS, DOORS AND FRAMES, HANDRAILS, LINTELS, ETC. SHALL BE HOT-DIPPED AND GALVANIZED PRIOR TO INSTALLATION AND PAINTING.

DIVISION 06 WOOD BLOCKING

06.01 EVERY HOLLOW WALLBOARD PARTITION THAT IS INDICATED TO RECEIVE ANY ACCESSORIES SUCH AS, BUT NOT LIMITED TO, TOILET ACCESSORIES, HANDICAP RAILS, CABINETS, WALL MOUNTED BACK-BOARDS, ETC. SHALL BE PROVIDED WITH SOLID BLOCKING AND REINFORCEMENT WITHIN THE FRAMING TO ADEQUATELY SUPPORT THE INSTALLATION OF SUCH ITEMS.

EXTERIOR WOOD

06.02 ALL WOOD FRAMING LUMBER AND BLOCKING EXPOSED TO THE ELEMENTS OR USED IN CONTACT WITH MASONRY, CONCRETE, AND/OR ROOFING SHALL BE PRESSURE TREATED FOR RESISTANCE TO DETERIORATION FROM MOISTURE.

DIVISION 07 SEALANTS

07.01 ANY AND ALL CONSTRUCTION JOINTS INCLUDING JOINTS BETWEEN DIFFERENT ITEMS AND MATERIALS, JOINTS SURROUNDING PENETRATIONS THROUGH MATERIALS, AND CRACKS WITHIN MATERIALS, ETC., WHETHER ON THE INTERIOR OR EXTERIOR OF THE BUILDING, SHALL BE FILLED WITH AN APPROPRIATE SEALANT AS REQUIRED. ON THE INTERIOR OF THE BUILDING, SAID SEALANT SHALL BE PAINTABLE. ON THE EXTERIOR OF THE BUILDING, SAID SEALANT SHALL BE WEATHERPROOF AND IN A COLOR SELECTED BY THE ARCHITECT.

ROOFING

07.02 PRIOR TO THE START OF ROOF WORK, THE CONTRACTOR IS REQUIRED TO CONDUCT A PRE-INSTALLATION CONFERENCE WITH THE ROOFING MANUFACTURER, THE ROOF INSTALLER, OTHER AFFECTED CONTRACTORS, AND THE ARCHITECT TO DISCUSS IN DETAIL THE INSTALLATION PROCESS. UPON COMPLETION, A WALK-THROUGH MEETING SHALL BE DONE WITH THE CONTRACT DOCUMENTS AND THE MANUFACTURER'S BEST PRACTICE RECOMMENDATIONS FOR THE WARRANTY SPECIFIED.

DIVISION 09

09.01 UNLESS FACTORY FINISHED, OR OTHERWISE SPECIFICALLY NOTED ON THE CONSTRUCTION DOCUMENTS, ALL EXPOSED SURFACES (BOTH INTERIOR & EXTERIOR OF THE BUILDING) SHALL BE PAINTED/COATED IN COLORS & TEXTURES AS SELECTED BY THE ARCHITECT/OWNER. NO SURFACES ARE TO BE LEFT UNFINISHED UNLESS SPECIFICALLY NOTED ON THE CONTRACT DOCUMENTS.

DIVISION 26 ELECTRICAL

26.01 CONVENIENCE & DATA OUTLETS, WALL SWITCHES, AND FIXTURES SHALL BE COORDINATED WITH THE LOCATION OF FURNITURE, MILLWORK, CASEWORK, ETC. PRIOR TO INSTALLATION. FAILURE TO COORDINATE THESE ITEMS MAY RESULT IN CHANGES IN THE FIELD AT THE EXPENSE OF THE PRIME CONTRACTOR.

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DRAWING LIST

TS-01 TITLE SHEET & GENERAL NOTES

CIVIL
C-100 SITE LAYOUT PLAN
C-102 SOIL EROSION SEDIMENT CONTROL PLAN
C-103 CONSTRUCTION DETAILS

ARCHITECTURAL
A-1 BUILDING CODE
A-2 PARTIAL FIRST FLOOR DEMOLITION, PROPOSED AND REFLECTED CEILING PLANS, DOOR & FRAME SCHEDULES / ELEVATIONS
A-3 EXTERIOR ELEVATIONS
A-4 PARTIAL ROOF PLAN AND ROOF DETAILS
A-5 WALL SECTIONS

STRUCTURAL
S0.1 GENERAL NOTES
S0.2 GENERAL NOTES
S0.3 SPECIAL INSPECTION
S1.0 PARTIAL FOUNDATION PLAN
S1.1 PARTIAL ROOF FRAMING PLAN
S2.0 SECTIONS
S3.0 TYPICAL DETAILS

ELECTRICAL
E-100 ELECTRICAL AND GAS DRAWING

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ADDITION
AT
WOODBRIDGE FIRE HEADQUATERS
FOR THE
WOODBRIDGE FIRE COMPANY
418 SCHOOL STREET
WOODBRIDGE TOWNSHIP, NJ 07095

No.	Date	Issue or Revision
1	04.03.24	ISSUED FOR BID

Drawing Title

TITLE SHEET & GENERAL NOTES

Scale	USA Project No.
AS NOTED	2023-128
Drawing Date: 04.03.2024	Drawing No.: TS-01
Drawn By: ChaW	Checked By: ApA

3/25/2024 4:21:30 PM

N.J.P.C.S.

GRAPHIC SCALE

0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

GRADING AND DRAINAGE NOTES:

1. ALL SIDEWALKS AND CURBING MUST BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT. SIDEWALK SHALL BE CONSTRUCTED WITH A MINIMUM OF A 4' WIDE PEDESTRIAN ACCESS ROUTE AT A MAXIMUM CROSS SLOPE OF 2.0% TO MEET ADA ACCESS. SMART LEVEL SHALL BE UTILIZED.

2. GRADING AND DRAINAGE SHALL BE CONSTRUCTED SUCH THAT ALL RUNOFF SHALL BE DIRECTED TO PROPOSED CATCH BASINS, DRAINS, AND ADJACENT ROADWAY WITH POSITIVE PITCH.

3. GRADING ALONG BUILDINGS, FOUNDATIONS, AND STRUCTURE WALLS SHALL BE CONSTRUCTED TO PROVIDE 2% MINIMUM SLOPING AWAY FROM BUILDING, FOUNDATION, AND STRUCTURE WALLS TO PROVIDE POSITIVE DRAINAGE AWAY FROM SAID STRUCTURES TOWARDS PROPOSED CATCH BASINS, DRAINS, AND ADJACENT ROADWAY.

4. CROSS SLOPES WITHIN PROPOSED STREETSCAPE SIDEWALK SHALL NOT EXCEED 1.8% MAX CROSS SLOPE. SMART LEVEL SHALL BE UTILIZED.

5. SIDEWALK OR CROSSWALK MUST BE A MINIMUM OF 4' WIDE AT A 1.8% MAXIMUM CROSS SLOPE THRU THE PROPOSED DRIVEWAY.

6. ALL ELEVATIONS ARE IN NAVD' 88 DATUM AS PER THE SURVEY REFERENCED IN GENERAL NOTE 1.

UTILITY SERVICE NOTES:

1. LOCATION OF UTILITIES ARE APPROXIMATE AND SHALL BE FIELD VERIFIED VIA TEST PITS PRIOR TO CONSTRUCTION. EXISTING UTILITY SERVICE TO THE EXISTING BUILDING SHALL BE MAINTAINED.

2. LOCATION, SIZING AND DEPTH OF WATER MAIN IS APPROXIMATE. THE CONTRACTOR TO PERFORM TEST PIT TO DETERMINE THE SAME.

3. CONTRACTOR SHALL CONFIRM, VERIFY THAT DOWNSTREAM SANITARY SEWER IS FREE FLOWING PRIOR TO CONSTRUCTION.

4. LOCATIONS OF SITE UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL CONFIRM ALL SITE UTILITIES VIA TEST PITS AND SHALL COORDINATE ALL SITE UTILITY RELOCATIONS WITH GOVERNING UTILITY AUTHORITIES IN ACCORDANCE WITH ALL UTILITY AUTHORITY STANDARDS AND SPECIFICATIONS.

5. SANITARY SEWER INVERT AT BUILDING TO BE COORDINATED WITH PLUMBING DESIGN BY OTHERS.

6. EXISTING SANITARY SEWER LATERAL SHALL BE FIELD LOCATED VIA TEST PITS. CONTRACTOR TO CONFIRM PIPE SIZE AND ELEVATION PRIOR TO CONSTRUCTION. EXISTING SEWER LATERAL SHALL BE VIDEO INSPECTED TO DETERMINE SUITABILITY FOR RE-USE, WITH COPIES OF THE VIDEO PROVIDED TO THE TOWNSHIP AND ENGINEER.

UTILITY WORK AND PERMITS:

1. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED LOCAL, COUNTY, STATE, FEDERAL OPENING PERMITS AND SHALL BARE THE COST OF ALL ACCOMPANYING FEES. ALL PERMITS MUST BE SECURED PRIOR TO THE COMMENCEMENT OF WORK.

2. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL HAVE ALL UNDERGROUND UTILITIES LOCATED AND PHYSICALLY MARKED OUT WITHIN THE LIMITS OF THE PROJECT (CALL 1-800-272-1000). THE CONTRACTOR SHALL PROVIDE TEST HOLES IN AREAS OF POSSIBLE CONFLICT TO VERIFY THE DEPTH AND LOCATION OF THE UTILITY. NO SEPARATE PAYMENT SHALL BE MADE FOR DELAYS THAT MAY BE NECESSARY TO RELOCATE UTILITIES OR THE PROPOSED LOCATION OF UNDERGROUND UTILITIES. NO SEPARATE PAYMENT WILL BE MADE FOR TEST PITS BUT THE COST SHALL BE INCLUDED IN THE VARIOUS ITEMS IN THE PROPOSAL.

3. LOCATION AND DEPTH OF EXISTING UTILITIES ARE ONLY INDICATED TO BRING ATTENTION TO POSSIBLE CONFLICTS. ANY DAMAGE TO UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND ALL COSTS FOR REPAIRS SHALL BE BORNE BY THE CONTRACTOR.

4. ANY DAMAGE TO UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND ALL COSTS FOR REPAIR SHALL BE BORNE BY THE CONTRACTOR. ALL DISTURBED OR DAMAGED WALKWAYS, SIGNS, CURBING, TREES, HYDRANTS, UTILITIES, PAVED SURFACES, DRIVEWAYS, BUILDING FACADES, ETC. SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AND TO THE SATISFACTION OF THE OWNER. NO SEPARATE PAYMENT WILL BE MADE FOR THIS RESTORATION UNLESS SPECIFIED ELSEWHERE IN THE CONTRACT.

5. THE LOCATIONS OF UTILITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE EXACT LOCATIONS OF THE UTILITIES PRIOR TO THE START OF CONSTRUCTION.

6. ALL GAS AND WATER VALVES AND VARIOUS MANHOLES TO REMAIN WITHIN THE PROJECT LIMITS SHALL BE RESET TO FINISHED GRADE.

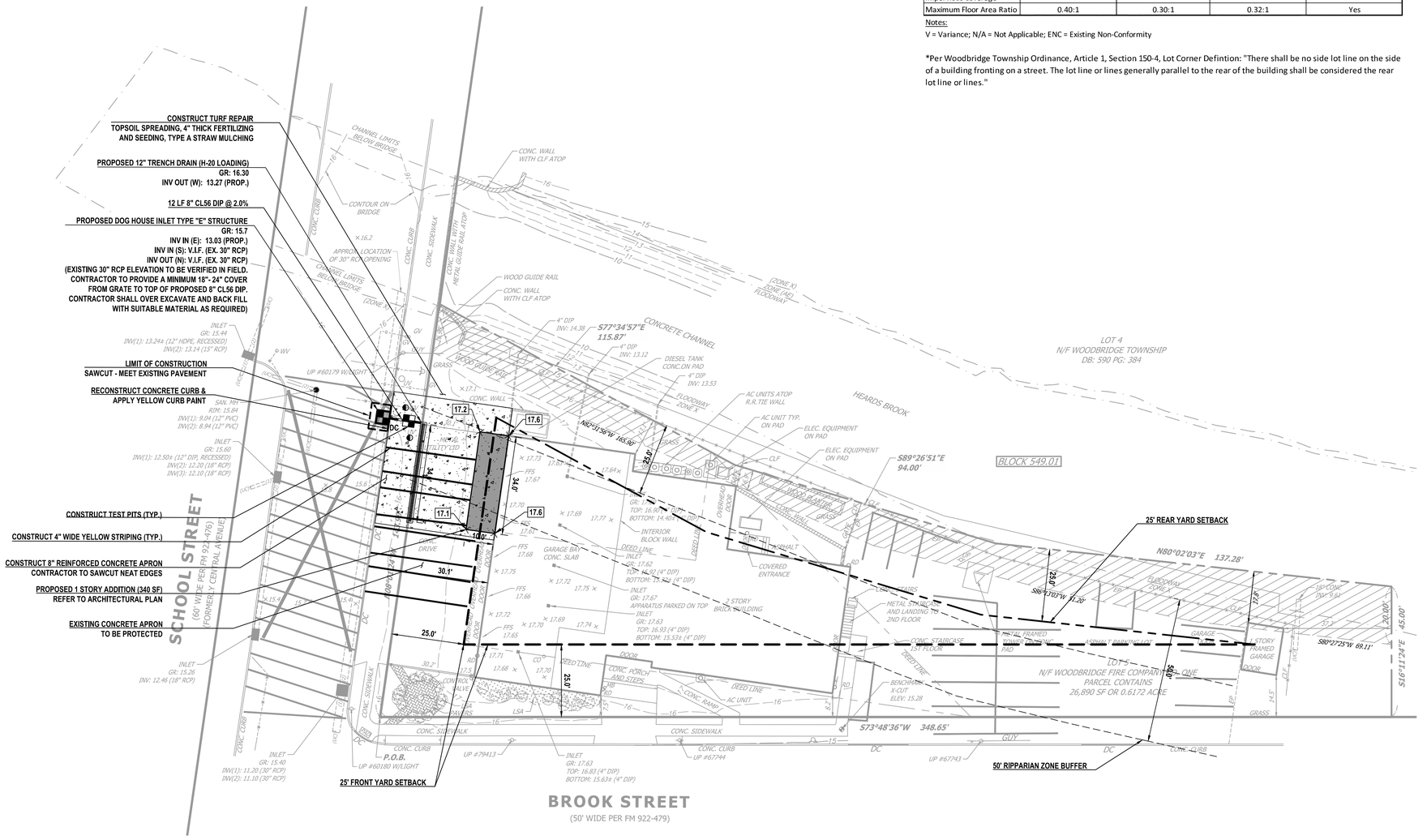
7. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE PUBLIC UTILITY COMPANIES. ELECTRIC, TELEPHONE, & CABLE UTILITY MANHOLE CASTINGS AND VALVE BOX COVERS SHALL BE RESET BY THE RESPECTIVE UTILITY COMPANIES.

8. WATER SERVICE VALVE BOXES, GAS SERVICE VALVE BOXES, JUNCTION BOXES, ELECTRIC BOXES, BASEMENT VAULT DOORS AND ALL OTHER APPURTENANCES LOCATED IN THE SIDEWALK AREA SHALL BE RESET TO THE NEW SIDEWALK ELEVATION, AS REQUIRED. THE COST FOR RESETTING ANY AND ALL OF THESE CASTINGS SHALL NOT BE PAID SEPARATELY BUT SHALL BE INCLUDED IN THE VARIOUS CONCRETE SIDEWALK LINE ITEMS IN THE PROPOSAL.

9. TRENCHES SHALL BE BACKFILLED WITHOUT DELAY. OPEN EXCAVATIONS SHALL BE KEPT TO A MINIMUM AND MADE SAFE AT ALL TIMES. ALL TRENCHES SHALL BE ADEQUATELY COMPACTED BY APPROVED METHODS AND WITH MATERIALS APPROVED BY THE FIELD ENGINEER. ANY TRENCH SETTLEMENT SHALL BE IMMEDIATELY BROUGHT TO GRADE AND TEMPORARY PAVING SHALL BE PLACED WHERE REQUIRED. NO TRENCH (INCLUDING CURBS) SHALL BE LEFT OPEN OVERNIGHT.

GENERAL NOTES:

1. EXISTING CONDITIONS ARE AS PER PLAN ENTITLED "BOUNDARY AND PARTIAL TOPOGRAPHIC SURVEY, WOODBRIDGE FIRE COMPANY NO. 1, BLOCK 549.01, LOT 5, TOWNSHIP OF WOODBRIDGE, MIDDLESEX COUNTY, NEW JERSEY " PREPARED BY NEGLIA ENGINEERING ASSOCIATES, LAST REVISED 05/01/2023.



ZONING ANALYSIS TABLE				
PQP: OPEN SPACE CONSERVATION / PUBLIC QUASI PUBLIC				
ZONING REQUIREMENT (PER WOODBRIDGE TOWNSHIP LAND USE AND DEVELOPMENT)	**REQUIRED / PERMITTED**	**EXISTING CONDITION LOT 5**	**PROPOSED CONDITION LOT 5**	**COMPLIANT?**
Minimum Lot Area	10,000 SF	± 26,890 SF	± 26,890 SF	Yes
Minimum Lot Width	100 FT	144 FT	144 FT	Yes
Minimum Lot Depth	100 FT	349 FT	349 FT	Yes
Minimum Principal Building Front Yard Setback	25 FT	7.5 FT	7.5 FT	**No (ENC)- V**
Minimum Principal Building Rear Yard Setback	25 FT	6.9 FT	6.9 FT	**No (ENC)**
Minimum Principal Building Side Yard Setback	10 FT	N/A	N/A	N/A
Minimum Principal Building Total Side Setback	20 FT	N/A	N/A	N/A
Minimum Accessory Building Rear Yard Setback	25 FT	17.8 FT	17.8 FT	**No (ENC)**
Minimum Accessory Building Side Yard Setback	25 FT	N/A	N/A	N/A
Minimum Accessory Building Front Yard Setback	25 FT	14.5 FT	14.5 FT	**No (ENC)**
Percentage of Lot Coverage (Prinicpal & Accessories)	20%	8,140 SF or 30.27%	8,480 SF or 31.54%	**No (ENC) - V**
Maximum Height (Stories)	1.5	2	2	**No (ENC)**
Maximum Height (Feet)	30	33	33	**No (ENC)**
Minimum Gross Floor Area	N/A	N/A	N/A	N/A
Maximum Percentage of Impervious Coverage				
Maximum Floor Area Ratio	0.40:1	0.30:1	0.32:1	Yes

Notes:
V = Variance; N/A = Not Applicable; ENC = Existing Non-Conformity

*Per Woodbridge Township Ordinance, Article 1, Section 150-4, Lot Corner Defintion: "There shall be no side lot line on the side of a building fronting on a street. The lot line or lines generally parallel to the rear of the building shall be considered the rear lot line or lines."

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ADDITION
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WOODBRIGE FIRE HEADQUARTERS
FOR THE
WOODBRIGE FIRE COMPANY
418 SCHOOL STREET
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No.	Date	Issue or Revision
1	04.03.24	ISSUED FOR BIDDING

Drawing Title
SITE LAYOUT PLAN

Scale: 1"=20'	USA Project No.: 2023-128
Drawing Date: 04.03.24	Drawing No.: C-100
Drawn By: KO	Checked By: TRS

N.J.P.C.S.

GRAPHIC SCALE

0 10 20 40 60

(IN FEET)
1 inch = 20 ft.

SOIL DECOMPACTION NOTES

AS DETERMINED BY THE STATE POLICY MAP, THE PROJECT AREA FALLS WITHIN THE METROPOLITAN PLANNING AREA (PA1). UNDER EXISTING CONDITIONS, THE SITE IS NOT COVERED IN WOODY VEGETATION NOR REGROWTH. IN ACCORDANCE WITH NEW JERSEY STANDARD FOR LAND GRADING (REVISED 2017). NON-WOODY VEGETATED PA1 AREAS FALL UNDER THE SOIL COMPACTION EXEMPTION LIST AS AN "URBAN DEVELOPMENT" AND IS DEFINED BY NJDEP AS "PREVIOUSLY DEVELOPED".

SITE RESTORATION OF DISTRUBED AREA NOTES

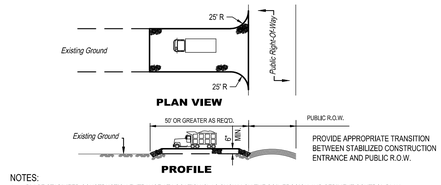
1. ALL NON-IMPERVIOUS DISTRUBED AREAS, AREAS DENOTED AS "PR LAWN" (I.E. INCLUDING BUT NOT LIMITED ALL EXISTING LAWN AREAS DISTURBED/GRADED PERVIOUS AREAS) SHALL RECEIVE TOPSOIL, FERTILIZER, HYDRO SEEDING AND MULCH. ALL SEEDED AREAS SHALL BE MULCHED WITH SALT HAY, PEEN MULCH, OR APPROVED EQUAL. SEE PLANS FOR LIMIT OF DISTURBANCE.
2. SEE SPECIFICATIONS FOR TOPSOIL SPECIFICATION AND REQUIREMENTS.
3. CONTRACTOR SHALL WATER SEEDED AREAS AS REQUIRED TO ESTABLISH NEW LAWN AREAS.

FREEHOLD SOIL CONSERVATION DISCTRICT - SOIL EROSION AND SEDIMENT CONTROL:

1. THE FREEHOLD SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED FORTY-EIGHT (48) HOURS IN ADVANCE OF ANY SOIL DISTURBING ACTIVITY.
2. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
3. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLANS WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT STATE SOIL EROSION AND SEDIMENT CONTROL STANDARDS.
4. N.J.S.A 4:24-39 ET. SEQ. REQUIRES THAT NO CERTIFICATES OF OCCUPANCY BE ISSUED BEFORE THE DISTRICT DETERMINES THAT A PROJECT OR PORTION THEREOF IS IN FULL COMPLIANCE WITH THE CERTIFIED PLAN AND STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY AND A REPORT OF COMPLIANCE HAS BEEN ISSUED. UPON WRITTEN REQUEST FROM THE APPLICANT, THE DISTRICT MAY ISSUE A REPORT OF COMPLIANCE WITH CONDITIONS ON A LOT-BY-LOT OR SECTION-BY-SECTION BASIS, PROVIDED THAT THE PROJECT OR PORTION THEREOF IS IN SATISFACTORY COMPLIANCE WITH THE SEQUENCE OF DEVELOPMENT AND TEMPORARY MEASURES FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN IMPLEMENTED, INCLUDING PROVISIONS FOR STABILIZATION AND SITE WORK.
5. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN SIXTY (60) DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF 2 TO 2 ½ TONS PER ACRE, ACCORDING TO THE STANDARD FOR STABILIZATION WITH MULCH ONLY.
6. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (I.E. SOIL STOCKPILES STEEP SLOPES AND ROADWAY EMBANKMENTS) WILL RECEIVE TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AND A MULCH ANCHOR, IN ACCORDANCE WITH STATE STANDARDS.
7. A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS TO STABILIZE STREETS, ROADS, DRIVEWAYS, AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN FIFTEEN (15) DAYS OF THE PRELIMINARY GRADING.
8. THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS REQUIRES THE INSTALLATION OF A PAD OF CLEAN CRUSHED STONE AT POINTS WHERE TRAFFIC WILL BE ACCESSING THE CONSTRUCTION SITE. AFTER INTERIOR ROADWAYS ARE PAVED, INDIVIDUAL LOTS REQUIRE A STABILIZED CONSTRUCTION ACCESS CONSISTING OF ONE INCH TO TWO INCH (1" – 2") STONE FOR A MINIMUM LENGTH OF TEN FEET (10') EQUAL TO THE LOT ENTRANCE WIDTH. ALL OTHER ACCESS POINTS SHALL BE BLOCKED OFF.
9. ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMIT OF DISTURBANCE OR ONTO PUBLIC RIGHT-OF-WAYS WILL BE REMOVED IMMEDIATELY.
10. PERMANENT VEGETATION IS TO BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING.
11. AT THE TIME THAT SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT IT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED.
12. IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, ANY SOIL HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDES SHALL BE ULTIMATELY PLACED OR BURIED WITH LIMESTONE APPLIED AT THE RATE OF 10 TONS/ACRE, (OR 450 LBS/1,000 SQ FT OF SURFACE AREA) AND COVERED WITH A MINIMUM OF 12" OF SETTLED SOIL WITH A PH OF 5 OR MORE, OR 24" WHERE TREES OR SHRUBS ARE TO BE PLANTED.
13. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
14. UNFILTERED DEWATERING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEWATERING OPERATIONS TO MINIMIZE SEDIMENT TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE STANDARD FOR DEWATERING.
15. SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY, THE SITE WILL BE SPRINKLED UNTIL THE SURFACE IS WET, TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED OR MULCH SHALL BE APPLIED AS REQUIRED BY THE STANDARD FOR DUST CONTROL.
16. STOCKPILE AND STAGING LOCATIONS ESTABLISHED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE ACCORDING TO THE CERTIFIED PLAN. STAGING AND STOCKPILES NOT LOCATED WITHIN THE LIMIT OF DISTURBANCE WILL REQUIRE CERTIFICATION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN. CERTIFICATION OF A NEW SOIL EROSION AND SEDIMENT CONTROL PLAN MAY BE REQUIRED FOR THESE ACTIVITIES IF AN AREA GREATER THAN 5,000 SQUARE FEET IS DISTURBED.
17. ALL SOIL STOCKPILES ARE TO BE TEMPORARILY STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTE #6.
18. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ANY EROSION OR SEDIMENTATION THAT MAY OCCUR BELOW STORMWATER OUTFALLS OR OFFSITE AS A RESULT OF CONSTRUCTION OF THE PROJECT.

GENERAL NOTES:

1. EXISTING CONDITIONS ARE AS PER PLAN ENTITLED "BOUNDARY AND PARTIAL TOPOGRAPHIC SURVEY, WOODBRIDGE FIRE COMPANY NO. 1, BLOCK 549.01, LOT 5, TOWNSHIP OF WOODBRIDGE, MIDDLESEX COUNTY, NEW JERSEY " PREPARED BY NEGLIA ENGINEERING ASSOCIATES, LAST REVISED 05/01/2023.



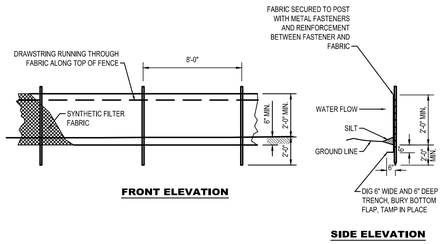
NOTES:
1. PLACE STABILIZED CONSTRUCTION ENTRANCE AT LOCATION(S) AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN.
2. STONE SIZE SHALL BE ASTM C-33, SIZE NO.2 OR 3, CRUSHED STONE.
3. THE THICKNESS OF THE STABILIZED CONSTRUCTION ENTRANCE SHALL NOT BE LESS THAN 6".
4. THE WIDTH AT THE EXIST. PAVEMENT SHALL NOT BE LESS THAN THE FULL WIDTH OF POINTS OF INGRESS AND EGRESS.
5. THE STAB. CONST. ENT. SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE R.O.W./PAVEMENT. THIS REQUIRES PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURE USED TO TRAP SEDIMENT.
6. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO THE PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. APPROPRIATE TRANSITION BETWEEN STAB. CONST. ENT. & PUBLIC R.O.W. MUST BE PROVIDED.
8. THE RATIO OF STONE SIZE TO WIDTH MUST BE 9:27.

PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIRED	
	COARSE GRAINED SOILS	FINED GRAINED SOILS
0 TO 2%	50 FT.	100 FT.
2 TO 5%	100 FT.	200 FT.
>5%	ENTIRE SURFACE STABILIZED WITH FABIC BASE COURSE*	

* AS PRESCIBED BY LOCAL ORDINANCE OR OTHER GOVERNING AUTHORITY.

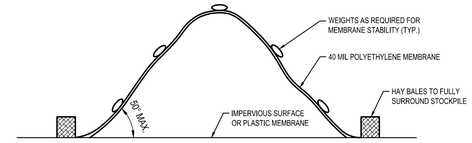
STABILIZED CONSTRUCTION ACCESS

NOT TO SCALE



FILTER FENCE DETAIL

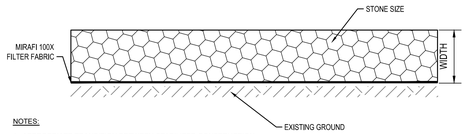
NOT TO SCALE



NOTES:
1. FOR NON-CONTAMINATED SOIL, SURROUND STOCKPILE WITH SILT FENCE. NO COVER REQUIRED

SOIL STOCKPILE

NOT TO SCALE



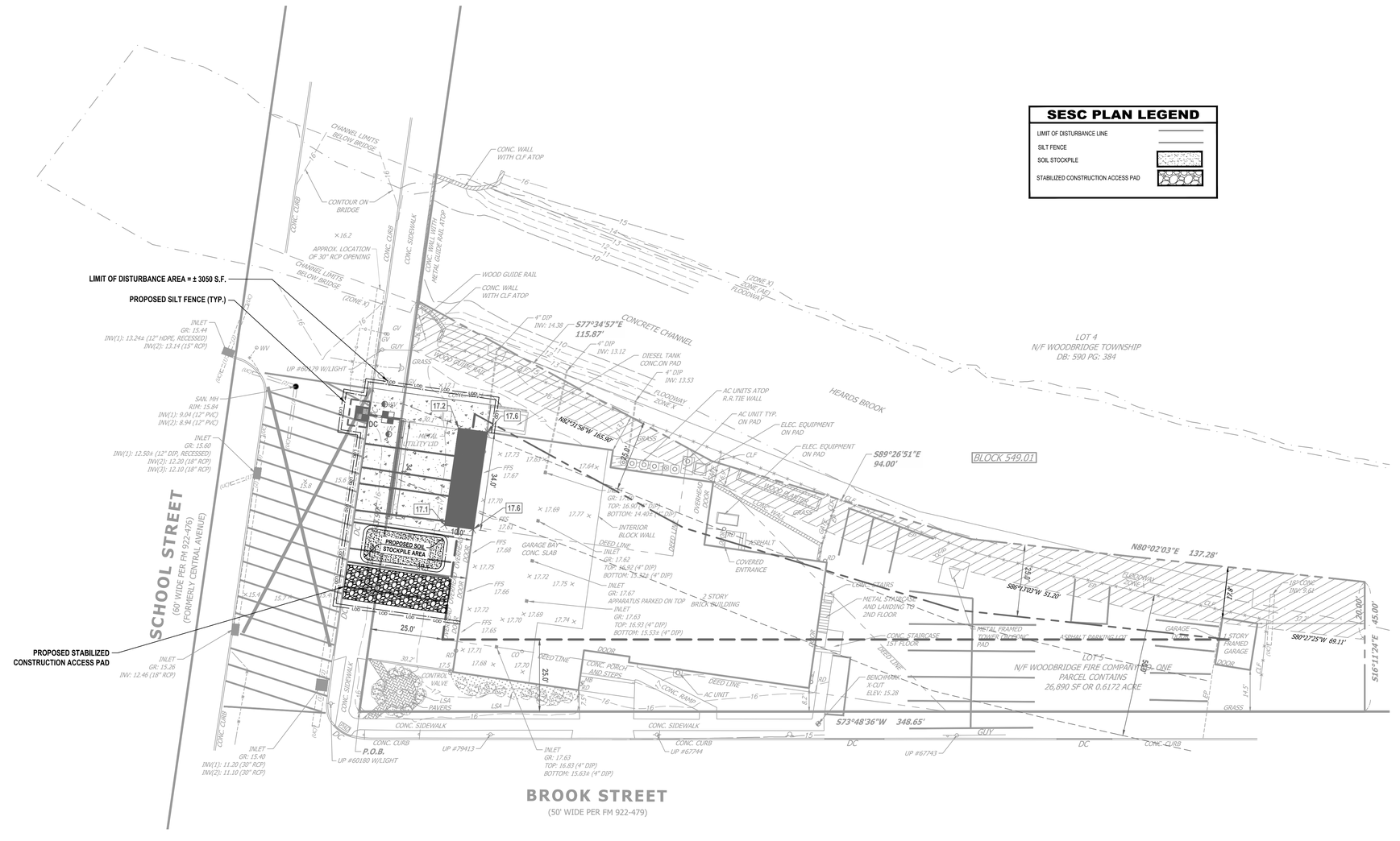
NOTES:
1. APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION. ENTRANCE AND PUBLIC R.O.W. MUST BE PROVIDED.
2. THE RATIO OF STONE SIZE TO WIDTH MUST BE 9:27.

STABILIZED CONSTRUCTION PAD

NOT TO SCALE

SESC PLAN LEGEND

LIMIT OF DISTURBANCE LINE	
SILT FENCE	
SOIL STOCKPILE	
STABILIZED CONSTRUCTION ACCESS PAD	



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ADDITION
AT
WOODBRIDGE FIRE HEADQUATERS
FOR THE
WOODBRIDGE FIRE COMPANY
418 SCHOOL STREET
WOODBRIDGE TOWNSHIP, NJ 07095

No.	Date	Issue or Revision
1	04.03.24	ISSUED FOR BIDDING

Drawing Title
SOIL EROSION SEDIMENT CONTROL PLAN

Scale: 1"=20'	USA Project No.: 2023-128
Drawing Date: 04.03.24	Drawing No.: C-102
Drawn By: KO	Checked By: TRS

INLET GENERAL NOTES

1. INLETS MAY BE CONSTRUCTED OF BRICK, CONCRETE, CONCRETE BLOCK OR PRECAST CONCRETE. WALLS SHALL BE 8" THICK IF BRICK AND 6" THICK IF CONCRETE, CONCRETE BLOCK OR PRECAST CONCRETE. INLET FOUNDATIONS AND INVERTS SHALL BE CLASS B CONCRETE.
2. CORBELLING OF INLET WALLS WILL BE PERMITTED AT THE RATE OF 1/2" PER 8" OF HEIGHT; MAXIMUM CORBEL 6" PER WALL.
3. EXCEPT FOR INLETS TYPE A AND C, FOUNDATIONS AND INVERTS SHALL BE CONSTRUCTED IN TWO STAGES, AND THE BOTTOM OF THE FOOTINGS SHALL BE 6" BELOW THE OUTER WALL OF THE LOWEST PIPE IN THE INLET.
4. WHEN THE DEPTH OF AN INLET THAT IS NOT PRECAST EXCEEDS 10 FEET AS MEASURED FROM TOP OF GRATE TO INVERT, WALLS BELOW A DEPTH OF 8 FEET SHALL BE 12" THICK AND THE DEPTH OF FOUNDATION INCREASED TO 12". ROCK IS ENCOUNTERED THE DEPTH OF THE FOUNDATION SHALL NOT BE INCREASED.
5. INLET FOUNDATIONS WHICH ARE PRECAST SHALL BE PLACED ON A 6" THICK BED OF COMPACTED COARSE AGGREGATE SIZE NO. 57. THE COARSE AGGREGATE SHALL EXTEND 6" BEYOND THE HORIZONTAL LIMITS OF THE INLET FOUNDATION.
6. CASTINGS FOR PRECAST INLETS SHALL BE ADJUSTED TO GRADE WITH COURSES OF BRICK, AS REQUIRED, 12" MAXIMUM.
7. WHEN THE DEPTH OF A PRECAST INLET EXCEEDS 10 FEET AS MEASURED FROM TOP OF GRATE TO INVERT, THE FOUNDATION SHALL BE INCREASED TO 12". WHEN ROCK IS ENCOUNTERED THE DEPTH OF THE FOUNDATON SHALL NOT BE INCREASED.
8. MINIMUM WALL REINFORCEMENT FOR PRECAST INLETS TYPES A, B, C, E, D-1, D-2 AND B MODIFIED:

DEPTH BELOW TOP OF GRATE	HORIZONTAL REINF.	VERTICAL REINF.	WALL THK.
0' TO 10'	#13 @ 10" C.C.	#13 @ 18" C.C.	6"
10'-1" TO 15'	#13 @ 8" C.C.	#13 @ 18" C.C.	6"
15'-1" TO 20'	#13 @ 6" C.C.	#13 @ 18" C.C.	6"

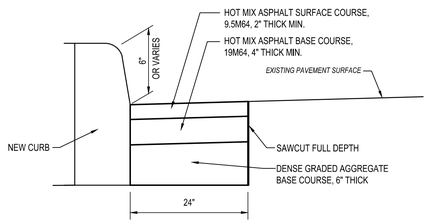
REINFORCING SHOWN FOR PRECAST INLETS IS THE MINIMUM REQUIRED. ADDITIONAL REINFORCING FOR HANDLING IS THE RESPONSIBILITY OF THE CONTRACTOR.

ALTERNATE REINFORCEMENT

DEPTH BELOW TOP OF GRATE	
0' TO 10'	WWF 3 x 6 W6 WIRES SPACED AT 3" TO RUN HORIZONTAL IN ALL CASES.
10'-1" TO 15'	WWF 3 x 6 W6 ADD #10 REINFORCEMENT STEEL @ 18" HORIZONTAL.
15'-1" TO 20'	WWF 3 x 6 W6 ADD #10 REINFORCEMENT STEEL @ 9" HORIZONTAL OR ADD #13 REINFORCEMENT STEEL @ 15" HORIZONTAL.

9. ALL INLETS AND MANHOLE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND ITS AMENDMENTS.
10. DIMENSIONS, WEIGHTS, AND OTHER CRITERIA SHOWN ON THESE DETAILS ARE FOR CLASS 30B CAST IRON ONLY.

CD-602-1.6

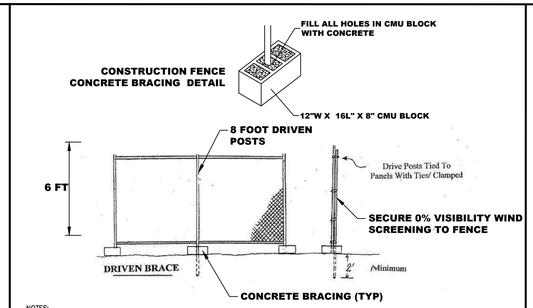


NOTES:

1. SAWCUTTING, EXCAVATION, UNCLASSIFIED, DENSE GRADED AGGREGATE BASE COURSE, 6" THICK, HOT MIX ASPHALT BASE COURSE, 4" THICK, & HOT MIX ASPHALT SURFACE COURSE, W" THICK WILL NOT BE MEASURED SEPARATELY FOR PAYMENT, BUT THE COST THEREOF WILL BE INCLUDED IN THE PAY ITEM FOR GRANITE BLOCK CURB.

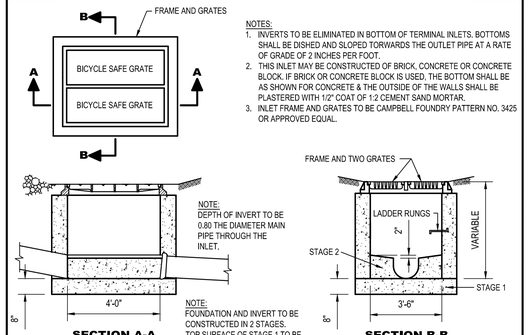
PAVEMENT REPAIR STRIP

NOT TO SCALE



NOTES:
1. TEMPORARY CONSTRUCTION FENCE SHALL BE 6' HIGH WITH DRIVEN POSTS AS SHOWN OR APPROVED EQUAL.
2. FENCE SHALL BE INSTALLED WITH 0% VISIBILITY WIND SCREENING AS SHOWN OR APPROVED EQUAL.
3. CONCRETE BRACING SHALL BE AS SHOWN OR APPROVED EQUAL.
4. SHOP DRAWINGS SHALL BE PROVIDED PRIOR TO CONSTRUCTION.

DRIVEN POST CHAIN LINK TEMPORARY CONSTRUCTION FENCE - 6' HIGH

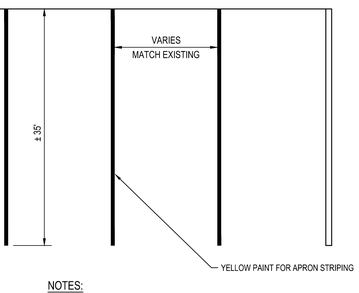


NOTES:
1. INVERTS TO BE ELIMINATED IN BOTTOM OF TERMINAL INLETS. BOTTOMS SHALL BE DISHED AND SLOPED TORWARDS THE OUTLET PIPE AT A RATE OF GRADE OF 2 INCHES PER FOOT.
2. THIS INLET MAY BE CONSTRUCTED OF BRICK, CONCRETE OR CONCRETE BLOCK. IF BRICK OR CONCRETE BLOCK IS USED, THE BOTTOM SHALL BE AS SHOWN FOR CONCRETE & THE OUTSIDE OF THE WALLS SHALL BE PLASTERED WITH 1/2" COAT OF 1:2 CEMENT SAND MORTAR.
3. INLET FRAME AND GRATES TO BE CAMPBELL FOUNDRY PATTERN NO. 3425 OR APPROVED EQUAL.

INLET TYPE "E"

CD-602-4.2

NOT TO SCALE

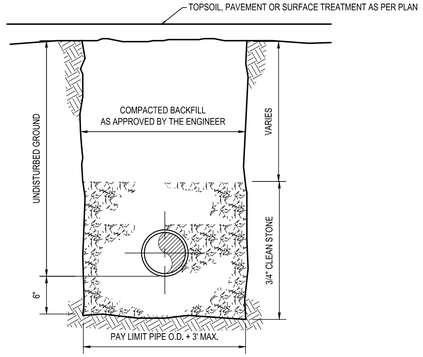


NOTES:

ALL STRIPES TO BE 4" WIDE WHITE PAVEMENT PAINT.

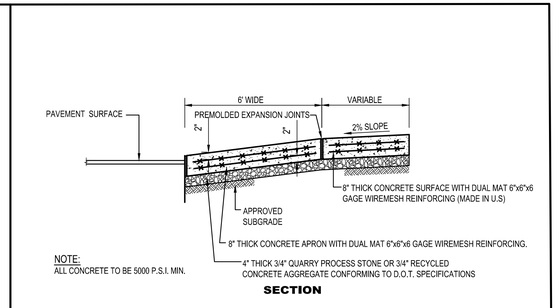
APRON STRIPING

NOT TO SCALE



TRENCH FOR STORM SEWER

NOT TO SCALE

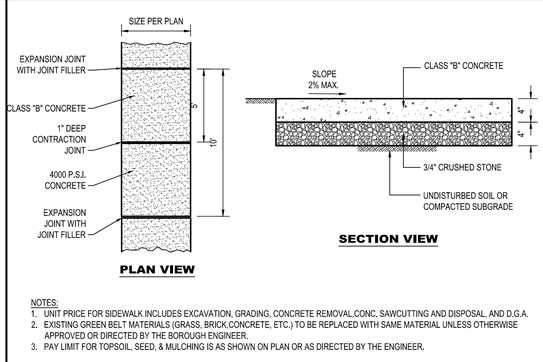


NOTE:
ALL CONCRETE TO BE 5000 P.S.I. MIN.

SECTION

CONCRETE DRIVEWAY APRON

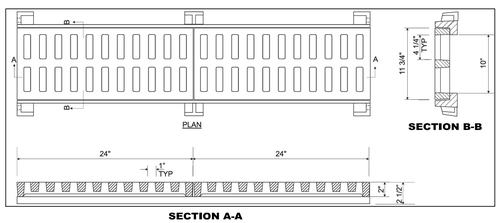
NOT TO SCALE



NOTES:
1. UNIT PRICE FOR SIDEWALK INCLUDES EXCAVATION, GRADING, CONCRETE REMOVAL,CONC. SAWCUTTING AND DISPOSAL, AND D.G.A.
2. EXISTING GREEN BELT MATERIALS (GRASS, BRICK,CONCRETE, ETC.) TO BE REPLACED WITH SAME MATERIAL UNLESS OTHERWISE APPROVED OR DIRECTED BY THE BOROUGH ENGINEER.
3. PAY LIMIT FOR TOPSOIL, SEED, & MULCHING IS AS SHOWN ON PLAN OR AS DIRECTED BY THE ENGINEER.

4" THICK CONCRETE SIDEWALK

NOT TO SCALE

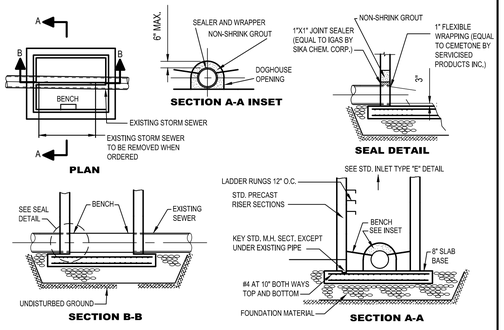


NOTES:
1. MATERIAL: GRAY CAST IRON ASTM A48-83, CLASS 30B;
2. HS20-44 HIGHWAY LOADING;

HEAVY DUTY TRENCH GRATE

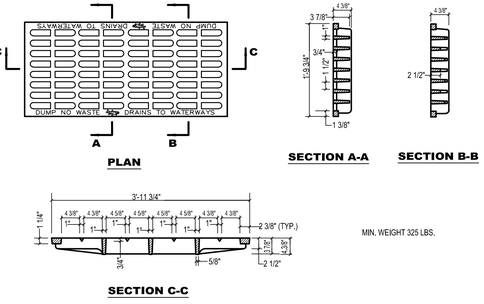
NOT TO SCALE

NOTES:
1. CONTRACTOR TO OVER EXCAVATE AND BACKFILL WITH SUITABLE SOIL AS REQUIRED.



DOGHOUSE INLET TYPE "E" STRUCTURE

NOT TO SCALE

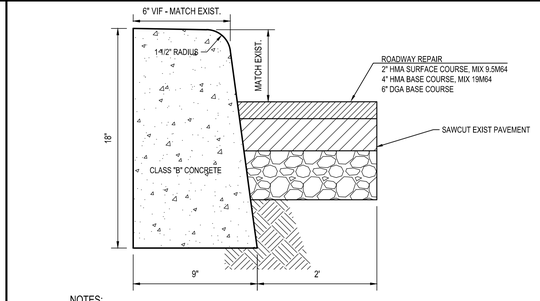


MIN. WEIGHT 325 LBS.

NJDOT CD-602-1.8

BICYCLE SAFE GRATE (CAST IRON)

NOT TO SCALE



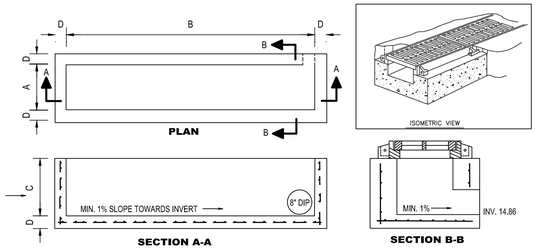
NOTES:

TRANSVERSE JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB 20 FT. APART AND SHALL BE FILLED WITH PREFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER RECESSED 1/4" IN FROM FRONT FACE AND TOP OF CURB.

EXPANSION JOINTS THRU AND ADJACENT TO THE CURB SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CURB.

9" X 18" CONCRETE VERTICAL CURB

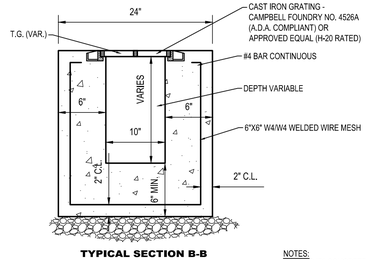
NOT TO SCALE



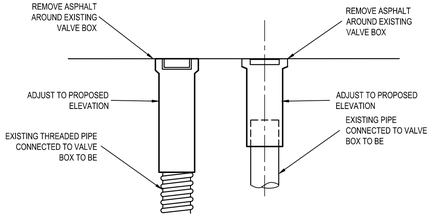
NOTES:
1. PIPE TO BE SECURELY GROUTED IN PLACE BY CONTRACTOR.

TRENCH DRAIN

NOT TO SCALE

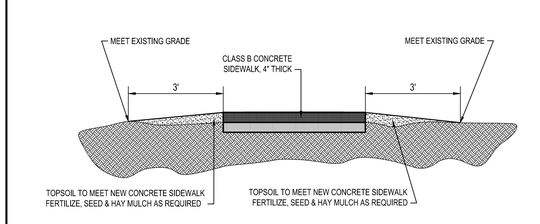


NOTES:
1. CLASS "B" CONCRETE, 4000 PSI @ 28 DAYS
2. REINFORCEMENT: H-20



RESET VALVE BOX

NOT TO SCALE



TOPSOIL & SEEDING

NOT TO SCALE

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ADDITION

AT

WOODBRIDGE FIRE HEADQUATERS

FOR THE

WOODBRIDGE FIRE COMPANY

418 SCHOOL STREET
WOODBRIDGE TOWNSHIP, NJ 07095

No.	Date	Issue or Revision
	04.03.24	ISSUED FOR BIDDING

Drawing Title

CONSTRUCTION DETAILS

Scale	USA Project No.
1"=20'	2023-128
Drawing Date	**Drawing No.**
04.03.24	C-103
Drawn By / **Checked By**	
KO / TRS	

BUILDING CODE INFORMATION

NEW JERSEY ADMINISTRATIVE CODES

APPLICABLE CONSTRUCTION CODES - NEW JERSEY ADMINISTRATIVE CODE ("N.J.A.C.")

N.J.A.C. 5:23	**UNIFORM CONSTRUCTION CODE (UCC)**
N.J.A.C. 5:23-3.14	**BUILDING SUBCODE -** - INTERNATIONAL BUILDING CODE / 2021 NEW JERSEY EDITION ("NJ IBC 2021")
N.J.A.C. 5:23-3.15	**PLUMBING SUBCODE -** - NATIONAL STANDARD PLUMBING CODE / 2021 NEW JERSEY EDITION ("NJ NSPC 2021")
N.J.A.C. 5:23-3.16	**ELECTRICAL SUBCODE -** - NATIONAL ELECTRICAL CODE (NFPA 70) / 2020 ("NEC 2020")
N.J.A.C. 5:23-3.18	**ENERGY SUBCODE -** - ASHRAE 90.1-2019 (COMMERCIAL AND ALL OTHER RESIDENTIAL)
N.J.A.C. 5:23-3.20	**MECHANICAL SUBCODE -** - INTERNATIONAL MECHANICAL CODE / 2021 ("IMC 2021")
N.J.A.C. 5:23-3.22	**FUEL GAS SUBCODE -** - INTERNATIONAL FUEL GAS CODE / 2021 ("IFGC 2021")
N.J.A.C. 5:23-6	**REHABILITATION SUBCODE -** - NJUCC, SUBCHAPTER 6
N.J.A.C. 5:23-7	**BARRIER FREE SUBCODE -** - CHAPTER 11 OF NJ IBC 2021 AND ICC/ANSI A117.1-2017
N.J.A.C. 5:23-12	**ELEVATOR SUBCODE -** - AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
N.J.A.C. 5:70	**UNIFORM FIRE CODE (UFC) AND THE STATE FIRE PREVENTION CODE**

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION

IBC REFERENCE	USE GROUP CLASSIFICATION
SECTION NO.	B - BUSINESS (EXISTING NO CHANGE)

CHAPTER 5: GENERAL BUILDING HEIGHTS AND AREAS

ALLOWABLE HEIGHTS AND AREAS

USE GROUP	ALLOWABLE HEIGHT AND STORIES; TABLES 504.3 & 504.4	ALLOWABLE AREA; TABLE 506.2
B	55' 3 STORIES	19,000 SF
B (EXISTING)	33' ABOVE GRADE 2 STORIES (EXISTING NO CHANGE)	8,110 SF (EXISTING NO CHANGE)

PROPOSED HEIGHT AND STORIES	16' 1 STORIES - ADDITION
PROPOSED AREA	340 SF - ADDITION

NOTE: BUILDING IS NON-SEPARATED OCCUPANCY.

508.2 ACCESSORY OCCUPANCIES
ACCESSORY OCCUPANCIES ARE THOSE OCCUPANCIES THAT ARE ANCILLARY TO THE MAIN OCCUPANCY OF THE BUILDING OR PORTION THEREOF.

508.2.3 ALLOWABLE BUILDING AREA
NOT MORE THAN 10% OF THE BUILDING AREA OF THE STORY IN WHICH THEY ARE LOCATED AND SHALL NOT EXCEED TABLE 506.2

508.2.4 SEPARATION OF OCCUPANCIES
NO SEPARATION IS REQUIRED BETWEEN ACCESSORY OCCUPANCIES AND THE MAIN OCCUPANCY.
EXCEPTION: INCIDENTAL ACCESSORY OCCUPANCIES PER SECTION 509

508.3 NONSEPARATED OCCUPANCIES
BUILDINGS OR PORTIONS OF BUILDINGS THAT COMPLY WITH THE PROVISIONS OF THIS SECTION SHALL BE CONSIDERED AS NONSEPARATED OCCUPANCIES.

CHAPTER 6: TYPES OF CONSTRUCTION

IBC REFERENCE	CONSTRUCTION CLASSIFICATION
602.2	IIIB (EXISTING NO CHANGE)

TABLE 601 - FIRE-RESISTANCE RATING OF BUILDING ELEMENTS (EXISTING NO CHANGE)

BUILDING ELEMENT	REQUIRED RATING	PROVIDED RATING
STRUCTURAL FRAME INCLUDING COLUMNS, GIRDERS & TRUSSES	0 HOUR	0 HOUR
BEARING WALLS EXTERIOR INTERIOR	2 HOUR 0 HOUR	2 HOUR 0 HOUR
NONBEARING WALLS AND PARTITIONS EXTERIOR INTERIOR	SEE TABLE 602 0 HOUR	SEE TABLE 602 0 HOUR
FLOOR CONSTRUCTION AND ASSOCIATED SECONDARY STRUCTURAL MEMBERS	0 HOUR	0 HOUR
ROOF CONSTRUCTION AND ASSOCIATED SECONDARY STRUCTURAL MEMBERS	0 HOUR	0 HOUR

CHAPTER 7: FIRE-RESISTIVE CONSTRUCTION

703.5 MARKING AND IDENTIFICATION
FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS, AND SMOKE PARTITIONS OR ANY OTHER WALL REQUIRED TO HAVE PROTECTED OPENINGS OR PENETRATIONS SHALL BE EFFECTIVELY AND PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING. WORDING TO BE REPEATED IN INTERVALS NOT TO EXCEED 30 FEET.

705 EXTERIOR WALLS - SEE TABLE BELOW

TABLE 705.2/705.8 COMBINED - FIRE-RESISTANCE RATING OF EXTERIOR WALLS/MAXIMUM AREA OF EXTERIOR WALL OPENINGS

EXTERIOR WALL	FIRE SEPARATION DISTANCE	REQUIRED FIRE RESISTANCE RATING	MAXIMUM AREA EXTERIOR WALL OPENINGS
NORTH	X ≥ 30 FT	0 HOUR	NOT LIMIT
SOUTH	X ≥ 30 FT	0 HOUR	NOT LIMIT
EAST	X ≥ 30 FT	0 HOUR	NOT LIMIT
WEST	X ≥ 30 FT	0 HOUR	NOT LIMIT

706 FIRE WALLS

707.3.2/1023.1 INTERIOR EXIT STAIRWAY AND RAMP CONSTRUCTION
CONNECTING LESS THAN 4 STORIES 1 HOUR
CONNECTING 4 OR MORE STORIES 2 HOUR

707.3.7 INCIDENTAL USES – COMPLY WITH TABLE 509.1

713 SHAFT ENCLOSURES
713.4 FIRE-RESISTANCE RATING
CONNECTING LESS THAN 4 STORIES 1 HOUR
CONNECTING 4 OR MORE STORIES 2 HOUR

TABLE 716.1(2) OPENING FIRE PROTECTION ASSEMBLIES, RATINGS AND MARKINGS

TYPE OF ASSEMBLY	REQUIRED WALL ASSEMBLY RATING	MINIMUM FIRE DOOR AND FIRE SHUTTER ASSEMBLY RATING	DOOR VISION PANEL SIZE	FIRE-RATED GLAZING MARKING DOOR VISION PANEL	MINIMUM SIDELIGHT/ TRANSOM ASSEMBLY RATING		FIRE-RATED GLAZING MARKING SIDELIGHT/ TRANSOM PANEL	
					FIRE PROTECTION	FIRE RESISTANCE	FIRE PROTECTION	FIRE RESISTANCE
FIRE WALLS	2 HOURS	1 1/2 HOURS	100 SQ. INCH	100 SQ INCH	NOT PERMITED	2 HOURS	NOT PERMITED	W-120
EXTERIOR WALLS	2 HOURS	1 1/2 HOURS	MAXIMUM SIZE TESTED	D-H 90	1 1/2"	2 HOURS	D-H-OH 90	W-120
SMOKE BARRIERS	1 HOUR	1/3 HOUR	MAXIMUM SIZE TESTED	D-H 20	1 1/2"		D-H-OH 45	

718.1 CONCEALED SPACES: FIREBLOCKING AND DRAFTSTOPPING SHALL BE INSTALLED IN COMBUSTIBLE CONCEALED LOCATIONS

718.5 COMBUSTIBLE MATERIALS IN CONCEALED SPACES IN TYPE I OR II CONSTRUCTION

CHAPTER 8: INTERIOR FINISHES

IBC REFERENCE	CLASSIFICATION	FLAME SPREAD	SMOKE DEVELOPMENT
803.1.2	CLASS A INTERIOR FINISH:	0-25	0-450
	CLASS B INTERIOR FINISH:	26-75	0-450
	CLASS C INTERIOR FINISH:	76-200	0-450

TABLE 803.13 - INTERIOR WALL AND CEILING FINISH REQUIREMENTS

LOCATION	OCCUPANCY	REQUIREMENT
EXIT ENCLOSURES AND PASSAGEWAYS	B	CLASS B CLASS B
CORRIDORS AND ENCLOSURES FOR EXIT ACCESS	B	CLASS C
ROOMS AND ENCLOSED SPACES	B	CLASS C

IBC REFERENCE	INTERIOR FLOOR FINISH CLASSIFICATION
804.2	CLASS I INTERIOR FLOOR FINISH/COVERING: 0.45 WATTS/CM2 OR GREATER CLASS II INTERIOR FLOOR FINISH/COVERING: 0.22 WATTS/CM2 OR GREATER (CLASSIFICATION AS DETERMINED BY ASTM E648 OR NFPA 253)

CHAPTER 9: FIRE PROTECTION SYSTEMS

902/913 FIRE PUMP AND RISER ROOM SIZE / FIRE PUMPS

903	AUTOMATIC SPRINKLER SYSTEMS B USE GROUP	REQUIRED NO	PROVIDED NO
905	STANDPIPE SYSTEMS B USE GROUP	REQUIRED NO	PROVIDED NO
906	PORTABLE FIRE EXTINGUISHERS B USE GROUP	REQUIRED YES	PROVIDED YES

TABLE 906.1 - WHERE REQUIRED. PORTABLE FIRE EXTINGUISHERS IN THE INTERNATIONAL FIRE CODE

TABLE 906.3(1) - FIRE EXTINGUISHERS FOR CLASS A HAZARDS (IN ACCORDANCE WITH NFPA 10)

	LIGHT (LOW) HAZARD OCCUPANCY	ORDINARY (MODERATE) HAZARD OCCUPANCY	EXTRA (HIGH) HAZARD OCCUPANCY
MINIMUM-RATED SINGLE EXTINGUISHER	2-A	2-A	4-A
MAXIMUM FLOOR AREA PER UNIT OF A	3000 SF.	1500 SF.	1000 SF.
MAXIMUM FLOOR AREA FOR EXTINGUISHER	11,250 SF.	11,250 SF.	11,250 SF.
MAXIMUM DISTANCE OF TRAVEL TO EXTINGUISHER	75 FT.	75 FT.	75 FT.

907	MANUAL FIRE ALARM SYSTEM B USE GROUP	REQUIRED YES/NO	PROVIDED YES/NO
	AUTOMATIC SMOKE DETECTION SYSTEM B USE GROUP	REQUIRED YES/NO	PROVIDED YES/NO
	SMOKE ALARMS B USE GROUP	REQUIRED YES	PROVIDED YES
907.5	OCCUPANT NOTIFICATION SYSTEM B USE GROUP	REQUIRED YES/NO	PROVIDED YES/NO

914 EMERGENCY RESPONDER SAFETY FEATURES

918 EMERGENCY RESPONDER RADIO COVERAGE
REQUIRED IN ACCORDANCE WITH IFC

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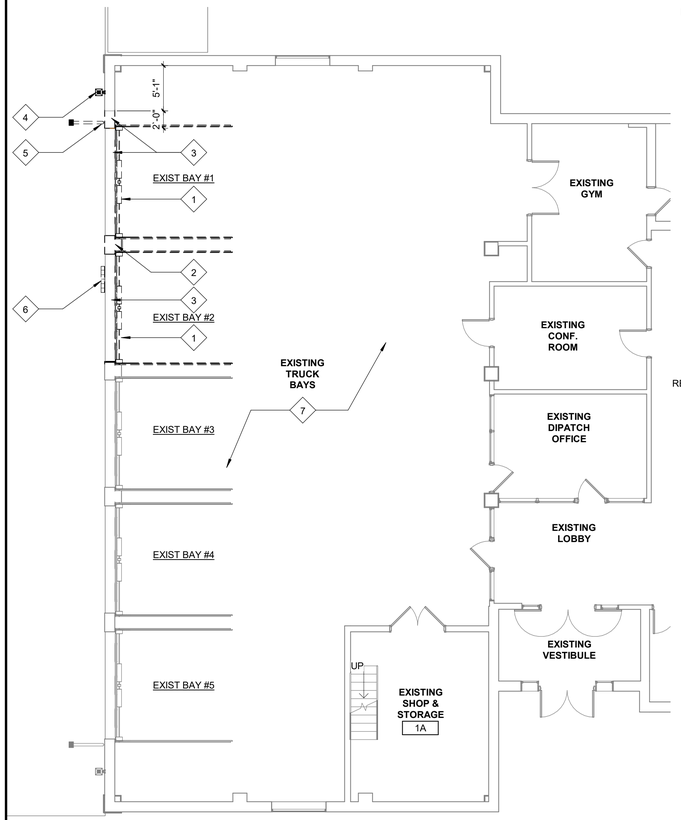
ADDITION
AT
WOODBRIDGE FIRE HEADQUATERS
FOR THE
WOODBRIDGE FIRE COMPANY
418 SCHOOL STREET
WOODBRIDGE TOWNSHIP, NJ 07095

No.	Date	Issue or Revision
1	04.03.24	ISSUED FOR BID

Drawing Title
BUILDING CODE

Scale: AS NOTED	USA Project No.: 2023-128
Drawing Date: 04.03.2024	Drawing No.: A-1
Drawn By: ChaW	Checked By: ApA

3/25/2024 3:11:00 PM



1 PARTIAL FIRST FLOOR DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

SELECTIVE DEMOLITION LEGEND:

EXISTING TO REMAIN

TO BE REMOVED

AREAS NOT IN CONTRACT

X — DEMOLITION SCOPE OF WORK ITEM TYPICAL THROUGHOUT ENTIRE ROOM / AREA

X — DEMOLITION SCOPE OF WORK ITEM AT A SPECIFIC LOCATION

1. REMOVE EXISTING OVERHEAD SECTIONAL DOOR AND ACCESSORING IN THEIR ENTIRETY.
2. REMOVE EXISTING COLUMN IN ITS ENTIRETLY, COORDINATE WITH STRUCTURAL.
3. REMOVE PORTION OF EXISTING WALL IN IT ENTIRETY AND MAKE OPENING (14'-0" HT.). PATCH AND REPAIR ADJACENT. SURFACE TO RECEIVED NEW FINISHES.
4. REMOVE AND SALVAGE EXISTING WALL SCONCE. REMOVE WIRING BACK TO SOURCE, COORDINATE WITH ELECTRICAL. PATCH AND REPAIR TO MATCH EXISTING ADJACENT. REINSTALL WALL SCONCE AT NEW LOCATION.
5. REMOVE EXISTING DOWNSPOUT. PATCH AND REPAIR GUTTER SYSTEM.
6. REMOVED EXISTING DIMENSIONAL LETTERING.
7. FLOOR FINISH REMOVAL; SANDBLAST EXISTING FLOORING SYSTEM TO EXPOSE SLAB. DIAMOND GRIND EXISTING SLAB TO PROVIDE ETCHED PROFILE. SOLVANT WASH PROCESS TO DEGREASE. FILL SOLID WITH 100% SOLIDS EPOXY. PROVIDE SELF LEVELING CONCRETE AT SLAB ON GRADE AS REQUIRED TO MAKE ALL SLABS ALIGN; MAINTAIN PITCH.

GENERAL DEMOLITION NOTES:

1. CONTRACTOR MUST INSTALL AND MAINTAIN PLASTIC DUST BARRIERS DURING DEMOLITION AND CONSTRUCTION TO PROTECT THE GENERAL PUBLIC FROM DUST AND FUMES. LOCATE PARTITIONS REQUIRED TO PROTECT ADJACENT AREAS AND EQUIPMENT, AND CONTINUE EGRESS THROUGH THE SPACE. CONTRACTOR SHALL PROVIDE TEMPORARY EXIT WAYS AS REQUIRED BY LOCAL CODE ENFORCEMENT OFFICIAL DURING CONSTRUCTION.

2. DO NOT CONSIDER DEMOLITION AND ALTERATION NOTES TO BE ALL INCLUSIVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT AND ASSESS EACH SPACE AND TO FULFILL THE INTENT OF THE WORK INDICATED BY THE CONTRACT DOCUMENTS. VERIFY ALL DIMENSIONS WITHIN THE CONTRACT LIMITS. BRING DEVIATIONS FROM THE CONTRACT DOCUMENTS TO THE ATTENTION OF THE ARCHITECT. THE EXTENT OF DEMOLITION AND REMOVAL INCLUDES, BUT IS NOT LIMITED TO WORK SHOWN ON THE DRAWINGS. COORDINATE W/ MECHANICAL, ELECTRICAL, PLUMBING & STRUCTURAL DRAWINGS.

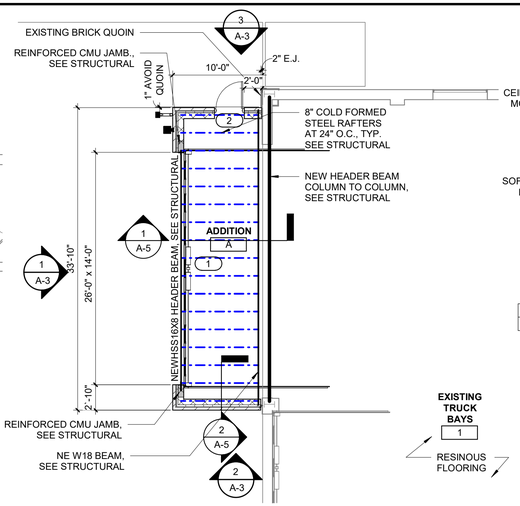
3. REMOVE ANY MISCELLANEOUS PROJECTIONS, HANGERS, BOLTS, SCREWS AND NAILS FROM EXISTING SURFACES TO REMAIN. PATCH AND PREPARE SURFACES TO RECEIVE NEW FINISH.

4. PATCH AND REPAIR ALL ADJACENT SURFACES WHICH ARE AFFECTED BY THE DEMOLITION OR REMOVAL OF ACCESSORIES TO THEIR ORIGINAL FORM AND PREPARE FOR NEW FINISH. COORDINATE WITH FINISH DRAWINGS.

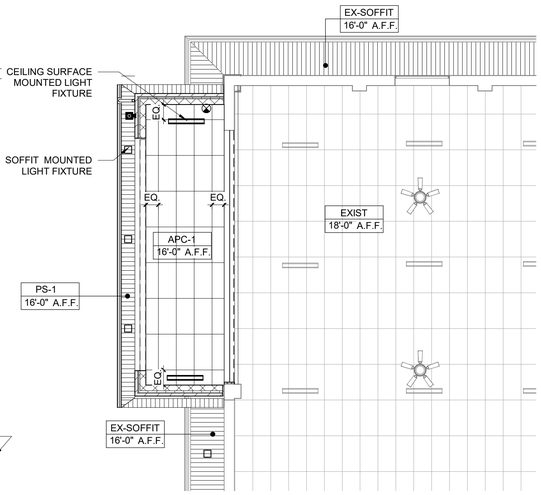
5. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR DAILY CLEANUP OF CONSTRUCTION DEBRIS.

6. BEFORE DEMOLITION BEGINS, CONTRACTOR SHALL COORDINATE SEQUENCE AND SCHEDULES FOR ALL WORK AND RELOCATION OR DISPOSAL OF ALL MATERIALS WITH OWNER.

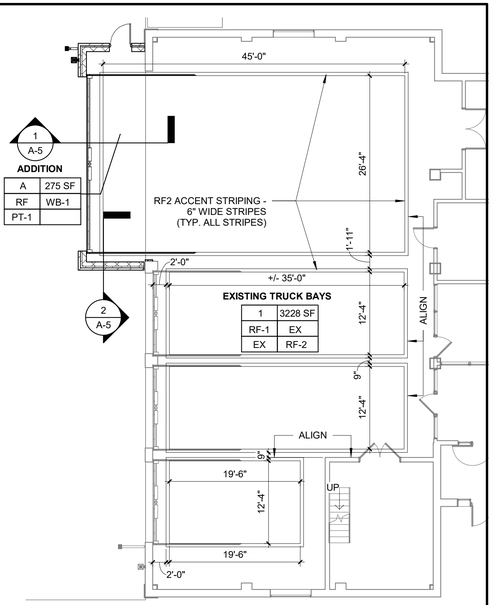
7. DEMOLITION PLANS ARE DIAGRAMMATIC. PRIOR TO SUBMITTING BID, GENERAL CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND BRING ANY AREAS IN QUESTION TO THE ATTENTION OF THE ARCHITECT.



2 PARTIAL FIRST FLOOR PROPOSED PLAN
SCALE: 1/8" = 1'-0"



3 PARTIAL FIRST FLOOR REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"



4 PARTIAL FIRST FLOOR FINISH PLAN
SCALE: N.T.S.

CEILING LEGEND

APC-1 — 2' x 4' ACOUSTICAL PANEL ARMSTRONG CORTEGA MINERAL FIBER 0.55 NRC

AS-1 — ALUMINUM SOFFIT

CEILING MOUNTED LIGHT FIXTURE

EXTERIOR LIGHT FIXTURE - EXISTING / RELOCATED

SOFFIT MOUNTED EXTERIOR LIGHT FIXTURE

EXIT SIGN

GENERAL REQUIREMENTS:

1. MEASURE EACH CEILING AREA PRIOR TO INSTALLATION AND ESTABLISH THE LAYOUT OF THE ACOUSTICAL PANEL SYSTEM SO THAT THE PANELS AT THE PERIMETER ARE CUT TO EQUAL SIZES TO THE OPPOSITE WALL AND PROVIDE MINIMUM DIMENSION OF 6" FOR CUT PIECES, UNLESS NOTED OTHERWISE BY SPECIFIC DIMENSIONS OR LAYOUT REQUIREMENTS.

2. REFER TO ELECTRICAL DRAWINGS FOR TYPES OF FIXTURES. UTILIZE REFLECTED CEILING PLANS FOR LOCATIONS AND COORDINATION OF FIXTURES. ANY DISCREPANCY BETWEEN ELECTRICAL AND ARCHITECTURAL DRAWINGS SHOULD BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY.

3. REFER TO ELECTRICAL DRAWINGS FOR EMERGENCY LIGHTS, NIGHT LIGHTS, AND EXIT SIGN LOCATIONS.

4. REFER TO MECHANICAL DRAWINGS FOR H.V.A.C. GRILLES AND DIFFUSERS. UTILIZE REFLECTED CEILING PLAN FOR LOCATION AND COORDINATION OF ITEMS. ANY DISCREPANCY BETWEEN THE MECHANICAL AND ARCHITECTURAL DRAWINGS SHOULD BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY.

5. ALL CEILING HEIGHTS TO BE ABOVE FINISHED FLOOR FOR EACH ROOM.

FINISH MATERIAL LEGEND

TAG	FINISH
FLOOR FINISHES	
RF-1	RESINOUS FLOORING - COLOR: BATTLESHIP GREY
RF-2	RESINOUS FLOORING ACCENT STRIPING - COLOR: YELLOW
WALL FINISHES	
PT-1	PAINT
BASE FINISHES	
WB-1	WALL BASE
MISCELLANEOUS FINISHES	
APC-1	ACOUSTIC PANEL CEILING

DOOR SCHEDULE

DOOR NUMBER	ELEVATION TYPE	DOOR WIDTH	DOOR HEIGHT	DOOR TYPE	FRAME TYPE	FRAME HEIGHT	HARDWARE SET	FIRE RATING	COMMENTS
1	OH	26'-0"	14'-0"	STL	2	14'- 1/2"	--	--	
2	V	3'-0"	7'-0"	HM	1	7'-4"	01	--	

HARDWARE SET 01:

QTY.	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3 EA.	HINGE	5BB1 4.5 x 4.5 NRP	630	IVE
1 EA.	PANIC HARDWARE	LD-98-EO	626	VON
1 EA.	SURFACE CLOSERS	4040XP CUSH	689	LCN
1 EA.	KICK PLATE	8400 8" B-CS	630	IVE
1 SET	GASKETING	328AA-2	AA	ZER
1 EA.	DOOR SWEEP	8197AA	AA	ZER
2 EA.	MOUNTING BRACKET	328SPB		ZER
1 EA.	THRESHOLD		ALUMINUM	

ABBREVIATIONS:

VON - VON DUPRIN
LCN - LCN
IVE - IVES HARDWARE
ZER - ZERO INTERNATIONAL

ROOM FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FINISH FLOOR	FINISH BASE	FINISH WALL	FINISH CEILING	COMMENTS
A	ADDITION	RF	WB-1	PT-1	APC-1	RF-2 STRIPING
1	EXISTING TRUCK BAYS	RF-1	EX	EX	EX	RF-2 STRIPING

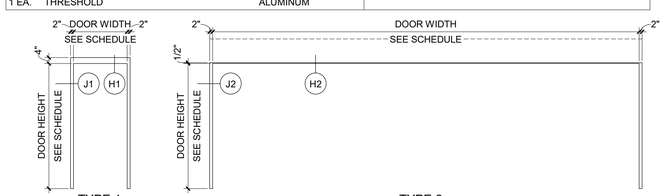
ABBREVIATIONS:
EX = EXISTING
RF = RESINOUS FLOORING

SYMBOL LEGEND

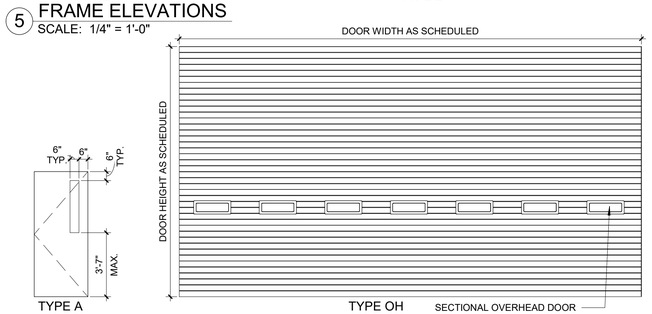
Room name

Number	Area
Floor	Base
Wall 1	Accent

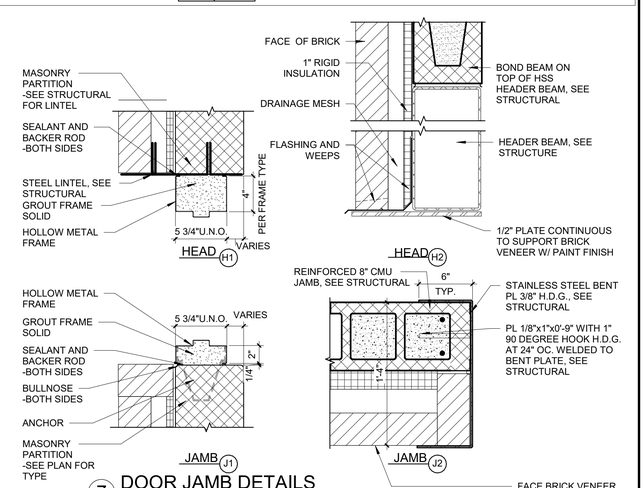
FINISH ROOM TAG



5 FRAME ELEVATIONS
SCALE: 1/4" = 1'-0"



6 DOOR ELEVATIONS
SCALE: 1/4" = 1'-0"



7 DOOR JAMB DETAILS
SCALE: 1 1/2" = 1'-0"

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ADDITION
AT
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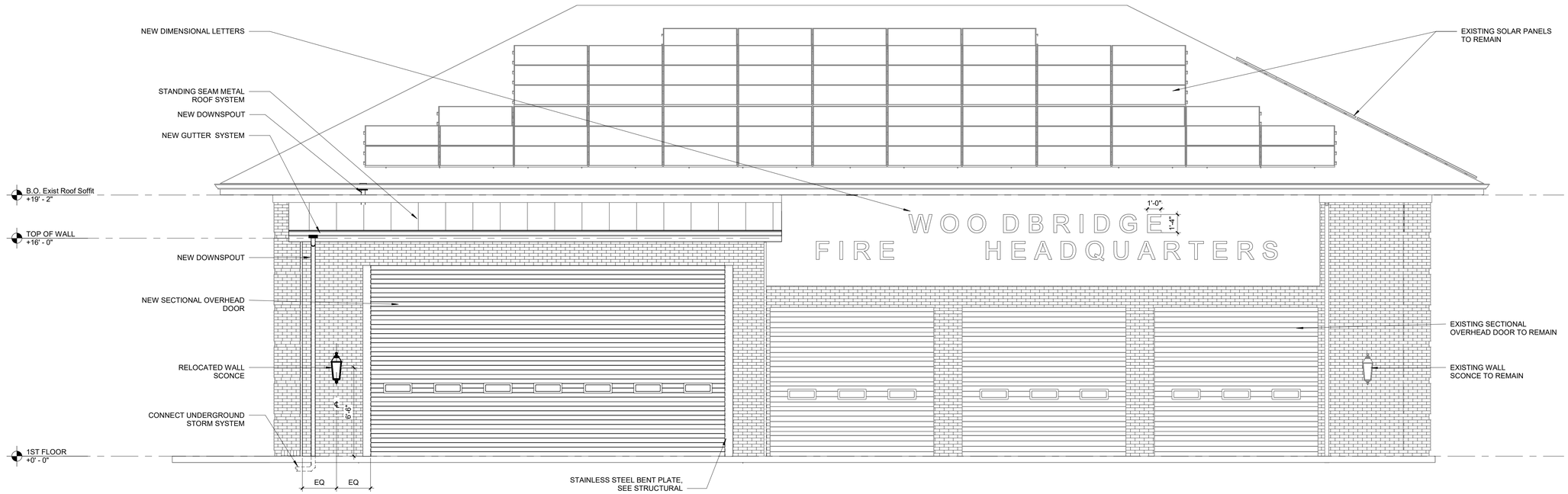
FOR THE
WOODBRIDGE FIRE COMPANY
418 SCHOOL STREET
WOODBRIDGE TOWNSHIP, NJ 07095

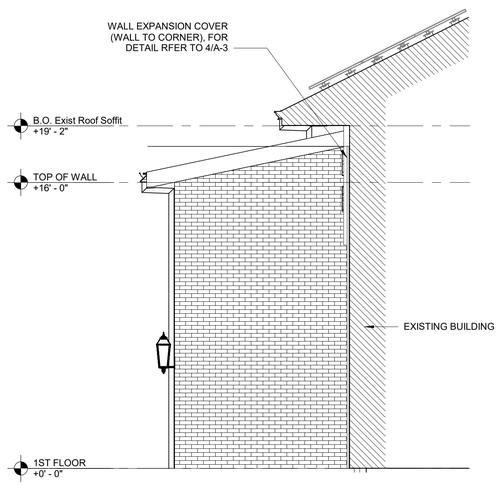
No.	Date	Issue or Revision
1	04.03.24	ISSUED FOR BID

Drawing Title
PARTIAL FIRST FLOOR DEMOLITION, PROPOSED AND REFLECTED CEILING PLANS, DOOR & FRAME SCHEDULES / ELEVATIONS

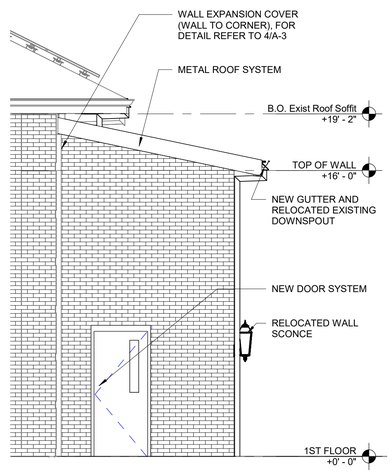
Scale	USA Project No.
AS NOTED	2023-128
Drawing Date: 04.03.2024	Drawing No. A-2
Drawn By: ChaW	Checked By: ApA



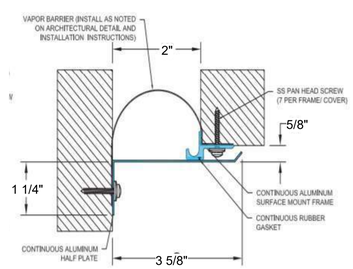
1 WEST ELEVATION
SCALE: 1/4" = 1'-0"



2 PARTIAL SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



3 PARTIAL NORTH ELEVATION
SCALE: 1/4" = 1'-0"



WALL TO CORNER

4 WALL EXPANSION JOINT DETAILS
SCALE: 3" = 1'-0"

3/25/2024 3:11:03 PM

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AT
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FOR THE
WOODBRIDGE FIRE COMPANY
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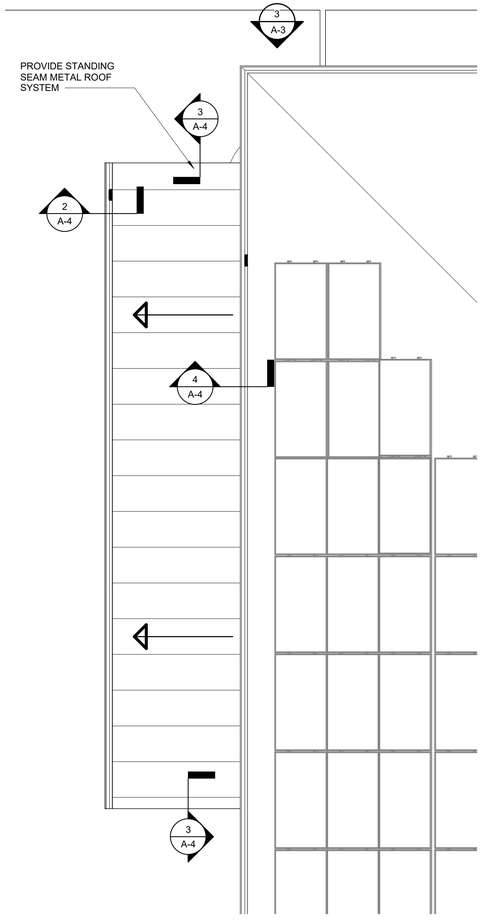
WOODBRIDGE TOWNSHIP, NJ 07095

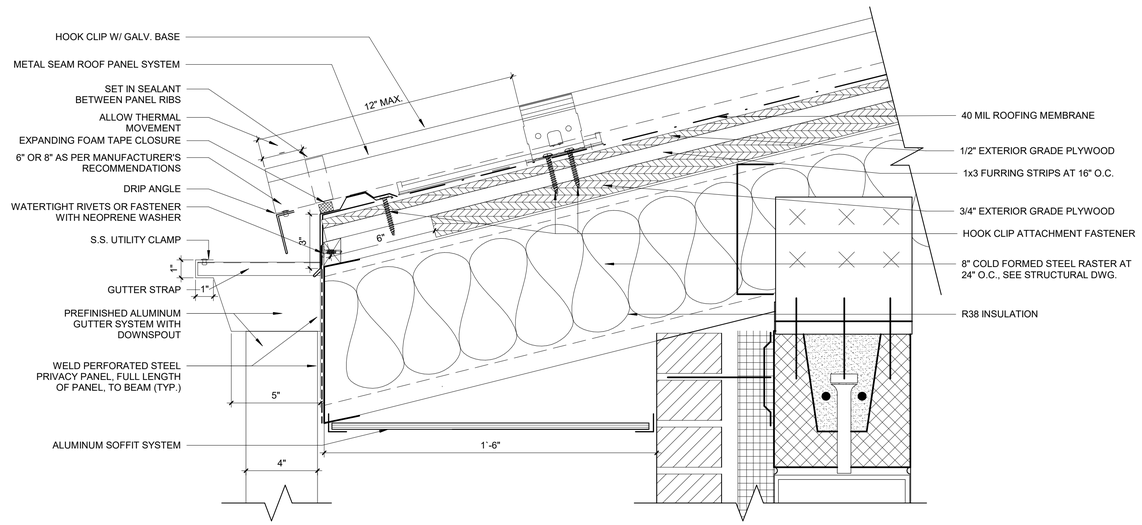
No.	Date	Issue or Revision
1	04.03.24	ISSUED FOR BID

Drawing Title
EXTERIOR ELEVATIONS

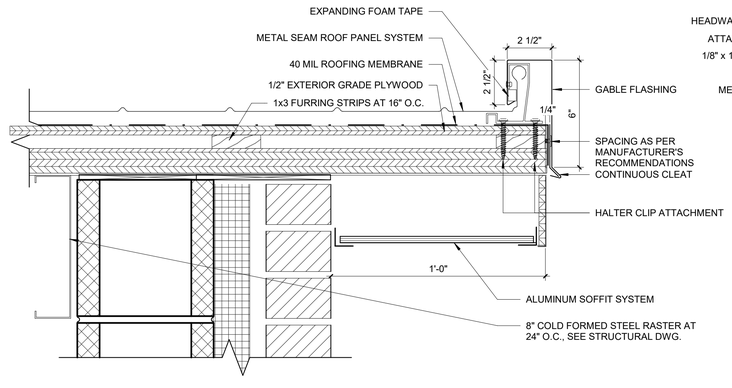
Scale: AS NOTED	USA Project No.: 2023-128
Drawing Date: 04.03.2024	Drawing No.: A-3
Drawn By: ChaW	Checked By: ApA



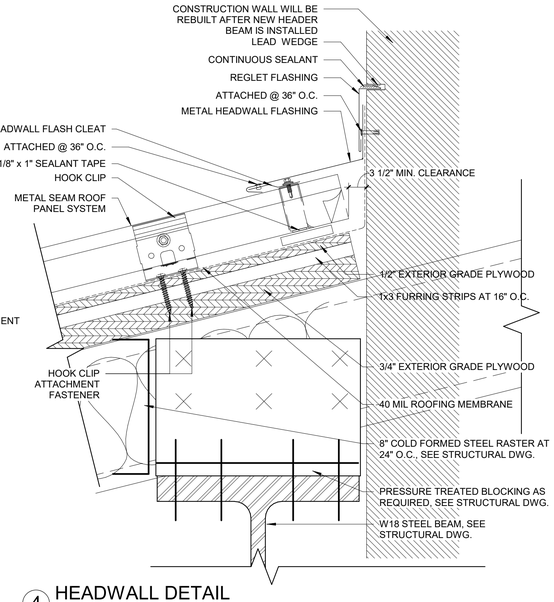
1 PARTIAL PROPOSAL ROOF PLAN
SCALE: 1/4" = 1'-0"



2 EAVE-GUTTER DETAIL
SCALE: 3" = 1'-0"



3 GABLE DETAIL
SCALE: 3" = 1'-0"



4 HEADWALL DETAIL
SCALE: 3" = 1'-0"

LEGEND

ARROW SHOWN THUSLY INDICATES 2.5:12 SLOPE OF ROOF STRUCTURAL

GENERAL REQUIREMENTS:

A - THE CONTRACTOR IS REQUIRED TO MEET ALL OF THE "BEST PRACTICE" REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS, MATERIALS AND/OR SYSTEMS INCORPORATED IN THIS PROJECT. WHERE A SPECIFIC REQUIREMENT OF THE ARCHITECT IS IN VARIANCE TO A REQUIREMENT OF THE MANUFACTURER, PROVIDE THE GREATER QUANTITY OR QUALITY OF THE WORK.

B - ALL PLUMBING VENTS THROUGH ROOF, RADON VENTS, ETC. ARE NOT SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXTEND AND FLASH ALL SUCH PENETRATIONS TO MINIMUM HEIGHTS AS PER MANUFACTURER'S REQUIREMENTS, OR AS INDICATED ON THE DRAWINGS.

C - AT ALL INTERIOR ROOF DRAINS, RAIN WATER LEADERS AND EXTERIOR GUTTERS & DOWNSPOUTS: "SNAKE-OUT" OR OTHERWISE CLEAN OUT DRAIN PIPING TO ENSURE PROPER OPERATION OF ALL DRAINS, RAIN WATER LEADERS, AND DOWNSPOUTS AT THE CONCLUSION OF THE PROJECT.

D - PROVIDE FLASHING AT ALL CURB MOUNTED MECHANICAL EQUIPMENT, AND OTHER PENETRATIONS AS THEY OCCUR ON THE ROOF. MAINTAIN MINIMUM REQUIRED FLASHING HEIGHT ABOVE THE FINISHED ROOFING SURFACE SO THAT IT MEETS OR EXCEEDS MINIMUM HEIGHTS ALLOWED BY THE ARCHITECT AND/OR REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS, MATERIALS AND/OR SYSTEMS.

E - THE LOCATIONS OF MECHANICAL UNITS, FANS, AND CURB SUPPORTS SHOWN ON THE DRAWINGS ARE APPROXIMATE. IF A MECHANICAL UNIT FALLS IN A VALLEY THEN THE CONTRACTOR SHALL CRICKET WATER FLOW AROUND THE UNIT AND/OR CURB.

F - ORIENT RAIL CURBS TO BE PARALLEL TO SLOPE OF ROOFING SYSTEM.

G - PROVIDE PITCH POCKET AND / OR PIPE PORTAL AT ALL PIPING / CONDUIT PENETRATIONS. COORDINATE WITH M.E.P.FP. PLANS.

H - ALL INTERSECTIONS OR OVERLAPPING OF THE ROOFING SYSTEM AND ADJACENT BUILDING ENVELOPE SYSTEMS, INCLUDING JOINTS BETWEEN DIFFERENT ITEMS AND MATERIALS, JOINTS SURROUNDING PENETRATIONS THROUGH MATERIALS, ETC. SHALL BE FILLED WITH COMPATIBLE JOINT SEALANTS. A SEPARATOR SHEET SHALL BE USED WHERE DISSIMILAR OR INCOMPATIBLE MATERIALS INTERSECT OR OVERLAP.

I - ALL WOOD CURBS, BLOCKING, CANTS, SHEATHING, ETC. SHALL BE FIRE RETARDANT TREATED WOOD.

J - CLEAN METAL DECKING FLUTES OF ANY DIRT, DUST AND DEBRIS PRIOR TO ROOFING.

K - PROVIDE TAPERED EDGE STRIPS AT ALL LOCATIONS REQUIRED TO COMPENSATE FOR VARYING INSULATION HEIGHTS.

L - BLOCKING HEIGHTS SHOWN ON CURBS AND EDGE CONDITIONS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED. CONTRACTOR SHALL PROVIDE ALL FULL DIMENSION BLOCKING AS INDICATED AND / OR REQUIRED.

M - THE CONTRACTOR SHALL PROVIDE SEALANT ON ALL EXPOSED FASTENERS.

N - AT ALL NON-CONTINUOUS GUTTER LOCATIONS, PROVIDE 6" WIDE COVER / SPLICE PLATE AND RAIN WATER DIVERTER AT ALL GUTTER EXPANSION JOINTS, SECURE WITH POP RIVETS AND SEALANT.

O - COORDINATE ALIGNMENT OF ALL COPING JOINTS / SEAMS WITH ARCHITECT.

P - THE CONTRACTOR, AT THE END OF EACH WORK DAY FOR THE ENTIRE CONTRACTED ROOF, SHALL PROVIDE A WEATHERTIGHT ROOFING SYSTEM.

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No.	Date	Issue or Revision
1	04.03.24	ISSUED FOR BID

Drawing Title
PARTIAL ROOF PLAN AND ROOF DETAILS

Scale	USA Project No.
AS NOTED	2023-128
Drawing Date: 04.03.2024	Drawing No.: A-4
Drawn By: ChaW	Checked By: ApA

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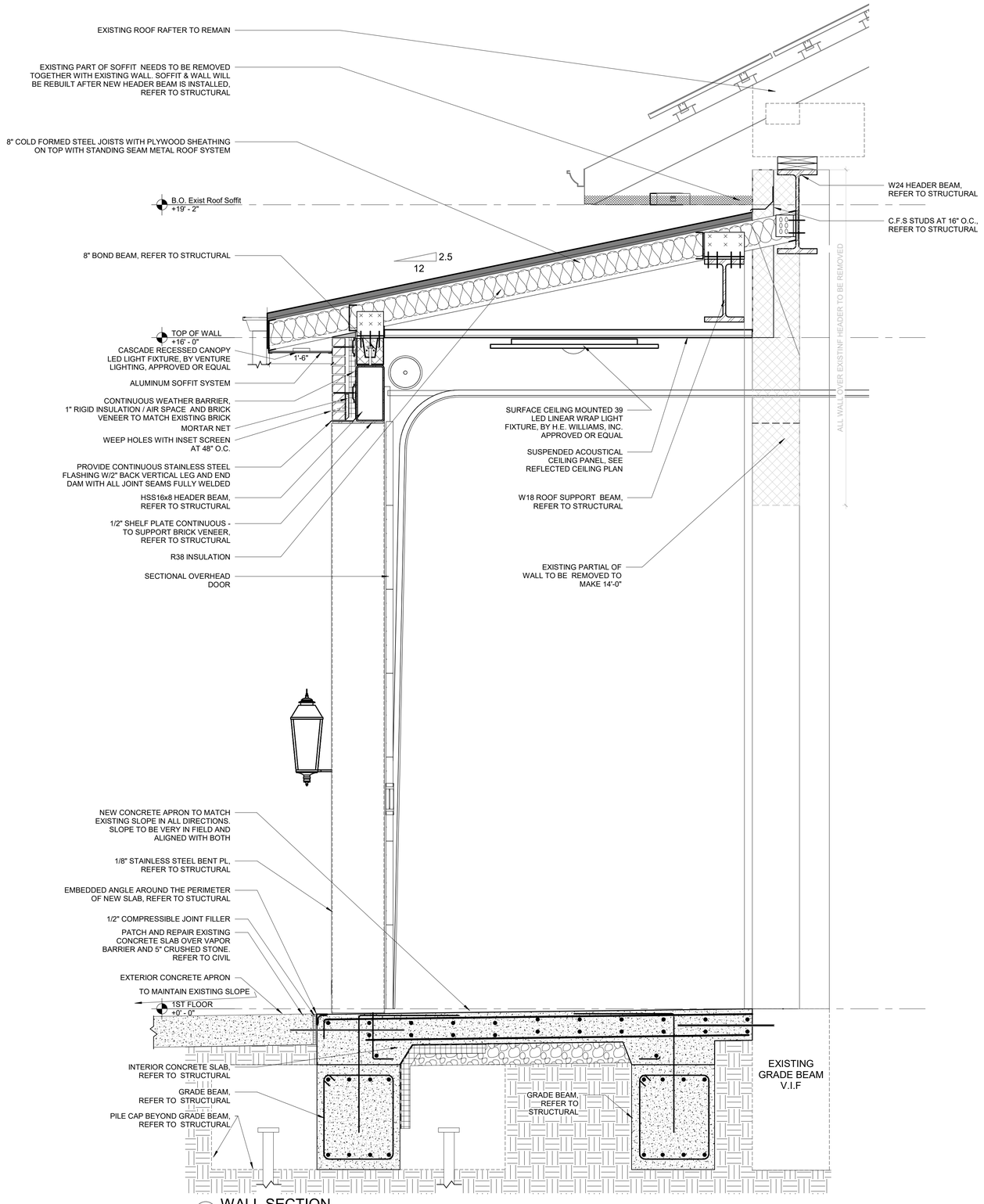
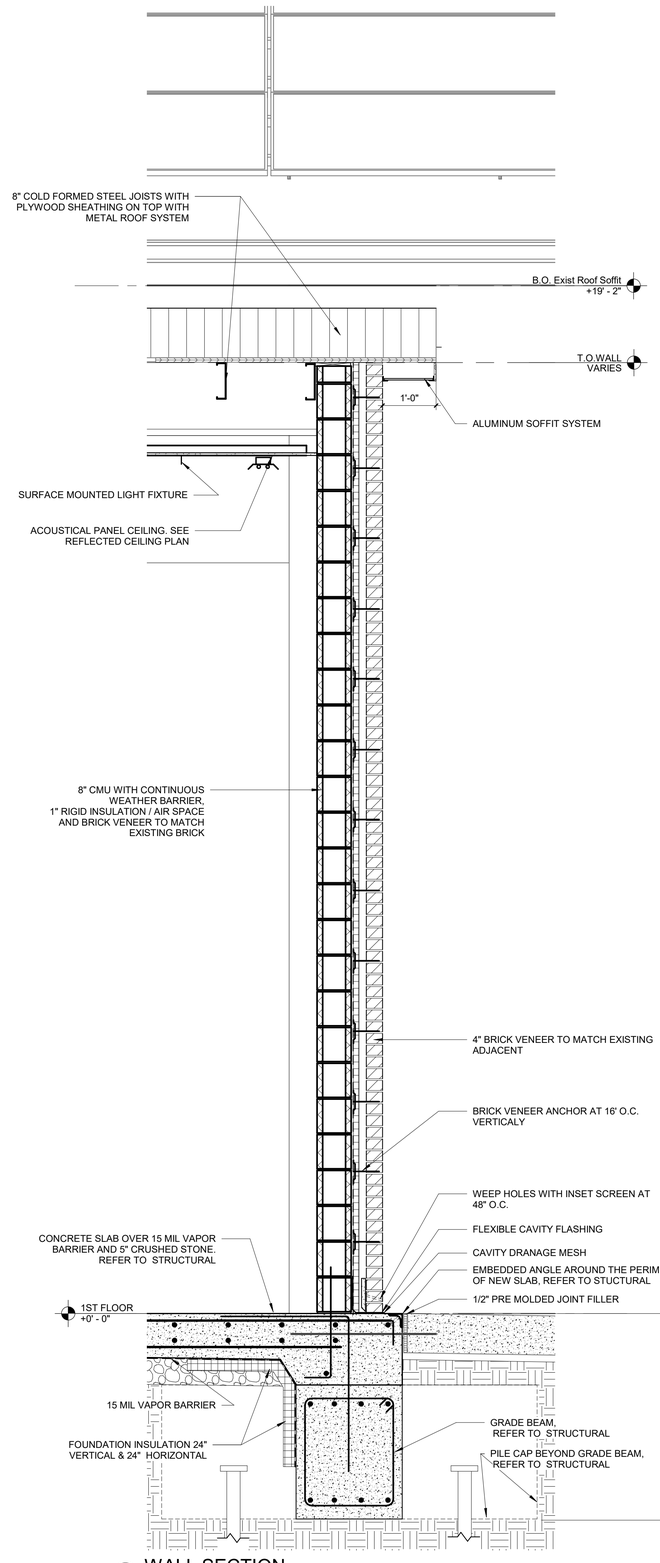


1 WALL SECTION
SCALE: 3/4" = 1'-0"



2 WALL SECTION
SCALE: 3/4" = 1'-0"

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No.	Date	Issue or Revision
1	04.03.24	ISSUED FOR BID

Drawing Title
WALL SECTIONS

Scale	USA Project No.
AS NOTED	2023-128
Drawing Date: 04.03.2024	Drawing No.: A-5
Drawn By: ChaW	Checked By: ApA

GENERAL STRUCTURAL AND CONSTRUCTION NOTES

1.0 GENERAL

1. All work shall conform to the "2021 International Building Code, NJ Edition" and to all other applicable Federal, State, and Local regulations.
2. In case of conflict between the General Notes, Specifications, and details, the most rigid requirements shall govern.
3. Work not indicated on a part of the drawings but reasonably implied to be similar to that shown at corresponding places shall be repeated.
4. Job site safety and construction procedures are the sole responsibility of the Contractor.
5. The Contractor shall provide for dewatering as required during excavation and construction.
6. The Contractor shall coordinate openings, sleeves, concrete housekeeping pads, inserts, and depressions shown on the Architectural, Structural, Mechanical, Electrical, and Plumbing Drawings.
7. See Architectural Drawings for locations of masonry and drywall non-load bearing partitions. Provide slip connections that allow vertical movement at the heads of all such partitions. Connections shall be designed to support the top of the walls laterally for the code-required lateral load.
8. All costs of investigation and/or redesign due to Contractor improper installation of structural elements or other items not in conformance with the Contract Documents shall be at the Contractor's expense.
9. The structural drawings shall be used in conjunction with the specifications, architectural and mechanical drawings. If there is a discrepancy between drawings, it is the Contractor's responsibility to notify the Architect prior to performing the work.
10. The Contractor shall verify and/or establish all existing conditions and dimensions at the site. Failure to notify Architect/Engineer of unsatisfactory conditions constitutes acceptance of unsatisfactory conditions.
11. If the existing field conditions do not permit the installation of the work in accordance with the details shown, the Contractor shall notify the Architect/Engineer immediately and provide a sketch of the condition with his proposed modification of the details given on the Contract Documents. Do not commence work until condition is resolved and modification is approved by the Architect.
12. Where alterations involve the existing supporting structure, the Contractor shall provide shoring and protection required to ensure the structural integrity of the existing structure.
13. The Contractor shall be responsible to determine allowable construction loads and to provide design and construction of falsework, formwork, stagings, bracing, sheeting, and shoring, etc.
14. Contractor to provide sheeting, bracing, and underpinning as necessary to prevent any lateral or vertical movements of existing buildings, streets, and any existing utility lines.
15. Bracing, sheeting, shoring, etc., required to insure the structural integrity of the existing buildings or new construction, sidewalks, utilities, etc., shall be designed by a Professional Engineer engaged by the Contractor. Detailed signed and sealed shop drawings shall be prepared indicating all work to be performed. Submit the shop drawings in accordance with the Contract requirements.
16. In no case shall heavy equipment be permitted closer than 8'-0" from any foundation wall. If it is necessary to operate such equipment closer than 8'-0" to the wall, the Contractor shall be the sole responsible party and, at his own expense, shall provide adequate supports or brace the wall to withstand the additional loads superimposed from such equipment.
17. No blasting shall be permitted without written approval.
18. The Contractor shall submit, for review, drawings and calculations for all performance assemblies identified in the General Notes and listed below: The design of these assemblies is the responsibility of the Contractor's Engineer registered in the Project's jurisdiction. All submittals shall bear this Engineer's seal and signature. Review shall be for general conformance with the project requirements as indicated on the Drawings and in the General Notes.
    A. Non-load bearing stud wall and curtain wall systems and related connections: Designs shall take into account all vertical and lateral loads required by applicable building codes. Back up system and curtain wall shall be designed for a maximum deflection of 1/600 of the span, or ⅜", whichever is less, at the applicable design wind load without the code applied reduction factors.
19. Shop drawings for all structural materials to be submitted to Architect for review prior to the start of fabrication or commencement of work. Review period shall be a minimum of two (2) weeks.
20. Reproduction of any portion of the Structural Contract Drawings for resubmittal as shop drawings is prohibited. Shop drawings produced in such a manner will be rejected and returned.
21. Shop drawings shall bear the Contractor's stamp of approval which shall constitute certification that the Contractor has verified all construction criteria, materials, and similar data and has checked each drawing for completeness, coordination, and compliance with the Contract Documents.
22. The shop drawings shall include dimensioned floor and roof edges, openings and sleeves at all floors required for all trades.
23. The drawings have been produced entirely on MPP Engineers Cadd System. Any other lettering, lines or symbols, other than professional stamps and signatures, have been made without the authorization of MPP Engineers are invalid.
24. The structural drawings shall govern the work for all structural features, unless noted otherwise. The architectural drawings shall govern the work for all dimensions.
25. Inspection is required of all construction delineated on the Structural Drawings and/or specifications. The Owner shall employ a Testing/Inspection Agency which shall provide personnel with the following minimum qualifications:
    A. Certified by Institute of Certified Engineering Technicians, or other recognized comparable organization, and,
1. For inspection, sampling, testing concrete and masonry: ACI Certified Concrete Field-Testing Technician, Grade I; and Construction Inspector, Level II.
2. Structural Steel Inspection: AWS Certified Welding Inspector.
26. Submit periodic reports within one business day after receipt by the Contractor to Architect/Engineer and the construction code official during construction. Submit final inspection report summary for each division of work, certified by a licensed professional Engineer, that inspections were performed and that work was performed in accordance with Contract Documents.
27. All materials shall be stored to protect them from exposure to the elements.

2.0 EARTHWORK

1. Engineered (controlled compacted) fill within the building area shall be constructed prior to footing excavation
2. Excavation shall be performed so as not to disturb existing adjacent buildings, streets, and utility lines. Verify location of all utilities prior to commencement of work. Hand excavate around utilities as required.
3. See the specifications and geotechnical report for excavation, backfill and preparation of the foundation and slab-on-grade subgrade, including compaction requirements.
4. Satisfactory fill materials are those complying with ASTM D2487, groups GW, GP, GM, SM, SW, and SP. On site borrow material shall be tested to determine suitability for use as fill material.
5. Compact soil to not less than the following percentages of maximum density of modified proctor (ASTM D1557):
    Under building foundations – 98%
    Under building slabs, steps, pavements – 95%
6. Remove existing vegetation, topsoil, and unsatisfactory soil materials. Proof roll subgrade to obtain uniformly densified substrata prior to placing fill material evenly in 8" thick (maximum) layers and compacting to required density.
7. The Owner shall retain the services of a Professional Geotechnical Engineer, subject to the approval of the Architect, to perform soil testing and inspection. The engineer shall inspect the subgrade to verify bearing levels and ensure that the safe bearing capacity meets or exceeds the design value indicated below. Reports shall be submitted to the Architect outlining the work performed and test results.
8. Backfill shall be brought up simultaneously on each side of walls and grade beams, with a grade difference not to exceed 2'-0" at any time.

3.0 FOUNDATIONS

1. Foundations have been designed and footing elevations established on the basis of a Subsurface Investigation Report and recommendations prepared by SOR CONSULTING ENGINEERS, INC. (SCE), Dated JUNE 20, 2023. See the report for additional requirements. The requirements contained in the geotechnical report are part of the Construction Documents.
2. Pile foundation system shall derives its support from natural silty clayey silt stratum and shall be designed for an allowable axial capacity of up to 10 tons.
3. The bottom of exterior footings shall be a minimum of three (3) feet below finished grade, or as required by Local building codes.
4. The bearing elevations of new footings adjacent to existing footings are to match the adjacent existing footing bearing elevations unless indicated otherwise on plans.
5. Drainage fill under slabs shall be compacted gravel or crushed stone.
6. Concrete for foundations shall be poured on the same day the subgrade is approved by the Geotechnical Engineer.
7. Utility lines shall not be placed through or below foundations without the Structural Engineer's approval.
8. Provide a continuous waterstop at all horizontal and vertical construction joints in the elevator pit and all other pit walls.
9. The Contractor shall observe water conditions at the site and take the necessary precautions to ensure that the foundation excavations remain dry during construction. Any sheeting or shoring required for dewatering shall be the responsibility of the Contractor.
10. The Contractor shall be responsible for coordinating the need to use foundation rebar as a grounding electrode system and shall be responsible for installing the bonding clamp prior to placement of the concrete as per NJUCC Bulletin No. 02-2.

4.0 HELICAL PILE SPECIFICATIONS.

1. Helical auger piles: Min. 12" dia. helix and a minimum 3½" dia. shaft.
2. Piles shall be installed to support a minimum service load capacity of 10 tons.
3. Helical auger piles should be screwed to reduce vibrations.
4. Pile installation shall be continuously inspected by a Geotechnical Engineer. Final installed pile capacity shall be certified by a licensed professional Engineer registered in the Project jurisdiction.
5. Any deviation in pile locations or elevations shall be reported immediately to the Structural Engineer of Record.
6. Pile capacity shall be determined by the Engineering News Record Formula designated for the equipment used. Pile Contractor shall submit equipment Specifications and number of blows per inch required to obtain load capacity required.
7. A pile length of 20 feet shall be used for bidding purposes only. Final bearing elevation and length of pile to be determined by Inspection/Testing Agency.
8. All helical piles are to be installed by a factory certified installer, otherwise a certified technician from premium technical services must be on site at all times to witness pile installation. All helical piles must be ICC approved.
    A. Manufacturer to have in effect industry recognized written quality control for all materials and manufacturing.
    B. All welding to be performed by welders certified under section 5 of the aws code d1.1
9. Helical pile lead sections shall be model RS2875.276 with a round shaft.
10. Helical piles, extensions and appurtenances shall be hot-dipped galvanized steel in accordance with astm a153 (latest revision) and esr-3032.
11. All pile installation operations shall be supervised by a licensed engineer.The inspector shall keep a complete record of the pile installation operation.
12. For bidding purposes only, total pile length shall be estimated at 20 feet. Helical piles shall be installed to a minimum depth as required to achieve the compression capacity of 20 kips service load and subject to the following provisions:
    A. If the minimum torque requirement has not been satisfied at the minimum depth level, the contractor shall have the following options:
        a. Install the pile deeper using additional extensions until the specified torque level is obtained.
        b. Remove the existing pile and install a pile with larger and/or more helices. The revised pile shall be installed beyond the termination depth of the original pile, as directed engineer.
        c. Add additional piles as recommended by engineer.
13. Helical piles should be installed as shown on the engineer's plan. All changes in pile location must be approved by the engineer.
14. If underground obstructions are encountered during installation, the contractor shall have the option of removing the obstruction if possible or relocating the pile with the engineer's approval. The latter option may require the relocation of adjacent piles.
15. The helical pile shall be connected to the structure using a pts approved steel bracket or slab-supporting channel as the case may be- as shown on drawings. These connection devices shall be capable of safely transferring the structural loads to the helical pile.
16. Written installation records shall be obtained for each helical pile. These records shall include, but are not limited to the following:
    a. Project name and/or location.
    b. Name of contractor's foreman or representative who witnessed the installation.
    c. Date and time of installation.
    d. Location and reference number of each pile.
    e. Description of lead section and extensions installed.
    f. Overall depth of installations referenced from bottom of grade beam or footing.
    g. Torque reading for the last three feet of installation if practical. in lieu of this requirement, the terminal torque shall be recorded as a minimum.
    h. Make and model of the equipment used for installation
    i. The installation speed (rpm) of the helical pile
    j. Abrupt changes in installation torque.
    k. Any other relevant information relating to the installation.

5.0 CAST-IN-PLACE CONCRETE

1. Concrete shall be designed and detailed in accordance with the Building Code Requirements for Structural Concrete (ACI-318-19), and constructed in accordance with the CRSI Manual of Standard Practice.
2. Concrete for foundation and exterior concrete foundation wall shall have a minimum compressive 28-day strength of 4,500 psi, all other concrete shall be 4000 psi; Air Entrainment 4% to 6% in all exposed concrete work.
3. Maximum water/cement ratios:
    A. Foundations 0.44
    B. Interior Slabs 0.47
    C. Exterior Slabs 0.44
4. All concrete shall be normal weight concrete (144 pcf +) with all cement conforming to ASTM C150, Type I. Maximum aggregate size shall be 1-1/2" for footings and ¾" for walls and slabs, conforming to ASTM C33.
5. Reinforcing steel: ASTM A615 Grade 60.
6. Welded Wire Reinforcement: (WWR) ASTM A-185.
7. Leveling Grout shall be non-shrink, non-metallic type, factory pre-mixed grout in accordance with CE-CRD-C621 or ASTM C109, with a minimum compressive 28-day strength of 5,000 psi.
8. Reinforcing steel clear cover shall be as follows unless noted otherwise:
    A. Concrete cast against and permanently exposed to earth 3".
    B. Concrete exposed to earth or weather
        #6 bars and larger 2"
        #5 bars and smaller 1-1/2"
    C. Concrete not exposed to weather or in contact with ground
        Slabs, walls, joists
            #11 bars and smaller 3/4"
        Beams and columns
            Primary reinforcement, ties, stirrups, or spirals 1-1/2"
9. Submit to Architect/Engineer reinforcing steel shop drawings for approval and mix designs for review prior to placing any concrete.
10. All reinforcement shall be securely held in place while placing concrete. If required, additional bars, stirrups or chairs shall be provided by the Contractor to furnish support for all bars.
11. Lap welded wire reinforcement two (2) full wire spaces at splices and wire together.
12. Provide plastic tipped bolsters and chairs at all locations where the concrete surface in contact with the bolsters or chairs is exposed.
13. Placing of concrete shall not start until the placement of reinforcing has been approved by the Inspection Agency.
14. Bonding agent shall be used where new concrete is placed against existing concrete.
15. Epoxy adhesive shall be used where dowels are to be installed into existing concrete. Submit manufacturer information for engineer review.
16. No sleeve shall be placed through any concrete element unless shown on the approved shop drawings or specifically authorized in writing by the Structural Engineer. The Contractor shall verify dimensions and locations of all slots, pipe sleeves, etc. as required for mechanical trades before concrete is placed.
17. Pipes or conduits placed in slabs shall not have an outside diameter larger than 1/3 the slab thickness and shall not be spaced closer than 3 diameters on center. Aluminum conduits shall not be placed in concrete. No conduits shall be placed in slabs within 12 inches of column face or face of bearing wall. No conduits may be placed in exterior slabs or slabs subjected to fluids.
18. Prior to placing concrete, the Contractor shall submit for review by the structural engineer, a concrete pour schedule showing location of all proposed construction joints and waterstops.
19. Prior to concrete placement, the Contractor shall submit to the structural engineer for review, concrete mix designs prepared in accordance with the specifications and requirements indicated in the general notes.
20. Concrete shall not be pumped through aluminum pipes and shall not be placed in contact with aluminum forms, mixing drums, buggies, chutes, conveyors or other equipment made of aluminum.
21. All inserts and sleeves shall be cast-in-place whenever feasible. Drilled or powder driven fasteners will be permitted when proven to the satisfaction of the Structural Engineer that the fasteners will not spall the concrete and have the same capacity as cast-in-place inserts.
22. When installing expansion bolts or adhesive anchors, the Contractor shall take measures to avoid drilling or cutting of any existing reinforcing and destruction of concrete. Holes shall be blown clean prior to placing bolts or adhesive anchors.
23. Chamfer all exposed concrete corners unless noted otherwise on Architectural Drawings.
24. The concrete slabs shall be finished flat and level within tolerance, to the elevation indicated on the drawings. The Contractor shall provide additional concrete required due to formwork, metal deck, and framing deflection to achieve this finished top of slab elevation. The Contractor shall provide for a minimum of 3/8" average thickness for additional concrete during placement for all slabs supported and formed on steel deck over the entire floor area. The Contractor shall provide the means by which the maximum and minimum concrete slab thickness can be monitored and verified during and after the placing and finishing operations.
25. Early drying out of concrete, especially during the first 24 hours, shall be carefully guarded against. All surfaces shall be moist cured or protected using a membrane curing agent applied as soon as forms are removed. If membrane curing agent is used, exercise care not to damage coating.
26. Cold weather concreting shall be in accordance with ACI-306. Hot weather concreting shall be in accordance with ACI-305R.
27. Throughout construction, the concrete work shall be adequately protected against damage due to excessive loading, construction equipment, materials or methods, ice, rain, snow, excessive heat, and freezing temperatures.
28. Prepare concrete test cylinders from each day's pour. Cylinders shall be properly cured and stored. Sample fresh concrete in accordance with ASTM C172.
29. Retain laboratory to provide testing service. Slump per ASTM C143l air content per ASTM C231 or C173, cylinder tests per ASTM C31 and C39. One set of six (6) cylinders for each 50 cubic yards for each mix used. Reports of all tests to be submitted to the Architect.

6.0 CONCRETE ANCHORS

1. All headed concrete anchors shall be manufactured from material which conforms to ASTM A108 for low carbon steel.
2. All welds shall be made in accordance with the structural welding code, ANSI/AWS D1.4, latest edition and with the recommendations of the stud manufacturer.
3. All adhesive anchors shall be anchored using the "Hilti HY200 Max" system by Hilti Fastening Systems, Inc. or an approved equal.
4. The spacing, minimum embedment, and installation of the anchors shall be in accordance with the manufacturer's recommended procedures.
5. Anchor rods used in adhesive anchorage systems shall conform to the manufacturer's recommended steel.
6. Stud anchors shall conform to ASTM A108 and the nuts shall conform to ASTM A563.

7.0 MASONRY

1. Masonry has been designed in accordance with the Building Code Requirements for Masonry Structures (TMS 402-2016) and shall be constructed in accordance with the Specifications for Masonry Structures (TMS 602-2016), except where otherwise modified by these General Notes and Specifications.
2. Mortar shall conform to ASTM C270, Type M or S. All Portland cement shall conform to ASTM C150, Type I. Lime shall conform to ASTM C207 and masonry cement shall conform to ASTM C91.
3. Grout shall conform to ASTM C476 and shall have a minimum 28 day compressive strength of 3000 psi. Slump of grout shall be 8 to 10 inches and the maximum aggregate size shall be ⅜" (aggregate graded to produce fine grout in conformance with ASTM C476 and C404).
4. Concrete Block Units:
    A. Solid and hollow load bearing units per ASTM C90, Type N-1, as required to provide 28 day compressive strength, f'm as noted below.
5. Minimum 28-day compressive strength of masonry, f'm shall be 1,500 psi, unless noted otherwise.
6. Full bed and head joints shall be provided.
7. Horizontal Joint Reinforcing: ASTM A82; 9-gage ladder-type, galvanized.
8. Deformed bar reinforcement shall conform to ASTM A615, Grade 60 and shall be full height of walls unless otherwise noted. Provide bar spacers and positioners as required to properly locate and stabilize reinforcing during grouting operations. Grout all reinforced cells solid with grout.
9. Hollow concrete units below grade and slab on grade shall be normal weight and have all cells grouted solid.
10. Provide and install temporary bracing required insuring stability of all walls during construction and until erection of attached structural framing is completed.
11. Provide galvanized horizontal joint reinforcement in all walls and partitions at 16" o.c. unless otherwise shown or noted. Provide one (1) piece prefabricated units at 8" o.c. at all wall corners and intersections.
12. Lap splices for deformed reinforcing bars used in masonry construction shall be 50 bar diameters.
13. Submit grout mix design and masonry unit certifications to the Architect for review.
14. Grout placement shall not start until the placement of reinforcing has been approved by the Inspection Agency.
15. Fill all cells in top two courses below finished floor, CMU lintels, bond beams, and beam bearings and cells with reinforcement full height solid with grout.
16. Allow grout in reinforced CMU walls to cure a minimum of 48 hours before imposing concentrated or other loads from above.
17. Provide masonry anchors set on coursing and attached to all beams at 32" o.c. horizontal, columns at 24" o.c. vertical, partitions and walls at 16" o.c at all beams, columns, partitions and walls abutting or embedded in masonry unless noted otherwise on Architectural and Structural drawings.
18. Provide bond beams with two (2) #4 horizontal reinforcement continuous in all masonry walls at each framing level. Provide a minimum of two (2) #4 bars at the ends of all walls and on each side of each opening.
19. All piers and partitions shall be bonded or anchored to adjacent masonry walls. Provide ties to adjacent floor and roof construction in accordance with details on drawings.
20. The Contractor shall verify all openings below lintels indicated are adequate to accept doorframes, louvers, etc. as shown on the Architectural and Mechanical Drawings. Notify the Architect and Structural Engineer of any discrepancies prior to lintel installation.
21. No openings shall be placed above any lintel within a height less than or equal to the width of the clear opening below the lintel, unless specifically shown or approved by the Structural Engineer.
22. All masonry work to be executed in cold weather shall be in conformance with the recommendations for cold weather construction found in the Building Code Requirements for Masonry Structures (TMS 402-2016) and shall be constructed in accordance with the Specifications for Masonry Structures (TMS 602-2016) with the following additions: For all conditions when temperatures fall below 40 degrees F, the temperature of the newly laid masonry or newly grouted masonry shall be maintained above 32 degrees F for a minimum of 24 hours using the methods described in ACI 530.1.
23. The Testing and Inspection Agency shall monitor the proportioning, mixing, and consistency of mortar and grout; the placement of mortar, grout, and masonry units; and the placement of reinforcing steel for compliance with the Contract Documents.
24. All wall sections and piers less than two square feet in cross-sectional area shall be fully grouted.
25. Provide vertical masonry control joints at maximum 25'-0" on center unless detailed on Architectural drawings, coordinate locations with Architect.

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ADDITION
AT
WOODBRIGE FIRE HEADQUATERS
FOR THE
WOODBRIDGE FIRE COMPANY
418 SCHOOL STREET
WOODBRIDGE TOWNSHIP, NJ 07095

No.	Date	Issue or Revision
1	04.03.2024	ISSUED FOR BID

Drawing Title
GENERAL NOTES

Scale: As indicated	USA Project No.: 2023-128
Drawing Date: 04.03.2024	Drawing No.: S0.1
Drawn By: MPP	Checked By: SWM

8.0 STRUCTURAL STEEL

1. Fabrication and erection of structural steel shall conform to the "Steel Construction Manual", 15th Edition, American Institute of Steel Construction including Specifications for Structural Steel Buildings, Specification for Structural Joints Using ASTM A325 or A490 Bolts, and AISC Code of Standard Practice except Sections 4.2 and 7.9 which shall not be applicable to this project.
2. All welding shall be performed by certified welders and shall conform to "Structural Welding Code ANSI/AWS D1.4–18", American Welding Society.
3. Wide flange shapes: ASTM A992 or A572, Grade 50.
4. Structural shapes & plates: ASTM A36, A572 or A992.
5. Steel pipe: ASTM A53, GRADE B.
6. Steel tubing (square, rect. or round): ASTM A500, Grade B.
7. Galvanized structural steel:
   A. Structural shapes and rods ASTM A123.
   B. Bolts, fasteners and hardware ASTM A153.
8. All bolted connections shall be with ASTM A325 high strength bolts ¾" minimum diameter, unless noted otherwise.
9. All bolted connections on wind bracing members and columns shall be slip critical connections.
10. Anchor rods shall conform to ASTM F1554, Grade 36, unless noted otherwise.
11. Welding electrodes shall be E70XX for manual arc welding and F7X–EXXX for submerged arc welding. All welders shall be certified by the AWS. Minimum weld size shall be 3/16" unless noted otherwise.
12. Welding of reinforcing bars to other bars or structural steel: E90–XX electrode.
13. Cuts, holes, coping, etc. required for other trades or field conditions shall be shown on the shop drawings and made in the shop. Cutting or burning of main structural members in the field will not be permitted.
14. Submit shop drawings for fabrication and erection of structural steel. Clearly indicate coordinated dimensions of mechanical unit and roof penetration sizes. Shop and Erection drawings must show all shop/floor and field welds. Initial shop drawing submittal shall include proposed connection details and job standards. Provide signed and sealed calculations for all non–standard connection details, braced bay connections and moment connections showing design capacities.
15. Steel members shown on plan shall be equally spaced unless noted otherwise.
16. The General Contractor and Steel Erector shall notify the Structural Engineer of any fabrication or erection errors or deviations and receive written approval before any field corrections are made.
17. Alternate connection details may be used if such details are submitted to the engineer for review and approval. However, the engineer shall be the sole judge of acceptance and the Contractor's bid shall anticipate the use of those details shown on the drawings. The Contractor is responsible for the design of such alternate details which he proposes.
18. All steel shall be painted with shop standard primer unless noted otherwise.
19. Steel angles and plates along with bolts and washers, in direct contact with exterior finish masonry, and all exterior exposed structural steel, shall be hot–dipped galvanized.
20. All exterior exposed structural steel shall be hot–dipped galvanized per ASTM A123.
21. Spandrels and columns adjacent to masonry shall have adjustable masonry ties.
22. Existing framing requiring welding shall be thoroughly cleaned to ensure proper welding. Provide temporary shoring when welding to existing steel.
23. Field welded surfaces within four (4) inches of weld shall be cleaned and ground smooth. After welding coat the exposed area with appropriate primer/paints as specified.
24. Guys and other bracing required to provide lateral stability to steel frame shall be adequately sized and anchored. This bracing shall remain until permanent bracing elements and attached construction is installed.
25. The steel structure is a non–self–supporting steel frame and is dependent upon diaphragm action of the roof deck and attachment to the masonry walls and braced bays for stability and for resistance to wind and seismic forces. Provide all temporary supports required for stability and for resistance to wind and seismic forces until these elements are complete and are capable of providing this support.
26. All connections shall be "Framed Beam Connections" designed in accordance with the AISC Manual and the ends reactions from the "Uniform Load Tables", but not less than 6 kips. Provide double angle connections or knife plates connections full depth of supporting beam, unless otherwise approved. Minimum two (2) bolts per connection. Unless otherwise noted, composite beams to be designed for 80% of the "total" uniform load capacity. Single angle or shear tab connections are not acceptable. All beam to column connections shall be designed for the minimum shear reaction indicated above in combination with a 10 kip axial force (acting in both tension and compression).
27. Visually inspect all fillet welds. 10% of all field fillet welds in primary connections and multi–pass welds shall be tested by the magnetic particle method, complying with E109, performed on the root pass and on the finished weld.
28. 100% of full penetration welds shall have ultrasonic inspection, complying with ASTM E164.
29. 100% of welds in beam and column moment connections shall have ultrasonic inspection, complying with ASTM E164.
30. Field test bolted connections and shear studs in accordance with AISC.
31. Delete paint on all steel to receive sprayed–on fireproofing or concrete encasement.
32. All steel shall be thoroughly cleaned by power tool cleaning prior to painting. All architecturally exposed structural steel shall be cleaned with commercial blast cleaning.
33. All dissimilar metals shall be treated or properly separated to prevent galvanic and/or corrosive effects.
34. The net area (refer to AISC section b2 and b3) at the connection of any bracing member shall not be less than 85 percent of the gross cross sectional area of the member. Additional plates shall be added as necessary to maintain the minimum net cross sectional area. Such plates shall extend a minimum distance equal to the depth of the member past the last row of bolts.
35. All connections shall be symmetrical about the axis of the member connected. Provide only one grade of bolt for each bolt diameter to be used in the connections. Do not mix grade of bolts.
36. The contractor shall prepare a written erection plan & calculations to be submitted to the engineer for review. This plan is to indicate, as a minimum, sequence of erection operations, calculations indicating erection stresses, field splice locations, field splice details, and location of temporary shoring, scaffolding, bracing, etc. The stresses caused during erection and handling shall not exceed allowable member stresses. The erection plan and calculations shall be prepared and stamped by a registered professional engineer in the project's jurisdiction.

9.0 STRUCTURAL WOOD

1. Design, fabrication, and construction of wood framing shall conform with the following codes and standards.
   A. "National Design Specifications for Wood Construction", 2018 Edition. (with supplement), American Forest and Paper Association.
   B. "Timber Construction Manual", Sixth Edition, as adopted by the American Institute of Timber Construction, including the "Code of Standard Practice", AITC 104–03.
2. Base Design Values for roof/floor framing: Doug–Fir No. 1 and No.2 (Fb = 850 psi, Fv = 180 psi, E = 1,600,000 psi) minimum.
3. Base Design Value for non–load bearing wood studs and bracing: Doug Fir Stud Minimum compression parallel to grain Fc =850 psi, minimum tension parallel to grain, Ft = 400 psi, minimum compression perpendicular to grain, 625 psi.
4. All plywood sheathing shall comply with APA. Plywood shall meet C–D Interior APA, Structural I and II C–D Interior APA, or Structural I and II C–C Exterior APA. Attachment to be in accordance with IBC requirements. All plywood to have exterior glue.
5. Roof sheathing shall be APA rated sheathing, 19/32" thick, 42/20.
6. Provide nailing pattern in compliance with IBC recommended fastening schedule when joining two or more framing members.
7. Base Design Value for all other structural wood framing: minimum extreme fiber in bending, Fb = 850 psi; minimum horizontal shear, Fv = 180 psi; minimum compression parallel to grain, Fc = 1,400 psi.
8. See International Building Code for minimum bracing and fastening requirements.
9. All wood members exposed to exterior to be pressure treated.
10. Provide fasteners, anchors and connectors with adequate corrosion protection, where in contact with treated wood. Provide minimum ZMAX coating where Simpson connectors are used in contact with treated wood.

10.0 LIGHT GAGE METAL FRAMING

1. Light gage metal framing shall be designed and detailed according with "Specification for the Design of Cold–Formed Steel Structural Members – AISI S100–16", American Iron and Steel Institute.
2. All stud and/or joist framing members shall be of the type, size, and gage as required by design. Size and gage shall not be less than shown on drawings.
3. The first set of numbers indicate the web size (nominal member depth):
   6" member = 600
   3–5/8" member = 362
4. Flange Designations:
   C stud = 15/8" Flange S162
   C–Stud = 2" Flange S200
   C–Stud = 2 ½" Flange S250
   Runner Track = 1 ¼" Leg T125
5. The last two numbers indicate the steel thickness:

Gauge	Design Thickness	Minimum Thickness	SSMA
20	0.0346"	0.0329"	33 mils
18	0.0451"	0.0428"	43 mils
16	0.0566"	0.0538"	54 mils
14	0.0713"	0.0677"	68 mils
12	0.1017"	0.0966"	97 mils

6. All galvanized studs, joists, track, bridging, and accessories, 12, 14, and 16 gage, shall be formed from steel that corresponds to the requirements of ASTM A653, Grade 50, with a minimum yield of 50,000 psi.
7. All galvanized studs, joist, and track, bridging and accessories, 18 and 20 gage, shall be formed from steel that corresponds to the requirements of ASTM A653, Grade 33, with a minimum yield of 33,000 psi.
8. All studs, joist, and accessories, shall be formed from steel having a G60 galvanized coating in conformance with ASTM C955.
9. Prior to prefabrication of framing, the Contractor shall submit signed and sealed fabrication and erection drawings to the Architect for review. Include with the drawings cross sections, plans and/or elevations depicting components types and locations for each unique framing application, connection details depicting fastener type, and quantity. Submit signed and sealed Calculations prepared by an Engineer registered in the Project's jurisdiction.
10. Framing components may be preassembled into panels prior to erecting. Prefabricated panels shall be square with components attached in a manner as to prevent racking and to minimize distortion while lifting and transporting.
11. Cutting of steel framing shall be by saw, shear or plasma cutting equipment only.
12. Temporary bracing shall be provided until erection is complete and all attached adjacent framing is complete.
13. Insulation shall be placed in components inaccessible to the insulation contractor after their installation.
14. Splices in axially loaded studs are not permitted.
15. Where splicing of track is necessary between stud spacing, a piece of stud shall be placed between adjacent tracks and fastened by welds or screws to each side of the track, each end.
16. Studs shall be plumbed, aligned, and securely attached to the flanges or webs of both upper and lower tracks.
17. Axially loaded studs shall be installed in a manner which will assure that ends of the studs are positioned against the inside track web, prior to stud and track attachment. Studs shall be squarely cut and positively clamped and positioned until properly fastened.
18. Wall stud bridging shall be attached in a manner to prevent stud rotation. Bridging, of the type and spacing shown on the Contract or Shop Drawings shall be installed prior to loading. Bridging spacing shall be as required by design but shall not exceed 5'–0" on center.
19. Provision for structure vertical movement shall be provided where indicated on the plans using vertical slide clips or other means. Frame both sides of expansion joints with separate studs; do not bridge the expansion joints with stud system components.\
20. Framed wall openings shall include headers and supporting studs as shown on the plans and shop drawings. Provide additional jack and king studs as required at all openings which exceed 24 inches.
21. Joists shall be located directly over bearing studs or a load distribution member to be provided at the top track.
22. Provide an additional joist under parallel, non–load bearing partitions that run more than 1/3 the span of the joist.
23. Connections shall be by welding, riveting, bolting or other approved fastening devices or methods providing positive attachment and resistance to loosening. Fasteners shall be of compatible material.
24. Welded connections shall be performed in accordance with AWS Specification for Welding Sheet Steel in Structures, D1.4.
25. Contractor shall refer to installation instructions published by the screw manufacturer and ASTM C954 for minimum spacing and edge distances requirements and torque requirements.
26. Exterior stud walls directly resisting the lateral and/or gravity forces as well as curtain wall systems and related connections: Designs shall take into account all vertical and lateral loads required by applicable building codes. Back up system and curtain wall shall be designed for a maximum deflection of 1/600 of the span, or 3/8", whichever is less, at the applicable design wind load without the code applied reduction factors.

11.0 POST–INSTALLED ANCHORS

1. Except where indicated on the drawings, post–installed anchors shall consist of the following anchor types or approved equal and installed in accordance with their respective icc–es report and manfacturer's published installation instructions:

APPLICATION	ANCHORING SYSTEM	ICC–ES REPORT
ANCHORAGE TO CONCRETE	HILTI HY 200 ADHESIVE	ESR–3187
	HILTI RE 500 V3 ADHESIVE	ESR–3814
	HILTI KWIK BOLT TZ	ESR–1917
	HILTI KWIK HUS EZ	ESR–3027
	HILTI HSL–3	ESR–1545
	HILTI HDA	ESR–1546
REBAR DOWELING	HILTI RE 500 V3 ADHESIVE w SAFE SET INSTALLATION	ESR–3814
	HILTI HY 200 ADHESIVE w SAFE SET INSTALLATION	ESR–3187
ANCHORAGE TO SOLID GROUTED MASONRY	HILTI HY 270 ADHESIVE	ESR–4143
	HILTI KWIK BOLT 3	ESR–1385
ANCHORAGE TO HOLLOW / MULTI–WYTHE MASONRY	HILTI HY 270 ADHESIVE WITH SCREEN TUBE	ESR–4143, ESR–4144

2. Anchor capacity used in design shall be based on the technical data published by hilti or such other method as approved by the structural engineer of record. Substitution requests for alternate products must be approved in writing by the structural engineer of record prior to use. Contractor shall provide calculations demonstrating that the substituted product is capable of achieving the performance values of the specified product including an icc–es report showing compliance with the relevant building code, Seismic use, load resistance, installation category, in–service temperature, installation temperature, etc.
3. Adhesive anchors installed in a horizontally or upwardly inclined orientation into concrete and supporting a sustained tenion load shall be installed by a certified adhesive anchor installer. Installer shall be certified through the aci/crsi adhesive anchor installer certification program or approved equal.
4. Contractor shall arrange an anchor manufacturer's representative to provide on–site anchor installation training for all of their anchoring products specified. Contractor shall submit documented confirmation that all of the contractor's personnel installing anchors have received the required training prior to the commencement of work.
5. Anchor capacity is dependant upon spacing between adjacent anchors and proximity of anchors to edge of concrete. install anchors in accordance with spacing and edge clearances indicated on the drawings.
6. Continuous or periodic special inspection for post installed anchors shall be performed in accordance with section 4.3/4.4 of the icc–es report for the individual anchor. Special inspector shall be notified prior to commencement of work to coordinate inspection efforts.

12.0 DESIGN DATA

1. Governing Code: International Building Code 2021, NJ Edition
2. Slab on Grade Live Load:
   A. Axle Load.....54 KIPS
3. Slab on Grade Dead Load:
   A. Self Weight of 10" Thick Slab.....125 PSF
   Total Dead Load.....125 PSF
4. Roof Live Load
   A. Live Load.....20 PSF
   B. Snow Load:
   Pg (Ground Snow Load).....25 PSF
   Pf (Flat Snow Load).....21.2 PSF
   Ce (Snow Exposure Factor).....1.0
   I (Snow Load Importance Factor).....1.1
   Ct (Thermal Factor).....1.1
5. Roof Dead Load:
   A. Framing Self weight.....4 PSF
   B. Sheathing and Insulation.....4 PSF
   C. Ceiling.....3 PSF
   D. Misc. Mech/Elec/Plumbing/Collateral.....4 PSF
   E. Roofing.....2 PSF
   Total Dead Load.....17 PSF
6. Wind Load:
   A. Ultimate Wind Speed (Wind Category III).....125 MPH
   B. Wind Exposure.....B
   C. Internal Pressure Coefficient.....+/– 0.18
   D. Components & Cladding Wind Pressure:.....As per the Code
7. Earthquake Design Data:
   A. Seismic Occupancy Category.....III
   B. Seismic Importance Factor, I.....1.25
   C. Ss (Mapped Spectral Response Acc. at Short Period).....0.272
   D. S1 (Mapped Spectral Response Acc. at 1 Second Period).....0.058
   E. Seismic Site Classification.....D
   F. Sds (Spectral Response Coefficient).....0.287
   G. Sd1 (Spectral Response Coefficient).....0.092
   H. Seismic Design Category.....B
   I. Basic Seismic Force Resisting System.....Ordinary Reinforced Masonry Shear Walls
   J. R.....2
   K. Cs.....0.180
   L. Analysis Procedure.....Equivalent Lateral Force Procedure
8. ALL FIRE RATED ASSEMBLIES TO BE CONSIDERED UNRESTRAINED.

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WOODBRIGE FIRE HEADQUATERS
FOR THE
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418 SCHOOL STREET
WOODBRIDGE TOWNSHIP, NJ 07095

No.	Date	Issue or Revision
1	04.03.2024	ISSUED FOR BID

Drawing Title
GENERAL NOTES

Scale: As indicated	USA Project No.: 2023-128
Drawing Date: 04.03.2024	Drawing No.: S0.2
Drawn By: MPP	Checked By: SWM

SPECIAL INSPECTION DETAILS			
REQUIRED VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCE STANDARD
STEEL CONSTRUCTION			
. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS	–	X	AISC 360, Section A3.3
. INSPECTION OF HIGH STRENGTH BOLTING	–	X	AISC 360-16, Section N5.6
. INSPECTION OF WELDING – VISUAL SINGLE PASS WELDS 5/16" AND LESS	–	X	AWS D1.1 AISC 360-16 Section N5.4
. COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS	X	–	AISC 360-16 Section N5.4
. FLOOR AND ROOF DECK WELDS	–	X	AWS D1.3
. REINFORCING STEEL	X	–	AWS D1.4 ACI 318: CHAP 26
. PLACEMENT AND INSTALLATION OF HEADED ANCHORS	X	–	AISC 360-16 Section N5.4
. SHEAR REINFORCEMENT	X	–	AWS D1.4 ACI 318: CHAP 26
CONCRETE CONSTRUCTION			
. INSPECT REINFORCING STEEL, INCLUDING PLACEMENT	–	X	ACI 318: CHP.20, 25.2, 25.3, 26.6.1-26.6.3
. REINFORCING BAR WELDING:			
a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	–	X	AWS D1.4 ACI 318: 26.6.4
b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"	–	X	AWS D1.4 ACI 318: 26.6.4
c. INSPECT ALL OTHER WELDS	X	–	AWS D1.4 ACI 318: 26.6.4
. INSPECT ANCHORS CAST IN CONCRETE	–	–	ACI 318: 17.8.2
. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS			
a. ADHESIVE ANCHORS INSTALLED HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS.	X	X	ACI 318:17.8.2.4 ACI 318: 17.8.2
b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a	X	X	ACI 318:17.8.2.4 ACI 318: 17.8.2
. VERIFYING USE OF REQUIRED DESIGN MIX	–	X	ACI 318: Ch.19, 26.4.3, 26.4.4
. CONCRETE SAMPLING FOR STRENGTH, SLUMP, TEMPERATURE AND AIR CONTENT	X	–	ASTM C172, ASTM C31, ACI 318: 26.5, 26.12
. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS	–	X	ACI 318:26.9
. INSPECTION OF FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF MEMBERS BEING FORMED	–	X	ACI 318: 26.11.2(b)
. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	–	X	ACI 318:26.5.3-26.5.5/IBC 1908.9
MASONRY CONSTRUCTION			
1. AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED FOR COMPLIANCE:			
. PROPORTIONS OF SITE-PREPARED MORTAR	–	X	TMS 402-16 TMS 602-16
. CONSTRUCTION OF MORTAR JOINTS.	–	X	TMS 402-16 TMS 602-16
. LOCATION OF REINFORCEMENT, CONNECTORS, ANCHORAGES	–	X	TMS 402-16 TMS 602-16
2. THE INSPECTION PROGRAM SHALL VERIFY:			
. SIZE AND LOCATION OF STRUCTURAL ELEMENTS	–	X	TMS 402-16 TMS 602-16
. TYPE, SIZE, AND LOCATION OF ANCHORS	–	X	TMS 402-16 TMS 602-16
. SPECIFIED SIZE, GRADE AND TYPE OF REINFORCEMENT	–	X	TMS 402-16 TMS 602-16
3. PRIOR TO GROUTING, THE FOLLOWING SHALL BE VERIFIED FOR COMPLIANCE:			
. GROUT SPACE IS CLEAN	–	X	TMS 402-16 TMS 602-16
. PLACEMENT OF REINFORCEMENT AND CONNECTORS	–	X	TMS 402-16 TMS 602-16
4. PREPARATION OF GROUT AND MORTAR SPECIMENS	X	–	TMS 402-16 TMS 602-16
SOIL			
. VERIFY MATERIALS BELOW SHALLOW FOOTINGS ARE ADEQUATE TO ACHIEVE DESIGN BEARING CAPACITY	–	–	
. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	–	X	
. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIAL	–	X	
. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL	X	–	
. PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVED SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	–	X	
EPOXY ANCHORS	–	X	
WOOD CONSTRUCTION			
1. PREFABRICATED TRUSSES: REFER TO SHOP FABRICATION SPECIAL INSPECTION REQUIREMENTS	–	–	
2. EXTERIOR WALLS & SHEAR WALLS: THE SPECIAL INSPECTOR SHALL VERIFY THAT THE FOLLOWING COMPONENTS OF EXTERIOR WALLS AND INTERIOR WALLS ARE IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.	–	–	
a. THE SIZE AND GRADE OF THE WOOD STRUCTURAL PANEL SHEATHING.	–	–	
b. THE FASTENER TYPE, SIZE, EMBEDMENT, SPACING, AND LOCATION.	–	–	
c. THE TYPE AND INSTALLATION OF FASTENERS, HOLD-DOWNS, BLOCKING, SHEATHING LAPS, AND ALL DETAILED CONNECTIONS TO ROOF AND FLOOR DIAPHRAGMS AND OTHER CONSTRUCTION AT THE TOPS AND BOTTOMS OF WALLS.	–	–	
d. THE SIZE, GRADE AND SPACING OF WALL MEMBERS INCLUDING PLATES, STUDS AND HEADERS.	–	–	
3. ROOF & FLOOR SHEATHING: THE SPECIAL INSPECTOR SHALL VERIFY THAT THE FOLLOWING COMPONENTS OF ROOF AND FLOOR DIAPHRAGMS ARE IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS:	–	X	
a. THE SIZE AND GRADE OF THE WOOD STRUCTURAL PANEL SHEATHING.	–	X	
b. THE FASTENER TYPE, SIZE, EMBEDMENT, SPACING, AND LOCATION.	–	X	
c. THE INSTALLATION AND NOMINAL SIZE OF BLOCKING AND FRAMING MEMBERS AT ADJOINING PANEL EDGES.	–	X	

SPECIAL INSPECTION DETAILS			
REQUIRED VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCE STANDARD
OPEN-WEB STEEL JOISTS AND JOIST GIRDERS			
1. INSTALLATION OF OPEN-WEB STEEL JOISTS AND JOIST GIRDERS			
a. END CONNECTIONS-WELDING OR BOLTED	–	–	SJI specifications listed in Section2207.1
b. BRIDGING-HORIZONTAL OR DIAGONAL			
1. STANDARD BRIDGING	–	–	SJI specifications listed in Section2207.1
2. BRIDGING THAT DIFFERS FROM THE SJI SPECIFICATIONS LISTED IN SECTION 2207.1	–	–	
PILE FOUNDATIONS	–	–	1705.7
1. VERIFY PILE MATERIALS, SIZES AND LENGTHS COMPLY WITH THE REQUIREMENTS	X	–	
2. DETERMINE CAPACITIES OF TEST PILES AND CONDUCT ADDITIONAL LOAD TESTS AS REQUIRED	X	–	
3. OBSERVE DRIVING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS OF EACH PILE.	X	–	
4. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS. CONFIRM TYPE AND SIZE OF HAMMER, RECORD NUMBER OF BLOWS PER FOOT OF PENETRATION, DETERMINE REQUIRED PENETRATIONS TO ACHIEVE DESIGN CAPACITY, RECORD TIP AND BUTT ELEVATIONS AND DOCUMENT PILE DAMAGE.	X	–	
COLD FORMED STEEL FRAMING			
1. MEMBER SIZES	–	X	
2. MATERIAL THICKNESS	–	X	
3. MECHANICAL CONNECTIONS	–	X	
4. WELDING	–	X	
5. FRAMING DETAILS	–	X	

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ADDITION

AT

WOODBRIDGE FIRE HEADQUATERS

FOR THE

WOODBRIDGE FIRE COMPANY

418 SCHOOL STREET
WOODBRIDGE TOWNSHIP, NJ 07095

No.	Date	Issue or Revision
1	04.03.2024	ISSUED FOR BID

MPP Engineers LLC
34 S Main St
Allentown, NJ 08501
Phone: (609) 489-5511

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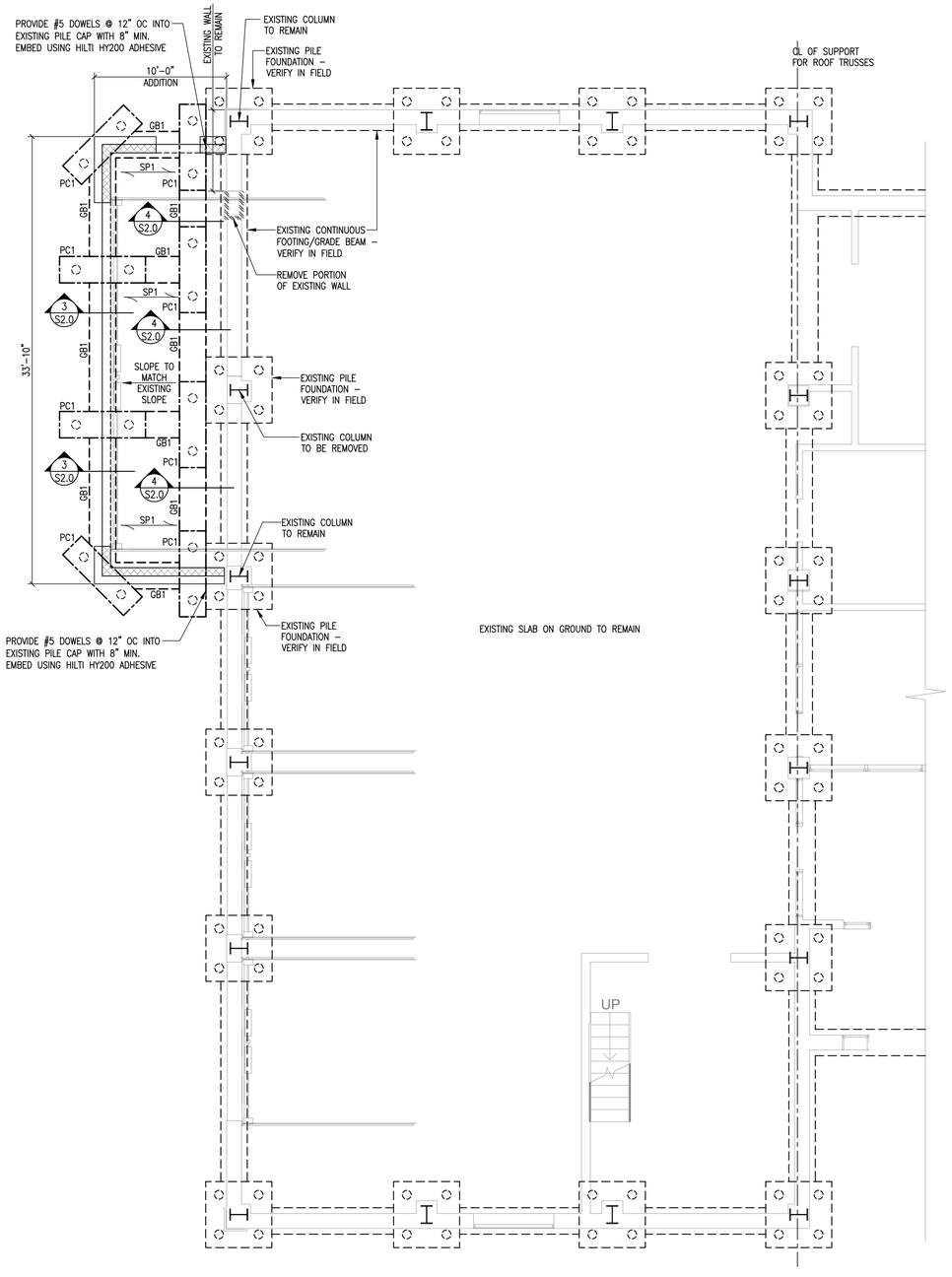
Drawing Title

SPECIAL INSPECTION

Scale: As indicated	USA Project No.: 2023-128
Drawing Date: 04.03.2024	Drawing No.: S0.3
Drawn By: MPP	Checked By: SWM



PARTIAL FOUNDATION PLAN

SCALE: 3/16" = 1'-0" (DO NOT SCALE PLAN)

NOTES:

1. TOP OF EXISTING SLAB ON GRADE ELEVATION 17.67' REFERENCED AS DATUM EL. (0'-0".) GC TO CONFIRM THE TOP OF FINISHED FLOOR SLAB ELEVATION WITH ARCHITECTURAL & CIVIL DRAWINGS PRIOR TO CONSTRUCTION.
2. TOP OF NEW SLAB ON GRADE ELEVATION IS AT DATUM UNLESS NOTED THUS (±) ON PLAN FROM DATUM. TOP OF NEW SLAB ON GRADE TO MATCH TOP OF EXISTING SLAB ON GRADE.
3. SP1 – DENOTES SPAN OF 10" FRAMED SLAB ON GRADE REINFORCED WITH #5 @ 10" OC TOP AND BOTTOM EACH WAY ON 10 MIL VAPOR BARRIER ON 6" DRAINAGE FILL.
4. PC1 – DENOTES 2'-6"x2'-0"x6'-6" (DxWxL) PILE CAP REINFORCED W/ (4) #6 BARS AT BOTTOM.
5. – DENOTES 8" CMU WALL REINFORCED W/ #5 REBAR @ 16" OC
6. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN.
7. SEE TYPICAL DETAIL DRAWINGS FOR TYPICAL DETAILS NOT REFERENCED ON PLANS.
8. FOR ADDITIONAL INFORMATION, SEE GENERAL NOTES.

GRADE BEAM SCHEDULE

MARK	BEAM SIZE		STEEL REINFORCEMENT					
	WIDTH	DEPTH	TOP	BOTTOM	STIRRUPS	TYPE	LEGS	SIZE
GB1	2'-0"	2'-6"	(4) #6	(4) #6	@ 10" OC		2	#4

DEMOLITION NOTES:

1. GC TO PROVIDE TEMPORARY SHORING OF THE ROOF TRUSSES PRIOR TO WORK.
2. GC TO REMOVE EXISTING CMU WALL TOGETHER WITH THE HEADERS OVER THE TWO OVERHEAD DOORS.
3. GC TO REMOVE THE INTERMEDIATE STEEL COLUMN WITH IT'S ENCLOSURE.
4. GC TO REMOVE THE UPPER PORTION OF THE CORNER WALL AND THE CORNER COLUMN'S ENCLOSURE TO ACCOMMODATE A NEW STEEL HEADER.
5. GC TO REMOVE PORTION OF THE CORNER COLUMN'S ENCLOSURE TO MAKE A CONNECTION BETWEEN NEW HEADER AND EXISTING COLUMN.
6. GC TO REMOVE PORTION OF THE CONCRETE DRIVEWAY TO INSTALL A NEW ADDITION.

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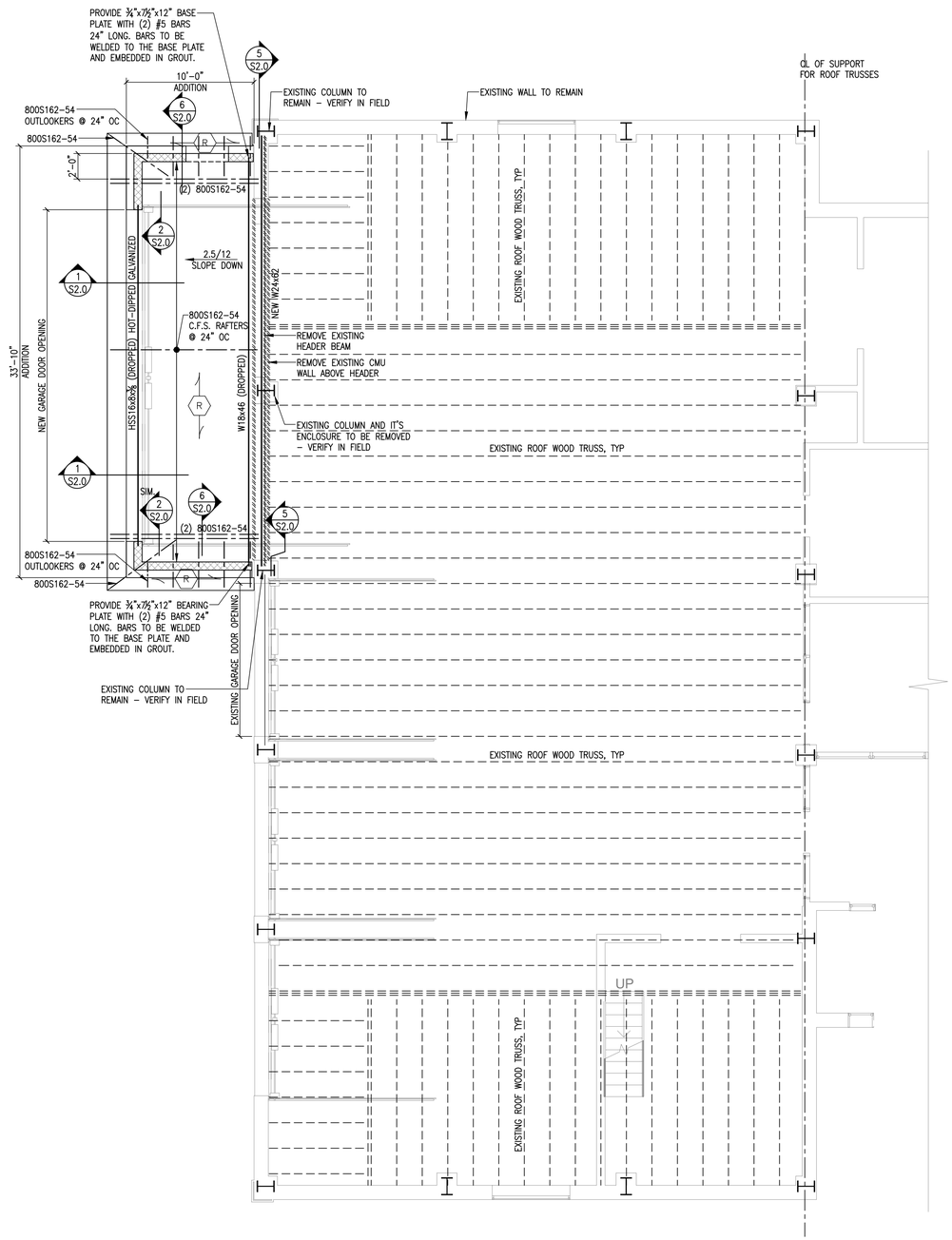
Drawing Title
PARTIAL FOUNDATION PLAN

Scale	USA Project No.
As indicated	2023-128
Drawing Date: 04.03.2024	Drawing No.: S1.0
Drawn By: MPP	Checked By: SWM



COLD FORMED METAL FRAMING NOTES:

1. JOIST/STUD DESIGNATIONS ARE MINIMUM FOR THE GIVEN SPANS AND FINISHES.
2. SIZES PROVIDED IN SECTIONS ARE FOR BIDDING PURPOSES ONLY. FINAL MEMBER DESIGNS AND CONNECTION DETAILS ARE TO BE PROVIDED BY THE CONTRACTOR'S ENGINEER, SIGNED AND SEALED CALCULATIONS AND SHOP DRAWINGS SHOWING ALL CONNECTION DETAILS AND FRAMING CONFIGURATIONS SHALL BE PROVIDED BY THE CONTRACTOR'S ENGINEER PRIOR TO CONSTRUCTION.
3. ALL STUDS PROVIDED AS BACK-UP FOR MASONRY VENEER SHALL BE 18 GAUGE MINIMUM AND SHALL BE DESIGNED TO LIMIT WALL DEFLECTIONS UNDER FULL LOADING O H/600.
4. ALL STUDS PROVIDED AS BACK-UP TO METAL PANELS OR OTHER NON-BRITTLE FINISHES SHALL BE 18 GAUGE MINIMUM AND SHALL BE DESIGNED TO LIMIT WALL DEFLECTIONS UNDER FULL LOADING TO H/360.

PARTIAL ROOF FRAMING PLAN

SCALE: 3/16" = 1'-0" (DO NOT SCALE PLAN)

NOTES:

1. (R) DENOTES SPAN OF ¾" EXTERIOR GRADE PLYWOOD WITH METAL SEAM ROOF PANEL SYSTEM ON TOP.

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FOR THE

WOODBRIDGE FIRE COMPANY

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No.	Date	Issue or Revision
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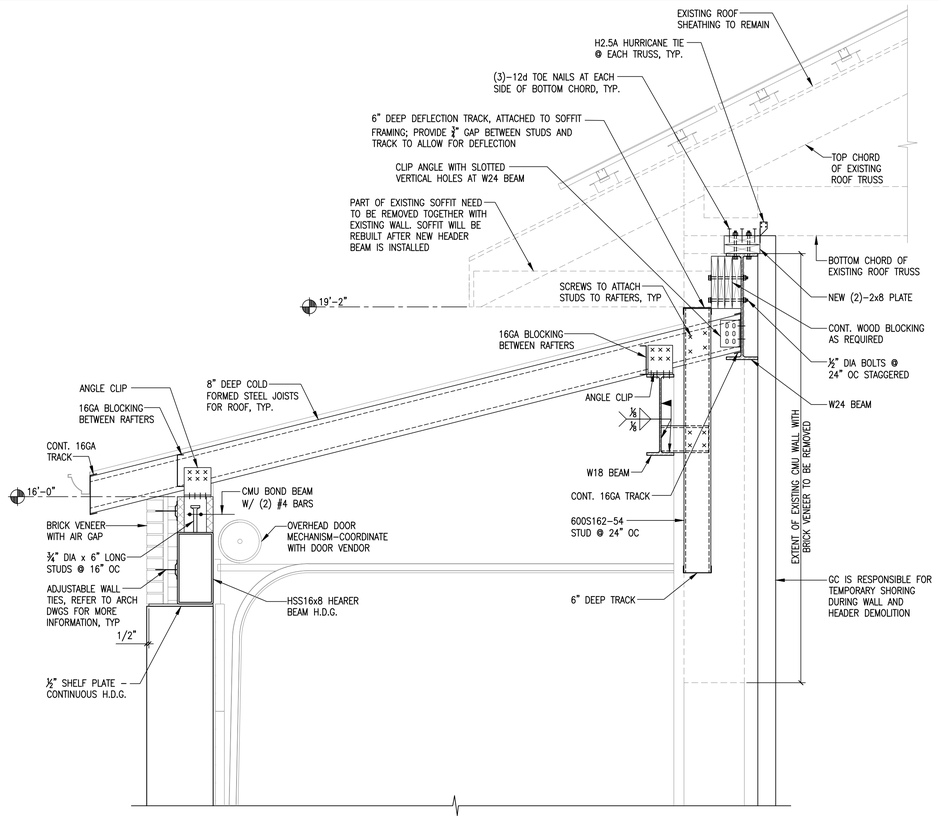
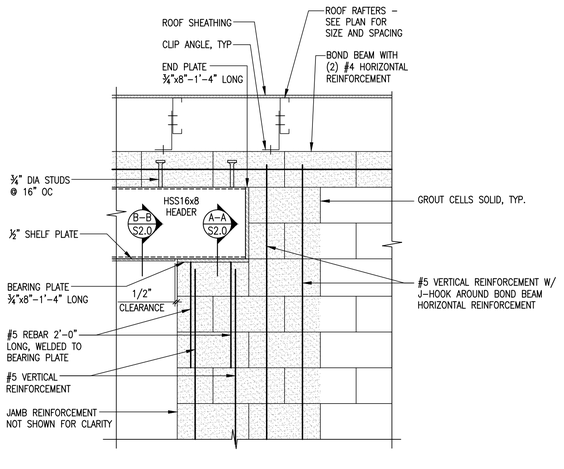
Drawing Title

PARTIAL ROOF FRAMING PLAN

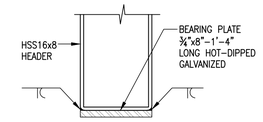
Scale: As indicated	USA Project No.: 2023-128
Drawing Date: 04.03.2024	Drawing No.: S1.1
Drawn By: MPP	Checked By: SWM



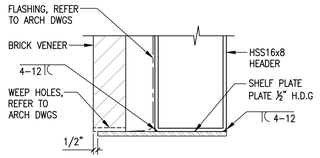
1 S2.0 SECTION



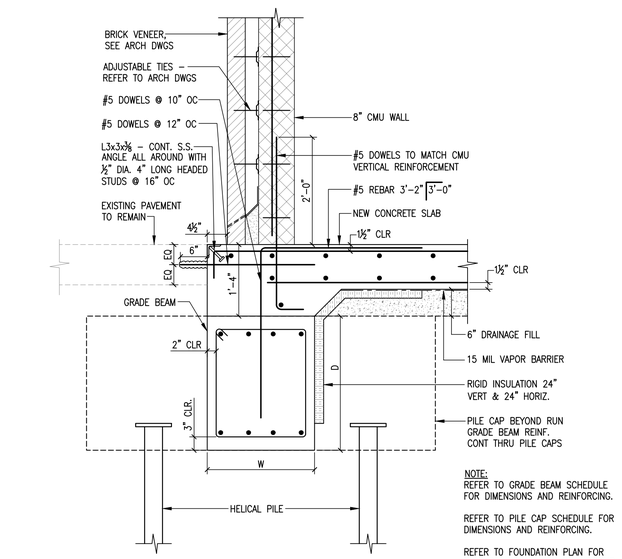
2 S2.0 SECTION



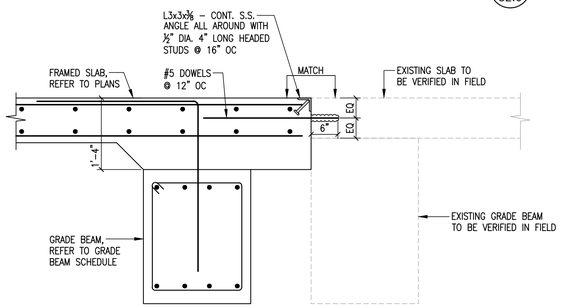
SECTION A-A



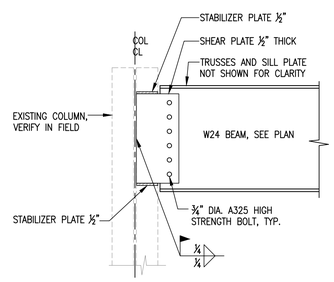
SECTION B-B



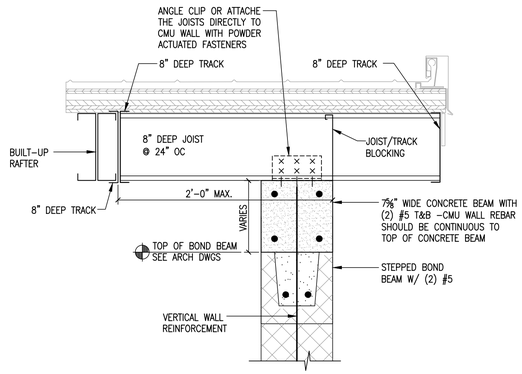
3 S2.0 SECTION



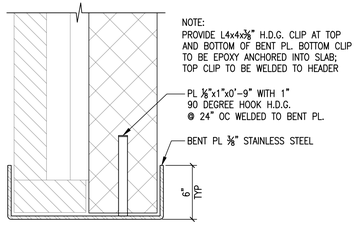
4 S2.0 SECTION



5 S2.0 NEW BEAM TO EXISTING COLUMN CONNECTION



6 S2.0 SECTION AT GABLE WALL



7 S2.0 JAMB DETAIL AT GARAGE DOOR

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ADDITION

AT

WOODBRIGE FIRE HEADQUATERS

FOR THE

WOODBRIDGE FIRE COMPANY

418 SCHOOL STREET
WOODBRIDGE TOWNSHIP, NJ 07095

No.	Date	Issue or Revision
1	04.03.2024	ISSUED FOR BID

Drawing Title

SECTIONS

Scale	USA Project No.
As indicated	2023-128
Drawing Date	Drawing No.
04.03.2024	S2.0
Drawn By: MPP	Checked By: SWM

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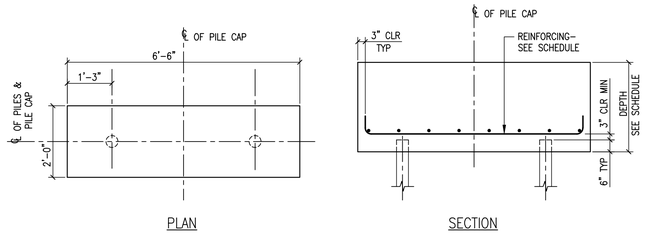
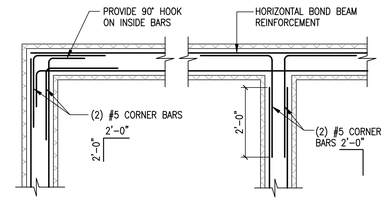


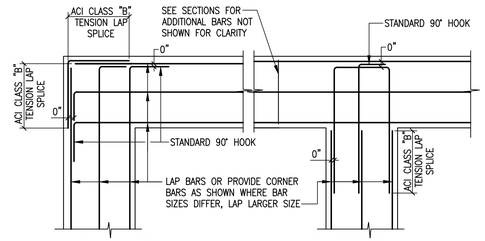
PLAN SECTION

TD1 S3.0 TYPICAL DETAIL
PC1



AT CORNERS AT INTERSECTIONS

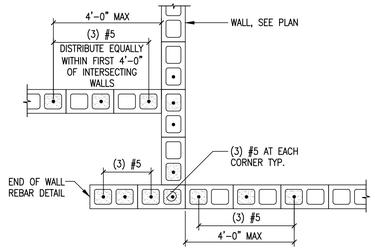
TD2 S3.0 TYPICAL DETAIL
HORIZONTAL REINFORCEMENT IN BOND BEAMS



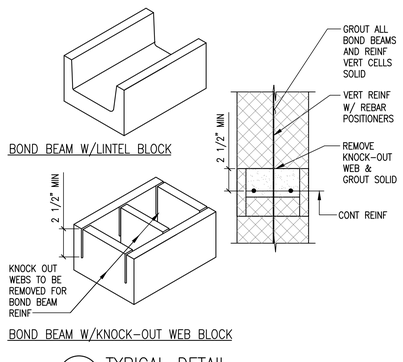
AT CORNERS AT INTERSECTIONS

NOTE:
ALL DOWELS, CORNER BARS AND "U" BARS SHALL BE SAME SIZE AND SPACING AS CONTINUOUS FOOTING REINFORCING.

TD3 S3.0 TYPICAL DETAIL
REINFORCEMENT IN CONCRETE FOOTINGS



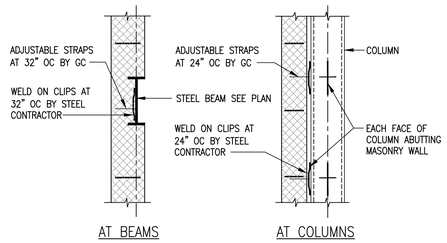
TD4 S3.0 TYPICAL DETAIL
WALL REINFORCEMENT AT CORNERS AND AT WALL INTERSECTIONS



BOND BEAM W/LINTEL BLOCK

BOND BEAM W/KNOCK-OUT WEB BLOCK

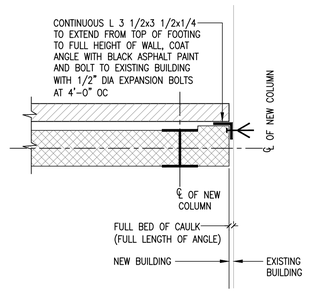
TD5 S3.0 TYPICAL DETAIL
MASONRY BOND BEAMS



AT BEAMS AT COLUMNS

NOTES:
1. PROVIDE WELD ON ADJUSTABLE MASONRY ANCHORS ON ALL BEAMS AND COLUMNS ABUTTING MASONRY WALLS.
2. USE HECKMAN (OR APPROVED EQUAL) #316 ADJUSTABLE STRAPS BY G.C. & #315 WELD ON CLIPS BY STEEL CONTRACTOR.
3. ANCHORS TO BE KEPT IN BLOCK COURSING.
4. STEEL CONTRACTOR SHALL COORDINATE ANCHOR LOCATION WITH ARCHL. DRAWINGS PRIOR TO FABRICATION.

TD6 S3.0 TYPICAL DETAIL
MASONRY ANCHORS



TD7 S3.0 TYPICAL DETAIL
NEW CMU WALL TO EXISTING WALL

MISCELLANEOUS BOND OR PRECAST MASONRY LINTEL SCHEDULE

WALL THICKNESS	MASONRY OPENING UP TO 6'-0"	MASONRY OPENING 6'-1" TO 8'-0"	MASONRY OPENING 8'-1" TO 10'-0"
8" WALL	8"x8" CONC W/(2) #4 TOP & BOT OR 8"x8" BOND BEAM W/(1) #5 TOP & BOT	8"x8" CONC W/(2) #4 TOP & BOT OR 8"x16" BOND BEAM W/(1) #6 TOP & BOT	8"x12" CONC W/(2) #5 TOP & BOT OR 8"x16" BOND BEAM W/(2) #5 TOP & BOT
10" WALL	10"x8" CONC W/(2) #4 TOP & BOT OR 10"x8" BOND BEAM W/(2) #4 TOP & BOT	10"x8" CONC W/(2) #4 TOP & BOT OR 10"x16" BOND BEAM W/(2) #5 TOP & BOT	10"x12" CONC W/(2) #6 TOP & BOT OR 10"x16" BOND BEAM W/(2) #6 TOP & BOT
12" WALL	12"x8" CONC W/(2) #4 TOP & BOT OR 12"x8" BOND BEAM W/(2) #5 TOP & BOT	12"x8" CONC W/(2) #4 TOP & BOT OR 12"x16" BOND BEAM W/(2) #5 TOP & BOT	12"x12" CONC W/(2) #6 TOP & BOT OR 12"x16" BOND BEAM W/(2) #6 TOP & BOT

NOTES:
1. PROVIDE MINIMUM 6" BEARING ON BRICK, SOLID OR GROUTED SOLID CONCRETE BLOCK.
2. THIS SCHEDULE IS FOR THOSE OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO ARCH & MECH DRAWINGS FOR LOCATION AND SIZE OF FOR NON-BEARING MASONRY WALL.

TD8 S3.0 TYPICAL DETAIL
MISCELLANEOUS BOND OR PRECAST MASONRY LINTEL SCHEDULE
FOR NON-LOAD BEARING WALLS

MISCELLANEOUS STEEL ANGLE MASONRY WALL LINTEL SCHEDULE

WALL THICKNESS	MASONRY OPENING UP TO 4'-0"	MASONRY OPENING 4'-1" TO 6'-0"	MASONRY OPENING 6'-1" TO 8'-0"
4" WALL	L 3 1/2x3 1/2x5/16	L 4x3 1/2x5/16	L 6x3 1/2x5/16
6" WALL	JL 3 1/2x2 1/2x5/16	JL 3 1/2x2 1/2x5/16	JL 3 1/2x2 1/2x3/8
8" WALL	JL 3 1/2x3 1/2x5/16	JL 4x3 1/2x5/16	JL 6x3 1/2x5/16
10" WALL	L 5x3 1/2x1/4(*) + L 4x3 1/2x1/4(*)	L 5x3 1/2x1/4(*) + L 4x3 1/2x1/4(*)	L 5x5x5/16(*) + L 4x4x5/16(*)
12" WALL	JL L 3 1/2x3 1/2x5/16	JL L 4x3 1/2x5/16	JL L 6x3 1/2x5/16
16" WALL	JL JL 3 1/2x3 1/2x5/16	JL JL 4x3 1/2x5/16	JL JL 6x3 1/2x5/16

NOTES
1. THIS SCHEDULE IS FOR THOSE OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO ARCH AND MECH DRAWINGS FOR LOCATION AND SIZE OF OPENINGS FOR NON-BEARING MASONRY WALLS.
2. PROVIDE MINIMUM 6" BEARING ON BRICK, SOLID OR GROUTED SOLID CONCRETE BLOCK, BUT NOT LESS THAN 1" OF BEARING PER FOOT OF SPAN.
3. WHERE OPENINGS ARE LOCATED NEXT TO COLUMNS OR BEAMS, ATTACH TO STRUCTURAL STEEL, CONNECTION NOT TO PROTRUDE INTO OPENING.
4. ALL EXTERIOR LINTELS SHALL BE HOT DIPPED GALVANIZED PER ASTM 123.
5. ALL ANGLES LONG LEG VERTICAL UNLESS NOTED BY (*) WHEN NOTED BY (*) USE LONG LEG HORIZONTAL.
6. AT CAVITY WALLS, INCREASE THE HORIZONTAL LEG OF EXTERIOR ANGLE BY WIDTH OF CAVITY.

TD9 S3.0 TYPICAL DETAIL
MISCELLANEOUS STEEL ANGLE MASONRY WALL LINTEL SCHEDULE

fc = 4,000 PSI, NORMAL WEIGHT

BAR SIZE	LAP CLASS	TOP BARS CATEGORY 1	2	3	4	5	6	OTHER BARS CATEGORY 1	2	3	4	5	6
#3	A	14	14	14	14	14	14	12	12	12	12	12	12
	B	18	18	18	18	18	18	16	16	16	16	16	16
#4	A	20	19	19	19	19	19	15	15	15	15	15	15
	B	26	24	24	24	24	24	20	19	19	19	19	19
#5	A	31	25	23	23	23	23	24	19	18	18	18	18
	B	40	32	30	30	30	30	31	25	23	23	23	23
#6	A	44	35	31	28	28	28	34	27	24	22	22	22
	B	57	45	40	36	36	36	44	35	31	28	28	28
#7	A	59	48	42	33	33	33	46	37	32	26	25	25
	B	77	62	54	43	42	42	59	48	42	33	33	33
#8	A	78	63	55	44	39	37	50	48	42	26	30	29
	B	102	81	71	57	51	48	78	63	55	44	39	37
#9	A	99	79	69	56	50	42	76	61	53	43	38	32
	B	129	103	90	72	84	55	99	79	69	56	50	42
#10	A	126	101	88	70	63	50	97	77	68	54	48	39
	B	163	131	114	92	82	65	126	101	88	70	63	50
#11	A	154	123	108	86	77	62	119	95	83	67	59	48
	B	200	160	140	112	100	80	159	123	108	86	77	62

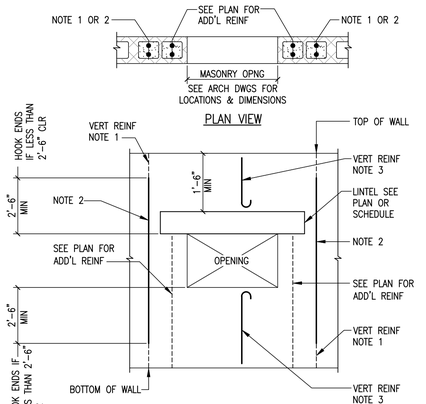
NOTES:
1. CATEGORIES 1 THROUGH 6, WHICH DEPEND ON THE TYPE OF STRUCTURAL ELEMENT, CONCRETE COVER, AND THE CENTER-TO-CENTER SPACING OF THE BARS ARE DEFINED AS:

STRUCTURAL ELEMENT	CONCRETE COVER	CATEGORY, ACCORDING TO CENTER-TO-CENTER SPACING OF THE BAR SPACING ≤ 3 db	> 3 db < 4 db	≥ 4 db < 6 db	≥ 6 db
BEAMS, COLUMNS, AND INNER LAYER OF WALLS OR SLABS	≤ db	1	1	1	2
	> db	1	3	5	6
ALL OTHERS	≤ db	1	1	1	2
	> db < 2 db	1	3	3	4
	≥ 2 db	1	3	5	6

2. LAP SPLICE LENGTHS ARE MULTIPLES OF TENSION DEVELOPMENT LENGTHS:
CLASS A – 1.0 ld AND CLASS B – 1.3 ld (ACI 12.15.1) VALUES OF ld FOR BARS IN BEAMS OR COLUMNS ARE BASED ON TRANSVERSE REINFORCEMENT MEETING MINIMUM REQUIREMENTS FOR STIRRUPS IN ACI 11.5.4 AND 11.5.5.3; OR MEETING TIE REQUIREMENTS IN ACI 7.10.5; AND ARE BASED ON MINIMUM COVER SPECIFIED IN ACI 7.7.1.
3. CONDITIONS WHICH REQUIRE CATEGORY 1 OR CATEGORY 2 LAP SPLICE LENGTHS (SHADED REGIONS) SHOULD BE AVOIDED IF AT ALL POSSIBLE FOR THE LARGER BAR SIZES. THESE INORDINATELY LONG LENGTHS PRESENT POSSIBLE CONSTRUCTABILITY PROBLEMS DUE TO PLACING CONGESTION, ETC. OPTIONS AVAILABLE IN TRYING TO AVOID CATEGORY 1 OR 2 CONDITIONS INCLUDE:
a – INCREASING THE CONCRETE COVER TO MORE THAN ONE BAR DIAMETER AND/OR INCREASE THE BAR C.C. SPACING TO MORE THAN THREE BAR DIAMETERS.
b – UTILIZING THE Atr ALLOWANCE IN ACI FOR BEAMS OR COLUMNS.
NOTE THAT IF TIES OR STIRRUPS MEET THE MINIMUM Atr REQUIREMENT. CATEGORY 1 LENGTHS ARE REDUCED TO CATEGORY 5 LENGTHS AND CATEGORY 2 LENGTHS ARE REDUCED TO CATEGORY 6 LENGTHS.
4. THE ACI 318 CODE DOES NOT ALLOW LAP SPLICES OF #14 OR #18 BARS. THE VALUES TABLUTED FOR THOSE BAR SIZES ARE THE TENSION DEVELOPMENT LENGTHS.
5. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCH OF CONCRETE CAST BELOW THE BARS.
6. #11 AND SMALLER EDGE BARS WITH C.C. SPACING LESS THAN 6 db ARE ASSUMED TO HAVE A SIDE COVER NOT LESS THAN 2.5 db. OTHERWISE, CATEGORY 5 APPLIES RATHER THAN CATEGORY 6.

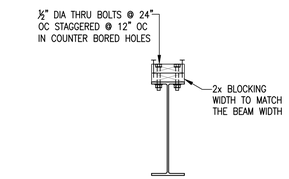
COMPRESSION SPLICES & ANCHORAGE (GRADE 60)
DOWELS – ALL BARS: 22db ≥ 8"
LAP SPLICES – #3 THRU #11: 30db ≥12"
db = NOMINAL BAR DIAMETER

TD10 S3.0 TYPICAL DETAIL
REINFORCING DEVELOPMENT LENGTH AND TENSION LAP SPLICE SCHEDULE



NOTES:
1. REINFORCED WALL: ALL INTERRUPTED VERT. BARS SHALL BE COMPENSATED FOR BY ADDITIONAL BARS ON EACH SIDE OF OPENING FULL HEIGHT OF WALL. TOTAL AREA OF ADD'L BARS SHALL EQUAL AREA OF INTERRUPTED BARS. PROVIDE MIN (2)#5 EACH SIDE OF OPENING.
2. UNREINFORCED WALL: PROVIDE MIN (2)#5 EACH SIDE OF OPENING.
3. REINFORCED WALL: SIZE & SPACING OF REINF INDICATED ON PLAN. PROVIDE HOOKED ENDS ON ALL DISCONTINUOUS BARS.

TD11 S3.0 TYPICAL DETAIL
MASONRY WALL OPENING REINFORCING



TD12 S3.0 TYPICAL DETAIL AT STEEL BEAM WITH WOOD NAILER ON TOP

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ADDITION
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WOODBRIDGE FIRE HEADQUATERS
FOR THE
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418 SCHOOL STREET
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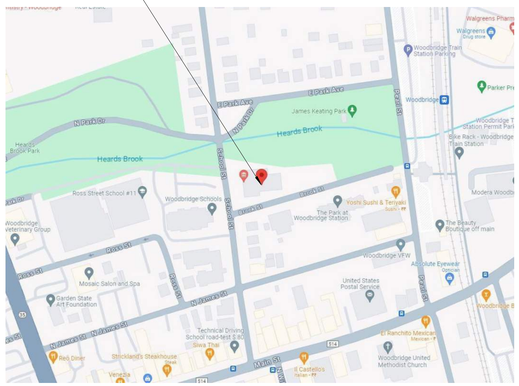
Drawn By: MPP	Checked By: SWM

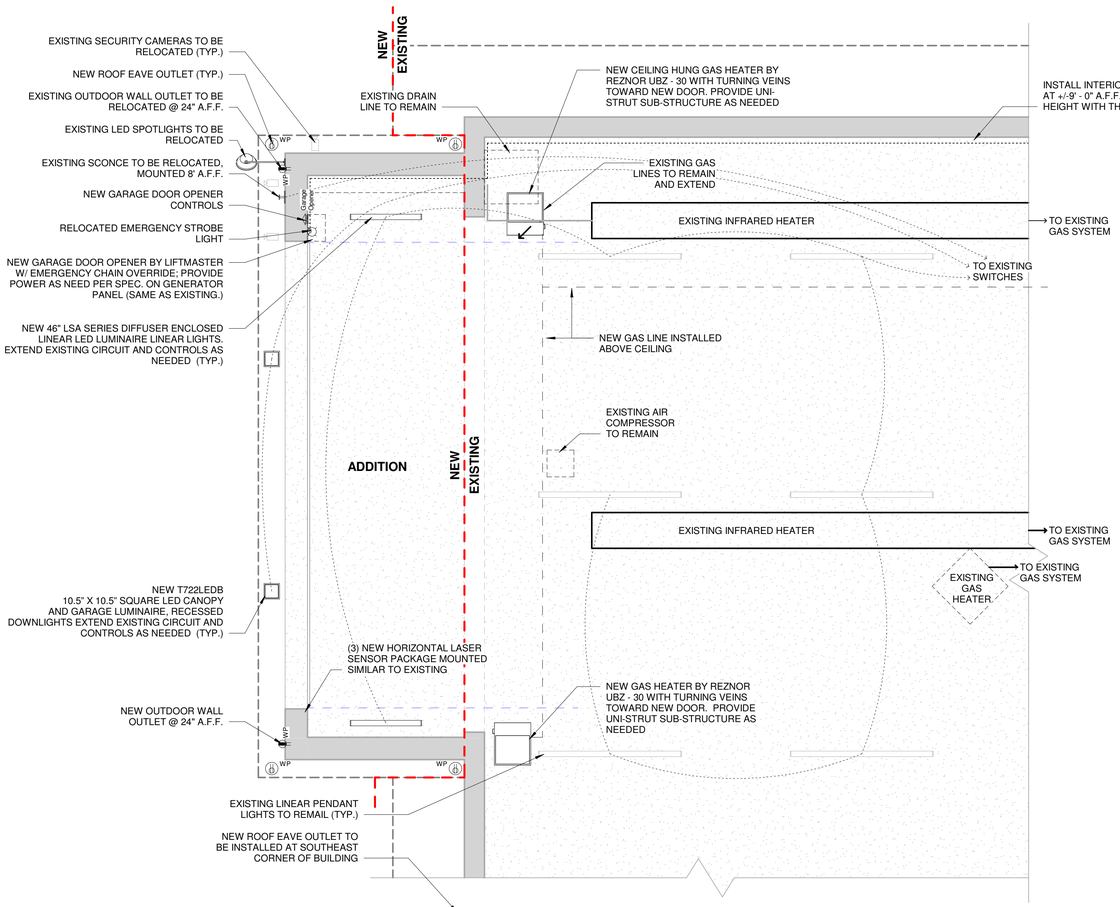
WOODBRIGE FIRE COMPANY

418 SCHOOL STREET WOODBRIDGE TOWNSHIP, NJ 07095

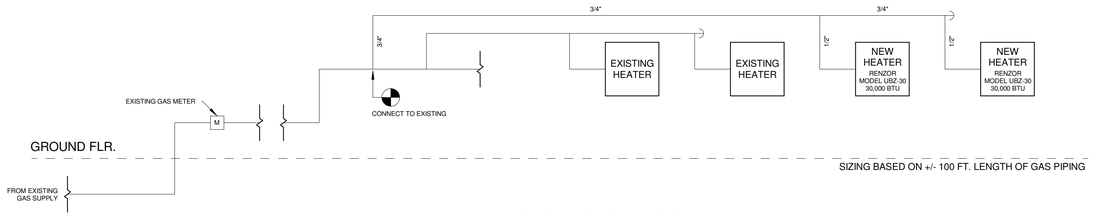
LOACTION



BUILDING CODES
ALL WORK SHALL CONFORM TO THE:
NATIONAL ELECTRIC CODE 2020
FUEL GAS SUBCODE (NJAC 5:23-3.22), INTERNATIONAL FUEL GAS CODE/2021



1 FIRST FLOOR ELECTRICAL & GAS LAYOUT PLAN
1/4" = 1'-0"



2 GAS RISER DIAGRAM
NOT TO SCALE

GENERAL

DESCRIPTION:
SPECIFICATIONS ARE IN SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISHED," "PROVIDE," "A," THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.

DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS.

DEFINITIONS:
"FURNISH" OR "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION OF PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERS NOTED.
"INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
"SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
"WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.
"WIRING": RACEWAY, FITTINGS, WIRE, BOXES AND RELATED ITEMS.
"CONCEALED":EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES OR IN ENCLOSURES.
"EXPOSED": NOT INSTALLED UNDERGROUND OR CONCEALED AS DEFINED ABOVE.
"SIMILAR" OR "EQUAL": eQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

SCOPE OF WORK:
LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE SAFE INSTALLATION IN CONFORMITY WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION; AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED. SCOPE OF WORK SHALL INCLUDE BUT NO BE LIMITED TO THE FOLLOWING: SECURING OF CERTIFICATES OF COMPLIANCE, RACEWAYS, WIRE, SWITCHES, LIGHTING FIXTURES, DEVICES, CUTTING AND PATCHING AS REQUIRED FOR NEW WORK, DEMOLITION AND REMOVALS, RELOCATIONS OF EXISTING EQUIPMENT.

ALL WORK IN THE EXISTING BUILDING SHALL BE DONE WHEN AND AS DIRECTED BY CONSTRUCTION MANAGER, BUILDING OWNER'S REPRESENTATIVE AND BUILDING ENGINEER.
THE CONTRACTOR SHALL NOT ENDANGER THE STABILITY OF THE STRUCTURE OR ANY PART THEREOF BY CUTTING, DRILLING OR OTHERWISE, AND SHALL NOT IN ANY WAY CUT OR ALTER THE WORK OF ANY OTHER CONTRACTOR, EXCEPT WITH CONSENT OF AND UNDER THE DIRECTION AND WRITTEN APPROVAL OF THE ARCHITECT AND BUILDING ENGINEER.

THE DRAWINGS INDICATE AND THE SPECIFICATIONS DESCRIBE THE GENERAL ARRANGEMENTS AND LOCATION OF ELECTRICAL EQUIPMENT. THE CONTRACTOR SHALL, WITHOUT EXTRA COST TO THE OWNER, MAKE ALL REASONABLE MODIFICATIONS IN THE WORK AS MAY BE REQUIRED TO PREVENT CONFLICT WITH EXISTING CONDITIONS, THE WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF THE WORK.

EXAMINATION OF PREMISES:
PRIOR TO SUBMISSION OF BID PROPOSAL, CONTRACTOR SHALL VISIT THE SITE AND EXAMINE CAREFULLY SCOPE OF WORK FOR NEW CONSTRUCTION AND DEMOLITION, THE EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL BE INCURRED DURING THE PERFORMANCE OF HIS WORK.
ARRANGE FOR A SITE VISIT WITH THE BUILDING ENGINEER AND OWNER'S REPRESENTATIVE; COORDINATE AND VERIFY FOR CONNECTION OF NEW JOB TO EXISTING BUILDING SYSTEM.
CLAIMS FOR ADDITIONAL COMPENSATION ARISING DUE TO THE FAILURE OF THE CONTRACTOR TO EXAMINE THE PREMISES WILL NOT BE CONSIDERED.

THE CONTRACTOR SHALL SECURE ALL PERMITS, APPROVALS AND CERTIFICATES AND PAY ALL FEES FOR ALL THE WORK INSTALLED. CERTIFICATES SHALL BE DELIVERED TO THE OWNER BEFORE FINAL PAYMENT WILL BE MADE. ALL PERMITS SHALL BE FURNISHED TO THE BUILDING MANAGER PRIOR TO COMMENCEMENT OF WORK.

CORE DRILLING, TEMPORARY POWER SHUTDOWNS AND ANY WORK THAT CAUSES EXCESSIVE NOISE IN SPACES OUTSIDE THE PREMISES UNDER CONSTRUCTION DURING OVERTIME HOURS ONLY. COORDINATE WITH BUILDING ENGINEER. CONTRACTORSHALL SUBMIT CERTIFICATES TO THE BUILDING CONSTRUCTION DEPARTMENT UPON COMPLETION OF WORK. THIS SHALL INCLUDE BUT NOT BE LIMITED TO BUILDING NOTICE APPLICATION APPROVALS AND WRITE OFFS ISSUED BY THE DEPARTMENT OF BUILDINGS. ETC.

PROVIDE TEMPORARY POWER AS REQUIRED BY BUILDING RULES AND STANDARDS.

NO WORK SHALL BE PERFORMED ON ENERGIZED EQUIPMENT.

ALL WORK MUST CONFORM TO BUILDING STANDARDS.

JOB CONDITIONS
CONNECTIONS TO EXISTING WORK:
INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES.
TEMPORARY SHUTDOWNS OF EXISTING EQUIPMENT
AT NO ADDITIONAL CHARGES.
AT TIME NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES.
ONLY WITH WRITTEN CONSENT OF OWNER AND BUILDING ENGINEER.
BUILDING ALARM AND EMERGENCY SYSTEM: NOT TO BE INTERRUPTED. FIRE DETECTION/PROTECTION SYSTEM MUST BE ONLINE DURING NON-BUSINESS HOURS.
OTHERWISE, A FIRE WATCH MUST BE MAINTAINED.
MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK.
CONNECT NEW WORK TO EXISTING WORK NEWAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.
ACCESS TO BUILDING ELECTRICAL CLOSETS MUST BE COORDINATED WITH THE OWNER AND THE BUILDING MANAGEMENT OFFICE.

REMOVAL AND RELOCATION OF EXISTING WORK:
DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT, AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEMS.
DISPOSE OF ALL OTHER UNUSED ELECTRICAL EQUIPMENT AND/OR WIRING ABANDON BY THIS CONTRACTOR.

QUALITY ASSURANCE
ALL WORK SHALL COMPLY WITH NEC AND ALL APPLICABLE LOCAL CODES, FOLLOWING MOST STRINGENT.
QUALITY AND GAUGES OF MATERIALS:
QUALITY OF MATERIALS:
NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND LISTED BY UNDERWRITERS LABORATORIES, INC., OR BEARING THEIR LABEL.
MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION: SAME MANUFACTURER, EXCEPT AS NOTED.
ALL EQUIPMENT AND MATERIALS SHALL BE BSA APPROVED, UL LISTED AND MANUFACTURED IN ACCORDANCE WITH ASME, IEEE STANDARDS.
HEIGHTS OF OUTLETS:
FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:
RECEPTACLES: AS NOTED ON ARCHITECTURAL DRAWINGS
WALL SWITCHES: AS NOTED ON ARCHITECTURAL DRAWINGS.
FIRE AND LIFE SAFETY EQUIPMENT: AS REQUIRED BY ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION, COORDINATE EXACT LOCATION WITH ARCHITECT.

MATERIALS
INSERTS AND SUPPORTS:
INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.
SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.
MULTI-ROD: SIMILAR TO FEE MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.
CLIP FORM NAILS FLUSH WITH INSERTS.
MAXIMUM LOADING 75 PERCENT OF RATING.
SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY) CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.
GROUPED LINES AND TRANSFORMERS: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.

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ADDITION
AT
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FOR THE
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WOODBRIDGE TOWNSHIP, NJ 07095

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ELEC. & GAS DRAWING

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