Purchasing Department
Finance Group

January 8, 2018

INVITATION TO BID

The City of Norwalk is soliciting bid submissions for American with Disability Act (ADA) accessibility improvements to the Norwalk Historical Society Museum. The scope of work for this project is defined by the bid specifications and drawings and consists of drainage remediation and exterior handicapped accessibility improvements. The approximate budget for this project is **$100,000.00**. The requirements of these services are discussed in greater detail under Section 2 – Project Specifications.

PROJECT NUMBER:	**3803**
DEADLINE :	**2:00 PM, February 20, 2018**
BID TITLE :	**Norwalk Historical Society ADA Improvements – Phase 2A**
SITE LOCATION:	**Norwalk Historical Society (NHS) Museum (formerly the Lockwood House Facility), 141 East Avenue, Norwalk, CT 06851**

BID DOCUMENTS for this project are available over the Internet at http://www.norwalkct.org Adobe Acrobat reader is required to view this document. If you do not have this software you may down load the required software from Adobe.

A Pre-bid Conference will be held at 2:00PM, Wednesday, January 17, 2018, meeting at the entrance to the Norwalk Historical Society (NHS) Museum, located within City Hall campus, 141 East Avenue, Norwalk, CT. A walk-through of the project area will follow the pre-bid conference.

All questions must be directed in writing via e-mail or fax to Ben Luce, Purchasing Agent, e-mail bluce@norwalkct.org fax 203-854-7817. The deadline for submission of questions for this bid solicitation is 2:00pm, Monday, February 12, 2018.

Bidders will be required to provide:

- 10% bid bond with your response (see Section 3.1 C).
- Performance, labor, and materials bond for 100% of the project upon award if the contract value exceeds $100,000.00 (see Section 3.1 C & D).
- Copies of current certifications as applicable to this solicitation.
- Original bid response, plus four (4) copies.

Optional:

- As a request can you please upload your bid response to the below link:

  https://norwalkct.bonfirehub.com/projects/view/6260

SPECIAL NOTES:

1.) PROJECT SCHEDULE: Construction shall commence on or about March 15, 2018 and shall be completed on or about May 30, 2018.

2.) BUILDING PERMITS - Contractors shall obtain and pay for all required permit(s) for this project. Permits fees are NOT waived for this project.

3.) References to Department of Public Works, Director of Public Works, and Engineer in section 3 and section 4 are to be interpreted as "Owner's designated representative".

4.) Section 4, Item 109-04-2b, Contractor Charges is changed to read "...profit and overhead shall be figured at fifteen (15) percent unless some other basis is approved by the Director."

5.) Section 3.8, Liquidated Damages, change to read "Liquidated damages as defined in Article 20 of the Norwalk General Conditions for Construction will be $250.00 per day.

6.) Contractors are hereby reminded that all submitted bid amounts MUST include all costs/insurance premium required to satisfy the various insurance limits as identified in these documents.

7.) **Prevailing Wage Rates** shall apply to these services. A copy of the State of Connecticut prevailing wage rates is included or to be provided via bid addendum prior to bid opening as a component of this solicitation. See Section 5 for this information.

BIDDER LISTS will not be published.

ADDENDA, if issued, will be available over the Internet at http://www.norwalkct.org. It is the responsibility of the bidders to verify the issuance of any addenda. We strongly suggest that you check for any addenda a minimum of forty eight hours in advance of the bid deadline.

If, after review of the bid documents, your firm is interested in performing the services specified, provide the information requested, sign and return the complete documents, along with your detailed proposal, to the Purchasing Department by the due date. We would appreciate the courtesy of promptly advising us if you do not intend to respond. To properly maintain our records those firms who do not respond may be removed from our vendor records.

Ben Luce,
Purchasing Agent,
City of Norwalk
(Ph) 203-854-7892
(Fax) 203-854-7817
E-mail – bluce@norwalkct.org

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SECTION 1 - RESPONSE FORMS

SPECIAL NOTES ON RESPONDING:

ADDENDAS, if issued, will be available over the Internet at **http://www.norwalkct.org** Adobe Acrobat reader is required to view this document. If you do not have this software you may down load it from Adobe. Request document #1001. **We strongly suggest that you check for any addenda a minimum of forty eight hours in advance of the bid deadline.**

SUMMARIES will be available any time after 5:00 PM on the day of the bid opening over the Internet at **http://www.norwalkct.org** The document number to request will be the same as the project number indicated in the invitation to bid. Bid results will not be provided over the phone.

AWARD NOTIFICATION will be issued by mail.

BUSINESSES WITHOUT FAX EQUIPMENT or Internet access may contact the Purchasing Department at 203-854-7712 for this information.

BID RESPONSES [One (1) Original plus four (4) copies] are to be delivered to:

City of Norwalk
Purchasing Department
Room 103
125 East Avenue
P.O. Box 5125
Norwalk, CT 06856-5125

Optional:

- As a request can you please upload your bid response to the below link:

  https://norwalkct.bonfirehub.com/projects/view/6260

1.1A RESPONSE FORM – BID #3803: Norwalk Historical Society ADA Improvements – Phase 2A

Vendor Name -		
Address -		
Phone -	**Fax -**	**Email -**
Manager -		**Fed ID#**

The undersigned hereby declares that he has or they have carefully examined the plans, specifications and project site and has satisfied him as to all the quantities and conditions, and understands that in signing this proposal he waives all right to plead any misunderstanding regarding the same.

The undersigned further understands and agrees that he will furnish and provide all the necessary material, machinery, implements, tools, labor, services, and other items of whatever nature, and to do and perform all the work necessary under the aforesaid conditions, to carry out the contract and to accept in full compensation therefore the amount of the contract as agreed to by the Contractor and the City.

1. Construction – Norwalk Historical Society ADA Improvements – Phase 2A

A.	**Base Bid – items a thru p (Section 01 1000, 1.3, A, 1)**	**$**
B.	**Allowance No. 1 – Gas Line Relocation (Section 01 2100, 3.3, A, 1)**	**$ 12,000.00**
C.	**Allowance No. 2 – Plants (Section 01 2100, 3.3, B, 1)**	**$ 1,000.00**

D.	**Total Lump Sum Price (Items A thru C listed above)**	**$**
	Total Lump Sum Price in Writing:	

Bid Security in the form of a (check one) is attached.		Bond		Certified Check
Cost for performance bond <u>included in lump sum</u>	$		per thousand dollars	
Insurance Agency Name -			Tel.-	
Agency Address -				

Submitted by -	
Authorized Agent of Company (name and title)	Date

The above signatory acknowledges receipt of the following addenda issued during the bidding period and understands that they are a part of the bidding documents (if applicable):

Addendum #		Dated		Addendum #		Dated	
Addendum #		Dated		Addendum #		Dated	
Addendum #		Dated		Addendum #		Dated	

1.1B Response Form - Alternates - Bid #3803: Norwalk Historical Society ADA Improvements – Phase 2A

Vendor Name -

The undersigned hereby declares that he has or they have carefully examined the plans, specifications and project site and has satisfied him as to all the quantities and conditions, and understands that in signing this proposal he waives all right to plead any misunderstanding regarding the same.

The undersigned further understands and agrees that he will furnish and provide all the necessary material, machinery, implements, tools, labor, services, and other items of whatever nature, and to do and perform all the work necessary under the aforesaid conditions, to carry out the contract and to accept in full compensation therefore the amount of the contract as agreed to by the Contractor and the City.

Each ALTERNATE ITEM shall include all equipment, tools, labor, permits, fees, etc., incidental to the installation and completion of the work involved.

The following ALTERNATE ITEMS may apply to this project:

ITEM NO.	WORK ITEM DESCRIPTION	PRICE
ALT-1	**SECTION 01 2300, 3.1, A**	Deduct:$_____
ALT-2	**SECTION 01 2300, 3.1, B**	Deduct:$_____
ALT-3	**SECTION 01 2300, 3.1, C**	Add:$_____
ALT-4	**SECTION 01 2300, 3.1, D**	Add:$_____
ALT-5	**SECTION 01 2300, 3.1, E**	Deduct:$_____

Submitted by:

Print Name of Authorized Agent of Company	
Signature of Authorized Agent of Company	
Date	

1.1C Response Form Unit Prices - BID #3803: Norwalk Historical Society ADA Improvements – Phase 2A

Vendor Name -

The undersigned hereby declares that he has or they have carefully examined the plans, specifications and project site and has satisfied himself as to all the quantities and conditions, and understands that in signing this proposal he waives all right to plead any misunderstanding regarding the same.

The undersigned further understands and agrees that he will furnish and provide all the necessary material, machinery, implements, tools, labor, services, and other items of whatever nature, and to do and perform all the work necessary under the aforesaid conditions, to carry out the contract and to accept in full compensation therefore the amount of the contract as agreed to by the Contractor and the City.

The undersigned further agrees, in case of variations of quantities from those shown or specified, the following unit prices will be used in adjusting the contract price. If quantities are authorized by the City, the following amount will be added to the contract as required. Unless otherwise noted, . Each UNIT PRICE shall include all equipment, tools, labor, permits, fees, etc., incidental to the installation and completion of the work involved.

The following unit prices shall apply to this project:

ITEM NO.	WORK ITEM DESCRIPTION	UNIT OF MEASURE	UNIT PRICE
No. 1	Removal of Existing Concrete or Asphalt Sidewalk: Remove and dispose of existing sidewalk. Neatly saw-cut edges of existing pavement to remain…	Square Foot (SF)	$_____/SF
No. 2	Broom-Finish Concrete Sidewalk: Provide and install new natural gray broom-finish concrete sidewalk, including grading and gravel base, according to Sections 32 1313 "Concrete Paving" and 32 1373 “Concrete Paving Joint Sealants.”…	Square Foot (SF)	$_____/SF

Submitted by:

Print Name of Authorized Agent of Company	
Signature of Authorized Agent of Company	
Date	

1.2 STATEMENT OF BIDDERS QUALIFICATIONS

Please answer the following questions regarding your company's past performance. Attach a financial statement or other supportive documentation. Failure to reply to this instruction may be regarded as justification for rejecting a bid.

1. Number of years in business - _____
2. Number of personnel employed Part-time - _____, Full - _____,
3. List projects of this type/size your firm has completed within the last three years:

Project	Date	Contact Person	Phone No.

4. ORGANIZATIONAL STRUCTURE OF BIDDER (check which applies)		general partnership
		limited partnership
		limited liability corporation
		limited liability partnership,
		corporation doing business under a trade name
		individual doing business under a trade name
		other (specify)

5. STATUS OF THE BUSINESS AND ITS CURRENT STANDING WITH THE SECRETARY OF STATE'S OFFICE; e.g., are all required filings current and in good standing or has the entity been withdrawn or canceled	<u>Connecticut corporations</u> - Will the Secretary of State be able to issue a Certificate of Good Standing within 30 days of the bid opening?	Yes	No
	<u>Out-of -State corporations</u> - Do you have a valid licence to do business in the State of Connecticut? (Evidence in the form of a Certificate of Authority from the Connecticut Secretary of State will be required within 30 days of the bid opening.)	Yes	No

6. Is your local organization an affiliate of a parent company? If so, Indicate the principal place of business of your company and the name of the agent for service if different from what has been indicated on the response form:

Business Name					
Address					
City		State		Zip	
Name of Agent					

NOTE: In the case of a Limited Liability Corporation or a Limited Liability Partnership a certified

copy of the Articles of Organization certified as valid and in effect as of the date of the bid opening will be required within 30 days of the bid opening.

A listing of the corporate officers, in the case of a corporation; the general or managing partners, in the case of a partnership; or the managers and members in the case of either a limited liability partnership or company will be required within 30 days of the bid opening.

7. The awarded contractor may be required to submit one copy of the following information relative to its company's financial statements prior to contract signing. This information must represent the current circumstance which surrounds the financial position of the bidding organization. Note: This information will be kept confidential if provided in a separate envelop from your bid pricing.

All information should be supported with appropriate audited financials.
a. Book Value (Total Assets (-) Total Liabilities)
b. Working Capital (Current Assets (-) Current Liabilities
c. Current Ratio (Current Assets/Current Liabilities)
d. Debt to Equity Ratio (Long Term Debt/Shareholder's Equity)
e. Return on Assets (Net Income/Total Assets)
f. Return on Equity (Net Income/Shareholder's Equity)
g. Return on Invested Capital (Net Income/Long Term Debt = Shareholders' Equity)

8. SUBCONTRACTORS: If subcontractors are to be used, please list firm name, address, name of principal, and phone number below or on a separate sheet. Also indicate portion or section of work subcontractor will be performing.

COMPANY NAME	ADDRESS	PRINCIPAL	PHONE

All responses to this questionnaire are understood to be proprietary to the vendor, and will be considered confidential. Additional information may be requested subsequent to your responding to this bid request.

END OF SECTION

1.3 SAMPLE CONTRACT

"The following document is the City's standard construction services contract. Please be advised that the substantive terms and requirements outlined therein may be revised only with the approval of Norwalk's Corporation Counsel."

CITY OF NORWALK
CONTRACT FOR CONSTRUCTION SERVICES
WITH «VendorName»
«Project»

This Contract entered into this _____ day of _____, 2018, by the **CITY OF NORWALK,** a municipal corporation organized and existing under the laws of the State of Connecticut (hereinafter referred to as "CITY"), acting by and through «ContractAuthorizer», its «ContractAuthorizerTitle», duly authorized, and **«VendorName»**, a corporation organized and existing under the laws of the State of Connecticut with an office and principal place of business located at «VendorAddress1» «VendorAddress2», «VendorCity», «VendorState» «VendorZip», acting herein by «VendorAuthorizer», its «VendorAuthorizerTitle», duly authorized (hereinafter the "CONTRACTOR").

WITNESSETH: That the CITY and CONTRACTOR, for the consideration hereinafter named, agree as follows:

ARTICLE 1. WORK TO BE DONE

The CONTRACTOR shall (a) furnish all the materials, machinery, implements, tools, labor, services, and other items of every kind (the "Work") using its best skill and attention required to perform and complete in the most substantial and workmanlike manner the project generally identified as **«Project»** (hereinafter the "Project"). The Work shall be performed in strict compliance with the City of Norwalk Department of Public Works General Provisions, dated April 2011; the general and technical specifications and conditions of contract; the Project Plans; Special Conditions and Addenda; State Labor Department minimum wage rates; any addenda to the specifications; and all requirements of the Contract Documents, as defined herein.

The CITY will compensate the CONTRACTOR for the satisfactory completion of the Project and of all of the CONTRACTOR's duties, obligations and responsibilities under this Contract, subject to additions and deductions as herein provided, the total sum of **«ContractBudgetInEnglish»($«ContractBudget»)** in the manner set forth herein and the Contract Documents.

The Project shall be performed in accordance with the true intent and meaning of the Contract Documents without any expense of any nature whatsoever to the CITY exceeding the compensation stated herein. The CONTRACTOR's Work hereunder shall be overseen by «VendorAuthorizer», its duly authorized «VendorAuthorizerTitle».

The CONTRACTOR hereby represents that it has carefully examined and understands all of the terms and requirements of the Contract Documents, has investigated the nature, locality and site of the Project (the Site) and the conditions and difficulties under which it is to be performed and that it enters into this Contract on the basis of its own examination, investigation and evaluation of such and not in reliance on any opinions or representations of the CITY or any third party, including any officer, agent, servant or employee thereof.

ARTICLE 2. ADMINISTRATION OF CONTRACT BY CITY

The Work to be performed under this Contract shall be administered on behalf of the CITY by «DepartmentHead», «DepartmentHeadTitle», referred to as the "Director." The CONTRACTOR acknowledges and agrees that any instructions, reviews, advice, approvals or directives rendered to it by the Director or his designated representative consistent with the Contract Documents are authorized on behalf of the CITY. However, notwithstanding the above, no advice, directive or other recommendation or request by the CITY shall give rise to liability or responsibility on the CITY's part for any portion of the Work, nor shall it relieve the CONTRACTOR of its responsibilities hereunder.

ARTICLE 3. DOCUMENTS FORMING THE CONTRACT

The Contract Documents shall be deemed to include the Bid Documents; Addendum No. 1; the CONTRACTOR's bid response, dated ; this written Contract, including all bonds and insurance certificates; the City of Norwalk Department of Public Works General Provisions dated April 20, 2011; the general and technical specifications and conditions for the Project; the Project plans; Special Conditions and Addenda; State Labor Department minimum wage rates (if applicable); any addenda to the specifications; and all provisions required by law to be inserted in this Contract, whether or not physically inserted.

This Contract will supersede any Contract or contract form that may have been included in the bid specifications, which form was included for information purposes only, and any writings or documents not incorporated herein by specific reference. This Contract, together with the other Contract Documents are all intended to supplement and complement each other and shall, to the fullest extent possible, be so construed and interpreted. If, however, any provision of this Contract irreconcilably conflicts with any provision of the other Contract Documents, the provision imposing a greater obligation on the CONTRACTOR shall govern.

ARTICLE 4. EXAMINATION OF DOCUMENTS AND SITE

The CONTRACTOR confirms that it has carefully examined the Project Site, as well as its surrounding territory. As a result, the CONTRACTOR acknowledges that it is fully informed regarding all existing conditions, both natural and manmade, as well as all such above grade, at grade and subsurface conditions that may in any way affect the Work to be done and labor and materials to be furnished for the proper completion of the Project, including, by way of example, the existence of poles, wires, pipes, ducts, conduits and other facilities and structures of municipal and public service corporations on, over or under the Project site. The CONTRACTOR further acknowledges that it has secured such information by personal investigation, research, and inquiry into all reasonably available data concerning the actual Site and has not relied upon the estimates or records of the CITY; and that it will make no claim against the CITY by reason of reliance on any such estimates, tests, information, data or representations made by any officer, agent, representative or employee of the CITY, or for costs incurred as a result thereof.

In addition, the CONTRACTOR agrees that, prior to starting any part of the Work, it shall carefully study and compare the various drawings, plans and other Contract Documents relative to that portion of the Work in order to facilitate construction and determine whether inconsistencies or conflicts exist.

ARTICLE 5. DATE OF COMPLETION

The CONTRACTOR further agrees that it will begin the Project herein described within ten (10) days of the date hereof, unless written instruction from the Director is given to begin at a different date. The CONTRACTOR shall diligently and continuously prosecute and complete the same and coordinate its Work with all other work being performed on the Project according to any schedules that may be issued from time to time during the Project and any other scheduling requirements listed in the Contract Documents, so as not to delay, impede, obstruct, hinder or interfere with the commencement, progress or completion of any part of the Project and so that the Project shall be entirely completed no later than **«CompletedDate»** (the "Completion Date"), unless such Completion Date is extended by written notice signed by the Director.

The contractor acknowledges that time is of the essence in terms of completion of the contractor's work hereunder.

No extension beyond this date of completion shall be effective unless in writing signed by the Director. Any extension shall be for such time and upon such terms and conditions as may be set by the Director, which may include charges for professional services, engineering and inspection expenses incurred, (including expenses incurred by railroad companies on contracts which affect a railroad right of way) as a result. Notice of application for any extension shall be filed with the Director at least fifteen (15) days prior to the date of completion set forth above.

The CONTRACTOR shall work during such days and times as required by the CITY so as not to interfere with its use or operation of the Site. However, if the CITY deems it necessary, it may direct the CONTRACTOR to work overtime. If so directed, the CONTRACTOR shall work overtime and, provided that it is not in default under any of the terms or provisions of this Contract or of other Contract Documents, the CITY will pay the CONTRACTOR for such actual additional wages paid directly for such overtime work, if any, at rates which have been approved by the CITY.

The CONTRACTOR shall contribute to and cooperate with the development of the Project schedules and other efforts to achieve timely completion of the Work. The CONTRACTOR shall be required to provide information for the scheduling of the times and sequence of operations required in order for its Work to meet the CITY's overall schedule requirements and it shall continuously monitor the Project schedule so as to be fully familiar with the timing, phasing and sequence of operations of the Work and of any other work performed by others on the Project. The CONTRACTOR shall diligently execute the Work in accordance with the requirements of the Project schedule including any revisions thereto.

In the event the CONTRACTOR is delayed, obstructed, hindered or interfered with in the commencement, prosecution or completion of the Work by any cause including, but not limited to, any act, omission, neglect, negligence or default of the CITY or of anyone employed by it, or by any other contractor or subcontractor on the Project, or by damage caused by fire or other casualty or by any other cause beyond the control of and not due to any fault, neglect, act or omission of the CONTRACTOR, its officers, agents, employees, subcontractors or suppliers, the CONTRACTOR's exclusive remedy shall be an extension of time for a period equivalent to the time lost by reason of any and all of the aforesaid causes. Provided, however, that the CONTRACTOR shall not be entitled to any such extension of time unless the CONTRACTOR (1) notifies the CITY in writing of the cause or causes of such delay, obstruction, hindrance or interference within forty-eight (48) hours of the commencement thereof and (2) demonstrates that it could not have anticipated or avoided such delay, obstruction, hindrance or interference and has used all available means to minimize the consequences thereof. Notwithstanding the foregoing, if any of the Contract Documents are at variance with granting such time extension, then the provisions of such documents shall control.

In no event shall the CONTRACTOR be entitled to money damages or an adjustment to the sum payable hereunder by virtue of any such delay.

In the event of a delay in the progress of the Work or disruption of, hinderance, obstruction, or interference with the Work due to any fault, neglect, action or omission of the CONTRACTOR or any of its officers, agents, servants, employees, subcontractors or suppliers which results in any additional cost, expense, liability or damage to the CITY including, legal fees and disbursements incurred by the CITY (whether incurred in defending claims arising from such delay or in seeking reimbursement or indemnity from the CONTRACTOR and/or its surety hereunder or otherwise) or any damages or additional costs or expenses for which the CITY may or shall become liable, no extension of time shall be granted and the CONTRACTOR (and its surety) shall be liable to compensate the CITY for and indemnify it against all such costs, expenses, damages and

liability. In addition, the CONTRACTOR shall not only fulfill all of its obligations imposed by this Contract at its own cost and expense, but also work such overtime as may be necessary to make up for all time lost in the performance of the Work and of the Project. Should the CONTRACTOR fail to make up for the time lost by reason of such delay, the CITY shall have the right to hire other contractors to work overtime, if needed, and to take whatever other action it deems necessary to avoid delay in the completion of the Work and of the Project. The cost and expense of such overtime and/or such other action, including all other consequential damages and expenses, shall be borne by the CONTRACTOR hereunder.

ARTICLE 6. CONTINGENCIES, EXTRA WORK, AND CHANGES

Whenever the CITY determines that, for any reason deemed to be in the best interests of the Project, the scope of Work or plans for the Project should be revised to provide for changes, deletions, contingencies, additional or extra work, it may issue a Change Order to the CONTRACTOR. Once the CITY has issued and signed a written Change Order in its standard form, the CONTRACTOR shall forthwith comply with the specifications of such Change Order. In such event, allowances for additions and/or deductions to the prices listed in the bid documents will be made commensurate with such changes in the scope or extent of the Work. Any such action by the CITY shall not constitute grounds for a claim by the CONTRACTOR for damages, loss of anticipated profits, or for costs resulting from any variations between the approximate quantities and quality of Work contemplated in the bid documents and as built.

All changes, additions or omissions in the Work ordered in writing by the CITY shall be deemed to be a part of the Work hereunder and shall be performed and furnished in strict accordance with all of the terms and provisions of the Contract Documents based on a negotiated cost for the Work and materials. The CONTRACTOR shall be responsible for keeping its surety informed of all such modifications to this Contract. The obligations of CONTRACTOR's surety shall not be reduced, waived or adversely affected by the issuance of such Change Orders, additions or deductions and the CITY shall not be required to inform the surety of the same or to obtain the consent of the surety to such modifications.

Payment for any unforeseen Work and/or changes shall be made as provided for in the Standard Specifications.

ARTICLE 7. MEANS AND METHODS

The CONTRACTOR shall supervise and direct the Work using its best skill and attention in order to perform and complete the Project according to the Contract Documents in a timely and workmanlike manner. The CONTRACTOR shall be responsible for safeguarding the Site and all adjacent property from damage and for implementing all reasonable and necessary construction means, methods, techniques, sequences and procedures for safety precautions, protection against vandalism, and compliance with fire insurance rating bureau procedures, in connection with the performance of the Work. CONTRACTOR further assumes responsibility for all actions and omissions of its agents, employees, subcontractors, suppliers and all of their respective agents, employees and any other person performing any part of the Work.

ARTICLE 8. NO COLLUSION OR FRAUD

The CONTRACTOR hereby agrees that all persons interested as principal or principals in the bid or proposal submitted by the CONTRACTOR for this Project are named therein; that this Contract has been secured without any connection with any person or persons other than those named; that this Contract was secured without collusion or fraud; and that neither any officer nor employee of the CITY, nor any member of the immediate family of any such person, has or will have a financial interest in the performance of this Contract, in the supplies, Work or business to which it relates, or in any portion of the profits thereof.

ARTICLE 9. ESTIMATES AND PAYMENT

As the Project progresses in accordance with the Contract and in a manner that is satisfactory to the CITY, the CITY hereby agrees to make payments to the CONTRACTOR, based upon the prices set out in the CONTRACTOR's Proposal. The procedure for processing payments is as follows: on or before the last day of each month the CONTRACTOR shall submit to the CITY, in the form required by the CITY, a written Application For Payment showing the value of the Work performed and in place as of that date. From this amount shall be deducted all previous payments and all charges for services, materials, equipment and other items chargeable to the CONTRACTOR. The balance of such Application must be approved by the CITY and should represent the value of Work done and material furnished in accordance with the terms and conditions of this Contract during the preceding month. The CONTRACTOR shall be paid ninety-five (95%) percent of such amount. The five (5) percent retained shall be held by the CITY until final completion and acceptance of all Work covered by this Contract; compliance by the CONTRACTOR with all of its responsibilities hereunder including the provision of signed waivers of lien from CONTRACTOR, its subcontractors and suppliers; the posting of a twenty-five percent (25%) maintenance bond by the CONTRACTOR insuring the Project for a period of two (2) years from the date of final acceptance; and the making of all payments due all subcontractors and material suppliers in connection with the Project. Nothing herein shall modify or limit detailed payment provisions contained in the Contract Documents and approved by the Director.

Prior to commencing the Work, the CONTRACTOR shall submit to the CITY a detailed Schedule of Values showing the breakdown of the total contract price into its various parts for approval. The CITY may modify the Schedule of Values, or may require additional information or a more detailed breakdown of costs, subject to their final approval. All Applications for Payments will thereafter be submitted according to the approved payment Schedule.

The CITY reserves the right to advance the date of any payment (including the final payment) under this Contract if, in its judgment, it becomes desirable to do so.

The CONTRACTOR agrees that, if and when requested to do so by the CITY, it shall furnish such information, evidence and substantiation as the CITY may require with respect to the nature and extent of all obligations incurred by the CONTRACTOR for or in connection with the Work, all payments made by the CONTRACTOR thereon, and the amounts remaining unpaid and the reasons therefor.

The CONTRACTOR warrants that: (1) title to Work, materials and equipment covered by an Application for Payment will pass to the CITY either by incorporation in construction or upon receipt of any payment for the same by the CONTRACTOR, whichever occurs first; (2) Work, materials and equipment covered by Applications for Payment shall be free and clear of liens, claims, security interests or encumbrances; and (3) no Work, materials or equipment covered by an Application for Payment shall be acquired by the CONTRACTOR, or any other entity or person performing any Work at the Site or furnishing materials or equipment for the Project, subject to an Contract or arrangement under which any interest therein or an encumbrance thereon is retained by the seller of such or is otherwise imposed by the CONTRACTOR or such other entity or person.

With each Application For Payment the CONTRACTOR shall certify to the CITY that the Work, for which payment is requested, has been fully completed in accordance with the Contract Documents; that all amounts owed to any subcontractor and subconsultant for Work or materials covered by all previous progress payments have been paid in full; and that the CONTRACTOR has no claim outstanding against the CITY related to this, or any previous progress payment, except any such claim as has been previously served by way of a detailed, verified statement upon the CITY prior to the filing of such Application For Payment. If requested to do so, the CONTRACTOR will file signed Waivers of Lien with each Application for Payment in a form satisfactory to the CITY.

The CONTRACTOR's refusal to accept any payment as tendered shall constitute a waiver of any right to interest thereon.

It is further agreed that so long as the CONTRACTOR fails to comply with any lawful or proper direction concerning the Work or material given by or on behalf of the Director, the CONTRACTOR shall not be entitled to have any estimate made for the purpose of payment. No such estimate shall be rendered until the CONTRACTOR fully and satisfactorily complies with all such directions.

If any of the following occurs: (1) a claim or lien is made or filed with or against the CITY, the Project, or the Project funds by any person claiming that the CONTRACTOR or any subcontractor or other person under subcontract has failed to make payment for any labor, services, materials, equipment, taxes or other items or obligations furnished or incurred for or in connection with the Work; (2) there is evidence of such nonpayment or of any claim or lien for which, if established, the CITY might become liable and which is chargeable to the CONTRACTOR; (3) the CONTRACTOR or any subcontractor or other person under subcontract causes damage to the Work or to any other work on the Project; (4) or if the CONTRACTOR fails to perform or is otherwise in default under any of the terms or provisions of this Contract, the CITY shall have the right to retain from any payment then due or thereafter to become due an amount which it deems sufficient to (i) satisfy, discharge and/or defend against any such claim or lien or any action which may be brought or judgment which may be recovered thereon, (ii) make good any such nonpayment, damage, failure or default, and (iii) compensate the CITY for and indemnify and hold it harmless against any and all actual or potential losses, liabilities, damages, costs and expenses, including legal fees and disbursements, which may be sustained or incurred in connection therewith. The CITY shall have the right to apply and charge against the CONTRACTOR so much of the amount retained as may be required for the foregoing purposes. If the amount is insufficient therefor, the CONTRACTOR shall be liable for the difference and promptly pay the same to the CITY. No person shall have any right or claim by reason of the CITY's failure or refusal to withhold monies. No interest shall be payable by the CITY on any amounts withheld under this provision.

This provision is not intended to limit or in any way prejudice any other right of the CITY.

No payment (final or otherwise) made under or in connection with this Contract shall be conclusive evidence of the proper performance of the Work or of this Contract, in whole or in part, and no such payment shall be construed to be an acceptance of defective, faulty or improper work or materials nor shall it release the CONTRACTOR from any of its obligations under this Contract; nor shall entrance upon and use of the Site by the CITY constitute acceptance of the Work or any part thereof.

If, in the judgment of the Director, the Project is "substantially," although not entirely, completed, and in this event the withholding of the retained percentage would be an injustice to the CONTRACTOR, the Director may, provided that he receives certification that the essential items in the Contract have been completed in accordance with the terms of the Contract, include in the final account such uncompleted items. The CITY will pay the CONTRACTOR therefor at the item prices in the Contract upon the CONTRACTOR's depositing with the Director a certified check drawn upon a legally incorporated bank or trust company equal to at least double the value of such uncompleted Work. The deposit may be used by the Director to complete the uncompleted portion of the Contract and any unused portion may be returned to the CONTRACTOR upon its satisfactory completion of the uncompleted Work within a specified number of working days after it has been notified to proceed.

ARTICLE 10. PAYMENT TO SUBCONTRACTORS AND SUPPLIERS

The CONTRACTOR shall, within thirty (30) days after its receipt of payment from the CITY, pay all amounts due any supplier or subcontractor, whether for labor performed or materials furnished hereunder, when such labor or materials have been included in a requisition submitted by the CONTRACTOR and paid by the CITY.

The CONTRACTOR shall include in each of its contracts and subcontracts hereunder a provision requiring each contractor or subcontractor to pay all amounts due any of its own subcontractors, (second tier subcontractors), whether for labor performed or materials furnished, within thirty (30) days after such contractor or subcontractor is paid by the CONTRACTOR an amount that includes payment for labor or materials furnished by such second tier subcontractor.

No payment (final or otherwise) made under or in connection with this Contract shall be conclusive evidence of the proper performance of the Work or of this Contract, in whole or in part. And no such payment shall be construed to be an acceptance of any work or materials that may be defective, faulty or improper, nor shall it release the CONTRACTOR from any of its obligations under this Contract. Nor shall any entrance upon and use of the Site by the CITY constitute an unconditional acceptance of the Work or any part thereof.

ARTICLE 11. FINAL PAYMENT

Final payment and payment of any amounts retained shall not become due until the following conditions precedent have been met: (1) the CITY accepts the Project and approves of all the Work performed hereunder; (2) the CONTRACTOR submits the following documents satisfactory to the CITY (a) certification that all payrolls, bills for materials, labor and equipment, and all other indebtedness connected with the Project, for which the CITY or CITY's property might be liable, have been paid or otherwise satisfied and that there are no claims, obligations, or liens outstanding or unsatisfied for labor, services, materials, equipment or other items performed, furnished or incurred for or in connection with the Work; (b) written consent of surety, if applicable; (c) a certificate confirming that insurance required by the Contract Documents is to remain in force for the required period of time following completion of the Work; (d) a satisfactory one (1) year maintenance bond posted with the CITY ensuring the Project for a period of one (1)

year from the date of final completion; (e) the CONTRACTOR provides all required certifications that all products and materials comply with applicable specifications and have been properly installed and/or incorporated into the Project including all applicable manufacturers' warranties for same; (f) any other information and documentation establishing payment or satisfaction of all outstanding obligations, to the extent and in such form as may be designated by the CITY, such as, by way of example only, receipts, releases and waivers of liens, including the execution and delivery by the CONTRACTOR, in a form satisfactory to the CITY, of a general release running to and in favor of the CITY; (g) all required Certified Payrolls acceptable to the State of Connecticut Department of Labor; and (h) all Change Orders with sufficient backup/documentation acceptable to the CITY. Should any claim be made or other obligation arise after final payment is made, the CONTRACTOR shall refund to the CITY all expenses paid by the CITY to satisfy, discharge or defend against any such claim, obligation or lien or any action brought or judgment recovered thereon and all costs and expenses, including legal fees and disbursements, incurred in connection therewith.

If the CONTRACTOR cannot, for reasonable cause not of its own fault, furnish any such information or documentation required by the CITY, the CONTRACTOR may furnish a bond satisfactory to the CITY promising to indemnify the CITY against any Project related, outstanding obligation. If any lien remains unsatisfied after final payments are made by the CITY, the CONTRACTOR shall reimburse the CITY for moneys the CITY may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

Final payment being tendered by the CITY shall constitute a waiver of claims by the CITY except those arising from:

A. unsettled liens;
B. faulty or defective Work or materials;
C. failure of the Work or materials to comply with requirements of the Contract Documents; or

D. terms of special warranties provided by theCONTRACTOR, its suppliers, or its subcontractors, or within the Contract Documents.

E. Claims arising after the authorization of any payment.

Acceptance by the CONTRACTOR, or anyone claiming by or through it, of any interim or final payment hereunder shall constitute and operate as a release of the CITY from any and all claims of any liability or responsibility to the CONTRACTOR for anything done to, furnished for, relating to or in connection with the Project hereunder, and for any act, neglect, default on the part of the CITY or any of its officers, agents, or employees unless the CONTRACTOR serves a detailed and verified statement of claim upon the CITY prior to the acceptance of such payment. Such statement shall specify the items and details upon which the claim is based and any claim shall be limited to such items. The CONTRACTOR's refusal to accept the final payment as tendered shall constitute a waiver of any right to interest thereon.

ARTICLE 12. FINAL ACCEPTANCE OF WORK

When, in the opinion of the Director, the CONTRACTOR has fully performed all the required Work under this Contract and any Change Orders issued for the Project to the CONTRACTOR, the Director shall recommend the acceptance of the Work so completed. If the recommendation is accepted, the CITY shall thereupon notify the CONTRACTOR in writing of such acceptance, and copies of such acceptance shall be sent to other interested parties. However, the CITY has the right to reject the whole or any portion of the Work should it be found or known to be inconsistent with the terms of the Contract Documents or otherwise improper. All certifications upon which partial payments may have been made, being merely estimates, are subject to correction in the final determination or upon final payment.

ARTICLE 13. SAFETY

The CONTRACTOR agrees that it is responsible for preventing accidents and ensuring safety of all persons engaged in the Project or in the vicinity of the Work including members of the general public. The CONTRACTOR shall comply with all laws, ordinances, rules, regulations, codes, standards, orders, notices and requirements concerning safety applicable to the Work, including, among others, the Federal Occupational Safety and Health Act of 1970, as amended, and all standards, rules, regulations and orders which have been or shall be adopted or issued thereunder, and with all safety standards established during the progress of the Work.

The CONTRACTOR shall at all times provide sufficient, safe and proper facilities for the inspection of the Work by the CITY and its authorized representatives in the field, at shops or at any other place where materials or equipment for the Work are in the course of preparation, manufacture, treatment or storage. The CONTRACTOR shall, immediately upon receiving written notice from the CITY, stop any part of the Work which is deemed unsafe and proceed to take down all portions of the Work and remove all materials whether worked or unworked, that may be noted as unsound, defective or improper or as in any way failing to conform to this Contract or the Plans, Specifications or other Contract Documents. The CONTRACTOR, at its own cost and expense, shall replace the same with proper and satisfactory Work and materials and make good all Work damaged or destroyed by or as a result of such unsound, defective, improper or nonconforming Work or materials or by the taking down, removal or replacement thereof. The CONTRACTOR agrees that it shall not have nor make any claim for costs, damages, delays or extensions of time arising out of such stoppages. Should the CONTRACTOR neglect to take such corrective measures, the CITY may do so at the cost and expense of the CONTRACTOR and may deduct the cost thereof from any payments due or to become due to the CONTRACTOR.

Notwithstanding the foregoing, CONTRACTOR shall at all times be responsible for ensuring the safety of all persons and property at the Site, regardless of any action or failure to act on the part of the CITY. Nothing set forth herein, nor any action or failure to act by the CITY, shall relieve the CONTRACTOR of its obligations and responsibilities with regard to safety and safeguarding of the Site and all persons and property thereon or adjacent thereto.

ARTICLE 14. COMPLIANCE WITH GOVERNMENTAL LAW AND REGULATIONS

The CONTRACTOR shall comply with all applicable laws, codes and regulations governing the Work and the Project, including any and all special requirements of the Contract Documents and shall require the same of its Trade Contractors and Subcontractors. In addition, all Trade Contractors and Subcontractors working on the Project shall have, throughout the period of the Work, valid State of Connecticut Department of Consumer Protection issued licenses to do business according to the current, applicable regulations.

A. Equal Employment Opportunity and Affirmative Action

The CONTRACTOR agrees to abide by the provisions of State of Connecticut Executive Orders Numbers 3 and 17 and Presidential Executive Orders Numbers 11246, 11375 and 11063.

The CONTRACTOR further agrees and warrants that in the performance of this Contract it will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness -unless it is shown by the CONTRACTOR that such disability prevents performance of the work involved- in any manner prohibited by the laws of the United States or of the State of Connecticut. The CONTRACTOR further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability including, but not limited to, blindness -unless it is shown by the CONTRACTOR that such disability prevents performance of the work involved. The terms stated in this paragraph shall be defined as set forth in Connecticut General Statutes Section 4a-60(d).

The CONTRACTOR shall not permit any coercion, intimidation, threatening or interference with any individual in the exercise or enjoyment of, or on account of his or her having exercised or enjoyed, or on account of his or her having aided or encouraged any other individual in the exercise or enjoyment of, any right granted or protected by state or federal laws, including without limitation, the Americans with Disabilities Act.

The CONTRACTOR agrees to comply with any request of the Connecticut Commission on Human Rights and Opportunities to provide information and permit access to pertinent books, records and accounts concerning its employment practices and procedures.

The CONTRACTOR agrees and warrants that it will make good faith efforts to employ minority business enterprises as contractors, subcontractors and suppliers of materials on or related to the Project. For purposes of this paragraph the term "minority business enterprise" shall be defined as set forth in Connecticut General Statutes Section 4a-60(e).

The CONTRACTOR will cause the foregoing provisions to be inserted in all trade contracts and subcontracts for any Work related to the Project or covered by this Contract so that such provisions will be binding upon each trade contractor and subcontractor.

B. In addition, CONTRACTOR shall comply and shall require its trade contractors and subcontractors who perform any Work in connection with the Project to comply with all current, applicable terms of the following, as the same may be amended from time to time:

- The Civil Rights Act of 1964, as amended;
- Federal Labor Standards (29 CFR Parts 3, 5 and 5a); Davis Bacon Act;
- Copeland "Anti-Kickback" Act (18 USC 874), as supplemented in the Department of Labor Regulations (20 CFR - Part 3);
- Flood Disaster Protection Act (PL 93-291);
- Hatch Act (Title 4 USC Chapter 15);
- Section 504 of the Rehabilitation Act of 1973;
- The Americans With Disabilities Act;

C. <u>Prevailing Wage Requirements</u>

This Contract shall be subject to the Connecticut State Prevailing Wage regulations and requirements and applicable prevailing wage rates- as such may be amended or revised from time to time; and the CONTRACTOR shall comply, at its own cost, with all such applicable prevailing wage rate regulations, as the same may be revised or amended from time to time. Under no circumstances shall the CONTRACTOR be entitled to any additional payment or any increase in the costs, fees or expenses payable by the CITY hereunder, based on any increase in the cost of compliance with applicable regulations, requirements or any increase in the applicable, prevailing wage rates.

D. <u>State Labor and Employment Regulations</u>

Pursuant to Connecticut General Statutes, Section 31-52a, the following provision

shall be incorporated into this Contract and each subcontract hereunder insofar as this Contract or any such subcontract relates to a public works project, including, but not limited to, construction, remodeling or repairing of any public facility or structure (except public buildings covered by Section 31-52), site preparation or improvement, appurtenances or highways, or the preparation or improvement of any land or waterway on or in which a structure is situated or to be constructed:

> In the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to residents of the State who are, and continuously for at least six (6) months prior to the date hereof have been, residents of this State, and if no such person is available then to residents of other states.

Pursuant to Connecticut General Statutes, Section 31-53, the following provision shall be incorporated into this Contract and each subcontract hereunder for work relating to the construction of a public works project where the total cost of all Work to be performed in connection with the Project is Four Hundred Thousand Dollars ($400,000.00) or more, or for work relating to the remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project if the total cost of all work to be performed in connection with such project is One Hundred Thousand Dollars ($100,000.00) or more:

> The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or worker on the Work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in subsection (i) of Section 31-53 of the Connecticut General Statutes, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the CITY of Norwalk. Any contractor who is not obligated by Contract to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.

In the event that the CITY determines that any mechanic, laborer or workman employed by the CONTRACTOR or any subcontractor directly on the Site for the Work contemplated hereunder has been or is being paid a rate of wages less than that required to be paid, as stated herein, the CITY may, by written notice to the CONTRACTOR, terminate the CONTRACTOR's right to proceed with the Work hereunder or such part of the Work for which there has been a failure to pay the required wages. In the event of such termination, the CITY may prosecute the Work to completion by contract or otherwise and the CONTRACTOR and its sureties shall be liable to the CITY for all costs incurred thereby in excess of the compensation to be paid under this Contract.

Each employer subject to the provisions of Section 31-53 of the Connecticut General Statutes shall comply with the applicable requirements at its own cost and expense and shall not be entitled to any additional payment or increase in its fees payable hereunder as a result of or due to the cost of compliance.

ARTICLE 15. RIGHT TO SUSPEND WORK OR TERMINATE CONTRACT

A. If, at any time, the CITY determines that the Work hereunder is not being performed according to the Contract or for the best interest of the CITY or should the CONTRACTOR at any time refuse or neglect to supply a sufficient number of skilled workers or materials of the proper quality and quantity; or fail in any respect to prosecute the Work with promptness and diligence; or cause by any act or omission the stoppage, impede, obstruct, hinder or delay of or interference with or damage to the Work of any other contractors or subcontractors on the Project; or fail in the performance of any of the terms and provisions of this Contract or of the other Contract Documents; or should there be filed by or against the CONTRACTOR a petition in bankruptcy or for an arrangement or reorganization; or should the CONTRACTOR become insolvent or be adjudicated a bankrupt or go into liquidation or dissolution, either voluntarily or involuntarily or under a court order, or make a general assignment for the benefit of creditors, or otherwise acknowledge insolvency -- then in any of such events, each of which shall constitute a default hereunder on the CONTRACTOR's part, the CITY shall have the right, in addition to all other rights and remedies provided by this Contract and the other Contract Documents or by law, to temporarily suspend the execution of the Work by the CONTRACTOR and proceed with the Work under its own direction in accordance with the Contract specifications and in such manner as the Director determines to be in the best interests of the CITY or, the CITY may terminate the CONTRACTOR's employment under this Contract while it is in progress, and thereupon proceed with the Project in such manner and by such process as it determines to be in the best interest of the Project.

In any of the foregoing events, the CONTRACTOR shall not be entitled to receive any further payment under this Contract until the Work shall be wholly completed to the satisfaction of the CITY, as evidenced by written acceptance signed by the Director. All costs, expenses, losses and damages, including attorneys' fees, and all other charges incurred by the CITY for the completion of the Work as a result shall be charged to the CONTRACTOR and deducted by the CITY from any monies due or payable or to become due or payable hereunder. Such costs and expenses shall include not only the cost of completing the Work to the satisfaction of the CITY and of performing and furnishing all labor, services, materials, equipment, and other items required therefor, but also all losses, damages, costs and expenses, (including legal fees and disbursements incurred in connection with reprocurement, in defending claims arising from such default and in seeking recovery of all such costs and expenses from the CONTRACTOR and/or its surety), and disbursements sustained, incurred or suffered by reason of or resulting from the CONTRACTOR's default. If such costs and expenses and other charges exceed the amount stated herein, such excess amount shall be charged to and promptly paid by the CONTRACTOR to the CITY. In computing the amounts chargeable to the CONTRACTOR, the CITY shall not be held to a basis of the lowest prices for which the completion of the Project or any part thereof might have been accomplished, but the CONTRACTOR shall be liable for all sums actually paid or expenses actually incurred in affecting prompt completion of the Project hereunder. The rights described herein are in addition to any other rights and remedies provided by law.

Should the CITY reactivate the performance of the Project, in whole or in part, within one (1) year from the time of suspension, any fees paid to the CONTRACTOR pursuant to this Contract shall be applied as payment on the fees as set forth in the Contract at the time of reactivation. Should reactivation occur after a period of suspension exceeding one (1) year but not sooner, the CONTRACTOR and the CITY may renegotiate the Contract based upon current conditions or may unilaterally elect to terminate the Contract.

Termination or suspension under this section shall not give rise to any claim against the CITY for damages or compensation in addition to that provided hereunder.

ARTICLE 16. INTERPRETATION OF PLANS/SHOP DRAWINGS

The Work shall be performed and furnished under the direction and to the satisfaction of the CITY and, where appropriate, its Architect or Engineer. The CONTRACTOR shall be responsible for identifying any ambiguity in, or difference in interpretation of the plans, specifications or other Contract Documents, or between or among any of them, and immediately submitting the issue to the CITY, which will transmit the same to the responsible professional designer (i.e., Professional Engineer or Architect) who shall resolve the same. Any decision in relation thereto shall be final and conclusive upon the parties. The CITY will furnish to the CONTRACTOR any additional information and Plans as may be prepared to further describe the Work and the CONTRACTOR shall conform to and abide by the same.

Notwithstanding the dimensions on the Plans, Specifications and other Contract Documents it shall be the obligation and responsibility of the CONTRACTOR to take such measurements as will insure the proper matching and fitting of the Work covered by this Contract with contiguous work.

The CONTRACTOR shall prepare and submit to the Director such shop drawings as may be necessary to describe completely the details and construction of the Work. Approval of such shop drawings shall not relieve the CONTRACTOR of its obligation to perform the Work according to the Plans, Specifications, the Special Conditions, Addenda and all other Contract Documents, nor of its responsibility for the proper matching and fitting of the Work with contiguous work and the coordination of the Work with other work being performed on the Site, which obligation and responsibility shall continue until completion and acceptance of the Project.

The CONTRACTOR's submission of a shop drawing shall constitute the CONTRACTOR's representation that it has reviewed the submission for accuracy and compliance with all Contract Documents and that, wherever engineering is required to be performed, same has been performed by a qualified and licensed engineer which shall have responsibility therefor.

Should the proper and accurate performance of the Work hereunder depend upon the proper and accurate performance of other work not covered by this Contract, the CONTRACTOR shall carefully examine such other work, determine whether it is in fit, ready and suitable condition for the proper and accurate performance of the Work hereunder, use all means necessary to discover any defects in such other work, and before proceeding with the Work hereunder, report promptly any such improper conditions and defects to the CITY in writing and allow the CITY a reasonable time to have such improper conditions and defects remedied.

ARTICLE 17. REJECTED WORK AND MATERIAL

In the event the CITY finds that the materials furnished, the finished Project or the Work performed hereunder by the CONTRACTOR, for any reason, does not conform with the requirements of the Contract Documents including any performance and Project specifications and has resulted or will result in an inferior or unsatisfactory product, the materials or Work shall be removed and replaced or otherwise corrected, to the satisfaction of the CITY, by and at the expense of the CONTRACTOR.

The CONTRACTOR agrees that it shall at once remove from the Site at its own expense all Work or material which may be rejected by the CITY and replace the same with Work or material satisfactory to the CITY. All Work shall be in a first class and satisfactory condition at the time of final acceptance.

ARTICLE 18. LAWS, PERMITS, AND LICENSES

The CONTRACTOR shall observe all Federal, State, and local laws and regulations and shall procure all necessary licenses and permits, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the Work hereunder without any additional charge or expense to the CITY. CONTRACTOR shall be responsible for and shall correct, at its sole cost and expense, any violation thereof resulting from or in connection with the performance or failure to perform the Work.

The CONTRACTOR shall at any time upon demand furnish such proof as the CITY may require showing such compliance and the correction of such violations. The CONTRACTOR agrees to save harmless and indemnify the CITY, its officers and employees, from and against any and all loss, injury, claims, actions, proceedings, liability, damages, fines, penalties, costs and expenses, including legal fees and disbursements, caused or occasioned directly or indirectly by the CONTRACTOR's failure to comply with any of said laws, ordinances, rules, regulations, standards, orders, notices or requirements or to correct such violations therefor in connection with the performance of Work.

ARTICLE 19. EQUAL EMPLOYMENT OPPORTUNITY

The CONTRACTOR agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission concerning its employment practices and procedures.

The CONTRACTOR will cause the foregoing provisions to be inserted in all subcontracts for any of the Work covered by this Contract so that such provisions will be binding upon each subcontractor.

ARTICLE 20. SUCCESSORS AND ASSIGNS

This Contract shall bind the successors, assigns and representatives of the parties hereto. Notwithstanding the foregoing, this Contract may not be assigned by the CONTRACTOR nor shall the CONTRACTOR's rights, title or interest herein or hereto be assigned, transferred, conveyed, sublet, or disposed of without the previous written consent of the Director.

ARTICLE 21. RESPONSIBILITY FOR THE SITE

At all times throughout the performance of this Contract and until final acceptance of the Work hereunder, the CONTRACTOR shall be in control of and responsible for the Site and for any loss or damage to the Work to be performed and furnished under this Contract, however caused. This shall include responsibility for loss of or damage to materials, tools, equipment, appliances or other personal property owned, rented or used by the CONTRACTOR or anyone employed by it in the performance of the Work, however caused. Accordingly, the CONTRACTOR shall, at its own cost and expense, (1) keep the Site free at all times from all waste materials, packaging materials and other rubbish accumulated in connection with the execution of its Work, (2) clean and remove from its own Work and from all contiguous work of others any soiling,

staining, mortar, plaster, concrete or dirt caused by the execution of its Work and make good all defects resulting therefrom, (3) at the completion of its Work in each area, perform such cleaning as may be required to leave the area "broom clean," and (4) at the entire completion of its Work, remove all of its tools, equipment, scaffolds, shanties and surplus materials. Should the CONTRACTOR fail to perform any of the foregoing to the CITY's satisfaction, the CITY shall have the right to perform and complete such Work itself or through others and charge the cost thereof to the CONTRACTOR.

ARTICLE 22. INSURANCE

The CONTRACTOR agrees to obtain at its own cost and expense all insurance required by the attached Insurance Rider and to keep the same in continuous effect for a period of two (2) years following the date on which the Director indicates the termination of the CONTRACTOR's responsibilities hereunder. Before commencing the Project, the CONTRACTOR shall furnish the CITY's Corporation Counsel a certificate of insurance, and shall thereafter provide renewal certificates, as appropriate, evidencing such coverage written by a company or companies acceptable to the CITY. Each insurance certificate shall be endorsed to name the City of Norwalk as an additional insured party and shall provide that the insurance company providing coverage shall notify the CITY by certified mail at least thirty (30) days prior to the effective termination of or any change in the policy or policies coverage. No change in the coverage provided hereunder shall be made without the prior written approval of the Director.

ARTICLE 23. INDEMNIFICATION

The CONTRACTOR expressly agrees to at all times indemnify, defend and save harmless the City of Norwalk and its respective officers, agents and employees, on account of any and all demands; claims; damages; losses; litigation; financial costs and expenses, including counsel's fees; and compensation arising out of personal injuries (including death), any damage to property, real or personal, and any other loss, expense or aggrievement directly or indirectly arising out of, related to or connected with the Project and the Work to be performed hereunder by the CONTRACTOR, its employees, agents, subcontractors, material suppliers, or anyone directly or indirectly employed by any of them. The CONTRACTOR shall and does hereby assume and agree to pay for the defense of all such claims, demands, suits, proceedings and litigation. The provisions of this paragraph shall survive the expiration or early termination of this Contract; shall be separate and independent of any other provision or requirement of this Contract; and shall not be limited by reason of any insurance coverage provided hereunder.

The CITY may withhold from any payment due or to become due to the CONTRACTOR an amount sufficient in its judgment to protect and indemnify the CITY, its officers, agents, servants and employees from and against any and all such claims and liabilities described above.

Nothing in this provision, or elsewhere in this Contract, shall be deemed to relieve the CONTRACTOR of its duty to defend the CITY or any Indemnified Party, as specified in this Contract, pending a determination of the respective liabilities of the CONTRACTOR, the CITY, or any Indemnified Party, by legal proceeding or Contract.

In furtherance to but not in limitation of the indemnity provisions in this Contract, CONTRACTOR hereby expressly and specifically agrees that its obligation to indemnify, defend and save harmless as provided in this Contract shall not in any way be affected or diminished by any statutory or constitutional immunity it enjoys from suits by its own employees or from limitations of liability or recovery under workers' compensation laws.

ARTICLE 24. SUBCONTRACTING AND ASSIGNMENTS

The CONTRACTOR shall not subcontract any portion of the Work to be performed hereunder unless the prior written consent of the Director is given for both the Work to be subcontracted and the subcontractor to perform the same.

In the event that the CITY approves of the hiring of subcontractors or subconsultants to pursue the Project, the CONTRACTOR agrees to cooperate as fully as possible with the CITY and any and all such subcontractors and subconsultants in the interests of the Project. The CONTRACTOR shall be as fully responsible to the CITY for the acts and omissions of its subcontractors and subconsultants as it is for the acts and omissions of its direct employees and shall require any subcontractor or subconsultant approved by the CITY to agree in a written contract to observe and be bound by all obligations and conditions of this Contract to which CONTRACTOR is bound hereby including the requirements regarding insurance and indemnification.

Each subcontract Contract shall preserve and protect the rights of the CITY and the Project Architect/Design Engineer, under the Contract Documents with respect to the Work to be performed by the subcontractor so that the subcontracting thereof will not prejudice such rights, and shall allow the subcontractor, unless specifically provided otherwise, the benefits of all rights, remedies and redress against the CONTRACTOR that the CONTRACTOR has against the CITY pursuant to the Contract Documents.

Nor shall CONTRACTOR assign, sell, transfer, delegate or encumber any rights, duties or obligations arising under this Contract including, but not limited to, any right to receive payments hereunder, without the prior written consent of the CITY in its sole discretion. The giving of any such consent to a particular assignment shall not dispense with the necessity of such consent to any further or other assignments. In the event CONTRACTOR assigns, sells, encumbers or otherwise transfers its rights to any monies due or to become due under this Contract as security for any loan, financing or other indebtedness (herein "Assignment"), notification to the CITY of such Assignment must

be sent by certified mail, return receipt requested, and the Assignment shall not be effective as against the CITY until the CITY provides its written consent to such Assignment. CONTRACTOR agrees that any such Assignment shall not relieve the CONTRACTOR of any of its Contracts, duties, responsibilities or obligations under this Contract and the other Contract Documents and shall not create a contractual relationship or a third party beneficiary relationship of any kind between the CITY and assignee or transferee. CONTRACTOR further agrees that all of the CITY's defenses and claims arising out of this Contract with respect to any Assignment are reserved unless expressly waived in writing by a duly authorized corporate officer. CONTRACTOR hereby agrees to indemnify, defend and hold harmless the CITY from and against any and all loss, cost, expense or damages that the CITY has or may sustain or incur in connection with such Assignment.

ARTICLE 25. WARRANTY

The CONTRACTOR hereby warrants to the CITY that all of the Work shall be in conformance with the Plans, Specifications, and all Contract Documents and shall be of good quality and free from any faults and defects.

The CONTRACTOR shall remove, replace and/or repair at its own expense and at the convenience of the CITY any portion of the Work, materials or equipment which, at any time up until two (2) years from the date of final acceptance of the Work hereunder, the Architect or the CITY shall condemn as unsound, defective or improper or as in any way failing to conform to this Contract or the plans, specifications or other Contract Documents, and the CONTRACTOR, at its own cost and expense, shall replace the same with proper and satisfactory Work, materials and/or equipment.
Without limiting the generality of the foregoing, the CONTRACTOR warrants to the CITY that all materials and equipment furnished under this Contract will be of first class quality and new, unless otherwise required or permitted by the other Contract Documents; that the Work performed and materials used pursuant to this Contract will be free from any defects and that the Work will conform with the requirements of the Contract Documents. Work not conforming to such requirements, not of the prescribed quality, or not capable of meeting the CITY's performance specifications, including substitutions not properly approved and authorized, shall be considered defective and must be removed and replaced by CONTRACTOR at its own cost and expense. All warranties contained in this Contract and in the Contract Documents shall be in addition to and not in limitation of all other warranties or remedies required and/or arising pursuant to applicable law.

ARTICLE 26. NOTICE OF CLAIMS

Claims by either party must be in writing and sent within thirty (30) days following the occurrence of an event giving rise to the claim or within thirty (30) days after the claimant first acquires knowledge of or information concerning the claim, whichever occurs later to the extent that such knowledge or information could not have been reasonably obtained earlier. Claims must be made in writing and sent to the other party at the address(es) listed herein and shall describe the nature of the claim, the events or circumstances that gave rise to the claim with reasonable detail, and the amount thereof to the best of the claimant's information.

ARTICLE 27. LIQUIDATED DAMAGES

It is understood by the parties that timely completion of the Project is essential. Failure of the CONTRACTOR to complete the Project by the date stated herein will result in the CITY and the public incurring damages, additional costs and inconveniences that would be impossible or extremely difficult to accurately quantify at the time. Therefore, the parties agree that, if the CONTRACTOR fails to satisfactorily complete the Project hereunder within the time specified or within any extension of time that may have been allowed, there shall be deducted from any monies due or that may become due the CONTRACTOR, the sum of _____ **HUNDRED DOLLARS AND NO CENTS ($_____.00)** for each and every calendar day, including Saturdays and legal holidays, that the Project remains incomplete in accordance with Article 5 of this Contract. This sum shall not be imposed as a penalty, but as liquidated damages due the CITY from the CONTRACTOR by reason of the damages incurred, inconvenience and additional costs and expenses to the public together with other problems suffered as a result of any such delay thereby occasioned.

ARTICLE 28. GENERAL PROVISIONS

A. This Contract shall be deemed binding only to the extent that sufficient funds are available and appropriated to the CITY for payment in accordance with the terms hereof and no liability on account of this Contract shall be incurred by the CITY beyond such moneys as are properly made available and appropriated for the Project.

B. The relationship of the CONTRACTOR to the CITY is that of an independent CONTRACTOR. The CONTRACTOR covenants and agrees that it will conduct itself consistent with such status; that it will neither hold itself nor any of its employees or agents out as nor claim to be an officer, agent, or employee of the CITY by reason hereof; and that it will not, neither for itself nor on behalf of any of its employees, agents, or subcontractors, by reason hereof, make any claim, demand or application to or for any right or privilege applicable to an officer or employee of the CITY, including, but not limited to, workers' compensation coverage, unemployment insurance benefits, social security coverage, or retirement membership or credit.

C. The CONTRACTOR hereby certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or

voluntarily excluded from participation in this transaction by any federal or state department or agency. Should the CONTRACTOR be unable to certify the above statement, it shall attach a certified statement explaining such to this Contract. The CONTRACTOR further agrees to include the foregoing certification in any subcontract or purchase order, which it may enter into in furtherance of the Work contemplated hereunder.

D. No member of the governing body of the CITY, and no other officer, employee, or agent of the CITY, shall have any personal interest, direct or indirect, in this Contract, except as permitted by the Code of Ethics of the City of Norwalk; and the CONTRACTOR covenants that no person having such interest shall be employed in the performance of this Contract.

E. This Contract shall be construed in accordance with the laws of the State of Connecticut, and any action at law in connection herewith shall be brought in the Superior Court of the State of Connecticut, Judicial District Stamford/Norwalk.

F. The CONTRACTOR shall comply with all applicable laws, ordinances and codes of any governmental body having jurisdiction over any matter related to this Contract or the services to be performed hereunder, and shall commit no trespass on any private property in performing any of the Work embraced herein.

G. This Contract incorporates all the understandings of the parties hereto, supersedes any and all Contracts and negotiations reached and all commitments made by the parties prior to the execution of this Contract, whether oral or written, and shall not be released, amended or modified in any way unless by a written instrument signed by the parties hereto.

H. If any provision of this Contract is held invalid, the balance of the provisions of this Contract shall not be affected thereby if the balance of the provisions of this Contract would then continue to conform to the requirements of applicable laws.

I. Each and every provision and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though such provisions and clauses were included herein. If, through mistake or otherwise, any such provision is not inserted or is not correctly inserted, then upon the written consent of the parties, this Contract shall forthwith be physically amended to make such insertion.

J. All notices of any nature referred to in this Contract shall be in writing and sent by registered or certified mail, postage prepaid, to the respective addresses set forth below or to such other addresses as the respective parties hereto may designate in writing:

To the City: «DepartmentHead»,
«DepartmentHeadTitle»
Norwalk «Department» Department

With copies to: Office of Corporation Counsel
City Hall, P.O. Box 798
Norwalk, Connecticut 06856-0798

To the Contractor: «VendorAuthorizer», «VendorAuthorizerTitle»
«VendorName»
«VendorAddress1»
«VendorCity», «VendorState» «VendorZip»

K. The CONTRACTOR represents to the CITY as follows:

That it is a legally existing corporation under the laws of its respective states of incorporation and has not previously filed, nor is presently contemplating filing, nor has received notice of a petition of, nor contemplates receiving notice of a petition of, bankruptcy, liquidation, receivership or any other action for the protection of creditors or debtors;

That it has the financial resources to perform this Contract and that it is not the subject of any litigation or action, pending or threatened, regarding this Contract or which, if resulting in an adverse decision, would affect its ability to perform its duties under this Contract;

That it has, and has exercised, the required corporate power and authority and has complied with all applicable legal requirements necessary to adopt, execute and deliver this Contract and to assume the responsibilities and obligations created hereunder; and

That this Contract is duly executed and delivered by an authorized corporate officer, in accordance with such officer's powers to bind the CONTRACTOR hereunder, and constitutes a valid and binding obligation enforceable in accordance with its terms, conditions and provisions.

L. The CITY of Norwalk's hiring practices strive to comply with all applicable federal regulations regarding employment eligibility and employment practices. Thus, all individuals and entities seeking to do work for the CITY are expected to comply with all applicable laws, governmental requirements and regulations, including the regulations of the United States Department of Justice pertaining to employment eligibility and employment practices. The CITY reserves the right at its discretion, but does not assume the obligation to require proof of valid citizenship or, in the alternative, proof of a valid green card for each person employed in the performance of work or services for the City of Norwalk. By reserving this right the CITY does not assume any obligation or responsibility to enforce or ensure compliance with the applicable laws and/or regulations. By signing this Contract the CONTRACTOR hereby certifies to the City of Norwalk that it is in compliance with all applicable regulations and laws governing employment practices.

IN WITNESS WHEREOF, this Contract has been executed in four (4) counterparts by the CITY, acting by and through its Mayor, who has caused the seal of his office to be

affixed hereto, and the CONTRACTOR has duly executed this Contract on the day and year first above written.

Signed, Sealed and Delivered
in the Presence of:

CITY OF NORWALK

_____
Witness

_____ By:_____
Witness «ContractAuthorizer»
Its «ContractAuthorizerTitle»
Duly Authorized

«VendorName»

_____
Witness

_____ By:_____
Witness «VendorAuthorizer» Its «VendorAuthorizerTitle» Duly Authorized

(Affix corporate seal of
contractor if a corporation)

APPROVED AS TO FORM:
OFFICE OF CORPORATION COUNSEL

By:_____

APPROVED AS TO
AVAILABILITY OF FUNDS:

By:_____
Comptroller

Date:_____

1.4 INSURANCE REQUIREMENTS

The Contractor shall provide and maintain insurance coverage related to its services in connection with the Project in compliance with the following requirements.

The insurance required shall be written for not less than the scope and limits of insurance specified hereunder, or required by applicable federal, state and/or municipal law, regulation or requirement, whichever coverage requirement is greater. It is agreed and understood that the scope and limits of insurance specified hereunder are minimum requirements and shall in no way limit or preclude the City from requiring additional limits and coverage to be provided under the Contractor's policies.

Minimum Scope and Limits of Insurance:

Workers' Compensation insurance: With respect to all operations the Contractor performs, it shall carry workers' compensation insurance in accordance with the requirements of the laws of the State of Connecticut, and employer's liability limits of One Hundred Thousand Dollars ($100,000.00) coverage for each accident, One Hundred Thousand Dollars ($100,000.00) coverage for each employee by disease, Five Hundred Thousand Dollars ($500,000.00) policy limit coverage for disease.

Commercial General Liability: With respect to all operations the Contractor performs it shall carry Commercial General Liability insurance providing for a total limit of One Million Dollars ($1,000,000.00) coverage per occurrence for all damages arising out of bodily injury, personal injury, property damage, products/completed operations, and contractual liability coverage for the indemnification obligations arising under this Agreement. The annual aggregate limit shall not be less than Two Million Dollars ($2,000,000.00).

Automobile Liability: With respect to each owned, non-owned, or hired vehicles the Contractor shall carry Automobile Liability insurance providing One Million Dollars ($1,000,000.00) coverage per accident for bodily injury and property damage.

Umbrella/Excess Liability: With respect to all operations the Contractor performs, the insurance limits required can be provided with a combination of Umbrella or Excess Liability insurance that would “follow form” of the underlying required terms and conditions.

Environmental Liability: For Encroachment Permits involving environmental activities, for example installation of monitoring wells, the Contractor is required to provide environmental and remediation insurance in the amount of Five Million Dollars ($5,000,000.00) per claim limit and Five Million Dollar ($5,000,000.00) aggregate limit per occurrence. The policy shall be written on a follow form coverage wording to its underlying Schedule of insurance.

Errors and Omissions/Professional Liability: With respect to any damage caused by an error, omission or any negligent or wrongful act of the Contractor or any subcontractor or subconsultant in connection with any professional services performed under this Agreement the Contractor shall carry One Million Dollars ($1,000,000.00) coverage per claim.

"Tail" Coverage: If any of the required liability insurance is on a "claims made" basis, "tail" coverage will be required at the completion of the Project for a duration of twenty-four (24) months, or the maximum time period reasonably available in the marketplace. Contractor shall furnish certification of "tail" coverage as described or continuous "claims made" liability coverage for twenty-four (24) months following Project completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage, provided its retroactive date is on or before the effective date of this Agreement. If continuous "claims made" coverage is used, Contractor shall be required to keep the coverage in effect for a duration of not less than twenty-four (24) months from the date of final completion of the Project.

Acceptability of Insurers: The Contractor's policies shall be written by insurance companies licensed to do business in the State of Connecticut, with an AM Best rating of A-VII, or otherwise acceptable to the City.

Subcontractors: The Contractor shall require all subcontractors to provide the same "minimum scope and limits of insurance" as required herein, with the exception of Errors and Omissions/Professional Liability insurance, unless Errors and Omissions/Professional Liability insurance is applicable to the Work performed by the subcontractors. All Certificates of Insurance shall be provided to the City's Corporation Counsel as required herein.

Aggregate Limits: Any aggregate limits must be declared to and be approved by the City. It is agreed that the Contractor shall notify the City whenever fifty percent (50%) of the aggregate limits are eroded during the required coverage period. If the aggregate limit is eroded for the full limit, the Contractor agrees to reinstate or purchase additional limits to meet the minimum limit requirements stated herein. Any premium for such shall be paid by the Contractor.

Deductibles and Self-Insured Retentions: Any deductible or self-insured retention must be declared to and approved by the City. All deductibles or self-insured retentions are the sole responsibility of the Contractor to pay and/or to indemnify.

Notice of Cancellation or Nonrenewal: Each insurance policy required shall be endorsed to state that coverage shall not be suspended, voided, cancelled, or reduced in coverage or in limits before the expiration date except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the City. Notwithstanding this requirement, the Contractor is primarily responsible for providing such written notice to the CITY thirty (30) days prior to any policy change or cancellation that would result in a change of the amount or type of coverage provided. In the event of any such change the Contractor shall provide comparable substitute coverage so that there is no lapse in applicable coverage or reduction in the amount of coverage available to the CITY related to the Contractor’s services.

Waiver of Governmental Immunity: Unless requested otherwise by the City, the Contractor and its insurer shall waive governmental immunity as defense and shall not use the defense of governmental immunity in the adjustment of claims or in the defense of any suit brought against the City.

Additional Insured: The liability insurance coverage, except Errors and Omissions, Professional Liability, or Workers' Compensation, if included, required for the performance of the Project shall include the City as an Additional Insured with respect to the Contractor's activities to be performed under this Agreement. Coverage shall be primary and non-contributory with any other insurance and self-insurance.

Certificate of Insurance: As evidence of the insurance coverage required by this Agreement, the Contractor shall

furnish Certificate(s) of Insurance to Corporation Counsel's Office prior to the Contractor's commencement of services under this Agreement. The Certificate(s) will specify all parties who are endorsed on the policy as Additional Insureds (or Loss Payees). The Certificates and endorsements for each insurance policy are to be signed by a person authorized by the insurer to bind coverage on its behalf. Renewals of expiring Certificates shall be filed thirty (30) days prior to expiration. The City reserves the right to require complete, certified copies of all required policies at any time.

All insurance documents required should be mailed to the City of Norwalk Corporation Counsel, 125 East Avenue, P. O. Box 798, Norwalk, Connecticut 06856-0798.

Waiver of requirements: The Corporation Counsel may vary these insurance requirements at Corporation Counsel's sole discretion if Corporation Counsel determines that the City's interests will be adequately protected by the provision of different types or other amounts of coverage.

SECTION 2

PROJECT MANUAL

Norwalk Historical Society ADA Improvements – Phase 2A
141 East Avenue, Norwalk CT 06851

Architect:
O'RIORDAN MIGANI, LLC.
22 BANK STREET
SEYMOUR, CONNECTICUT 06483

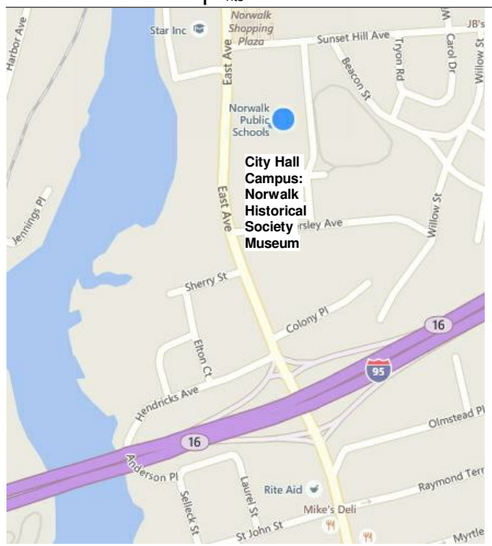
Norwalk Historical Society Museum

Phase IIA Accessibility Improvements to the former Lockwood House

City of Norwalk

City Hall Campus, 141 East Avenue, Norwalk, CT 06851

Site Location Map nts



Prepared By:

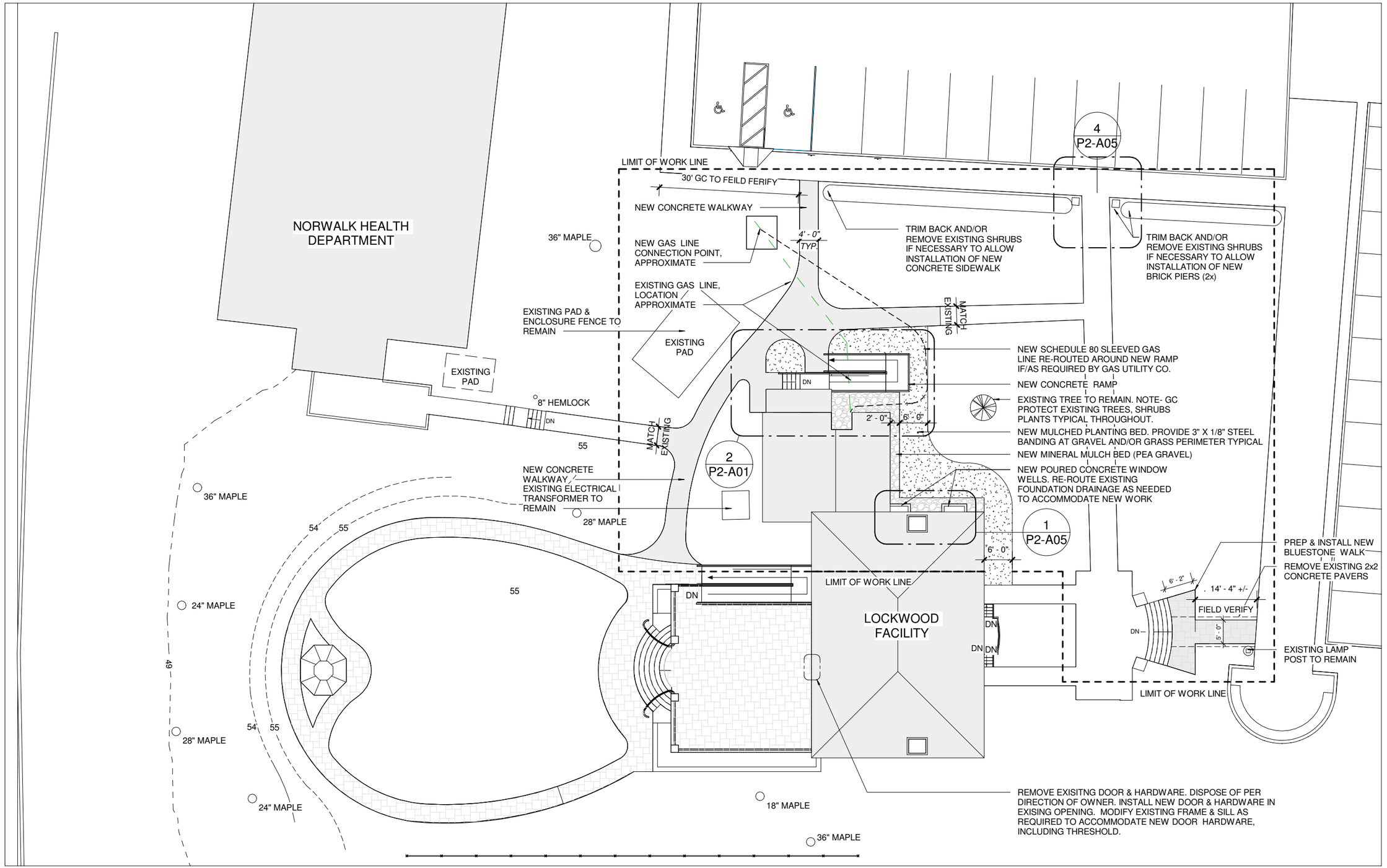
O'Riordan Migani Architects LLC

Architecture, Planning & Urban Design
22 Bank Street, Seymour, CT 06483
203-888-7667

Drawing Index

11-01-17

OMA Project # 14140



1 Phase II Site Plan
1" = 20'-0"

Prepared By:
O'Riordan Migani Architects LLC
22 Bank Street, Seymour, Connecticut 06483
203-888-7667

Phase II Site Plan

Norwalk Historical Society Museum
141 East Avenue, Norwalk, CT 06851

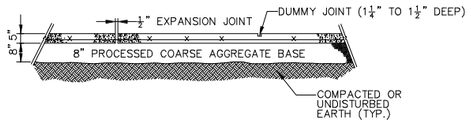
Stamp:

North Arrow:

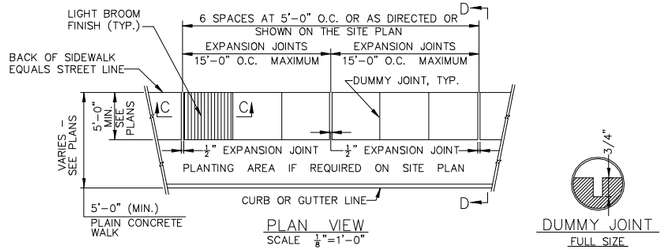
Date: 11-01-17
Revised:
Phase II

Job: 14140
Scale: 1" = 20'-0"
Drawn: AJM
Checked: JOR

Drawing Number: P2-AS1



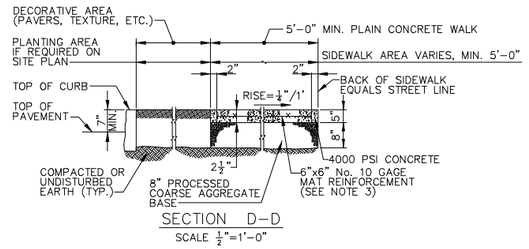
SECTION C–C
SCALE 3/8"=1'–0"



PLAN VIEW
SCALE 1/8"=1'–0"

DUMMY JOINT
FULL SIZE

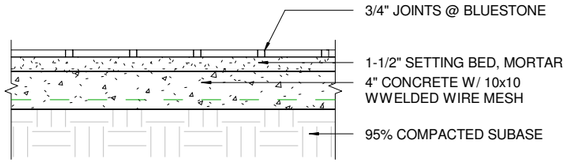
SIDEWALK NOTES:
1. UNLESS OTHERWISE SPECIFIED OR DIRECTED BACK OF WALK TO BE ON STREET LINE



SECTION D–D
SCALE 1/2"=1'–0"

NOTES:
1. MATERIALS, METHODS OF INSTALLATION, CURING, TESTING, SHALL CONFORM TO "STATE OF CT DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FORM 814A, OR 815 @ 1995 OR CURRENT SPECIFICATION FOR SUCH WORK.
2. ANY WALKING SURFACE SHALL BE LIGHTLY BROOMED PERPENDICULAR TO THE TRAVEL WAY.
3. WIRE MESH SHALL BE PLACED 2 1/2" BELOW THE SIDEWALK SURFACE. MATERIAL SHALL BE 6 "x 6" NO. 10 GAGE AND IN ACCORDANCE WITH ASTM 185 (AASHTO M55),AS SHOWN ON THE PLANS OR AS DIRECTED. WIRE MESH TO BE USED IN ALL COMMERCIAL SIDEWALK APPLICATIONS. MESH MAY BE OMITTED ONLY WITH THE SPECIFIC AUTHORIZATION OF THE CITY ENGINEER ON A CASE–BY–CASE BASIS.

TYPICAL SIDEWALK DETAILS
SCALE : AS NOTED



TYPICAL BLUESTONE SIDEWALK DETAIL

GENERAL NOTES:

- RESTORE LAWN AREAS WHEREVER EXISTING LAWN IS DISTURBED BY THE WORK OF THIS CONTRACT
- BASE UNDER ALL PAVING & POURED CONCRETE, 8" MINIMUM THICKNESS PROCESSED COARSE AGGREGATE
- SUBBASE UNDER ALL PAVING & POURED CONCRETE SURFACES TO BE COMPACTED ENGINEERED FILL OR UNDISTURBED EARTH

Prepared By:
O'Riordan Migani Architects LLC
22 Bank Street, Seymour, Connecticut 06483
203-888-7667

Site Details

Norwalk Historical Society Museum
141 East Avenue, Norwalk, CT 06851

Stamp:

North Arrow:

Date: 11-01-17

Revised: --

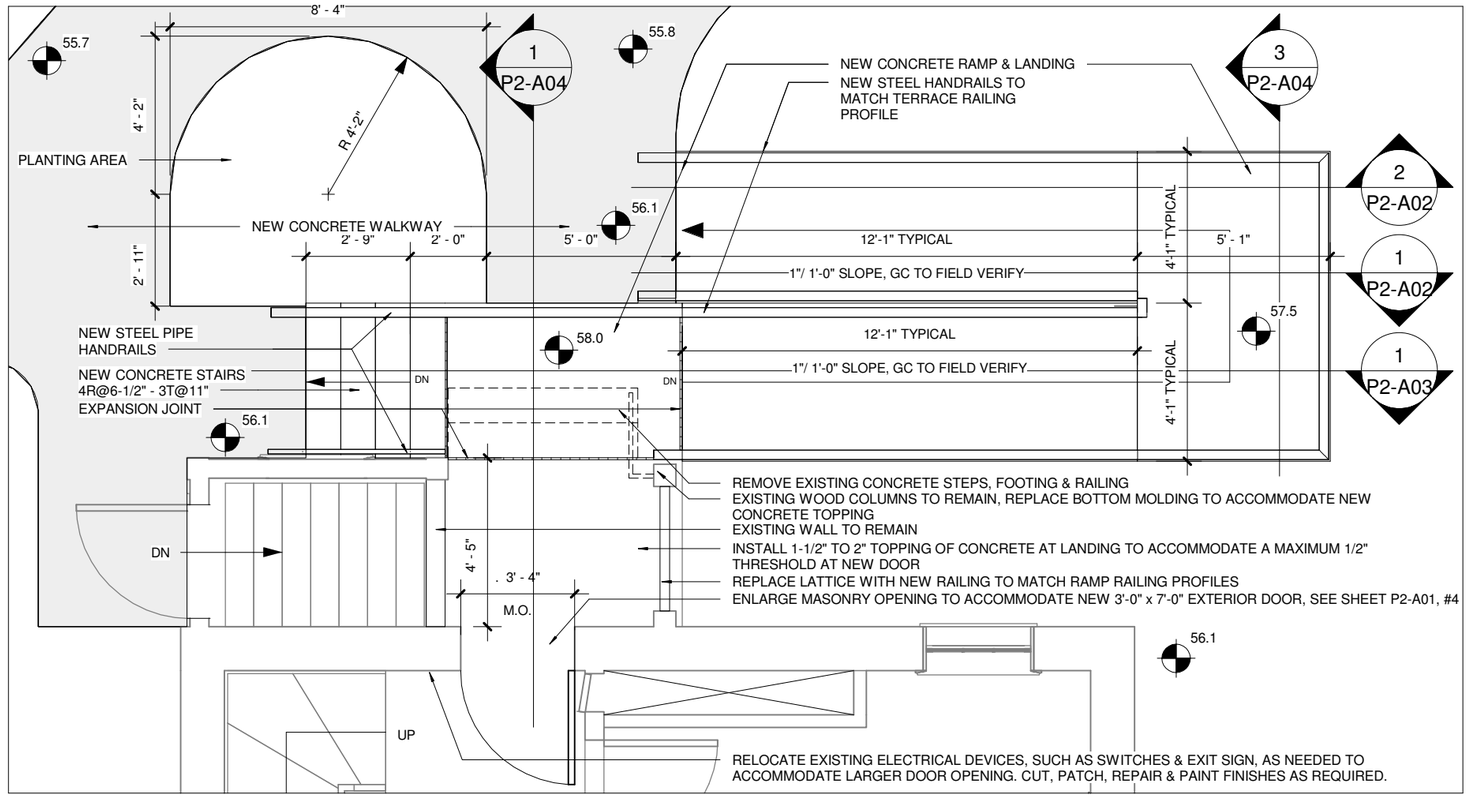
Job: 14140

Scale: As indicated

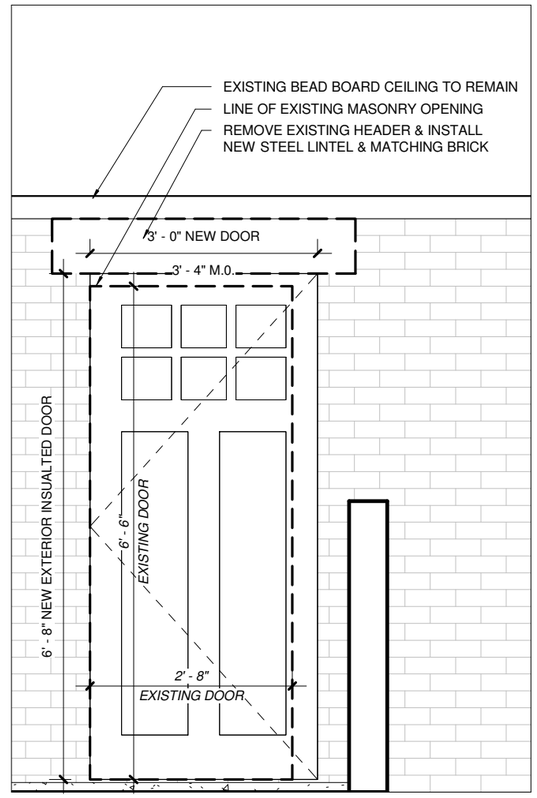
Drawn: AJM

Checked: JCM

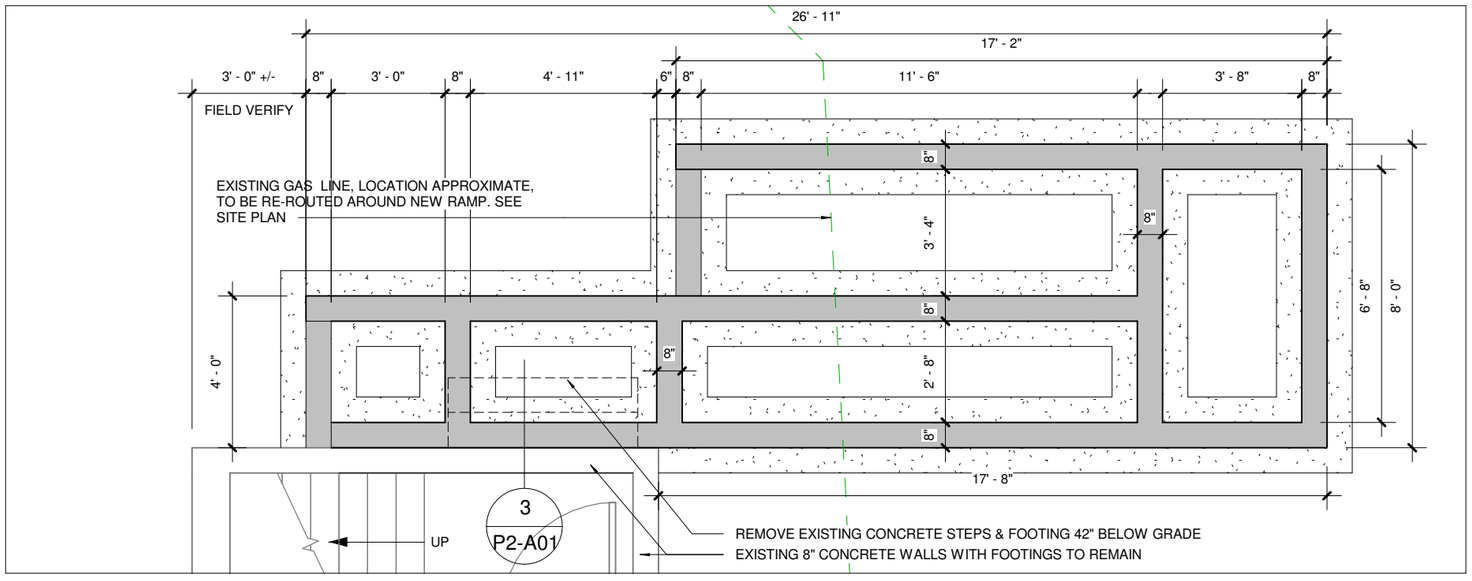
Drawing Number: P2-AS2



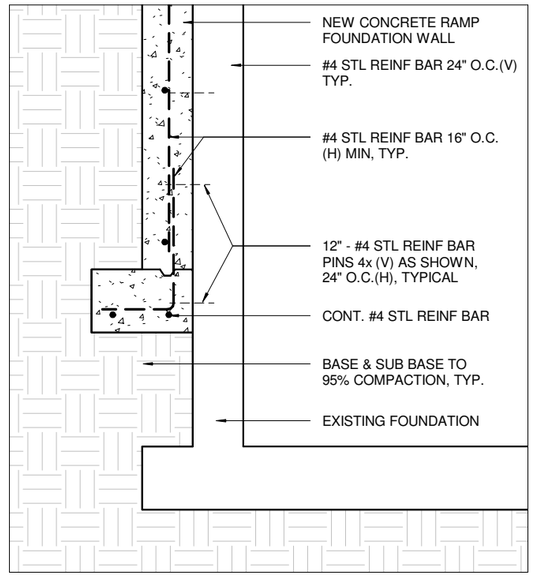
1 Phase II Side Entry Ramp
1/4" = 1'-0"



4 Entry Door, Enlarged Opening
1/2" = 1'-0"



2 Phase II Foundation Plan
1/4" = 1'-0"



3 Pinned Foundation & Footing
1/2" = 1'-0"

Prepared By:
O'Riordan Migani Architects LLC
22 Bank Street, Seymour, Connecticut 06483
203-888-7667

Side Entry Ramp Plans

Norwalk Historical Society Museum
141 East Avenue, Norwalk, CT 06851

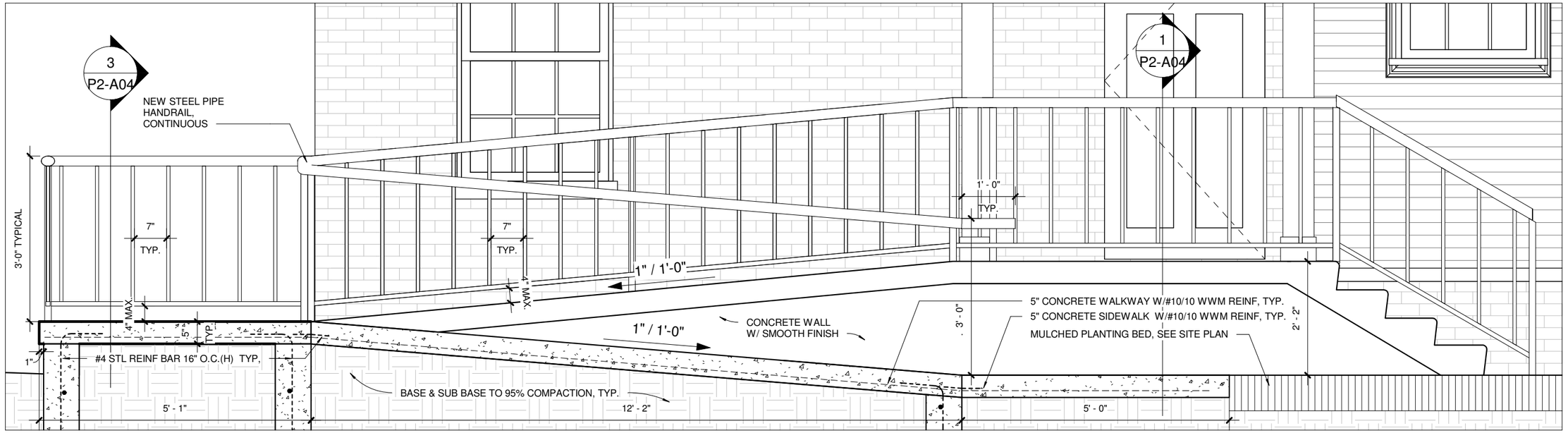
Stamp:

North Arrow:

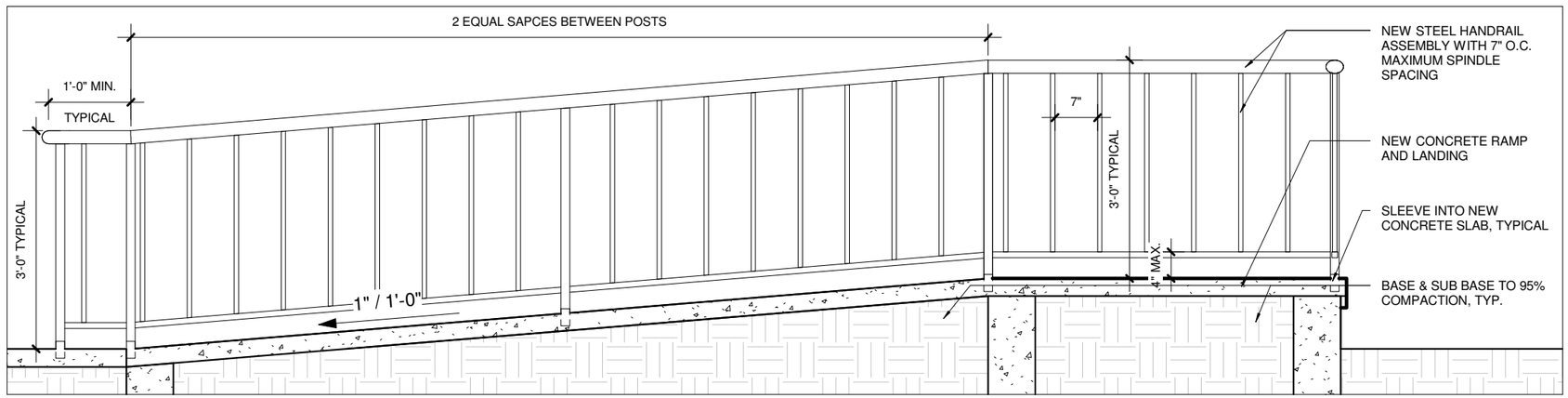
Date: 11-01-17
Revised:
Phase II

Job: 14140
Scale: As indicated
Drawn: AJM
Checked: JOR

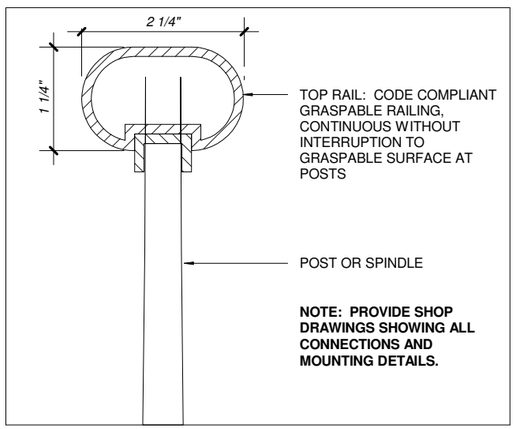
Drawing Number:
P2-A01



1 Ramp Section 2
1/2" = 1'-0"



2 Ramp Section 1
1/2" = 1'-0"



3 Hand Rail Detail
6" = 1'-0"

Prepared By:
O'Riordan Migani Architects LLC
22 Bank Street, Seymour, Connecticut 06483
203-888-7667

Ramp Elevations

Norwalk Historical Society Museum
141 East Avenue, Norwalk, CT 06851

Stamp:

North Arrow:

Date: 11-01-17
Revised:
Phase II

Job: 14140
Scale: As indicated
Drawn: AJM
Checked: JOR

Drawing Number:
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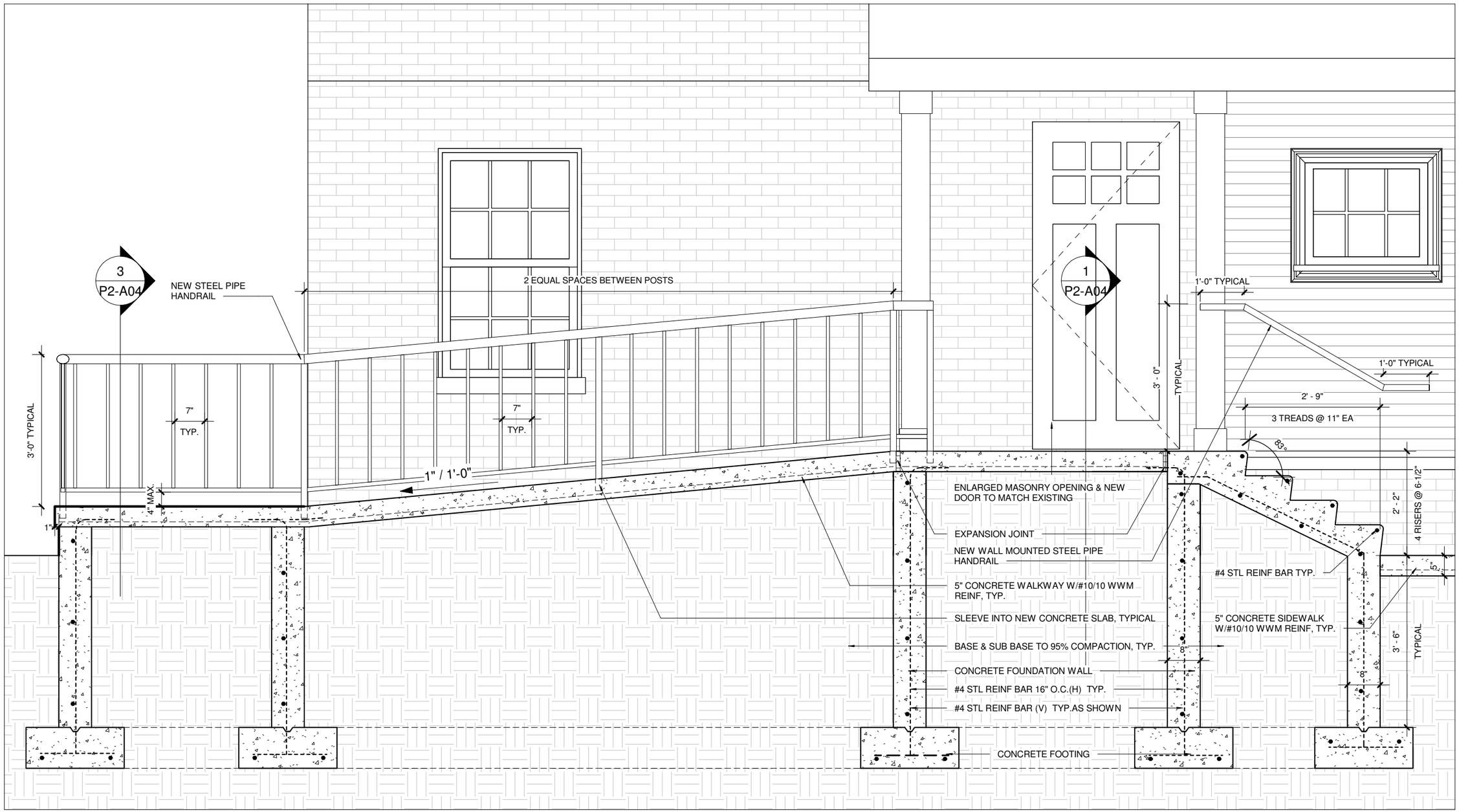


1 Ramp & Stair Section
1/2" = 1'-0"

Prepared By:
O'Riordan Migani Architects LLC
22 Bank Street, Seymour, Connecticut 06483
203-888-7667

Ramp & Stair Section

Norwalk Historical Society Museum
141 East Avenue, Norwalk, CT 06851

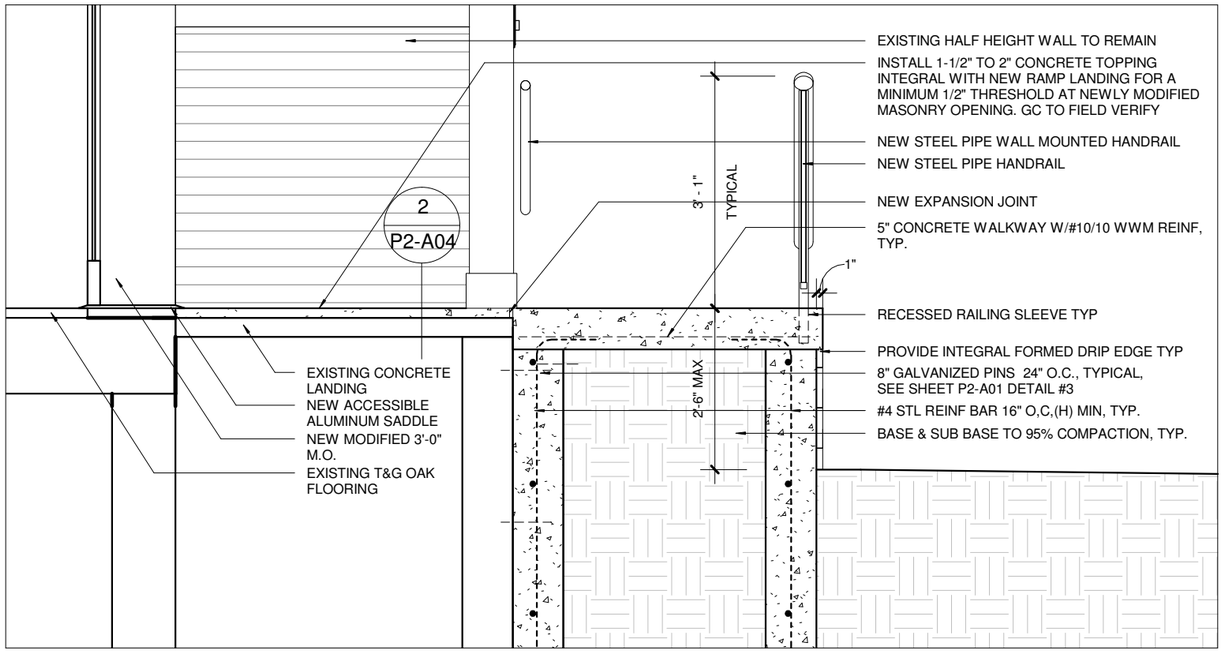
Stamp:

North Arrow:

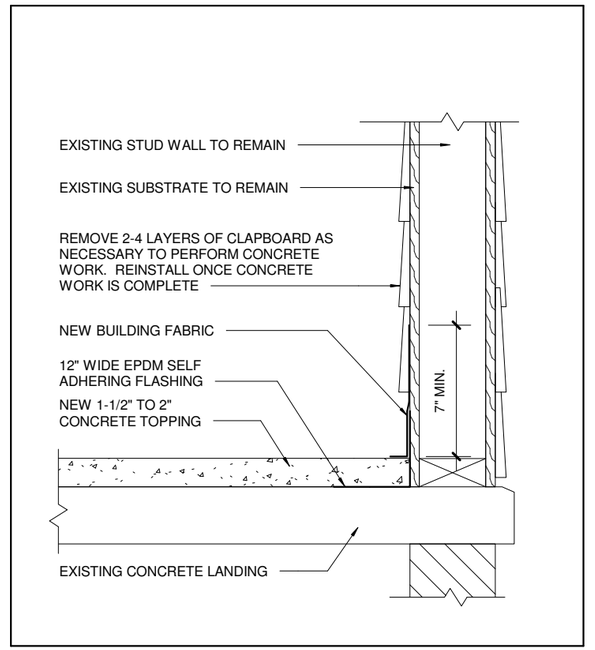
Date: 11-01-17
Revised:
Phase II

Job: 14140
Scale: 1/2" = 1'-0"
Drawn: AJM
Checked: JOR

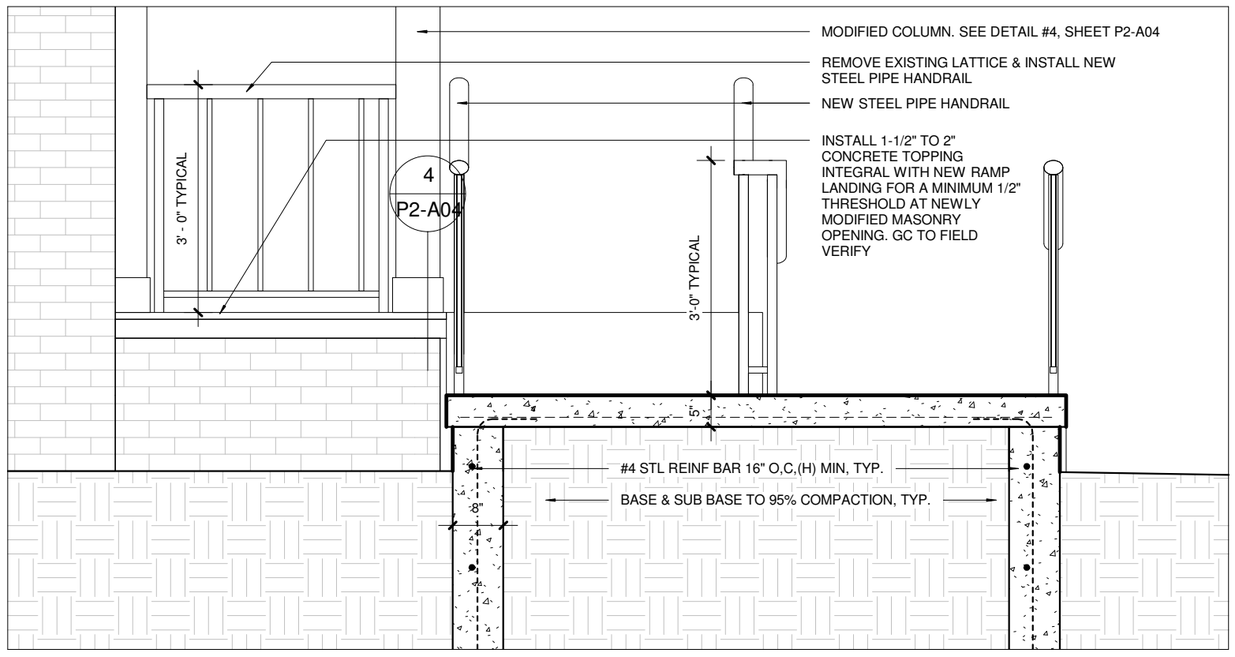
Drawing Number: P2-A03



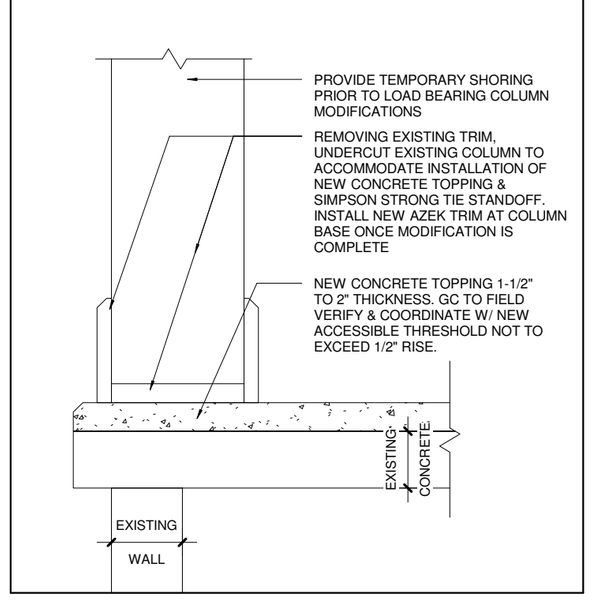
1 Ramp/Landing Cross Section 1
1/2" = 1'-0"



2 Wall Flashing Detail @ Existing Landing
1 1/2" = 1'-0"



3 Ramp/Landing Cross Section 2
1/2" = 1'-0"



4 Column Modification
1 1/2" = 1'-0"

Prepared By:
O'Riordan Migani Architects LLC
22 Bank Street, Seymour, Connecticut 06483
203-888-7667

Ramp Cross Sections

Norwalk Historical Society Museum
141 East Avenue, Norwalk, CT 06851

Stamp:

North Arrow:

Date: 11-01-17
Revised:
Phase II

Job: 14140
Scale: As indicated
Drawn: AJM
Checked: JOR

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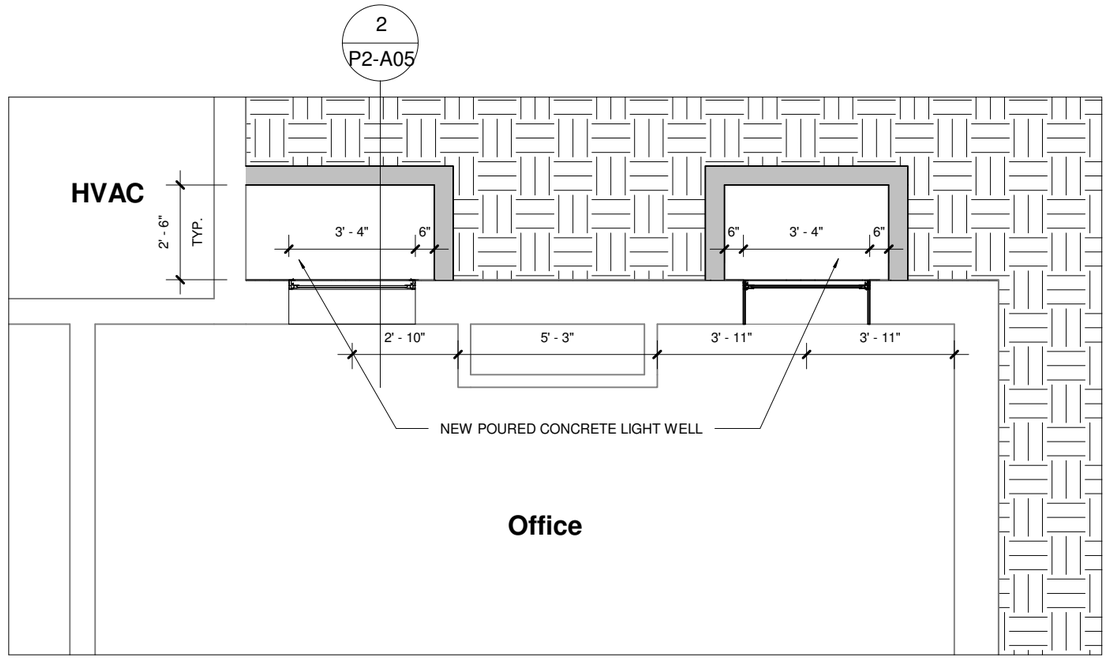
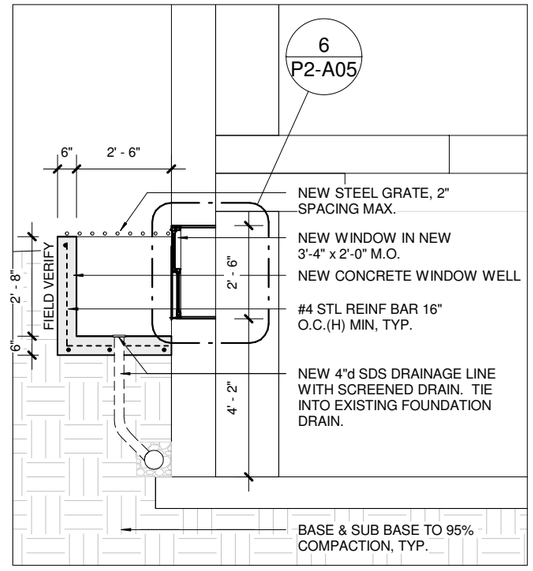
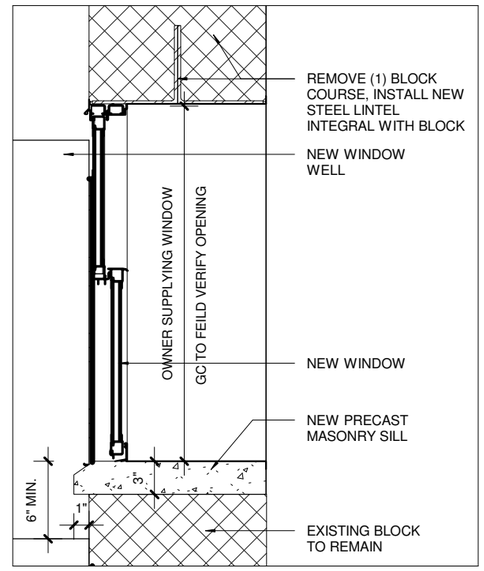


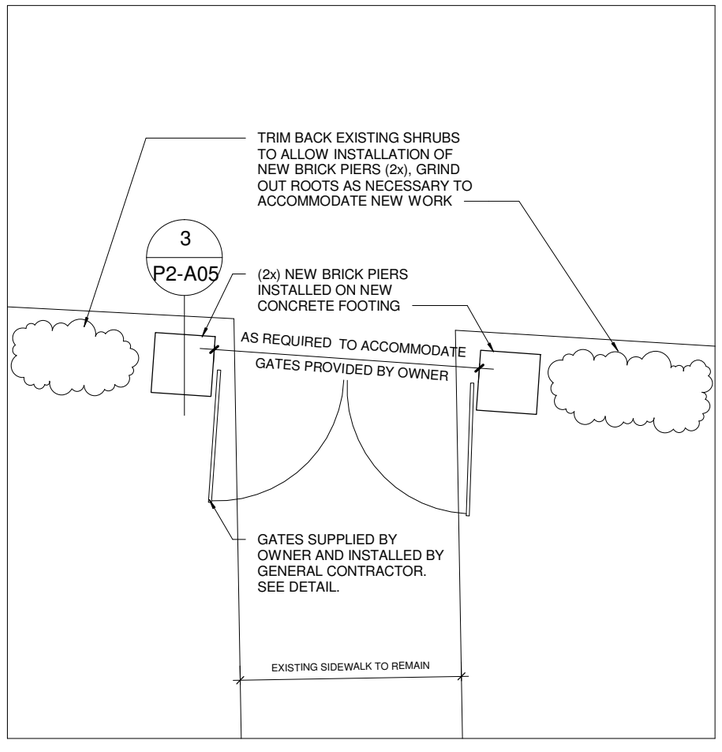
1 Phase II Basement Window Wells
1/4" = 1'-0"



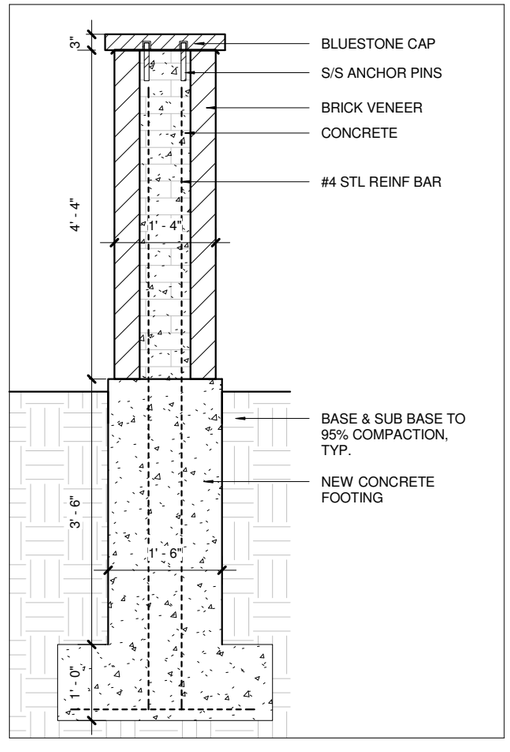
2 Phase II Window Well Section
1/4" = 1'-0"



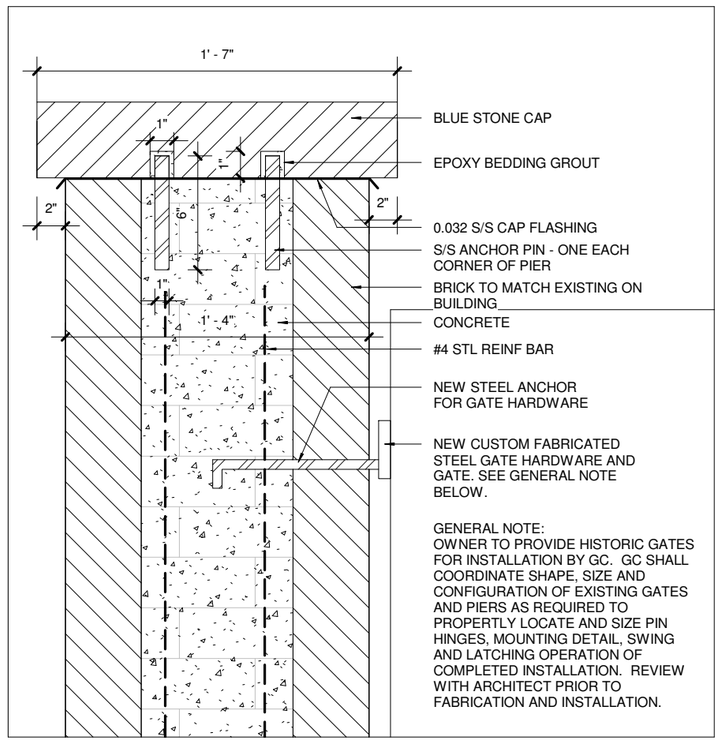
6 H/J/S Detail
1" = 1'-0"



4 Phase II Brick Pier Location Plan
1/4" = 1'-0"



3 Phase II Brick Pier Detail
1/2" = 1'-0"



5 Typical Wall Cap Detail
1 1/2" = 1'-0"

Prepared By:
O'Riordan Migani Architects LLC
22 Bank Street, Seymour, Connecticut 06483
203-888-7667

Window Wells & Brick Piers

Norwalk Historical Society Museum
141 East Avenue, Norwalk, CT 06851

Stamp:

North Arrow:

Date: 11-01-17
Revised:
Phase II

Job: 14140
Scale: As indicated
Drawn: AJM
Checked: JOR

Drawing Number: P2-A05

Technical Specification

Norwalk Historical Society Museum

Accessibility Improvements, Phase 2a

141 East Avenue, Norwalk, CT 06851

City of Norwalk Owner

Harry W. Rilling, Mayor, City of Norwalk
David G. Westmoreland, Chairman, Norwalk Historical Commission

O'Riordan Migani Architects LLC
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203-888-7667

November 1, 2017 **OMA Project No. 14140-2a**

TABLE OF CONTENTS - TECHNICAL SPECIFICATIONS

SECTION 01 1000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work by Owner.
5. Access to site.
6. Coordination with occupants.
7. Work restrictions.
8. Specification and drawing conventions.
9. Miscellaneous provisions.

B. Related Requirements:

1. Section 01 5000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION

A. Project Identification: Norwalk Historical Society Museum Accessibility Improvements, Phase 2a.

1. Project Location: Norwalk Historical Society Museum , City Hall Campus, 141 East Avenue, Norwalk CT.

B. Owner: City of Norwalk, 125 East Avenue, Norwalk CT.

1. Owner's Representative: David G. Westmoreland, Norwalk Historical Commission Chairman.

C. Architect: O'Riordan Migani Architects LLC, 22 Bank Street, Seymour CT.

1. Contact: Joan O'Riordan, jor@omarchitects.com.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Drainage remediation and exterior handicapped accessibility improvements to an existing municipal building. The Work includes, but is not limited to, the following:

a. Selective demolition of landscape and building elements.

b. Selective plant material removal.
c. Coordination of existing gas line relocation.
d. Excavation and forming of footings and slabs for new concrete ramp, stairs, and landing.
e. Excavation and forming for new concrete window wells.
f. Excavation and forming for new concrete footing for freestanding brick piers.
g. Installation of concrete footings, ramp, stairs, landing, and window wells.
h. Installation of broom-finish concrete paving.
i. Installation of bluestone paving at front entry approach.
j. Construction of two brick piers and installation of existing stored decorative metal gates.
k. Installation of new decorative steel railings and handrails to match Phase 1.
l. Enlargement of existing masonry door opening.
m. Creation of new masonry window openings.
n. Installation of new exterior door and two windows.
o. Preparation of planting beds.
p. Purchase and delivery of plant material for planting by Owner.

B. Type of Contract.

1. Project will be constructed under a single prime contract.

1.4 PHASED CONSTRUCTION

A. The Work of this Projects is Phase 2a of a multi-year accessibility project. Each phase shall be implemented so that it can be occupied and used by the Owner independently of the other phases.

1. Phase 1 may not be completed at the time Phase 2a commences. Coordinate with Phase 1 Contractor regarding site access and adjoining work.
2. Phase 2b will consist of interior work only and may be started before the completion of Phase 2a. Coordinate with Phase 2b Contractor regarding site and building access and adjoining work.

1.5 WORK BY OWNER

A. General: Cooperate fully with Owner so work to be implemented by Owner can be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work to be performed by Owner.

1. Work by Owner:

a. Painting: Topcoats for doors, casings, and interior wall surfaces affected by Work of this Contract. Primers for all materials are part of the Base Contract.
b. Planting: Planting of plant materials purchased and delivered to site by Contractor as part of an Allowance and/or Alternate.

1.6 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Limits: Confine construction operations to areas within Limit of Work Line indicated..
2. Driveways, Walkways and Entrances: Keep driveways, parking spaces, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.7 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner and general public will occupy site and existing and adjacent building(s) during entire construction period. Owner will occupy the Norwalk Historical Society Museum interior premises during entire construction period, with the exception of exterior areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated. Ensure safety of the general public.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.8 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 1000

SECTION 01 2100 - ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

B. Types of allowances include the following:

1. Lump-sum allowances.

C. Related Requirements:

1. Section 01 2200 "Unit Prices" for procedures for using unit prices.

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 ACTION SUBMITTALS

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

1.4 INFORMATIONAL SUBMITTALS

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

B. 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.

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

1.5 COORDINATION

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

1.6 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 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 ordered by Owner or selected by Architect 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.

1.7 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.

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. Lump-Sum Allowance No. 1: Gas Line Relocation.

1. Include the sum of $12,000.00: Payment of fees charges by gas utility to relocate existing gas line from existing meter to avoid location of new ramp. The intent of this allowance is to provide a line item in the construction budget for direct payments to the utility company.

a. This allowance includes gas line relocation charges by the utility.
b. This allowance does not include coordination with the utility; work required by the Contractor to prepare for and facilitate the utility company's work; restoration of lawn areas; or Contractor overhead and profit or other markup of the utility company's charges. All of the above are included in the Base Bid.

B. Lump-Sum Allowance No. 2: Plants.

1. Include the sum of $1,000.00: Provision and delivery of plants selected by Owner from a local nursery of his choice for planting by Owner, as specified in Section 32 9300 "Plants" and as shown on Drawings.

a. This allowance includes material cost, receiving, handling, delivery, and Contractor overhead and profit.
b. This allowance does not include planting of the shrubs, which will be done by Owner.

END OF SECTION 01 2100

SECTION 01 2200 - UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for unit prices.

B. Related Requirements:

1. Section 01 2100 “Allowance” for lump-sum allowances for items also included in Schedule of Unit Prices.
2. Section 01 2300 “Alternates” for items also included in Schedule of Unit Prices.
3. Section 01 2600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.2 DEFINITIONS

A. Unit price is an amount incorporated in the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.3 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.

B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Unit Price No. 1 – Removal of Existing Concrete or Asphalt Sidewalk.

1. Description: Remove and dispose of existing sidewalk. Neatly saw-cut edges of existing pavement to remain
2. Unit of Measurement: Per square foot of sidewalk removed.
3. Quantity Allowance: There is no allowance associated with this Unit Price. The Base Bid includes removal of any existing sidewalks occurring where Drawings indicate new sidewalks to be installed. Unit Price No. 1 would be used to expand or reduce the area of sidewalk replacement, in response to field conditions or budgetary constraints.

B. Unit Price No. 2 – Broom-Finish Concrete Sidewalk.

1. Description: Provide and install new natural gray broom-finish concrete sidewalk, including grading and gravel base, according to Sections 32 1313 "Concrete Paving" and 32 1373 “Concrete Paving Joint Sealants.”
2. Unit of Measurement: Per square foot of natural gray broom-finish concrete sidewalk installed.
3. Quantity Allowance: There is no allowance associated with this Unit Price. The Base Bid includes installation of natural gray broom-finish concrete sidewalk in locations indicated on Drawings. Unit Price No. 2 would be used to expand or reduce the area of natural gray broom-finish concrete sidewalk installation, in response to field conditions or budgetary constraints.

END OF SECTION 01 2200

SECTION 01 2300 - ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.3 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: Exterior Door Replacement.

1. Base Bid: Install new wood replacement door and hardware in existing opening on West façade at terrace, as indicated on Drawings and as specified in Sections 02 4119 "Selective Demolition," 07 9200 "Joint Sealants," 08 1433 "Stile and Rail Wood Doors," 08 7100 "Door Hardware," and 09 9113 "Painting."
2. **Deduct** Alternate: Omit all work associated with new exterior door on West façade at terrace.

B. Alternate No. 2: New Window Wells.

1. Base Bid: Install two new window wells and two new windows in new masonry openings as indicated on Drawings and as specified in Sections 02 4119 "Selective Demolition," 03-3000 "Cast-in-Place Concrete," 05 5313 "Bar Gratings," 06 1053 "Miscellaneous Rough Carpentry," 06 2023 "Interior Finish Carpentry," 07 9200 "Joint Sealants," 08 5413 "Fiberglass Windows," 09 9113 "Painting," 31 1000 "Site Clearing," 31 2000 "Earth Moving," 31 2319 "Dewatering," and 31 5000 "Excavation Support and Protection."
2. **Deduct** Alternate: Omit all work associated with new window wells.

C. Alternate No. 3: New Brick Piers & Reused Metal Gates.

1. Base Bid: Install all work shown on Drawings except new brick piers and reused metal gates.
2. **Add** Alternate: Install new concrete footing and freestanding brick piers as indicated on Drawings and as specified in Sections 02 4119 "Selective Demolition," 03-3000 "Cast-in-Place Concrete," 04 2000 "Unit Masonry," 09 9113 "Painting," 31 1000 "Site Clearing," 31 2000 "Earth Moving," 32 9113 "Soil Preparation," and 32 9200 "Turf and Grasses." Work includes trimming back and/or removing existing shrubs, removal of existing footing, replacement of adjacent concrete sidewalk if it is damaged during the execution of the work, and lawn restoration.

D. Alternate No. 4: New Stone Pavement at Front Entry.

1. Base Bid: Install all work shown on Drawings except new bluestone paving at front entry approach.
2. **Add** Alternate: At the approach to the front entry, remove existing concrete pavers, prepare base and subbase, and install new bluestone sidewalk to match existing adjacent bluestone paving as indicated on Drawings and as specified in Section 32 1400 "Unit Paving." Work includes restoration of lawn areas disturbed by the work of this alternate.

E. Alternate No. 5: Plant Materials.

1. Base Bid: Lump-Sum Allowance No. 2 for purchase and delivery of plant materials to the site for planting by Owner.
2. **Deduct** Alternate: Omit Lump-Sum Allowance No. 2.

END OF SECTION 01 2300

SECTION 01 2500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Section 01 6000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1.3 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use CSI Form 13.1A.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.

j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Requested substitution will not adversely affect Contractor's construction schedule.
c. Requested substitution has received necessary approvals of authorities having jurisdiction.
d. Requested substitution is compatible with other portions of the Work.
e. Requested substitution has been coordinated with other portions of the Work.
f. Requested substitution provides specified warranty.

g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2500

SECTION 01 2600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request or 14 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
    e. Quotation Form: Use CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail" or forms acceptable to Owner.

B. Contractor-Initiated Work Change Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining 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 the Contract Time.

2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 01 2500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Work Change Proposal Request Form: Use CSI Form 13.6A, "Change Order Request (Proposal)," with attachments CSI Form 13.6D, "Proposal Worksheet Summary," and Form 13.6C, "Proposal Worksheet Detail" or form acceptable to Owner.

1.4 ADMINISTRATIVE CHANGE ORDERS

A. Allowance Adjustment: See Section 01 2100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

B. Unit-Price Adjustment: See Section 01 2200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Changes Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the 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 change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2600

SECTION 01 2900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Requirements:

1. Section 01 2100 "Allowances" for procedural requirements governing the handling and processing of allowances.
2. Section 01 2200 "Unit Prices" for administrative requirements governing the use of unit prices.
3. Section 01 2600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
4. Section 01 3200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:

a. Application for Payment forms with continuation sheets.
b. Submittal schedule.
c. Items required to be indicated as separate activities in Contractor's construction schedule.

2. Submit the schedule of values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

a. Project name and location.
b. Name of Architect.
c. Architect's project number.
d. Contractor's name and address.
e. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.

3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents.

    a. Include separate line item for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.

4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

    a. Exception: "Bonds and Permits" may be listed as a separate line item.
    b. Exception: Overhead costs may be listed under a separate line item, "General Conditions." Progress payments under this line item shall be distributed over the time period of the contract in equal monthly amounts.
    c. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.

9. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

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

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

    1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.

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

E. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

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

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Schedule of unit prices.
5. Submittal schedule (preliminary if not final).
6. List of Contractor's staff assignments.
7. List of Contractor's principal consultants.
8. Copies of building permits.
9. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
10. Certificates of insurance and insurance policies.

H. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706-1994, "Contractor's Affidavit of Payment of Debts and Claims."

5. AIA Document G706A-1994, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707-1994, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2900

SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Coordination drawings.
2. Requests for Information (RFIs).
3. Project meetings.

B. Related Requirements:

1. Section 01 7300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 DEFINITIONS

A. RFI: Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.3 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

1.4 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

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

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.

1.5 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:

a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
b. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
2. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility.

1.6 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

C. RFI Forms: AIA Document G716.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

1. The following RFIs will be returned without action:

   a. Requests for approval of submittals.
   b. Requests for approval of substitutions.
   c. Requests for coordination information already indicated in the Contract Documents.
   d. Requests for adjustments in the Contract Time or the Contract Sum.
   e. Requests for interpretation of Architect's actions on submittals.
   f. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 01 2600 "Contract Modification Procedures."

   a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Software log with not less than the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

1.7 PROJECT MEETINGS

A. General: Schedule meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned within three days of the meeting.

B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Contractor, but no later than 15 days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner, Architect; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

a. Construction schedule.
b. Critical work sequencing and long-lead items.
c. Designation of key personnel and their duties.
d. Procedures for processing field decisions and Change Orders.
e. Procedures for RFIs.
f. Procedures for testing and inspecting.
g. Procedures for processing Applications for Payment.
h. Distribution of the Contract Documents.
i. Submittal procedures.
j. Preparation of record documents.
k. Use of the municipal campus, premises and existing building.
l. Work restrictions.
m. Working hours.
n. Owner's occupancy requirements.
o. Responsibility for temporary facilities and controls.
p. Procedures for moisture and mold control.

q. Procedures for disruptions and shutdowns.
r. Construction waste management.
s. Parking availability.
t. Office, work, and storage areas.
u. Equipment deliveries and priorities.
v. First aid.
w. Security.
x. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: 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. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

a. Contract Documents.
b. Options.
c. Related RFIs.
d. Related Change Orders.
e. Purchases.
f. Deliveries.
g. Submittals.
h. Review of mockups.
i. Possible conflicts.
j. Compatibility problems.
k. Time schedules.
l. Weather limitations.
m. Manufacturer's written instructions.
n. Warranty requirements.
o. Compatibility of materials.
p. Acceptability of substrates.
q. Temporary facilities and controls.
r. Space and access limitations.
s. Regulations of authorities having jurisdiction.
t. Testing and inspecting requirements.
u. Installation procedures.
v. Coordination with other work.
w. Required performance results.
x. Protection of adjacent work.
y. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.

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

D. Progress Meetings: Architect will conduct progress meetings at weekly intervals.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction 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.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Progress cleaning.
        10) Quality and work standards.
        11) Status of correction of deficient items.
        12) Field observations.
        13) Status of RFIs.
        14) Status of proposal requests.
        15) Pending changes.
        16) Status of Change Orders.
        17) Pending claims and disputes.
        18) Documentation of information for payment requests.

3. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 3100

SECTION 01 3200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's construction schedule.
2. Construction schedule updating reports.
3. Site condition reports.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

1.3 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. PDF electronic file.

B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

C. Construction Schedule Updating Reports: Submit with Applications for Payment.

D. Site Condition Reports: Submit at time of discovery of differing conditions.

1.4 COORDINATION

A. Coordinate Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Submittal Review Time: Include review and resubmittal times indicated in Section 01 3300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
3. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
4. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
2. Work Restrictions: Show the effect of the following items on the schedule:

a. Coordination with existing construction.
b. Limitations of continued occupancies.
c. Uninterruptible services.
d. Use of premises restrictions.
e. Provisions for future construction.
f. Seasonal variations.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and Contract Time.

F. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule.

G. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within 30 days of date established for the Notice to Proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

2.3 REPORTS

A. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 3200

SECTION 01 3233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Periodic construction photographs.

1.2 INFORMATIONAL SUBMITTALS

A. Digital Photographs: Submit unaltered, original, full-size image files within three days of taking photographs.

1. Digital Camera: Minimum sensor resolution of 8 megapixels.
2. Identification: Provide the date photograph was taken.

PART 2 - PRODUCTS

2.1 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, with minimum size of 8 megapixels.

PART 3 - EXECUTION

3.1 CONSTRUCTION PHOTOGRAPHS

A. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

1. Date and Time: Include date and time in file name for each image.

C. Preconstruction Photographs: Before commencement of demolition, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.

1. Flag excavation areas before taking construction photographs.
2. Take 20 photographs to show existing conditions adjacent to property before starting the Work.

3. Take 20 photographs of existing buildings either on or adjoining property (Lockwood House Facility and immediately adjacent buildings) to accurately record physical conditions at start of construction.

D. Periodic Construction Photographs: Take 10 photographs monthly, coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

E. Final Completion Construction Photographs: Take 20 color photographs after date of Substantial Completion for submission as Project Record Documents. Architect will inform photographer of desired vantage points.

END OF SECTION 01 3233

SECTION 01 3300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Requirements:

1. Section 01 3200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
2. Section 01 7839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic copies of digital data files of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

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 parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.

a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.

a. Allow sufficient blank space on submittal cover sheet to accommodate both Contractor's and Architect's action stamps.

4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner**,** containing the following information:

a. Project name.
b. Date.
c. Name and address of Architect.
d. Name of Contractor.
e. Name of firm or entity that prepared submittal.
f. Names of subcontractor, manufacturer, and supplier.
g. Category and type of submittal.
h. Submittal purpose and description.
i. Specification Section number and title.
j. Specification paragraph number or drawing designation and generic name for each of multiple items.
k. Drawing number and detail references, as appropriate.
l. Location(s) where product is to be installed, as appropriate.
m. Related physical samples submitted directly.
n. Indication of full or partial submittal.
o. Transmittal number, numbered consecutively.
p. Submittal and transmittal distribution record.

q. Other necessary identification.
r. Remarks.

E. Options: Identify options requiring selection by Architect.

F. Deviations: Identify deviations from the Contract Documents on submittals.

G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements:

1. Submit electronic submittals via email as PDF electronic files.

a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.
b. Provide a notarized statement on original paper copy certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.

c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams showing factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:

a. PDF electronic file.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm), but no larger than 30 by 42 inches (750 by 1067 mm).
3. Submit Shop Drawings in the following format:

a. PDF electronic file.
b. Drawings larger than 8-1/2 by 11 inches (215 by 280 mm): One opaque (bond) copy of each submittal in addition to PDF electronic file. Architect will not return paper copy.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.
b. Product name and name of manufacturer.

c. Sample source.
d. Number and title of applicable Specification Section.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit two sets of Samples. Architect will retain one Sample sets; one set will be given to Owner or returned to Contractor, as directed by Owner.

        1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

E. Coordination Drawings Submittals: Comply with requirements specified in Section 01 3100 "Project Management and Coordination."

F. Contractor's Construction Schedule: Comply with requirements specified in Section 01 3200 "Construction Progress Documentation."

G. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01 2900 "Payment Procedures.

H. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01 4000 "Quality Requirements."

I. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 7700 "Closeout Procedures."

J. Maintenance Data: Comply with requirements specified in Section 01 7823 "Operation and Maintenance Data."

K. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

L. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

M. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

N. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

O. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

P. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

Q. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

R. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

S. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project.

T. Schedule of Tests and Inspections: Comply with requirements specified in Section 01 4000 "Quality Requirements."

U. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

V. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

W. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads.

Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file and three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Project Closeout and Maintenance Material Submittals: See requirements in Section 01 7700 "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01 3300

SECTION 01 3516 - ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes special procedures for alteration work.

1.2 DEFINITIONS

A. Alteration Work: This term includes remodeling, renovation, repair, and maintenance work performed within existing spaces or on existing surfaces as part of the Project.

B. Consolidate: To strengthen loose or deteriorated materials in place.

C. Design Reference Sample: A sample that represents the Architect's prebid selection of work to be matched; it may be existing work or work specially produced for the Project.

D. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.

F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.

G. Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.

H. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.

I. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.

J. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.

K. Retain: To keep existing items that are not to be removed or dismantled.

L. Strip: To remove existing finish down to base material unless otherwise indicated.

1.3 PROJECT MEETINGS FOR ALTERATION WORK

A. Preliminary Conference for Alteration Work: Before starting alteration work, Architect will conduct conference at Project site.

1. Attendees: In addition to representatives of Owner, Architect, and Contractor, testing service representative, and chemical-cleaner manufacturer(s) shall be represented at the meeting.
2. Agenda: Discuss items of significance that could affect progress of alteration work, including review of the following:

    a. Emergency egress from existing building.
    b. Governing regulations.
    c. Areas where existing construction is to remain and the required protection.
    d. Hauling routes.
    e. Sequence of alteration work operations.
    f. Storage, protection, and accounting for salvaged and specially fabricated items.
    g. Existing conditions, staging, and structural loading limitations of areas where materials are stored.

3. Reporting: Architect will record conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.

B. Coordination Meetings: Conduct coordination meetings specifically for alteration work at weekly intervals. Coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Agenda: Review and correct or approve minutes of previous coordination meeting. Review other items of significance that could affect progress of alteration work. Include topics for discussion as appropriate to status of Project.
2. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.4 INFORMATIONAL SUBMITTALS

A. Alteration Work Program: Submit 30 days before work begins.

1.5 QUALITY ASSURANCE

A. Alteration Work Program: Prepare a written plan for alteration work for whole Project, including each phase or process and protection of surrounding materials during operations. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project alteration work program with specific requirements of programs required in other alteration work Sections.

1. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.

B. Safety and Health Standard: Comply with ANSI/ASSE A10.6.

1.6 STORAGE AND HANDLING OF SALVAGED MATERIALS

A. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after alteration and other construction work in the vicinity is complete.

B. Storage: Catalog and store items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.

1. Identify each item for reinstallation with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
2. Secure stored materials to protect from theft.
3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 3 deg C (5 deg F) or more above the dew point.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 PROTECTION

A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from alteration work.

1. Use only proven protection methods, appropriate to each area and surface being protected.
2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration work is being performed.
3. Erect temporary barriers to form and maintain fire-egress routes.
4. Contain dust and debris generated by alteration work, and prevent it from reaching the public or adjacent surfaces.
5. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
6. Protect surfaces along hauling routes from damage, wear, and staining.

B. Temporary Protection of Materials to Remain:

1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration work program.

C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.

D. Utility and Communications Services:

1. Notify Owner, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by alteration work before commencing operations.
2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for alteration work.
3. Maintain existing services unless otherwise indicated; keep in service, and protect against damage during operations. Provide temporary services during interruptions to existing utilities.

E. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.

1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration work.
2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

3.2 PROTECTION FROM FIRE

A. General: Follow fire-prevention plan and the following:

1. Comply with NFPA 241 requirements unless otherwise indicated. Perform duties titled "Owner's Responsibility for Fire Protection."
2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.

B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:

1. Obtain Owner's approval for operations involving use of welding or other high-heat equipment. Notify Owner at least 72 hours before each occurrence, indicating location of such work.
2. Restrict heat-generating equipment to areas outside the building.

C. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel are trained in fire-extinguisher and blanket use.

3.3 GENERAL ALTERATION WORK

A. Record existing work before each procedure (preconstruction), and record progress during the work. Use digital preconstruction documentation photographs. Comply with requirements in Section 01 3233 "Photographic Documentation."

B. Perform surveys of Project site as the Work progresses to detect hazards resulting from alterations.

C. Notify Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.

1. Do not proceed with the work in question until directed by Architect.

END OF SECTION 01 3516

SECTION 01 4000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
3. Specific test and inspection requirements are not specified in this Section.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Laboratory Mockups: Full-size physical assemblies constructed at testing facility to verify performance characteristics.

D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

E. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.

F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.3 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 INFORMATIONAL SUBMITTALS

A. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.5 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.

8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
5. Other required items indicated in individual Specification Sections.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

G. Manufacturer's Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

H. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.

    a. Allow seven days for initial review and each re-review of each mockup.

5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed unless otherwise indicated.

1.7 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

E. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.8 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency and special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in individual Specification Sections, and as follows:

1. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
2. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
3. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
4. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
5. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 7300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 4000

SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 01 1000 "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.3 INFORMATIONAL SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire prevention program.

1.4 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

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

1.5 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

A. Storage Containers: Provide storage containers sized, furnished, and equipped to accommodate materials and equipment for construction operations.

2.2 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance to areas within Limit of Work line.

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

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.

C. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

E. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

F. Telephone Service: Provide superintendent with cellular telephone.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

1. Available on-site parking is limited.

D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
2. Remove snow and ice as required to minimize accumulations.

E. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Temporary Signs: Provide signs as required to inform public and individuals seeking entrance to Project. Provide temporary, directional signs for construction personnel and visitors.

F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 01 7300 "Execution."

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Temporary Erosion and Sedimentation Control: Comply with requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 31 1000 "Site Clearing."

D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

E. Tree and Plant Protection: Install temporary fencing located outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

F. Barricades and Warning Signs: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs.

G. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

H. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.

3.5 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.

3.6 OPERATION, TERMINATION, AND REMOVAL

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

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

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been 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 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 Contractor. Owner reserves right to take possession of Project identification signs.

2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 7700 "Closeout Procedures."

END OF SECTION 01 5000

SECTION 01 6000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 01 2500 "Substitution Procedures" for requests for substitutions.

1.2 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.3 ACTION SUBMITTALS

A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product

request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Section 01 3300 "Submittal Procedures."
b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 3300 "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on

product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. Refer to other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 01 7700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products:

    a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements.

Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.

b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.

4. Manufacturers:

a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.
b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 01 2500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.

3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 6000

SECTION 01 7300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Coordination of Owner-installed products.
6. Progress cleaning.
7. Protection of installed construction.

B. Related Requirements:

1. Section 01 1000 "Summary" for limits on use of Project site.
2. Section 01 7700 "Closeout Procedures" for submitting Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.2 INFORMATIONAL SUBMITTALS

A. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.3 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural element during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in

reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 01 3100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish limits on use of Project site.
3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
4. Inform installers of lines and levels to which they must comply.
5. Check the location, level and plumb, of every major element as the Work progresses.
6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, foundations, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 27 deg C (80 deg F).
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.

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

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

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

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 7300

SECTION 01 7700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

B. Related Requirements:

1. Section 01 3233 "Photographic Documentation" for submitting final completion construction photographic documentation.
2. Section 01 7839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.2 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.3 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

1.4 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
3. Complete final cleaning requirements, including touchup painting.
4. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.5 FINAL COMPLETION PROCEDURES

A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 01 2900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Inspection: Submit a written request for final inspection to determine acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.6 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Submit list of incomplete items in the following format:

    a. MS Excel electronic file. Architect will return annotated copy.

1.7 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 215-by-280-mm (8-1/2-by-11-inch) paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

    a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    e. Remove snow and ice to provide safe access to building.
    f. Clean exposed exterior and interior (west basement area only) hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces.
    g. Remove debris and surface dust from limited access spaces, including trenches, manholes, and similar spaces.
    h. Sweep concrete floors broom clean in unoccupied spaces.
    i. Remove labels that are not permanent.
    j. Leave Project clean and ready for occupancy.

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

    a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

END OF SECTION 01 7700

SECTION 01 7839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Product Data.

1.2 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one set(s) of marked-up record prints.

B. Record Specifications: Submit one paper copy of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit one paper copy and annotated PDF electronic files of each submittal.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised Drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Record data as soon as possible after obtaining it.
c. Record and check the markup before enclosing concealed installations.

2. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.

4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Identification: As follows:

a. Project name.
b. Date.
c. Designation "PROJECT RECORD DRAWINGS."
d. Name of Architect.
e. Name of Contractor.

2.2 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, and record Drawings where applicable.

B. Format: Submit record Product Data as annotated PDF electronic file and one paper copy.

2.3 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as PDF electronic file and one paper copy.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible

condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 01 7839

SECTION 02 4119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.

1.2 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.3 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Engineering Survey: Submit engineering survey of condition of building.

B. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection and , for noise control. Indicate proposed locations and construction of barriers.

C. Schedule of selective demolition activities with starting and ending dates for each activity.

D. Predemolition photographs.

1.5 CLOSEOUT SUBMITTALS

A. Inventory of items that have been removed and salvaged.

1.6 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

G. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

C. Inventory and record the condition of items to be removed and salvaged.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.

b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.

3.3 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

C. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches.
4. Dispose of demolished items and materials promptly.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 CLEANING

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn demolished materials.

C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 4119

SECTION 03 3000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

B. Related Requirements:

1. Section 03 5300 “Concrete Topping” for structural mortar topping over existing exterior concrete substrate.
2. Section 31 2000 "Earth Moving" for drainage fill under slabs-on-grade.
3. Section 32 1313 “Concrete Paving” for concrete walks.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement.

D. Samples for Initial Selection: For each type of product, ingredient, or admixture requiring color selection.

E. Samples for Verification: Sample panels 2 by 2 feet (610 by 610 mm), to demonstrate finish, color, and texture of decorative cement concrete.

F. Shop Drawings: Showing proposed imprinting pattern for areas designated to receive imprinted concrete finish.

1.3 INFORMATIONAL SUBMITTALS

A. Material certificates.

B. Material test reports: From testing agency indicating compliance of concrete materials, reinforcing materials, admixtures, and similar items with requirements.

C. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer, detailing fabrication, assembly, and support of formwork.

D. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.

E. Qualification Data: For Installer and manufacturer specified in Quality Assurance Article, including names and addresses of completed projects, architects, and owners.

1.4 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Concrete Installer Qualifications: A company experienced with projects of similar scope and quality.

1. Minimum Experience: Five years.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.6 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 306.1.

1. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 (ACI 301M).

PART 2 - PRODUCTS

2.1 CONCRETE TYPES

A. Concrete Type 1: Cast-in-Place, natural gray, smooth finish.

1. Application: Footings, foundation walls, window wells, stairs.
2. Specification Section: 03 3000 “Cast-in-Place Concrete.”

B. Concrete Type 2: Cast-in-Place, natural gray, broom-finish texture.

1. Application: Ramp runs and intermediate and top landing.
2. Specification Section: 03 3000 “Cast-in-Place Concrete.”

C. Concrete Type 3: Paving, natural gray, broom-finish texture.

1. Application: Sidewalks.
2. Specification Section: 32 1313 “Concrete Paving.”

D. Concrete Type 4: Paving, natural gray, float finish.

1. Application: Slab under unit pavers.
2. Specification Section: 32 1313 “Concrete Paving.”

2.2 CONCRETE, GENERAL

A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301 (ACI 301M).
2. ACI 117 (ACI 117M).

2.3 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.4 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.

B. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from as-drawn steel wire into flat sheets.

C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

D. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420) plain-steel bars; zinc coated (galvanized) after fabrication according to ASTM A 767/A 767M, Class I coating. Cut bars true to length with ends square and free of burrs.

2.5 CONCRETE MATERIALS

A. Cementitious Materials:

1. Portland Cement: ASTM C 150/C 150M, Type I/II.

a. Gray or white as required to match existing adjacent sidewalks.

2. Fly Ash: ASTM C 618, Class F or C.
3. Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33/C 33M, uniformly graded. Provide aggregates from a single source.

1. Maximum Coarse-Aggregate Size: 3/4 inch (19 mm) nominal.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Air-Entraining Admixture: ASTM C 260/C 260M.

D. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
4. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

E. Water: ASTM C 94/C 94M and potable.

2.6 CURING AND SEALING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

1. Application: Do not use on integrally colored.
2. Products: Subject to compliance with requirements, provide one of the following:

a. ChemMasters, Inc; Spray-Film.
b. Dayton Superior; AquaFilm Concentrate J74.
c. Euclid Chemical Company (The); an RPM company; Eucobar.
d. Kaufman Products, Inc; VaporAid.
e. L&M Construction Chemicals, Inc; E-CON.
f. Lambert Corporation; LAMBCO Skin.
g. Nox-Crete Products Group; MONOFILM.
h. SpecChem, LLC; SpecFilm.
i. TK Products; TK-2120 TRI-FILM.
j. Vexcon Chemicals Inc.; Certi-Vex EnvioAssist.
k. W. R. Meadows, Inc; EVAPRE.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

1. Application: Do not use on integrally colored concrete.

2. Products: Subject to compliance with requirements, provide one of the following:

   a. ChemMasters, Inc; Safe-Cure Clear DR.
   b. Dayton Superior; Clear Resin Cure J11W.
   c. Euclid Chemical Company (The); an RPM company; Aqua-Cure VOX.
   d. Kaufman Products, Inc; DR Cure.
   e. L&M Construction Chemicals, Inc; L&M CURE R.
   f. Lambert Corporation; AQUA KURE - CLEAR.
   g. Nox-Crete Products Group; Res-Cure DH.
   h. SpecChem, LLC; PaveCure Rez.
   i. TK Products; TK-2519 DC WB.
   j. Vexcon Chemicals Inc.; Certi-Vex Enviocure 100.
   k. W. R. Meadows, Inc; 1100-CLEAR SERIES.

2.7 RELATED MATERIALS

A. Expansion- and Isolation-Joints: Backer rod and sealant according to Section 32 1373 “Concrete Paving Joint Sealants.”

B. Bonding Agent: ASTM C 1059, Type II.

2.8 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301 (ACI 301M).

B. Cementitious Materials: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.

C. Admixtures: Use admixtures according to manufacturer's written instructions.

   1. Use plasticizing admixture in concrete, as required, for placement and workability.
   2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

D. Concrete Mixtures: Normal-weight concrete.

   1. Minimum Compressive Strength: 4000 psi (27.6 MPa) at 28 days.
   2. Maximum W/C Ratio: 0.45.
   3. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).
   4. Air Content: 6 percent, plus or minus 1.0 percent at point of delivery.

E. Topping Slab Concrete Mixtures: Normal-weight concrete.

   1. Minimum Compressive Strength: 3500 psi (24.15 MPa) at 28 days.
   2. Maximum W/C Ratio: 0.50.
   3. Slump Limit: 5 inches (100 mm), plus or minus 1 inch (25 mm).
   4. Air Content: 0-3 percent at point of delivery.
   5. Aggregate Size: Stone sized at 3/8 inch, 1/2 inch, and 3/4 inch.
   6. Plasticizer: 4.0 oz./CWT.

a. Required Product: Euclid Chemical Co., Plastol 341.

2.9 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.10 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK INSTALLATION

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301 (ACI 301M), to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 (ACI 117M).

C. Chamfer exterior corners and edges of permanently exposed concrete.

3.2 EMBEDDED ITEM INSTALLATION

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.5 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install backer rod and sealant at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch (6-mm) radius. Repeat tooling of edges after applying surface finishes.

3.6 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Do not add water once placing has begun.
2. Do not retemper concrete that has started to set.
3. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301 (ACI 301M).

3.7 FINISHING FORMED SURFACES

A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces not exposed to public view.

a. Footings.

b. Interior faces of foundation walls supporting ramp and landings.

B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view and to receive a rubbed finish.

a. Stairs.
b. Exposed faces of window well walls and foundation walls supporting ramp and landings.

C. Rubbed Finish: Apply the following to smooth-formed-finished as-cast concrete:

1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.8 FINISHING SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

1. Apply float finish to surfaces to receive trowel finish, broom finish, or stamped finish.

C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.

1. Apply a trowel finish to surfaces exposed to view but not indicated to receive broom finish or stamped finish.
2. Finish and measure surface, so gap at any point between concrete surface and an unleveled, freestanding, 10-ft.- (3.05-m-) long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/8 inch (3.2 mm).

D. Broom Finish: Apply a broom finish to exterior concrete platforms and ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.9 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 (ACI 301M) for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.

C. Formed Surfaces: Cure formed concrete surfaces, including underside of supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.

D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.10 CONCRETE SURFACE REPAIRS AND PROTECTION

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

B. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

3.11 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a to perform field tests and inspections and prepare test reports.

END OF SECTION 03 3000

SECTION 03 5300 - CONCRETE TOPPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Portland cement-based structural repair mortar.
2. Application: To raise finished elevation of existing concrete surface to eliminate vertical level changes along an accessible route.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Qualification Data: For installer.

1.3 QUALITY ASSURANCE

A. Manufacturer's Qualifications: The manufacturer shall be a company with at least five years experience and regularly engaged in the manufacture and marketing of products specified.

B. Installer Qualifications: Factory-trained, certified applicator, using mixing equipment and tools approved by the manufacturer.

1. Basis-of-Design Product Installer Qualifications: ARDEX LevelMaster Elite or Choice Contractor.

PART 2 - PRODUCTS

2.1 CONCRETE TOPPING

A. Concrete Topping: Factory-prepared and dry-packaged mixture of trowel-grade, polymer-modified, Portland cement-based structural repair mortar with integral corrosion inhibitors for use on existing exterior concrete surfaces, to which only water needs to be added at Project site.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ARDEX Engineered Cements, ARDEX ERM Exterior Ramp Mortar or comparable product by the following:

a. L&M Construction Chemicals, Inc.

2. Performance and Physical Properties: Meet or exceed the following values for material cured at 73° F (23° C) and 50 percent relative humidity:

a. Application: Trowel.
b. Working Time: 25 – 45 minutes.
c. Compressive Strength (28 Days): 8200 psi (574.0 kg/sq.cm.); ASTM C 109/C 109M.
d. Flexural Strength (28 Days): 1500 psi (105.0 kg/sq.cm.); ASTM C 293/C 293M.
e. Modulus of Elasticity in Compression (28 Days): 3.67x1,000,000 psi (2.6x100,000 kg/sq.cm.); ASTM C 469/C 469M.
f. Shrinkage: Less than 0.06% at 7 days, less than 0.08% at 28 days, ASTM C157, air cured.
g. Rapid Chloride Permeability: 820 Coulombs, at 28 days, ASTM C1202.
h. Color: Gray

B. Crack and Joint Filler: Two-component polyurethane, low-viscosity repair compound for non-moving dormant cracks and dormant joints.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ARDEX Engineered Cements, ARDEX ARDIFIX or comparable product by the following:

a. L&M Construction Chemicals, Inc.

C. Concrete Substrate Primer: Two-component, solvent-free, epoxy resin primer for exterior concrete substrates.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ARDEX Engineered Cements, ARDEX EP 2000, or comparable product by the following:

a. L&M Construction Chemicals, Inc.

D. Exposed Steel Primer: Two-component, Portland cement- and epoxy-based coating for reinforcing steel and concrete substrates.

1. Basis-of-Design Product: Subject to compliance with requirements, provide ARDEX Engineered Cements, ARDEX BACA Bonding & Anti-Corrosion Agent, or comparable product by the following:

a. L&M Construction Chemicals, Inc.

2.2 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.

B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable.

2.3 RELATED MATERIALS

A. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids epoxy resin with a Type A Shore durometer hardness of 80 according to ASTM D 2240.

B. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

PART 3 - EXECUTION

3.1 PREPARATION

A. General: Prepare substrate in accordance with manufacturer's instructions. Prior to proceeding with any repair, please refer to the International Concrete Repair Institute's ICRI 03730 Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion; ICRI 03732 Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays; and the American Concrete Institute's ACI 546R-04 Concrete Repair Guide for general guidelines for concrete repair.

B. Existing Concrete: Remove existing surface treatments and deteriorated and unsound concrete. Mechanically abrade base slabs to produce an exposed aggregate surface with a minimum surface profile of 1/16 inch (1.5 mm).

1. Prepare and clean existing base slabs according to concrete floor topping manufacturer's written instructions. Fill voids, cracks, and cavities in base slabs.
2. Saw cut contraction and construction joints in existing concrete to a depth of 1/2 inch (13 mm) and fill with semirigid joint filler.
3. All substrates must be sound, solid, dry, and completely free of all oil, grease, dirt, curing compounds and any substance that might act as a bond breaker. Overwatered, frozen or otherwise weak concrete surfaces must also be cleaned down to sound, solid concrete by mechanical methods such as scarifying, scabbling or similar in accordance with ICRI 03732 before priming. Acid etching and the use of sweeping compounds and solvents are not acceptable.
4. The application area must be saw cut in a basic rectangular shape at least ¼" (6 mm) in depth. The cuts should be made at 90° angle, and should be slightly keyed. Chip out the concrete inside the cuts to a minimum depth of ¼" (6 mm) until the area is squared or box shape.
5. Where there is exposed reinforcing steel, prepare the concrete such that a minimum ¾" (19 mm) is achieved around the steel to ensure sufficient placement of the corrosion inhibitor. Mechanically clean the steel to remove all rust and any other contaminants in accordance with ICRI 03730. Prime the steel with bonding & anti-corrosion coating prior to proceeding with repair.

C. Joint Preparation:

1. Install joint-filler strips where topping abuts vertical surfaces.
2. Moving Joints and Cracks: Honor all expansion and isolation joints up through the structural repair mortar topping. Install flexible sealing compound suitable for the application and acceptable to the topping manufacturer.
3. Control Joints and Dormant Cracks Greater than 1/16-inch: Fill with two-component polyurethane repair compound joint filler. Sand broadcast repair material to refusal to create bonding surface for structural repair mortar topping.

3.2 CONCRETE TOPPING APPLICATION

A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.

B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas and landscaping from contact due to mixing and handling of materials.

C. Mixing: Comply with manufacturer's printed instructions and the following requirements for Basis-of-Design Product:

1. Precondition components to temperature of 70° plus or minus 5°F (21° plus or minus 2.5°C) prior to mixing.
2. Add 6.5 pints (3.08 L) of clean water per 55 lb. (25 kg) bag. Slowly add one-third of a 55 lb. (25 kg) bag of ARDEX ERM. Once this is blended, add the next third and so on until all the material is added.
3. Mix using a ½" to ¾" (12 to 19 mm) low-to-medium speed heavy-duty drill with a heavy gauge square box (butterfly) mixing paddle. Forced action mortar mixers are also suitable. Mix to a uniform, lump-free consistency. Avoid over-mixing.
4. For application depths greater than 2", and up to 8", add up to 25 lbs. of clean, uniformly graded saturated-surface-dry ¼" - 3/8-inch aggregate per bag, as directed by manufacturer.
5. If additional water is required, add up to 8 oz. (0.24 L) of additional mix water per bag. Do not overwater.

D. Application: Comply with manufacturer's printed instructions and the following.

1. Do not apply in freezing conditions or during precipitation.
2. Comply with manufacturer's guides for hot and cold weather application.
3. Apply epoxy primer according to manufacturer's written instructions.
4. Apply scrub coat of repair mortar into the primed concrete substrate to ensure good mortar-to-concrete contact.
5. Apply structural repair mortar while scrub coat is wet. If the scrub coat is allowed to dry, it must be removed mechanically and reapplied before applying the mortar. Consolidate and steel trowel to the desired finish.
6. When pouring into closed forms, the repairs should be vibrated to ensure full contact and to establish bond with the substrate, as well as to ensure proper consolidation. Avoid over-vibration.
7. Install structural repair mortar in thicknesses recommended by manufacturer.

E. Existing Concrete: Apply epoxy-bonding adhesive, mixed according to manufacturer's written instructions, and scrub into dry base slabs to a thickness of 1/16 to 1/8 inch (1.6 to 3 mm), without puddling. Place topping while adhesive is still tacky.

F. Place concrete topping continuously in a single layer or multiple lifts, tamping and consolidating to achieve tight contact with bonding surface. Do not permit cold joints or seams to develop within pour strip.

1. Screed surface with a straightedge and strike off to correct elevations.
2. Slope surfaces uniformly where indicated.
3. Begin initial floating, using bull floats to form a uniform and open-textured surface plane free of humps or hollows.

G. Finishing: Consolidate surface with power-driven floats as soon as concrete floor topping can support equipment and operator. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until topping surface has a uniform, smooth, granular texture.

1. Hard Trowel Finish: After floating surface, apply first trowel finish and consolidate concrete topping by power-driven trowel without allowing blisters to develop. Continue troweling passes and restraighten until surface is smooth and uniform in texture.

H. Construction Joints: Construct joints true to line with faces perpendicular to surface plane of concrete topping, at locations indicated or as approved by Architect.

1. Coat face of construction joint with epoxy adhesive at locations where concrete topping is placed against hardened or partially hardened concrete topping.

I. Contraction Joints: Form weakened-plane contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3-mm-) wide joints into concrete topping when cutting action will not tear, abrade, or otherwise damage surface and before random contraction cracks develop.

1. Form joints in concrete topping over contraction joints in base slabs unless otherwise indicated.
2. Construct contraction joints for a depth equal to one-half of concrete topping thickness, but not less than 1/2 inch (13 mm) deep.

3.3 PROTECTING AND CURING

A. General: Protect freshly placed concrete topping from premature drying and excessive cold or hot temperatures.

B. Curing: Begin curing immediately after finishing concrete topping. Cure according to concrete topping manufacturer's written instructions.

1. Keep surface damp for 48 hours with continuous light water-fogging or curing blanket. Do not allow the water to puddle. Do not use solvent-borne curing compounds.
2. Allow structural repair mortar to cure a minimum of 3 – 7 days prior to the installation of final coatings or sealers.

C. Cleaning: Remove excess material before material cures. If material has cured, remove using mechanical methods which will not damage substrate.

3.4 JOINT FILLING

A. Prepare and clean contraction joints and install semirigid joint filler, according to manufacturer's written instructions, once topping has fully cured.

B. Install semirigid joint filler full depth of contraction joints. Overfill joint and trim semirigid joint filler flush with top of joint after hardening.

3.5 REPAIR

A. Defective Topping: Repair and patch defective concrete topping areas, including areas that have not bonded to concrete substrate.

END OF SECTION 03 5300

SECTION 04 2000 - UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Clay face brick for exterior free-standing piers.
2. Parging exposed masonry foundation walls at new window wells.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Initial Selection: For each type and color of exposed masonry unit and colored mortar.

C. Samples for Verification: For each type and color of exposed masonry unit and colored mortar.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each type and size of product. For masonry units, include data on material properties and material test reports substantiating compliance with requirements.

B. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91/C 91M for air content.
2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

1.4 QUALITY ASSURANCE

A. Design Intent: Construct piers to match those on the west terrace of the Norwalk Historical Society Museum.

1.5 FIELD CONDITIONS

A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

2.2 STONE TRIM

A. Stone Pier Caps: Natural bluestone pier caps, as indicated on drawings.

1. Thickness: Two inches.
2. Finish: Match existing piers.

2.3 BRICK

A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units:

1. For otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
2. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.

B. Clay Face Brick: Facing brick complying with ASTM C 216.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Glen-Gery brick to match existing, as supplied by Mack Brick Company, Enfield CT.

a. Preliminary Selection: Mid-Atlantic Plant, 350-M range, modular size.
b. Design Intent: Match existing Norwalk Historical Society Museum brick.

2. Grade: SW.
3. Type: FBS.
4. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 3350 psi (23.10 MPa).
5. Initial Rate of Absorption: Less than 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested according to ASTM C 67.
6. Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated "not effloresced."

7. Size (Actual Dimensions): 3-1/2 inches (89 mm) wide by 2-1/4 inches (57 mm) high by 7-1/2 inches (190 mm) long or 3-5/8 inches (92 mm) wide by 2-1/4 inches (57 mm) high by 7-5/8 inches (194 mm) long.

2.4 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150/C 150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.

D. Colored Cement Products: Packaged blend made from portland cement and hydrated lime and mortar pigments, all complying with specified requirements, and containing no other ingredients.

1. Colored Portland Cement-Lime Mix:

a. Products: Subject to compliance with requirements, provide one of the following:

1) Essroc; Riverton Portland Cement Lime Custom Color.
2) Holcim (US) Inc; Rainbow Mortamix Custom Color Cement/Lime.
3) Lafarge North America Inc.; Eaglebond Portland & Lime.
4) Lehigh Hanson; HeidelbergCement Group; Lehigh Custom Color Portland/Lime Cement.

E. Aggregate for Mortar: ASTM C 144.

1. For joints less than 1/4 inch (6 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.
2. White-Mortar Aggregates: Natural white sand or crushed white stone.
3. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

F. Aggregate for Grout: ASTM C 404.

G. Epoxy Bedding Grout: ASTM C 1107, ASTM C 109, ASTM C 348, ASTM C 588, epoxy-resin-based material formulated for use as bedding grout for exterior locations and approved for use with clay brick and natural stone; in color indicated or, if not otherwise indicated, as selected by Architect from manufacturer's colors.

H. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

1. Provide laboratory test results documenting that cold-weather admixture, used in combination with submitted mortar mix, has no adverse effects on mortar performance.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. BASF Corporation; Construction Systems.
b. Euclid Chemical Company (The); an RPM company.
c. Grace Construction Products; W.R. Grace & Co. -- Conn.

I. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

J. Water: Potable.

2.5 BRICK MASONRY TIES AND ANCHORS

A. Materials: Provide anchors that are made from materials that comply with the following unless otherwise indicated:

1. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
2. Anchor Pins: Stainless steel

2.6 EMBEDDED FLASHING MATERIALS

A. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304, dead soft, fully annealed; 2D (dull, cold rolled) finish.

1. Stainless Steel: 0.019 inch (0.48 mm) thick.

B. Metal Flashing: Provide metal flashing as follows:

1. Fabricate metal flashing from stainless steel to shapes indicated.

2.7 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Diedrich Technologies, Inc.; a division of Sandell Construction Solutions.
b. EaCo Chem, Inc.
c. PROSOCO, Inc.

2.8 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Use portland cement-lime mortar unless otherwise indicated.
3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.

1. For mortar parge coats, use Type S or Type N.
2. For exterior, above-grade brick masonry, use Type N.

D. Pigmented Mortar: Use colored cement product.

1. Application: Use pigmented mortar for exposed mortar joints with the following units:

a. Clay face brick.

E. Grout for Unit Masonry: Comply with ASTM C 476.

1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi (14 MPa).
3. Provide grout with a slump of 8 to 11 inches (200 to 280 mm) as measured according to ASTM C 143/C 143M.

F. Epoxy Bedding Grout: Mix epoxy pointing mortar to comply with mortar manufacturer's written instructions.

1. Application: Anchoring natural stone pier caps, and as indicated.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

C. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested according to ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.2 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.

B. Lines and Levels:

1. For bed joints and top surfaces of walls and piers, do not vary from level by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2-inch (12-mm) maximum.
2. For conspicuous horizontal lines, such as tops of segmental retaining walls, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.
4. For conspicuous vertical lines, such as free-standing piers, expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).
2. For head joints, do not vary from thickness indicated by more than plus 3/8 inch (9 mm) or minus 1/4 inch (6 mm).
3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm).

3.3 LAYING MASONRY PIERS

A. Lay out piers in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of terminations and returns. Avoid using less-than-half-size units, particularly at corners.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.

C. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.

3.4 MORTAR BEDDING AND JOINTING

A. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

B. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

3.5 FLASHING

A. General: Install embedded flashing in masonry where indicated.

B. Install flashing as follows unless otherwise indicated:

1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape.

3.6 PARGING

A. Parge exterior faces of below-grade masonry walls, where indicated, in two uniform coats to a total thickness of 3/4 inch (19 mm). Dampen wall before applying first coat, and scarify first coat to ensure full bond to subsequent coat.

B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot (3 mm per 300 mm). Form a wash at top of parging and a cove at bottom.

C. Damp-cure parging for at least 24 hours and protect parging until cured.

3.7 REPAIRING, POINTING, AND CLEANING

A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes.
3. Protect adjacent surfaces from contact with cleaner.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.

5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
6. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

3.8 MASONRY WASTE DISPOSAL

A. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 04 2000

SECTION 05 5313 - BAR GRATINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes metal bar gratings and metal frames and supports for gratings.

1.2 ACTION SUBMITTALS

A. Product Data: For the following:

1. Clips and anchorage devices for gratings.
2. Paint products.

B. Shop Drawings: Include plans, sections, details, and attachments to other work.

C. Delegated-Design Submittal: For gratings, including manufacturers' published load tables or analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide McNichols Company; GW Series galvanized steel welded bar grating, or a comparable product by one of the following:

1. All American Grating.
2. Ohio Gratings, Inc.

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design gratings.

B. Structural Performance: Gratings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Walkways and Elevated Platforms Other Than Exits: Uniform load of 60 lbf/sq. ft. (2.87 kN/sq. m).
2. Limit deflection to L/360 or 1/4 inch (6.4 mm), whichever is less.

C. Seismic Performance: Gratings shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. Component Importance Factor: 1.5.

2.3 METAL BAR GRATINGS

A. Metal Bar Grating Standards: Comply with NAAMM MBG 531, "Metal Bar Grating Manual."

B. Welded Steel Grating:

1. Bearing Bar Spacing: 1-3/16 inches (30 mm) o.c.
2. Bearing Bar Depth: 1 inch (25 mm) or as required to comply with structural performance requirements.
3. Bearing Bar Thickness: 3/16 inch (4.8 mm).
4. Crossbar Spacing: 4 inches (102 mm) o.c.
5. Traffic Surface: Plain.
6. Steel Finish: Hot-dip galvanized with a coating weight of not less than 1.8 oz./sq. ft. (550 g/sq. m) of coated surface.
7. Percent Open Area: 80.

2.4 FERROUS METALS

A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

B. Steel Bars for Bar Gratings: ASTM A 36/A 36M or steel strip, ASTM A 1011/A 1011M or ASTM A 1018/A 1018M.

C. Wire Rod for Bar Grating Crossbars: ASTM A 510 (ASTM A 510M).

D. Uncoated Steel Sheet: ASTM A 1011/A 1011M, structural steel, Grade 30 (Grade 205).

E. Galvanized-Steel Sheet: ASTM A 653/A 653M, structural quality, Grade 33 (Grade 230), with G90 (Z275) coating.

2.5 FASTENERS

A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

B. Post-Installed Anchors: Torque-controlled expansion or chemical anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.

2.6 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

B. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

2.7 FABRICATION

A. Cut, drill, and punch material cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

B. Fit exposed connections accurately together to form hairline joints.

2.8 GRATING FRAMES AND SUPPORTS

A. Fabricate from metal shapes, plates, and bars of welded construction to sizes, shapes, and profiles indicated and as necessary to receive gratings. Miter and weld connections for perimeter angle frames. Cut, drill, and tap units to receive hardware and similar items.

1. Unless otherwise indicated, fabricate from same basic metal as gratings.
2. Equip units indicated to be cast into concrete or built into masonry with integrally welded anchors. Unless otherwise indicated, space anchors 8 inches (200 mm) o.c. and provide minimum anchor units in the form of steel straps 1-1/4 inches (32 mm) wide by 1/4 inch (6 mm) thick by 8 inches (200 mm) long.

B. Galvanize steel frames and supports in the following locations:

1. Exterior.

2.9 STEEL FINISHES

A. Finish gratings, frames, and supports after assembly.

B. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing gratings. Set units accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.

B. Fit exposed connections accurately together to form hairline joints.

C. Attach toeplates to gratings by welding at locations indicated.

3.2 INSTALLING METAL BAR GRATINGS

A. General: Install gratings to comply with recommendations of referenced metal bar grating standards that apply to grating types and bar sizes indicated, including installation clearances and standard anchoring details.

B. Attach removable units to supporting members with type and size of clips and fasteners indicated or, if not indicated, as recommended by grating manufacturer for type of installation conditions shown.

3.3 ADJUSTING AND CLEANING

A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.

END OF SECTION 05 5313

SECTION 05 7300 - DECORATIVE METAL RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Steel decorative railings.

1.2 ACTION SUBMITTALS

A. Product Data: For the following:

1. Manufacturer's product lines of railings assembled from standard components.
2. Grout, anchoring cement, and paint products.

B. Shop Drawings: Include plans, elevations, sections, and attachment details.

C. Samples: For each type of exposed finish required.

D. Delegated-Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For professional engineer.

B. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.

C. Evaluation Reports: For post-installed anchors, from ICC-ES.

1.4 QUALITY ASSURANCE

A. Design Intent: Provide railings that match steel railings installed at the existing ramp and terrace.

B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for fabrication and installation.

1. Build mockups for each form and finish of railing, consisting of two posts, top rail, infill area, and anchorage system components.
2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

C. Preinstallation Conference: Conduct conference at Project site.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Steel and Iron Decorative Railings:

1. Basis-of-Design Products: Subject to compliance with requirements, provide Blum, Julius & Co., Inc; products listed below or a comparable product by one of the following:

   a. Architectural Iron Designs, Inc.
   b. Olin Wrought Iron.
   c. Wagner, R & B, Inc.

B. Product Options: Information on Drawings and in Specifications establishes requirements for system's aesthetic effects and performance characteristics. The design intent is to provide railings that match steel railings installed at the existing ramp and terrace

1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval.
2. Basis-of-Design Products.

   a. Modify parts and model numbers listed to conform to required dimensions or provide custom sizes.
   b. Post: Model 331, extended to allow mounting into concrete ramp or landing.
   c. Spindle: Model 325 in height indicated on Drawings.
   d. Handrail: Model 4435, installed as top rail and as wall-mounted handrail.
   e. Provide additional parts and accessories as required to provide a complete system.

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 4000 "Quality Requirements," to design railings, including attachment to building construction.

B. Structural Performance: Railings, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Handrails and Top Rails of Guards:

   a. Uniform load of 50 lbf/ft. (0.73 kN/m) applied in any direction.
   b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
   c. Uniform and concentrated loads need not be assumed to act concurrently.

2. Infill of Guards:

   a. Concentrated load of 50 lbf (0.22 kN) applied horizontally on an area of 1 sq. ft. (0.093 sq. m).
   b. Infill load and other loads need not be assumed to act concurrently.

2.3 METALS, GENERAL

A. Brackets, Flanges, and Anchors: Same metal and finish as supported rails unless otherwise indicated.

2.4 STEEL AND IRON

A. Tubing: ASTM A 500/A 500M (cold formed) or ASTM A 513.

B. Bars: Hot-rolled, carbon steel complying with ASTM A 29/A 29M, Grade 1010.

C. Plates, Shapes, and Bars: ASTM A 36/A 36M.

D. Malleable Iron: ASTM A 47/A 47M.

2.5 FASTENERS

A. Fastener Materials: Unless otherwise indicated, provide the following:

1. Stainless-Steel Components: Type 304 stainless-steel fasteners.
2. Dissimilar Metals: Type 304 stainless-steel fasteners.

B. Post-Installed Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC193 or ICC-ES AC308.

1. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 (A1) stainless-steel bolts, ASTM F 593 (ASTM F 738M), and nuts, ASTM F 594 (ASTM F 836M).

2.6 MISCELLANEOUS MATERIALS

A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.

1. Basis-of-Design Product: Sherwin Williams Kem Bond HS Universal Metal Primer, or comparable product by one of the following:

a. Benjamin Moore & Co..
b. PPG Architectural Finishes, Inc.

B. Enamel Paint: Intermediate and topcoat compatible with primer.

1. Basis-of-Design Product: Sherwin Williams All Surface Enamel, color A41B01300 Black, gloss level Satin, or comparable product by one of the following:

a. Benjamin Moore & Co..
b. PPG Architectural Finishes, Inc.

C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

D. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.7 FABRICATION

A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.

B. Connections: Fabricate railings with welded connections unless otherwise indicated.

C. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.

1. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 1 welds; no evidence of a welded joint.

D. Form changes in direction by bending.

E. Bend members in jigs to produce uniform curvature for each configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

F. Close exposed ends of hollow railing members with prefabricated end fittings.

G. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated.

H. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.

2.8 STEEL AND IRON FINISHES

A. Preparing Nongalvanized Items for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

B. Primer Application: Apply shop primer to prepared surfaces of railings unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.

C. Intermediate and Topcoats: Apply exterior latex intermediate and topcoats to prime-coated surfaces. Comply with coating manufacturer's written instructions and with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting. Apply at spreading rates recommended by coating manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Fit exposed connections together to form tight, hairline joints.

B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.

1. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
2. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (5 mm in 3 m).

C. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

D. Form or core-drill holes not less than 5 inches (125 mm) deep and 3/4 inch (20 mm) larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout.

E. Anchor railing ends to concrete and masonry with flanges connected to railing ends and anchored to wall construction with anchors and bolts.

F. Attach handrails to walls with wall brackets except where end flanges are used.

1. Use type of bracket with predrilled hole for exposed bolt anchorage.
2. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

G. Secure wall brackets and railing end flanges to building construction as follows:

1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
2. For hollow masonry anchorage, use toggle bolts.
3. For wood stud partitions, use hanger or lag bolts set into wood backing between studs. Coordinate with carpentry work to locate backing members.

H. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

END OF SECTION 05 7300

SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Wood blocking and nailers.
3. Wood furring and grounds.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1.3 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Preservative-treated wood.
2. Power-driven fasteners.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Dress lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood nailers, blocking, stripping, and similar members in connection with flashing, vapor barriers, and waterproofing.
2. Wood sills, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.

2.3 DIMENSION LUMBER FRAMING

A. Non-Load-Bearing Interior Partitions: Construction or No. 2 grade of any species.

B. Other Framing: Construction or No. 2 grade of any of the following species:

1. Hem-fir (north); NLGA.
2. Southern pine; SPIB.
3. Douglas fir-larch; WCLIB or WWPA.
4. Spruce-pine-fir; NLGA.
5. Douglas fir-south; WWPA.
6. Hem-fir; WCLIB or WWPA.
7. Douglas fir-larch (north); NLGA.
8. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

2.4 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Furring.
4. Grounds.

B. Dimension Lumber Items: Construction or No. 2 grade lumber of any species.

C. Concealed Boards: 19 percent maximum moisture content of any of the following species and grades:

1. Mixed southern pine or southern pine, No. 2 grade; SPIB.
2. Eastern softwoods, No. 2 Common grade; NELMA.
3. Northern species, No. 2 Common grade; NLGA.
4. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.

2.5 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.

B. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

2.6 MISCELLANEOUS MATERIALS

A. Adhesives for Gluing Furring to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

1. VOC Limits for Adhesives: 30 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch (0.6 mm).

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

C. Do not splice structural members between supports unless otherwise indicated.

D. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

E. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
2. ICC-ES evaluation report for fastener.

3.2 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06 1053

SECTION 064600 - WOOD TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Exterior standing and running trim.
2. Interior standing and running trim.
3. Wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.
4. Shop priming of wood trim.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product, including finishing materials and processes.

B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

C. Samples:

1. Full size piece of each type and dimension of running trim: 6 inch minimum length.

1.3 INFORMATIONAL SUBMITTALS

A. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

1.4 QUALITY ASSURANCE

A. Fabricator Qualifications: Certified participant in AWI's Quality Certification Program.

B. Installer Qualifications: Certified participant in AWI's Quality Certification Program.

1.5 FIELD CONDITIONS

A. Weather Limitations for Exterior Work: Proceed with installation of exterior wood trim only when existing and forecasted weather conditions permit work to be performed and at least one coat of specified finish to be applied without exposure to rain, snow, or dampness.

B. Environmental Limitations for Interior Work: Do not deliver or install interior wood trim until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

PART 2 - PRODUCTS

2.1 WOOD TRIM, GENERAL

A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of wood trim indicated for construction, finishes, installation, and other requirements.

1. Provide certificates from AWI certification program indicating that woodwork, including installation, complies with requirements of grades specified.

B. Design Intent: Provide new trim to match existing casings and trim.

2.2 EXTERIOR STANDING AND RUNNING TRIM FOR OPAQUE FINISH

A. Grade: Premium.

B. Wood Species: Western red cedar.

2.3 INTERIOR STANDING AND RUNNING TRIM FOR OPAQUE FINISH

A. Grade: Premium.

B. Wood Species: Any closed-grain hardwood.

2.4 WOOD MATERIALS

A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of wood trim and quality grade specified unless otherwise indicated.

1. Wood Moisture Content for Exterior Materials: 9 to 15 percent.
2. Wood Moisture Content for Interior Materials: 5 to 10 percent.

2.5 MISCELLANEOUS MATERIALS

A. Exterior Blocking, Shims, and Nailers: Softwood or hardwood lumber, pressure-preservative treated, kiln dried to less than 15 percent moisture content.

1. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC3b.

a. Kiln dry lumber after treatment to a maximum moisture content of 19 percent.
b. Mark lumber with treatment quality mark of an inspection agency approved by the American Lumber Standards Committee's (ALSC) Board of Review.

B. Interior Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln dried to less than 15 percent moisture content.

C. Nails for Exterior Use: Hot-dip galvanized or stainless steel.

D. Screws for Exterior Use: Hot-dip galvanized or stainless steel.

E. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

F. Installation Adhesive: Product recommended by fabricator for each substrate for secure anchorage.

1. Adhesives shall have a VOC content of 70 g/L or less.
2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.6 FABRICATION

A. Fabricate wood trim to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:

1. Edges of Solid-Wood (Lumber) Members: 1/16 inch (1.5 mm) unless otherwise indicated.

B. Backout or groove backs of flat trim members and kerf backs of other wide, flat members except for members with ends exposed in finished work.

C. Assemble casings in shop except where shipping limitations require field assembly.

2.7 SHOP PRIMING

A. Exterior Wood Trim for Opaque Finish: Shop prime with one coat of wood primer specified in Section 09 9113 "Painting."

B. Interior Wood Trim for Opaque Finish: Shop prime with one coat of wood primer specified in Section 09 9113 "Painting."

C. Preparations for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing wood trim, as applicable to each unit of work.

1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of wood trim. Apply two coats to surfaces installed in contact with concrete or masonry and to end-grain surfaces.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition wood trim to average prevailing humidity conditions in installation areas.

3.2 INSTALLATION

A. Grade: Install wood trim to comply with same grade as item to be installed.

B. Install wood trim level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).

C. Scribe and cut wood trim to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

D. Preservative-Treated Wood: Where cut or drilled in field, treat cut ends and drilled holes according to AWPA M4.

E. Anchor wood trim to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork.

F. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 96 inches (2400 mm) long except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.

1. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches (3 mm in 2400 mm).

END OF SECTION 064600

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Nonstaining silicone joint sealants.
2. Latex joint sealants.
3. Butyl rubber sealants.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples: For each kind and color of joint sealant required.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Sample warranties.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

1.6 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 NONSTAINING SILICONE JOINT SEALANTS

A. Nonstaining Joint Sealants: No staining of substrates when tested according to ASTM C 1248.

B. Silicone, Nonstaining, S, NS, 50, NT: Nonstaining, single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 50, Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Dow Corning Corporation; Dow Corning® 795 Silicone Building Sealant.
b. GE Construction Sealants; Momentive Performance Materials Inc.; Silpruf NB.
c. May National Associates, Inc.; a subsidiary of Sika Corporation; Bondaflex Sil 295 FPS NB.
d. Pecora Corporation; Pecora 864NST.
e. Tremco Incorporated; Spectrem 2.

2.3 LATEX JOINT SEALANTS

A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Products: Subject to compliance with requirements, provide one of the following:

a. BASF Corp. - Construction Chemicals; Sonolac.
b. Pecora Corporation; AC-20.
c. Sherwin-Williams Company (The); PowerHouse Siliconized Acrylic Latex Sealant.
d. Tremco Incorporated; Tremflex 834.

2.4 BUTYL RUBBER JOINT SEALANTS

A. Butyl Rubber: Exterior grade, 10% movement capability, ASTM C 1311, US Federal Specification TT-S-001657 Type 1.

1. Products: Subject to compliance with requirements, provide one of the following:

a. C.R. Laurence Co., Inc.; CRL 777 Butyl Rubber Sealant.
b. Tremco Incorporated; Butyl Sealant.

2.5 JOINT-SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Adfast.
b. Alcot Plastics Ltd.
c. BASF Corp. - Construction Chemicals.
d. Construction Foam Products; a division of Nomaco, Inc.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.6 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces.

3.2 INSTALLATION OF JOINT SEALANTS

A. General: Comply with ASTM C 1193 and joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

1. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

3.3 JOINT-SEALANT SCHEDULE

A. S1 Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:

a. Control and expansion joints in unit masonry.
b. Joints between concrete and unit masonry.
c. Perimeter joints between unit masonry and frames of doors and windows.
d. Other joints as indicated on Drawings.

2. Joint Sealant: Silicone, nonstaining, S, NS, 50, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. L1 Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement.

1. Joint Locations:

a. Control joints on exposed interior surfaces of exterior walls.
b. Perimeter joints between interior wall surfaces and frames of doors and windows.
c. Other joints as indicated on Drawings.

2. Joint Sealant: Acrylic latex or siliconized latex.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

C. B1 Joint-Sealant Application: Concealed mastics.

1. Joint Locations:

   a. Aluminum thresholds.
   b. Other joints as indicated on Drawings.

2. Joint Sealant: Butyl-rubber based.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 07 9200

SECTION 08 1433 - STILE AND RAIL WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Exterior stile and rail wood doors.
2. Priming stile and rail wood doors.
3. Fitting stile and rail wood doors to frames and machining for hardware.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For stile and rail wood doors. Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and other pertinent data.

1.3 INFORMATIONAL SUBMITTALS

A. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

1.4 WARRANTY

A. Manufacturer's Warranty: Manufacturer's standard form in which manufacturer agrees to replace doors that fail in materials or workmanship within specified warranty period.

1. Warranty Period:

a. Entire Door: One (1) year from date of Substantial Completion.
b. Raised Panel: Lifetime, against splitting
c. Bottom Rail: Five (5) years from date of Substantial Completion.
d. Insulating Glass: Five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Use only materials that comply with referenced standards and other requirements specified. Assemble exterior doors with wet-use adhesives.

2.2 EXTERIOR STILE AND RAIL WOOD DOORS

A. Thermal Transmittance: Maximum whole fenestration product U-factor of 0.46 (2.55), according to AAMA 1503, ASTM E 1423, or NFRC 100.

B. Exterior Stile and Rail Wood Doors: Exterior doors complying with the AWI's, AWMAC's, and WI's "Architectural Woodwork Standards," and WDMA I.S.6A, "Industry Standard for Architectural Stile and Rail Doors," and with other requirements specified.

C. Door Type A:

1. Location: Side door at new ramp.
2. Door Style: 4 solid panels with 4 insulating glass lites, to match existing side door.

    a. Stock door.

3. Basis-of-Design Product: Subject to compliance with requirements, provide Simpson Door Company; Selects Series Model 4246 Clear I.G. with UltraBlock Technology or a comparable product by one of the following:

    a. Eggers Industries.
    b. Masonite International, Harring Doors.
    c. VT Industries Inc.

4. Grade: Custom.
5. Finish: Opaque.
6. Wood Species: Douglas fir or western hemlock.
7. Thickness: 1-3/4 inches (44 mm)
8. Door Construction for Opaque Finish:

    a. Stile and Rail Construction: Two-piece laminated clear softwood; may be edge glued for width and finger jointed.
    b. Raised-Panel Construction: Laminated double hip-raised softwood lumber panels with offsetting grain.
    c. Bottom Rail: Composite material finger-jointed into bottom of stiles to resist water infiltration.

9. Raised-Panel Thickness: Manufacturer's standard, but not less than 1-1/4 inches (32 mm).
10. Glass: Uncoated, clear, insulating-glass units made from two lites of 3.0-mm-thick, fully tempered glass with 1/4-inch (6.4-mm) interspace.

D. Door Type B:

1. Location: Rear door at terrace.
2. Door Style: 6 panel with all panels glazed with insulating glass and 10-inch high bottom rail.

    a. Custom door.

3. Manufacturers: Subject to compliance with requirements, provide custom hardwood door by one of the following:

a. Allegheny Woor Works.
b. Glenview Doors.
c. Monarch Custom Doors.

4. Grade: Custom.
5. Finish: Opaque.
6. Wood Species: Douglas fir or western hemlock.
7. Thickness: 1-3/4 inches (44 mm)
8. Door Construction for Opaque Finish:

   a. Stile and Rail Construction: Veneered, structural composite lumber.

9. Glass: Uncoated, clear, insulating-glass units made from two lites of 3.0-mm-thick, fully tempered glass with 1/4-inch (6.4-mm) interspace.

2.3 STILE AND RAIL WOOD DOOR FABRICATION

A. Fabricate stile and rail wood doors in sizes indicated for field fitting.

B. Factory machine doors for hardware that is not surface applied.

C. Glazed Openings: Factory install glazing in doors, complying with Section 088000 "Glazing." Install glass using manufacturer's standard elastomeric glazing sealant complying with ASTM C 920. Secure glass in place with removable wood moldings. Miter wood moldings at corner joints.

D. Exterior Doors: Factory treat exterior doors after fabrication with water-repellent preservative to comply with WDMA I.S.4. Flash top of outswinging doors with manufacturer's standard metal flashing.

2.4 SHOP PRIMING

A. Doors for Opaque Finish: Shop prime faces, all four edges, edges of cutouts, and mortises with one coat of wood primer specified in Section 09 9113 "Painting."

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hardware: For installation, see Section 087100 "Door Hardware."

B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted with fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.

1. Clearances: Provide 1/8 inch (3 mm) at heads, jambs, and between pairs of doors. Where threshold is shown or scheduled, provide 1/4 inch (6 mm) from bottom of door to top of threshold unless otherwise indicated.
2. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.

END OF SECTION 08 1433

SECTION 08 5413 - FIBERGLASS WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes fiberglass-framed windows.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.

C. Samples: For each exposed product and for each color specified.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Sample warranties.

1.5 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace fiberglass windows that fail in materials or workmanship within specified warranty period.

1. Warranty Period:

a. Window: 10 years from date of Substantial Completion.
b. Glazing Units: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 WINDOW PERFORMANCE REQUIREMENTS

A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.

1. Window Certification: WDMA certified with label attached to each window.

B. Performance Class and Grade: AAMA/WDMA/CSA 101/I.S.2/A440 as follows:

1. Minimum Performance Class: LC.
2. Minimum Performance Grade: 30.

C. Thermal Transmittance: NFRC 100 maximum whole-window U-factor of 0.30 Btu/sq. ft. x h x deg F (1.71 W/sq. m x K).

D. Solar Heat-Gain Coefficient (SHGC): NFRC 200 maximum whole-window SHGC of 0.28.

2.2 FIBERGLASS WINDOWS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Fibertec Window and Door Manufacturing.
2. Graham Architectural Products Corporation.
3. Inline Fiberglass Ltd.
4. Marvin Integrity.
5. Milgard Manufacturing, Inc.
6. Pella Corporation.

B. Operating Types: Double Hung.

C. Frames and Sashes: Pultruded fiberglass complying with AAMA/WDMA/CSA 101/I.S.2/A440 and with exposed exterior fiberglass surfaces finished with manufacturer's standard enamel coating complying with AAMA 613.

1. Exterior Color: White.
2. Interior Finish: Matching exterior color and finish.
3. Insulation: High-density foam insulation inserts in frames and sashes.

D. Insulating-Glass Units: ASTM E 2190.

1. Glass: ASTM C 1036, Type 1, Class 1, q3.

a. Tint: Clear.

2. Kind: Fully tempered where required by Connecticut State Building Code.
3. Lites: Two.
4. Filling: Fill space between glass lites with argon.
5. Low-E Coating: Pyrolytic on second surface.

E. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal.

F. Hardware, General: Provide manufacturer's standard corrosion-resistant hardware sized to accommodate sash weight and dimensions.

1. Exposed Hardware Color and Finish: As selected by Architect from manufacturer's full range.

G. Hung Window Hardware:

1. Counterbalancing Mechanism: AAMA 902.
2. Locks and Latches: Operated from the inside only.
3. Tilt Hardware: Releasing tilt latch allows sash to pivot about horizontal axis.

H. Weather Stripping: Provide full-perimeter weather stripping for each operable sash unless otherwise indicated.

I. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.

1. Exposed Fasteners: Do not use exposed fasteners to greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

2.3 ACCESSORIES

A. Dividers (False Muntins): Provide divider grilles in designs indicated for each sash lite.

1. Quantity and Type: One permanently located between insulating-glass lites.
2. Material: Manufacturer's standard.
3. Pattern: Traditional.
4. Profile: 3/4 inch Contoured.
5. Color: White.

B. Jamb Extensions: Stain-grade Pacific Hemlock.

2.4 INSECT SCREENS

A. General: Fabricate insect screens to integrate with window frame. Provide screen for each operable exterior sash. Screen wickets are not permitted.

1. Type and Location: Full, outside for double-hung sashes.

B. Aluminum Frames: Complying with SMA 1004 or SMA 1201.

1. Finish for Exterior Screens: Baked-on coating in matching color and finish of cladding.

C. Glass-Fiber Mesh Fabric: 18-by-14 (1.1-by-1.4-mm) or 18-by-16 (1.0-by-1.1-mm) mesh of PVC-coated, glass-fiber threads; woven and fused to form a fabric mesh resistant to corrosion, shrinkage, stretch, impact damage, and weather deterioration. Comply with ASTM D 3656/D 3656M.

1. Mesh Color: Manufacturer's standard.

2.5 FABRICATION

A. Fabricate fiberglass windows in sizes indicated. Include a complete system for installing and anchoring windows.

B. Glaze fiberglass windows in the factory.

C. Weather strip each operable sash to provide weathertight installation.

D. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation. Allow for scribing, trimming, and fitting at Project site.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E 2112.

B. Install windows level, plumb, square, true to line, without distortion, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.

C. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.

D. Clean exposed surfaces immediately after installing windows. Remove excess sealants, glazing materials, dirt, and other substances.

E. Remove and replace sashes if glass has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION 08 5413

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Mechanical door hardware for the following:

a. Swinging doors.

B. Product Selection:

1. In order to match existing hardware in the building and to be compatible with existing keying, no substitutions will be considered or accepted for the specified Baldwin Hardware lockset.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

B. Keying Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product in each finish specified.

C. Door hardware schedule.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and of an Architectural Hardware Consultant who is available during the course of the Work to consult Contractor, Architect, and Owner about door hardware and keying.

1. Scheduling Responsibility: Preparation of door hardware and keying schedule.

B. Architectural Hardware Consultant Qualifications: A person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and who is currently certified by DHI as an Architectural Hardware Consultant (AHC).

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Means of Egress Doors: Latches do not require more than 15 lbf (67 N) to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.

B. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the DOJ's "2010 ADA Standards for Accessible Design" and the accessibility provisions of the Connecticut State Building Code.

2.2 SCHEDULED DOOR HARDWARE

A. Provide products for each door that comply with requirements indicated in Part 2 and door hardware schedule.

1. Door hardware is scheduled in Part 3.

2.3 HINGES

A. Hinges: BHMA A156.1.

1. Basis-of-Design Product: Subject to compliance with requirements, provide scheduled product by Ives - Allegion plc.; or a comparable product by one of the following:

a. Baldwin Hardware Corporation.
b. Hager Companies.
c. McKinney Products Company; an ASSA ABLOY Group company.
d. Stanley Commercial Hardware; a division of Stanley Security Solutions.

2.4 MECHANICAL LOCKS AND LATCHES

A. Lock Functions: As indicated in door hardware schedule.

B. Lock Throw: Comply with testing requirements for length of bolts required for labeled fire doors, and as follows:

1. Mortise Locks: Minimum 3/4-inch (19-mm) latchbolt throw.
2. Deadbolts: Minimum 1-inch (25-mm) bolt throw.

C. Lock Backset: 2-3/4 inches (70 mm) unless otherwise indicated.

D. Lock Trim:

1. Description: Interior and exterior escutcheons, levers both sides.
2. Levers: Cast.

a. Baldwin Hardware, Estate Lever model 5445V Classic.

3. Escutcheons (Roses): Cast.

a. Baldwin Hardware, model Stanford.

E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.

F. Mortise Locks: BHMA A156.13; Security Grade 1; stamped steel case with steel or brass parts; Series 1000.

1. Baldwin Hardware, Grade 1 Commercial Mortise Locks.

2.5 LOCK CYLINDERS

A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver. Provide cylinder from same manufacturer of locking devices, unless otherwise requested by City of Norwalk building security supervisor.

1. Basis-of-Design Product: Subject to compliance with requirements, provide lock cylinder determined by City of Norwalk to be compatible with its existing keying system. Acceptable manufacturers may include one of the following:

a. Baldwin Hardware.
b. Medeco Security Locks; an ASSA ABLOY Group company.
c. SARGENT Manufacturing Company; ASSA ABLOY.
d. Yale Security Inc; an ASSA ABLOY Group company.

B. Standard Lock Cylinders: BHMA A156.5; Grade 1 permanent cores; face finished to match lockset.

1. Core Type: Removable.

C. High-Security Lock Cylinders: BHMA A156.30; Grade 1 permanent cores that are removable; face finished to match lockset.

1. Type: M, mechanical.
2. Provide high-security lock cylinder if requested by City of Norwalk.

2.6 KEYING

A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, appendix. Provide one extra key blank for each lock. Incorporate decisions made in keying conference.

1. Existing System:

a. Master key or grand master key locks to Owner's existing system.

B. Keys: Brass.

1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:

a. Notation: Information to be furnished by Owner.

2.7 DOOR GASKETING

A. Door Gasketing: BHMA A156.22; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.

1. Basis-of-Design Product: Subject to compliance with requirements, provide scheduled product by Pemko Manufacturing Co.; or a comparable product by one of the following:

a. Hager Companies.
b. National Guard Products, Inc.
c. Reese Enterprises, Inc.
d. Zero International, Inc.

B. Maximum Air Leakage: When tested according to ASTM E 283 with tested pressure differential of 0.3-inch wg (75 Pa), as follows:

1. Gasketing on Single Doors: 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) of door opening.

2.8 THRESHOLDS

A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.

1. Basis-of-Design Product: Subject to compliance with requirements, provide scheduled product by Pemko Manufacturing Co.; or a comparable product by one of the following:

a. Hager Companies.
b. National Guard Products, Inc.
c. Reese Enterprises, Inc.
d. Zero International, Inc.

2.9 METAL PROTECTIVE TRIM UNITS

A. Metal Protective Trim Units: BHMA A156.6; fabricated from 0.050-inch- (1.3-mm-) thick brass; with manufacturer's standard machine or self-tapping screw fasteners.

1. Basis-of-Design Product: Subject to compliance with requirements, provide scheduled product by Ives - Allegion plc; or a comparable product by one of the following:

a. Burns Manufacturing Incorporated.
b. Hager Companies.
c. Hiawatha, Inc; a division of the Activar Construction Products Group.
d. Rockwood Manufacturing Company; an ASSA ABLOY Group company.

2.10 FINISHES

A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.

1. Wood Doors: DHI's "Recommended Locations for Architectural Hardware for Wood Flush Doors."

B. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work. Do not install surface-mounted items until finishes have been completed on substrates involved.

C. Hinges: Install types and in quantities indicated in door hardware schedule, but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

D. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."

E. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.

F. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

1. Do not notch perimeter gasketing to install other surface-applied hardware.

G. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.2 ADJUSTING

A. Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.3 DOOR HARDWARE SCHEDULE

DOOR HARDWARE SET NO. 1

SINGLE WOOD DOORS, NON-RATED - WOOD FRAME
EXTERIOR - ENTRANCE/EGRESS

Door: 001 Side Door from New Ramp, 002 Rear Door from Existing Terrace

Each door in the set to have the following:

NO.	ITEM	DESCRIPTION	MANUFACTURER	FINISH
3	Hinges	5BB full mortise, standard weight, 4.5x4.5 inches, NRP	Ives - Allegion	US3 / 605
1	Lockset	Estate Series Mortise Lockset, lever x lever, 5445V Classic levers, Stanford escutcheons, emergency egress function 6075	Baldwin	Baldwin 003 Lifetime Polished Brass
1	Kickplate	8400 Series Protection Plate, 0.050” thick, B4E bevel all edges, countersunk mounting holes, size 8”x34”	Ives - Allegion	US3 / 605
1	Threshold	253X3DFG aluminum thermal barrier saddle, 6” wide	Pemko - Assa Abloy	Dark bronze anodized
1 set	Weatherstrip	303PWV aluminum head & jamb gasketing, vinyl seal	Pemko - Assa Abloy	White painted finish
1	Door Shoe	3692APK77336 aluminum door shoe with black Pemko Prene insert	Pemko - Assa Abloy	Mill finish aluminum
1	Stop	Ives 61 Base Door Stop, 3-1/8” projection	Ives - Allegion	US3 / 605

END OF SECTION 08 7100

SECTION 09 9113 - PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on exterior and interior substrates, including but not limited to the following:

1. Steel and iron.
2. Wood.
3. Plastic.
4. Plaster.
5. Gypsum board.

B. Scope: The general intent is for new materials to be prepared for painting, primed, and left ready for topcoats. Owner will provide painting of topcoats after project completion.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

B. Samples: For each type of paint system and each color and gloss of topcoat.

1.3 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system.

a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
b. Other Items: Architect will designate items or areas required.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide products indicated in Painting Schedule, or a comparable product by one of the following:

2.2 PAINT, GENERAL

A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."

B. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

C. Colors: As selected by Architect from manufacturer's full range.

1. Exterior door will be painted with deep tones.
2. All exterior and interior trim will be white to match existing.
3. Interior wall surfaces will match existing color.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Wood: 15 percent.
2. Gypsum Board: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

D. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 PAINTING SCHEDULE

A. Steel and Iron Substrates: Metal railings and decorative gates.

1. Water-Based Light Industrial Coating System:

a. Prime Coat: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.

1) Basis-of-Design Product: Sherwin Williams Kem Bond HS Universal Metal Primer, or comparable product by one of the following:

a) Benjamin Moore & Co..
b) PPG Architectural Finishes, Inc.

b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.

c. Topcoat: Exterior, latex enamel compatible with primer.

1) Basis-of-Design Product: Sherwin Williams All Surface Enamel, color A41B01300 Black, gloss level Satin, or comparable product by one of the following:

a) Benjamin Moore & Co..
b) PPG Architectural Finishes, Inc.

B. Wood Substrates: Wood trim, architectural woodwork, doors.

1. Latex over Latex Primer System MPI EXT 6.3L:

a. Prime Coat: Primer, latex for exterior and interior wood.

1) Benjamin Moore, Fresh Start Multi-Purpose Latex Primer N023.

b. Intermediate Coat: Latex, matching topcoat (work by Owner).
c. Topcoat: Latex, colors and sheens to match existing (work by Owner).

C. Gypsum Board and Plaster Substrates:

1. Latex over Latex Sealer System MPI INT 9.2A:

a. Prime Coat: Primer sealer, latex, interior, MPI #50.

1) Benjamin Moore, Fresh Start Multi-Purpose Latex Primer N023.

b. Intermediate Coat: Latex, matching topcoat (work by Owner).
c. Topcoat: Latex, colors and sheens to match existing (work by Owner).

D. Plastic Trim Fabrication Substrates:

1. Latex System MPI EXT 6.8A:

a. Prime Coat: Primer, bonding, water based.

1) Insl-X, Stix waterborne bonding primer SXA-110.

b. Intermediate Coat: Latex, matching topcoat (work by Owner).
c. Topcoat: Latex, colors and sheens to match existing (work by Owner).

END OF SECTION 09 9113

SECTION 31 1000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Temporary erosion and sedimentation control.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 MATERIAL OWNERSHIP

A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.4 FIELD CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, driveways, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed trafficways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

D. Tree- and Plant-Protection Zones: Protect root zone of existing trees to remain to the fullest extent possible while still complying with the requirements of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 31 2000 "Earth Moving."

1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

A. Protect trees and plants remaining on-site.

B. Restrict excavation and tree root removal to minimum area required to implement the Work.

C. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations.

3.4 EXISTING UTILITIES

A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Owner's written permission.

C. Relocation of Existing Gas Line: Schedule and coordinate utility company’s relocation of existing gas line to skirt location of new ramp. Approximate location indicated on Drawings.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Grind down stumps and remove roots larger than 3 inches (75 mm) in diameter, obstructions, and debris to a depth of 18 inches (450 mm) below exposed subgrade.
2. Use only hand methods or air spade for grubbing within protection zones.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth of 6 inches (150 mm) in a manner to prevent intermingling with underlying subsoil or other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 31 1000

SECTION 31 2000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavating and filling for rough grading the Site.
2. Preparing subgrades for slabs-on-grade, walks, turf and grasses, and plants.
3. Excavating and backfilling for structures.
4. Subbase course for concrete slabs-on-grade and walks.
5. Excavating and backfilling trenches for utilities and subdrainage.

1.2 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

I. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

K. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct preexcavation conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Material test reports.

1.5 FIELD CONDITIONS

A. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth-moving operations.

B. Do not commence earth-moving operations until plant-protection measures specified in Section 31 1000 "Site Clearing" are in place.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487 or a combination of these groups; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 294**/**D 2940M 0; with at least 95 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; except with 100 percent passing a 1-inch (25-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

H. Drainage Course: Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and zero to 5 percent passing a No. 8 (2.36-mm) sieve.

2.2 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility; colored to comply with local practice or requirements of authorities having jurisdiction.

B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored to comply with local practice or requirements of authorities having jurisdiction.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

B. Excavations at Edges of Tree- and Plant-Protection Zones:

1. Excavate by hand or with an air spade to indicated lines, cross sections, elevations, and subgrades. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
2. Cut and protect roots according to requirements in Section 31 1000 "Site Clearing."

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.5 EXCAVATION FOR SUBDRAINAGE TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: 12 inches (300 mm) each side of pipe or conduit, unless otherwise indicated.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for joints fittings. Remove projecting stones and sharp objects along trench subgrade.

1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

D. Trenches in Tree- and Plant-Protection Zones:

1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.
3. Cut and protect roots according to requirements in Section 31 1000 "Site Clearing."

3.6 SUBGRADE INSPECTION

A. Proof-roll subgrade below the slabs-on-grade with a pneumatic-tired dump truck to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.7 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Architect.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect.

3.8 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.9 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Trenches under Footings: Backfill trenches excavated under footings and within 18 inches (450 mm) of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Section 03 3000 "Cast-in-Place Concrete."

D. Initial Backfill: Place and compact initial backfill of subbase material, free of particles larger than 1 inch (25 mm) in any dimension, to a height of 12 inches (300 mm) over the pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

E. Final Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.

F. Warning Tape: Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

3.10 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under slabs, use engineered fill.
5. Under footings and foundations, use engineered fill.

3.11 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.12 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry density according to ASTM D 1557:

1. Under structures, slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 95 percent.
3. Under turf or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 90 percent.
4. For utility trenches, compact each layer of initial and final backfill soil material at 90 percent.

3.13 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch (25 mm).
2. Walks: Plus or minus 1 inch (25 mm).

C. Grading inside Footing Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.

3.14 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:

1. Shape subbase course and base course to required crown elevations and cross-slope grades.
2. Place subbase course and base course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.
3. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.15 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform inspections:

B. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

C. Schedule testing with Owner’s inspection and testing agency.

D. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

E. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.16 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.17 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 31 2000

SECTION 31 2319 - DEWATERING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes construction dewatering.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 FIELD CONDITIONS

A. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.

PART 3 - EXECUTION

3.1 PREPARATION

A. Provide temporary grading to facilitate dewatering and control of surface water.

B. Protect and maintain temporary erosion and sedimentation controls, which are specified in Section 01 5000 "Temporary Facilities and Controls," and Section 31 1000 "Site Clearing," during dewatering operations.

3.2 INSTALLATION

A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.

1. Space well points or wells at intervals required to provide sufficient dewatering.
2. Use filters or other means to prevent pumping of fine sands or silts from the subsurface.

B. Place dewatering system into operation to lower water to specified levels before excavating below ground-water level.

C. Provide standby equipment on-site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails.

3.3 OPERATION

A. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed or until dewatering is no longer required.

B. Operate system to lower and control ground water to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.

1. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.
2. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.
3. Maintain piezometric water level a minimum of 24 inches (600 mm) below bottom of excavation.

C. Remove dewatering system from Project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches (900 mm) below overlying construction.

3.4 FIELD QUALITY CONTROL

A. Survey-Work Benchmarks: Resurvey benchmarks regularly during dewatering and maintain an accurate log of surveyed elevations for comparison with original elevations. Promptly notify Architect if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.

END OF SECTION 31 2319

SECTION 31 5000 - EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes temporary excavation support and protection systems.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 INFORMATIONAL SUBMITTALS

A. Contractor Calculations: For excavation support and protection system. Include analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

B. Record Drawings: Identify locations and depths of capped utilities, abandoned-in-place support and protection systems, and other subsurface structural, electrical, or mechanical conditions.

1.4 FIELD CONDITIONS

A. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Provide, design, monitor, and maintain excavation support and protection system capable of supporting excavation sidewalls and of resisting earth and hydrostatic pressures and superimposed and construction loads.

1. Design excavation support and protection system, including comprehensive engineering analysis by a qualified professional engineer.

PART 3 - EXECUTION

3.1 SOLDIER PILES AND LAGGING

A. Install steel soldier piles before starting excavation. Extend soldier piles below excavation grade level to depths adequate to prevent lateral movement. Space soldier piles at regular intervals not to exceed allowable flexural strength of wood lagging. Accurately align exposed faces of

flanges to vary not more than 2 inches (50 mm) from a horizontal line and not more than 1:120 out of vertical alignment.

B. Install wood lagging within flanges of soldier piles as excavation proceeds. Trim excavation as required to install lagging. Fill voids behind lagging with soil, and compact.

C. Install wales horizontally at locations indicated on Drawings and secure to soldier piles.

3.2 SHEET PILING

A. Before starting excavation, install one-piece sheet piling lengths and tightly interlock vertical edges to form a continuous barrier.

B. Accurately place the piling, using templates and guide frames unless otherwise recommended in writing by the sheet piling manufacturer. Limit vertical offset of adjacent sheet piling to 60 inches (1500 mm). Accurately align exposed faces of sheet piling to vary not more than 2 inches (50 mm) from a horizontal line and not more than 1:120 out of vertical alignment.

C. Cut tops of sheet piling to uniform elevation at top of excavation.

3.3 BRACING

A. Bracing: Locate bracing to clear permanent work. If necessary to move brace, install new bracing before removing original brace.

1. Do not place bracing where it will be cast into or included in permanent concrete work unless otherwise approved by Architect.
2. Install internal bracing if required to prevent spreading or distortion of braced frames.
3. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

3.4 FIELD QUALITY CONTROL

A. Survey-Work Benchmarks: Resurvey benchmarks regularly during installation of excavation support and protection systems, excavation progress, and for as long as excavation remains open. Maintain an accurate log of surveyed elevations and positions for comparison with original elevations and positions. Promptly notify Architect if changes in elevations or positions occur or if cracks, sags, or other damage is evident in adjacent construction.

3.5 REMOVAL AND REPAIRS

A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and earth and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils and rock or damaging structures, pavements, facilities, and utilities.

1. Remove excavation support and protection systems to a minimum depth of 48 inches (1200 mm) below overlying construction and abandon remainder.

END OF SECTION 31 5000

SECTION 32 1313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes concrete paving, including walks.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.3 INFORMATIONAL SUBMITTALS

A. Material certificates.

B. Material test reports: From testing agency indicating compliance of concrete materials, reinforcing materials, admixtures, and similar items with requirements.

C. Qualification Data: For Installer and manufacturer specified in Quality Assurance Article, including names and addresses of completed projects, architects, and owners.

1.4 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Concrete Installer Qualifications: A company experienced with projects of similar scope and quality.

1. Minimum Experience: Five years.

1.5 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.6 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 306.1.

1. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 (ACI 301M).

PART 2 - PRODUCTS

2.1 CONCRETE TYPES

A. Concrete Type 1: Cast-in-Place, natural gray, smooth finish.

1. Application: Footings, foundation walls, window wells, stairs.
2. Specification Section: 03 3000 “Cast-in-Place Concrete.”

B. Concrete Type 2: Cast-in-Place, natural gray, broom-finish texture.

1. Application: Ramp runs and intermediate and top landing.
2. Specification Section: 03 3000 “Cast-in-Place Concrete.”

C. Concrete Type 3: Paving, natural gray, broom-finish texture.

1. Application: Sidewalks.
2. Specification Section: 32 1313 “Concrete Paving.”

D. Concrete Type 4: Paving, natural gray, float finish.

1. Application: Slab under unit pavers.
2. Specification Section: 32 1313 “Concrete Paving.”

2.2 CONCRETE, GENERAL

A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301 (ACI 301M).
2. ACI 117 (ACI 117M).

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420); deformed.

B. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, fabricated from as-drawn steel wire into flat sheets.

C. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

D. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420) plain-steel bars; zinc coated (galvanized) after fabrication according to ASTM A 767/A 767M, Class I coating. Cut bars true to length with ends square and free of burrs.

2.4 CONCRETE MATERIALS

A. Cementitious Materials:

1. Portland Cement: ASTM C 150/C 150M, Type I/II.

a. Gray or white as required to match existing adjacent sidewalks.

2. Fly Ash: ASTM C 618, Class F or C.
3. Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C 33/C 33M, Class 4S, uniformly graded. Provide aggregates from a single source.

1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Air-Entraining Admixture: ASTM C 260/C 260M.

D. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
2. Retarding Admixture: ASTM C 494/C 494M, Type B.
3. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
4. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

E. Water: ASTM C 94/C 94M and potable.

2.5 CURING AND SEALING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

1. Products: Subject to compliance with requirements, provide one of the following:

a. ChemMasters, Inc; Spray-Film.
b. Dayton Superior; AquaFilm Concentrate J74.
c. Euclid Chemical Company (The); an RPM company; Eucobar.
d. Kaufman Products, Inc; VaporAid.
e. L&M Construction Chemicals, Inc; E-CON.
f. Lambert Corporation; LAMBCO Skin.
g. Nox-Crete Products Group; MONOFILM.
h. SpecChem, LLC; SpecFilm.

i. TK Products; TK-2120 TRI-FILM.
j. Vexcon Chemicals Inc.; Certi-Vex EnvioAssist.
k. W. R. Meadows, Inc; EVAPRE.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.

1. Products: Subject to compliance with requirements, provide one of the following:

a. ChemMasters, Inc; Safe-Cure Clear DR.
b. Dayton Superior; Clear Resin Cure J11W.
c. Euclid Chemical Company (The); an RPM company; Aqua-Cure VOX.
d. Kaufman Products, Inc; DR Cure.
e. L&M Construction Chemicals, Inc; L&M CURE R.
f. Lambert Corporation; AQUA KURE - CLEAR.
g. Nox-Crete Products Group; Res-Cure DH.
h. SpecChem, LLC; PaveCure Rez.
i. TK Products; TK-2519 DC WB.
j. Vexcon Chemicals Inc.; Certi-Vex Enviocure 100.
k. W. R. Meadows, Inc; 1100-CLEAR SERIES.

2.6 RELATED MATERIALS

A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork in preformed strips.

B. Bonding Agent: ASTM C 1059, Type II.

C. Paving Joint Sealants: As specified in Section 32 1373 “Concrete Paving Joint Sealants.”

2.7 CONCRETE MIXTURES

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301 (ACI 301M).

B. Cementitious Materials: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used, by not less than 40 percent.

C. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

D. Concrete Mixtures: Normal-weight concrete.

1. Minimum Compressive Strength: 4000 psi (27.6 MPa) at 28 days.
2. Maximum W/C Ratio: 0.45.
3. Slump Limit: 4 inches (100 mm), plus or minus 1 inch (25 mm).
4. Air Content: 6 percent, plus or minus 1.0 percent at point of delivery.

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.

B. Do not proceed with cement concrete paving until unacceptable conditions are corrected

3.2 PREPARATION

A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT INSTALLATION

A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.5 JOINTS

A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.

B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.

C. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, to match jointing of existing adjacent concrete paving:

D. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.

E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch (6-mm) radius. Repeat tooling of edges after applying surface finishes.

3.6 CONCRETE PLACEMENT

A. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.

B. Comply with ACI 301 (ACI 301M) requirements for measuring, mixing, transporting, and placing concrete.

C. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

1. Do not add water once placing has begun.
2. Do not retemper concrete that has started to set.

D. Screed paving surface with a straightedge and strike off.

E. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.7 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 (ACI 117M) and as follows:

1. Elevation: 1/2 inch (13 mm).
2. Thickness: Plus 3/8 inch (10 mm), minus 1/4 inch (6 mm).
3. Surface: Gap below 10-feet- (3-m-) long; unleveled straightedge not to exceed 1/4 inch (6 mm).
4. Joint Spacing: 3 inches (75 mm).
5. Contraction Joint Depth: Plus 1/4 inch (6 mm), no minus.
6. Joint Width: Plus 1/8 inch (3 mm), no minus.

3.8 FINISHING

A. General: Do not add water to concrete surfaces during finishing operations.

B. Float Finish: Begin the second floating operation when bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

C. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface, perpendicular to line of traffic, to provide a uniform, fine-line texture.

3.9 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 (ACI 301M) for hot-weather protection during curing.

B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.

C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

A. Cure concrete according to ACI 308.1, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.10 REPAIRS AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.

B. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 32 1313

SECTION 32 1373 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cold-applied joint sealants.
2. Joint-sealant backer materials.
3. Primers.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each kind and color of joint sealant required.

C. Paving-Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

A. Product certificates.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.2 COLD-APPLIED JOINT SEALANTS

A. Single-Component, Nonsag, Silicone Joint Sealant: ASTM D 5893/D 5893M, Type NS.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Crafco Inc; RoadSaver Silicone.
b. Dow Corning Corporation; Dow Corning® 888 Silicone Joint Sealant.
c. Pecora Corporation; 301 NS.

B. Single-Component, Self-Leveling, Silicone Joint Sealant: ASTM D 5893/D 5893M, Type SL.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Crafco Inc; RoadSaver Silicone SL.
b. Dow Corning Corporation; Dow Corning® 890-SL Silicone Joint Sealant.
c. Pecora Corporation; 300 SL.

C. Multicomponent, Nonsag, Urethane, Elastomeric Joint Sealant: ASTM C 920, Type M, Grade NS, Class 25, for Use T.

1. Products: Subject to compliance with requirements, provide the following:

a. W. R. Meadows, Inc; Pourthane NS.

D. Single Component, Pourable, Urethane, Elastomeric Joint Sealant: ASTM C 920, Type S, Grade P, Class 25, for Use T.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Sika Corporation; Sikaflex -1c SL
b. W. R. Meadows, Inc; Pourthane SL.

E. Multicomponent, Pourable, Urethane, Elastomeric Joint Sealant: ASTM C 920, Type M, Grade P, Class 25, for Use T.

1. Products: Subject to compliance with requirements, provide the following:

a. Sloped Surfaces: Pecora Corporation; Dynatred.
b. Level Horizontal Joints: Pecora Corporation; Dynatrol II-SG or Urexpan NR-200.
c. Level Horizontal Joints: Sika Corporation; Sikaflex-2c SL, tinted to match concrete.

2.3 JOINT-SEALANT BACKER MATERIALS

A. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D 5249, Type 1 or 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

B. Backer Strips for Cold-Applied Joint Sealants: ASTM D 5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

2.4 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

PART 3 - EXECUTION

3.1 INSTALLATION OF JOINT SEALANTS

A. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Cleaning of Joints: Clean out joints immediately to comply with joint-sealant manufacturer's written instructions.

C. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer.

D. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions.

E. Install joint-sealant backings to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of joint-sealant backings.
2. Do not stretch, twist, puncture, or tear joint-sealant backings.
3. Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.

F. Install joint sealants immediately following backing installation, using proven techniques that comply with the following:

1. Place joint sealants so they fully contact joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

G. Tooling of Nonsag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants according to the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:

1. Remove excess joint sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.

H. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

I. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.

END OF SECTION 32 1373

SECTION 32 1400 - UNIT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

B. Section 32 1313 “Concrete Paving” for concrete base under unit pavers.

1.2 SUMMARY

A. Section Includes:

1. Stone pavers set in mortar setting beds.

1.3 ACTION SUBMITTALS

A. Product Data: For materials other than water and aggregates, including, but not limited to:

1. Pavers.
2. Mortar and grout materials.

B. Samples for Initial Selection: For the following:

1. Each type of unit paver indicated.
2. Joint materials involving color selection.

C. Samples for Verification:

1. No fewer than five full-size units of each type of unit paver indicated to show range of color variation.
2. Joint materials involving.

1.4 QUALITY ASSURANCE

A. Design Intent: Match installation, dimensions and visual appearance of existing bluestone terrace and sidewalk.

B. Source Limitations: Obtain each type of unit paver, joint material, and setting material from single source with resources to provide materials and products of consistent quality in appearance and physical properties.

C. Mockup: Build mockup to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Construct Mockup with no fewer than five full-size pavers and grout joint.
2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

D. Preinstallation Conference: Conduct conference at Project site.

1.5 INFORMATIONAL SUBMITTALS

A. Material Certificates: For unit pavers. Include statements of material properties indicating compliance with requirements, including compliance with standards. Provide for each type and size of unit.

1.6 FIELD CONDITIONS

A. Cold-Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit paver work damaged by frost or freezing.

B. Weather Limitations for Mortar and Grout:

1. Cold-Weather Requirements: Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
2. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6. Provide artificial shade and windbreaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 100 deg F (38 deg C) and higher.

PART 2 - PRODUCTS

2.1 STONE PAVERS

A. Bluestone Pavers: Rectangular paving slabs made from bluestone complying with ASTM C 629/C 629M, Classification I Exterior, with a fine, even grain and unfading color, from clear, sound stock.

1. Quarry Location: New York or Pennsylvania.
2. Color and Grain: Blue-gray with fine grain.
3. Absorption: Maximum of 1.5% after 48 hours, based on testing according to ASTM C 97/C 97M.
4. Compressive Strength: Minimum 30,000kPa, based on testing according to ASTM C 170/C 170M
5. Stone Abrasion Resistance: Minimum value of 28.84, based on testing according to ASTM C 241/C 241M.
6. Top Finish: Match existing pavers.
7. Bottom Finish: Rubbed.
8. Edges: Smooth sawn.
9. Thickness: 2 inches (50 mm) unless otherwise indicated.
10. Face Size: Match existing range of sizes.

2.2 ACCESSORIES

A. Compressible Foam Filler: Preformed strips complying with ASTM D 1056, Grade 2A1.

2.3 MORTAR SETTING-BED MATERIALS

A. Portland Cement: ASTM C 150/C 150M, Type I or Type II.

B. Sand: ASTM C 144, or ASTM C 33/C 33M if recommended by latex additive manufacturer.

C. Latex Additive: Manufacturer's standard acrylic resin water emulsion, serving as replacement for part or all of gaging water, of type specifically recommended by latex-additive manufacturer for use with field-mixed portland cement and aggregate mortar bed, and not containing a retarder.

D. Water: Potable.

2.4 GROUT MATERIALS

A. High-Performance Cement Grout: ANSI A118.7, sanded.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. ARDEX Americas.
    b. Bonsal American, an Oldcastle company.
    c. Bostik, Inc.
    d. C-Cure.
    e. H.B. Fuller Construction Products Inc. / TEC.
    f. LATICRETE SUPERCAP, LLC.
    g. MAPEI Corporation.
    h. Southern Grouts & Mortars, Inc.

2. Polymer Type: Ethylene vinyl acetate or acrylic additive, in dry, redispersible form, prepackaged with other dry ingredients.
3. Polymer Type: Acrylic resin in liquid-latex form for addition to prepackaged dry-grout mix.

B. Grout Colors: As selected by Architect from manufacturer's full range to match existing stone paving.

C. Water: Potable.

2.5 MORTAR AND GROUT MIXES

A. General: Comply with referenced standards and with manufacturers' written instructions for mix proportions, mixing equipment, mixer speeds, mixing containers, mixing times, and other procedures needed to produce setting-bed and joint materials of uniform quality and with optimal performance characteristics. Discard mortars and grout if they have reached their initial set before being used.

B. Mortar-Bed Bond Coat: Mix neat cement and latex additive to a creamy consistency.

C. Latex-Modified, Portland Cement Setting-Bed Mortar: Proportion and mix portland cement, sand, and latex additive for setting bed to comply with written instructions of latex-additive manufacturer and as necessary to produce stiff mixture with a moist surface when bed is ready to receive pavers.

D. Latex-Modified, Portland Cement Bond Coat: Proportion and mix portland cement, aggregate, and liquid latex for bond coat to comply with written instructions of liquid-latex manufacturer.

E. Packaged Grout: Proportion and mix according to grout manufacturer's written instructions.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Mix pavers from several pallets or cubes, as they are placed, to produce uniform blend of colors and textures.

B. Cut unit pavers with motor-driven masonry saw equipment to provide clean, sharp, unchipped edges. Cut units to provide pattern indicated and to fit adjoining work neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.

C. Joint Pattern: Match existing stone paver joint pattern.

D. Tolerances: Do not exceed 1/4 inch in 10 feet (6 mm in 3 m) from level, or indicated slope, for finished surface of paving.

E. Expansion and Control Joints: Provide for sealant-filled joints at locations and of widths indicated. Provide compressible foam filler as backing for sealant-filled joints. Install joint filler before setting pavers. Sealant materials and installation are specified in Section 32 1373 "Concrete Paving Joint Sealants."

3.2 MORTAR SETTING-BED APPLICATIONS

A. Saturate concrete subbase with clean water several hours before placing setting bed. Remove surface water about one hour before placing setting bed.

B. Apply mortar-bed bond coat over surface of concrete subbase about 15 minutes before placing mortar bed. Do not exceed 1/16-inch (1.6-mm) thickness for bond coat. Limit area of bond coat to avoid its drying out before placing setting bed.

C. Apply mortar bed over bond coat; spread and screed mortar bed to uniform thickness at subgrade elevations required for accurate setting of pavers to finished grades indicated.

D. Mix and place only that amount of mortar bed that can be covered with pavers before initial set. Before placing pavers, cut back, bevel edge, and remove and discard setting-bed material that has reached initial set.

E. Place pavers before initial set of cement occurs. Immediately before placing pavers on mortar bed, apply uniform 1/16-inch- (1.5-mm-) thick bond coat to mortar bed or to back of each paver with a flat trowel.

F. Tamp or beat pavers with a wooden block or rubber mallet to obtain full contact with setting bed and to bring finished surfaces within indicated tolerances. Set each paver in a single operation before initial set of mortar; do not return to areas already set or disturb pavers for purposes of realigning finished surfaces or adjusting joints.

G. Spaced Joint Widths: Provide joint widths to match existing stone paving, but not greater than 3/4-inch (19-mm) nominal joint width with variations not exceeding plus or minus 1/8 inch (3 mm).

H. Grouted Joints: Grout paver joints complying with ANSI A108.10.

I. Grout joints as soon as possible after initial set of setting bed.

1. Force grout into joints, taking care not to smear grout on adjoining surfaces.
2. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

J. Cure grout by maintaining in a damp condition for seven days unless otherwise recommended by grout or liquid-latex manufacturer.

K. Cleaning: Remove excess grout from exposed paver surfaces; wash and scrub clean.

END OF SECTION 32 1400

SECTION 32 9113 - SOIL PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes planting soils specified by composition of the mixes.

1. Requirements of this Section apply to areas identified as “planting beds” on Drawings.

B. Related Requirements:

1. Section 31 1000 "Site Clearing" for topsoil stripping and stockpiling.

1.2 DEFINITIONS

A. Duff Layer: A surface layer of soil, typical of forested areas, that is composed of mostly decayed leaves, twigs, and detritus.

B. Imported Soil: Soil that is transported to Project site for use.

C. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.

D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

E. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

F. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

G. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil"; but in disturbed areas such as urban environments, the surface soil can be subsoil.

H. USCC: U.S. Composting Council.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each bulk-supplied material in sealed containers labeled with content, source, and date obtained; providing an accurate representation of composition, color, and texture.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: An independent, state-operated, or university-operated laboratory; experienced in soil science, soil testing, and plant nutrition; with the experience and capability to conduct the testing indicated; and that specializes in types of tests to be performed.

PART 2 - PRODUCTS

2.1 PLANTING SOILS SPECIFIED BY COMPOSITION

A. Planting-Soil Type: Existing, on-site surface soil, with the duff layer, if any, retained; and stockpiled on-site; modified to produce viable planting soil. Blend existing, on-site surface soil with the following soil amendments and fertilizers in the following quantities to produce planting soil:

1. Ratio of Loose Compost to Soil: 1:4 by volume.
2. Ratio of Loose Sphagnum Peat to Soil: 1:4 by volume.
3. Weight of Lime: 6-7 lbs. per 1000 sq. ft. (100 sq. m) per 6 inches (150 mm) of soil depth.
4. Weight of Commercial Fertilizer: As required to provide not less than 4 percent phosphoric acid and 2 percent potassium.

B. Planting-Soil Type: Imported, naturally formed soil from off-site sources and consisting of loam soil according to USDA textures; and modified to produce viable planting soil.

1. Sources: Take imported, unamended soil from sources that are naturally well-drained sites where topsoil occurs at least 4 inches (100 mm) deep, not from bogs, or marshes; and that do not contain undesirable organisms; disease-causing plant pathogens; or obnoxious weeds and invasive plants including, but not limited to, quackgrass, Johnsongrass, poison ivy, nutsedge, nimblewill, Canada thistle, bindweed, bentgrass, wild garlic, ground ivy, perennial sorrel, and bromegrass.
2. Additional Properties of Imported Soil before Amending: Soil reaction of pH 6 to 7 and minimum of 4 percent organic-matter content, friable, and with sufficient structure to give good tilth and aeration.
3. Unacceptable Properties: Clean soil of the following:

    a. Unacceptable Materials: Concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.
    b. Unsuitable Materials: Stones, roots, plants, sod, clay lumps, and pockets of coarse sand that exceed a combined maximum of 8 percent by dry weight of the imported soil.

c. Large Materials: Stones, clods, roots, clay lumps, and pockets of coarse sand exceeding 2 inches (50 mm) in any dimension.

4. Amended Soil Composition: Blend imported, unamended soil with the following soil amendments and fertilizers in the following quantities to produce planting soil:

5. Ratio of Loose Compost to Soil: 1:4 by volume.
6. Ratio of Loose Sphagnum Peat to Soil: 1:4 by volume.
7. Weight of Lime: 6-7 lbs. per 1000 sq. ft. (100 sq. m) per 6 inches (150 mm) of soil depth.
8. Weight of Commercial Fertilizer: As required to provide not less than 4 percent phosphoric acid and 2 percent potassium.

2.2 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:

1. Class: T, with a minimum of 99 percent passing through a No. 8 (2.36-mm) sieve and a minimum of 75 percent passing through a No. 60 (0.25-mm) sieve.
2. Form: Provide lime in form of ground dolomitic limestone.

B. Perlite: Horticultural perlite, soil amendment grade.

C. Sand: Clean, washed, natural or manufactured, free of toxic materials, and according to ASTM C 33/C 33M.

2.3 ORGANIC SOIL AMENDMENTS

A. Compost: Well-composted, stable, and weed-free organic matter produced by composting feedstock, and bearing USCC's "Seal of Testing Assurance," and as follows:

1. Reaction: pH of 5.5 to 8.
2. Soluble-Salt Concentration: Less than 4 dS/m.
3. Moisture Content: 35 to 55 percent by weight.
4. Organic-Matter Content: 50 to 60 percent of dry weight.
5. Particle Size: Minimum of 98 percent passing through a 3/4-inch (19-mm) sieve.

B. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or of granular texture with 100 percent passing through a Insert dimension sieve, a pH of 3.4 to 4.8, and a soluble-salt content measured by electrical conductivity of maximum 5 dS/m.

C. Wood Derivatives: Shredded and composted, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.

D. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, debris, and material harmful to plant growth.

2.4 FERTILIZERS

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition: 1 lb/1000 sq. ft. (0.5 kg/100 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight, unless otherwise recommended in soil reports from a qualified testing agency.

PART 3 - EXECUTION

3.1 GENERAL

A. Place planting soil and fertilizers according to requirements in other Specification Sections.

B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.

3.2 PREPARATION OF UNAMENDED, ON-SITE SOIL BEFORE AMENDING

A. Excavation: Excavate soil from designated area(s) to a depth of 6 inches (150 mm) and stockpile until amended.

B. Unacceptable Materials: Clean soil of concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.

C. Unsuitable Materials: Clean soil to contain a maximum of 8 percent by dry weight of stones, roots, plants, sod, clay lumps, and pockets of coarse sand.

3.3 PLACING AND MIXING PLANTING SOIL OVER EXPOSED SUBGRADE

A. General: Apply and mix unamended soil with amendments on-site to produce required planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.

B. Subgrade Preparation: Till subgrade to a minimum depth of 8 inches (200 mm). Remove stones larger than 2 inches (50 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

C. Mixing: Spread unamended soil to total depth of 8 inches (200 mm), but not less than required to meet finish grades after mixing with amendments and natural settlement. Do not spread if soil or subgrade is frozen, muddy, or excessively wet.

1. For raised concrete masonry unit planters, provide amended, imported, planting soil for the full height of the planters.
2. Amendments: Apply soil amendments and fertilizer, if required, evenly on surface, and thoroughly blend them with unamended soil to produce planting soil.

a. Mix lime with dry soil before mixing fertilizer.
b. Mix fertilizer with planting soil no more than seven days before planting.

3. Lifts: Apply and mix unamended soil and amendments in lifts not exceeding 12 inches (300 mm) in loose depth for material compacted by compaction equipment, and not more than 6 inches (150 mm) in loose depth for material compacted by hand-operated tampers.

D. Compaction: Compact each blended lift of planting soil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D 698 and tested in-place.

E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.4 BLENDING PLANTING SOIL IN PLACE

A. General: Mix amendments with in-place, unamended soil to produce required planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.

1. Locations: Where new trees are indicated for areas disturbed by excavation, grading, paving, fencing, or other work.

B. Preparation: Till unamended, existing soil in planting areas to a minimum depth of 18 inches (450 mm). Remove stones larger than 2 inches (50 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

C. Mixing: Apply soil amendments and fertilizer, if required, evenly on surface, and thoroughly blend them into full depth of unamended, in-place soil to produce planting soil.

1. Mix lime with dry soil before mixing fertilizer.
2. Mix fertilizer with planting soil no more than seven days before planting.

D. Compaction: Compact blended planting soil to 75 to 82 percent of maximum Standard Proctor density according to ASTM D 698.

E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Perform the following tests:

1. Compaction: Test planting-soil compaction after placing each lift and at completion using a densitometer or soil-compaction meter calibrated to a reference test value based on laboratory testing according to ASTM D 698. Space tests at no less than one for each 1000 sq. ft. (100 sq. m) of in-place soil or part thereof.
2. Soil composition test as recommended by Connecticut Agricultural Station.

C. Soil will be considered defective if it does not pass tests.

D. Prepare test reports.

E. Label each sample and test report with the date, location keyed to a site plan or other location system, visible conditions when and where sample was taken, and sampling depth.

3.6 PROTECTION AND CLEANING

A. Protection Zone: Identify protection zones for existing trees and plants to remain.

B. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Vehicle traffic.
4. Foot traffic.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.

C. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.

1. Dispose of excess subsoil and unsuitable materials on-site where directed by Owner.

END OF SECTION 32 9113

SECTION 32 9200 - TURF AND GRASSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Seeding.

1.2 DEFINITIONS

A. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 32 9113 "Soil Preparation" for planting soils.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

A. Certification of grass seed.

B. Product certificates.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape Installer whose work has resulted in successful turf establishment.

1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.

PART 2 - PRODUCTS

2.1 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.

B. Seed Species:

1. Quality: Seed of grass species as listed below for solar exposure, with not less than 85 percent germination, not less than 95 percent pure seed, and not more than 0.5 percent weed seed:
2. Sun and Partial Shade: Proportioned by weight as follows:

a. 50 percent Kentucky bluegrass (Poa pratensis).
b. 30 percent chewings red fescue (Festuca rubra variety).
c. 10 percent perennial ryegrass (Lolium perenne).
d. 10 percent redtop (Agrostis alba).

3. Shade: Proportioned by weight as follows:

a. 50 percent chewings red fescue (Festuca rubra variety).
b. 35 percent rough bluegrass (Poa trivialis).
c. 15 percent redtop (Agrostis alba).

2.2 FERTILIZERS

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition: 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:

1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.

2.3 MULCHES

A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

PART 3 - EXECUTION

3.1 TURF AREA PREPARATION

A. General: Prepare planting area for soil placement and mix planting soil according to Section 32 9113 "Soil Preparation."

B. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

C. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.2 SEEDING

A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph (8 km/h).

1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
2. Do not use wet seed or seed that is moldy or otherwise damaged.
3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

B. Sow seed at a total rate of 3 to 4 lb/1000 sq. ft. (1.4 to 1.8 kg/92.9 sq. m).

C. Rake seed lightly into top 1/8 inch (3 mm) of soil, roll lightly, and water with fine spray.

D. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre (42 kg/92.9 sq. m) to form a continuous blanket 1-1/2 inches (38 mm) in loose thickness over seeded areas.

3.3 TURF MAINTENANCE

A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

B. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings.

3.4 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Architect:

1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage

exceeding 90 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 5 by 5 inches (125 by 125 mm).

B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

END OF SECTION 32 9200

SECTION 32 9300 - PLANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Plants.

a. Prepare planting beds where in areas indicated on Drawings as “planting beds.”
b. Owner will select plants from a local nursery of his choice for purchase by Contractor under Allowance for this purpose.
c. Provide and deliver selected plants to site for planting by Owner. Coordinate delivery schedule with Owner.

2. Mulches:

a. Provide and install mineral mulch in areas indicated on Drawings as part of the Base Contract scope of work.
b. Provide and deliver organic mulch to site for areas indicated on Drawings as “planting beds” for installation by Owner. Provide quantity sufficient to provide an installation complying with the requirements of this Section. Deliver and stockpile the organic mulch as directed by Owner.

1.2 DEFINITIONS

A. Backfill: The earth used to replace or the act of replacing earth in an excavation.

B. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 32 9113 "Soil Preparation" for drawing designations for planting soils.

C. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.

1.3 ACTION SUBMITTALS

A. Samples of each type of mulch.

1.4 INFORMATIONAL SUBMITTALS

A. Product certificates.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver bare-root stock plants within 36 hours of digging. Immediately after digging up bare-root stock, pack root system in wet straw, hay, or other suitable material to keep root system moist until planting. Transport in covered, temperature-controlled vehicles, and keep plants cool and protected from sun and wind at all times.

B. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.

C. Handle planting stock by root ball.

D. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant List, Plant Schedule, or Plant Legend indicated on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

B. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which begins at root flare according to ANSI Z60.1. Root flare shall be visible before planting.

2.2 MULCHES

A. Organic Mulch: Ground or shredded bark.

B. Mineral Mulch: Rounded riverbed gravel or smooth-faced stone.

1. Size Range: 1-1/2 inches (38 mm) maximum, 3/4 inch (19 mm) minimum.
2. Color: Uniform tan-beige color range acceptable to Architect.

2.3 WEED-CONTROL BARRIERS

A. Nonwoven Geotextile Filter Fabric: Polypropylene or polyester fabric, 3 oz./sq. yd. (101g/sq. m) minimum, composed of fibers formed into a stable network so that fibers retain their relative position. Fabric shall be inert to biological degradation and resist naturally encountered chemicals, alkalis, and acids.

PART 3 - EXECUTION

3.1 PLANTING AREA ESTABLISHMENT

A. General: Prepare planting area for soil placement and mix planting soil according to Section 32 9113 "Soil Preparation."

B. Placing Planting Soil: Place and mix planting soil in-place over exposed subgrade.

C. Before delivering plants or spreading mulch, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.2 PLANTING AREA MULCHING

A. Install weed-control barriers before mulching according to manufacturer's written instructions. Completely cover area to be mulched, overlapping edges a minimum of 12 inches (300mm) and secure seams with galvanized pins.

B. Mulch backfilled surfaces of planting areas and other areas indicated.

1. Trees and Treelike Shrubs in Turf Areas: Apply organic mulch ring of 3-inch (75-mm) average thickness, with 36-inch (900-mm) radius around trunks or stems, or following the outline of new or existing planting beds. Do not place mulch within 3 inches (75 mm) of trunks or stems.
2. Organic Mulch in Planting Areas: Deliver sufficient quantity to apply 3-inch (75-mm) average thickness of organic mulch over whole surface of planting area.
3. Mineral Mulch in Areas Indicated: Apply 2-inch (50-mm) average thickness of mineral mulch over whole surface of indicated area, and finish level with adjacent finish grades. Do not place mulch within 3 inches (75 mm) of trunks or stems.

3.3 PLANT MAINTENANCE

A. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.

END OF SECTION 32 9300

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SECTION 3 - GENERAL BIDDING INFORMATION
FOR
CONSTRUCTION

Rev. 08/08/2013, Express Request Doc. #1006

3.1 GENERAL:

A. The City reserves the right to require the successful firm to execute a contract in a format supplied by Corporation Counsel. Award of all or a portion of the requirement may be subject to approval by the Norwalk Common Council.

B. The City of Norwalk General Conditions For Construction and the Contract documents prepared by the City shall govern as the terms and conditions for this project.

1. A copy of the City of Norwalk General Conditions for Construction (04202011) is available upon request. A copy of this document is located on the City's website: Document #1008 http://www.norwalkct.org/DocumentCenter/Home/View/866

C. A certified or cashiers check or bid bond in the amount indicated in the **Invitation to Bid** must accompany your response. The certified or cashiers checks will be returned to all unsuccessful candidates upon the awarding of the contract. If your quotation is not accompanied by a bid bond or check at the bid opening the bid will be automatically rejected.

D. The successful firm will be required to furnish a performance bond and labor and materials bond acceptable to Corporation Counsel, each for the full contract amount, prior to execution of a contract and/or performance under Purchase Orders. Indicate the cost for these bonds, included in the lump sum bid(s) on the response form. **Note**: The requirement for a maintenance bond is not contingent on the dollar threshold for other bonds indicated in the invitation to bid. Please refer to Sections 3.17 and 109-15 for maintenance bond requirements.

For 3.1, C & D:

Surety Companies must be listed on the current Federal Register, licensed in the State of Connecticut and have an underwriting limitation exceeding the value of the project with no more than 5% of capitol in surplus tied to any one risk.

Banks must have a branch office in Connecticut with insurance provided by the FDIC.

E. The award of any contract is subject to the following conditions and contingencies:

(1). The approval of such governmental agencies as may be required by law.
(2). The appropriation of adequate funds by the proper agencies.
(3). If the bidder is a corporation or other legal business entity, it must have a current license to do business in the State of Connecticut that is on file with the Connecticut Secretary of State's office, or it must be organized under the laws of the State of

Connecticut and current in terms of its required filings.

Note: If you are an out-of state business and the performance of your contract with the City requires that tangible personal property will be used or consumed in this state, you must comply with Connecticut General Statutes 12-430-7 a copy of which can be found at http://www.ct.gov/drs/cwp/view.asp?A=1514&Q=501308

Questions concerning this statute should be addressed to the Commissioner of Revenue Services for the State of Connecticut, Department of Revenue Services, 92 Farmington Avenue, Hartford CT 06115.

Registration by out-of state corporations with the Connecticut Secretary of State, 30 Trinity Street, Hartford CT 06106, telephone 860-509-6002, is required by law as a condition for doing business in the State of Connecticut.

F. Notice is hereby given to all bidders that as a municipality the City of Norwalk is subject to and bound to comply with the terms of the Freedom of Information Act. Consequently, please be informed that under the terms of the Act some or all of your submissions, including attachments, may be subject to disclosure to the public or press upon request. The FOI Act recognizes that certain documents are exempt from disclosure or may be held confidentially. However, these exemptions are considered exceptions to the general rule favoring disclosure and are generally narrowly construed. You should consult with legal counsel before making your submission if you have any questions about what submitted document may be disclosed. You are hereby requested to submit those documents to which an exemption is claimed under seal along with those non-exempt documents. These sealed documents shall initially be held in confidence but may be released to the extent required or allowed by law.

G. When work is required in which no specific payment item is listed in the Proposal Form, the cost of such work will be included in the unit prices bid.

3.2 QUALIFICATIONS OF CANDIDATES:

The City may make such investigations as deemed necessary to determine the ability of the candidate to perform the work and the degree to which any candidate meets the criteria for Award listed herein.

3.3 RECYCLING POLICY:

The City of Norwalk is committed to protecting the environment and managing solid waste. Where possible and practical the City will procure recycled and/or recyclable products. The City will consider alternate proposals which maximize the use of products which are produced from post consumer waste, which reduce waste or consumption, or that offer products with a salvage value.

The City requests that it's vendors eliminate all non-essential packaging that may be used in the delivery process.

3.4 OBLIGATIONS OF THE CANDIDATE:

At the time of the opening of proposals, each candidate will be presumed to be thoroughly familiar with the specifications, the various sites, the City's requirements, and the objectives for each element of the project item or service.

3.5 LABOR RATES:

See sections 102.18 and 107.12 of the City of Norwalk General Conditions for Construction. NOTE: Prevailing Wage Rates apply when (1) the total cost of work performed on **new construction is $400,000** or more; or (2) the total cost of all work in connection with an alteration, repair, remodeling, refinishing, refurbishing or **rehabilitation is $100,000** or more.

3.6 SITE INSPECTION:

Information contained in these documents is provided with the understanding as outlined in section 102-06 of General Conditions for Construction. Candidates are required to conduct a thorough inspection or study of existing conditions/equipment.

3.7 INSURANCE REQUIREMENTS:

A certificate of insurance must be presented to the Corporation Counsel at the time of award and must name the City as an additional insured on the face of the document. In addition, please list the name and address of your insurance agent as part of the returned bid proposal. The City's Standard insurance requirements, if not listed within the bid documents are available on the Purchasing Department's website within the Terms and Conditions section, refer to document number 1007.

All policies must be written on a "per occurrence" basis. "Claims Made" Policies are not acceptable. The Contractor is responsible for the cost of maintaining such insurance throughout the duration of the project.

3.8 LIQUIDATED DAMAGES:

Liquidated damages as defined in Article 20 of the Norwalk General Conditions for Construction will be $250.00 per day.

3.9 RETAINAGE:

The City will retain 5% of the total project cost until such time as a guarantee bond, satisfactory to the Corporation Council's office is posted with the City (sect. 109-15, Gen. Cond. for Construction) or other terms for retainage are specifically stated in the contract for this project.

3.10 ACCEPTABLE BRANDS:

The attached specifications are not intended to limit consideration to the particular service organization or manufacturer from which they were developed. References to brand names or numbers are to be interpreted as establishing a standard of quality and is not to be construed as limiting competition. Brand names used within these

specifications shall be presumed to be followed by the words "or approved equal".

Burden of proving a product and/or material as equal to a specific product and/or material by brand name is the responsibility of the contractor.

Final determination as to what is an "or equal" product will be made by the Purchasing Agent in conjunction with other City staff. The City will award on the basis of the criteria stated herein, and reserves the right to waive or require compliance with any element of the specifications.

3.11 HOW TO RESPOND:

Supply the required information on the response and prequalification form. An authorized agent of your organization must sign and date the response form and any supplementary proposal document.

If a prospective bidder needs clarification or interpretation of any items in the General Conditions, and/or Specifications, he/she must request such in writing, addressed to the Director of Purchasing at least fourteen calendar days prior to the bid opening. Responses shall also be in writing, and shall be distributed to all bidders. The City of Norwalk, or its agents shall not be responsible for any oral instructions or interpretations given to a bidder.

Return the response forms, bond (if required), and any informational literature (**six copies**) to the ***City of Norwalk Purchasing Department, Room 103, 125 East Avenue, P.O.Box 5125, Norwalk, Ct. 06856-5125*** using the return bid envelope (if provided in your bid package). Be sure to indicate the request number, name, and opening time on the face of the envelope otherwise we will not be able to insure the confidentiality of the bid.
Late bids – bid submissions delivered or received later than the date and time specified on the invitation to bid will not be considered and will be returned unopened. The bidder shall assume full responsibility for the timely delivery of their submission at the location designated for the receipt of the submissions.

Failure to follow these guidelines may be just cause for rejection of the bid.

3.12 CRITERIA FOR AWARD:

This Request for proposal/bid does not necessarily contemplate an award based solely on price. Rather, the City reserves its rights to accept or reject any and all proposals / bids, or any part thereof, to waive defects in the same, or accept any proposal / bid or a combination of proposals / bids deemed to be in its best interests.

3.13 THE RFP PROCESS:

Bids are advertised as required by law. The City may also mail invitations to businesses as it deems appropriate. Placement on a vendor mailing list or a history of having received invitations in the past or having received prior contract awards in no way obligates the City to continue any form of direct notification. At the discretion of the Purchasing Agent the City may remove vendors from the mailing list for whatever reason

including a poor performance history or failure to respond to previous invitations.

Refer any questions that may arise during the solicitation and award process, in writing, to the Purchasing Agent.

3.14 TIME PROVISIONS:

The content of any proposal submitted is to remain valid and available to the City for ninety (90) days from the day proposals are due.

3.15 ASSIGNMENT OF CONTRACT:

The successful candidate agrees that he will not assign, transfer, or subcontract any portion of the award.

3.16 INDEMNIFICATION:

Contractor shall not assert any claim arising out of any act or omission by any agent, officer or employee of the City in the execution or performance of this Agreement against any such agent, officer or employee. Such claims may be made against the City.

No member of the governing body of the City, and no other officer, employee, or agent of the City shall have any personal interest, direct or indirect, in this Agreement, except as permitted by the Code of Ethics of the City of Norwalk; and the Contractor covenants that no person having such interest shall be employed in the performance of this Agreement.
The Contractor expressly agrees to at all times indemnify, defend and save harmless the City of Norwalk and its respective officers, agents, and employees on account of any and all demands, claims, damages, losses, litigation, financial costs and expenses, including counsel's fees, and compensation arising out of personal injuries (including death), any damage to property, real or personal and any other loss, expense or aggrievement directly or indirectly arising out of, related to or in connection with the Project and the work to be performed hereunder by the Contractor, its employees, agents, subcontractors, material suppliers, or anyone directly or indirectly employed by any of them. The Contractor shall and does hereby assume and agree to pay for the defense of all such claims, demands, suits, proceedings and litigation. The provisions of this paragraph shall survive the expiration or early termination of this Agreement and shall not be limited by reason of any insurance coverage.

3.17 WARRANTIES, GUARANTEES, & INSTRUCTIONS:

All work shall be warranted by the Contractor for a minimum period of two (2) years from the date of completion of the work against all defective workmanship and materials furnished by the Company. Where longer periods of Warranty/ Guarantee are required by these specifications, the contract documents, or are provided for by specific or implied warranty of materials, goods or equipment or by general law, the longer period of time will govern.

The Contractor shall promptly replace or repair in a manner satisfactory to the City any

such defective work after notice from the City to do so. Work will be assumed to be defective if it is determined by the City that the material or equipment is not performing in a satisfactory manner, consistent with its intended use or operation. If the Contractor fails to make such replacement or repairs, the City may perform or cause to be performed all necessary work and the Company and its sureties shall be liable for all costs thereof.

Original manufacturers' warranties, guarantees, instruction sheets, parts lists, and certificates of title are to be delivered to the Purchasing Agent. Copies of all such materials are to be provided to the department accepting delivery.

3.18 TERMS AND CONDITIONS: See Section 4

3.19 ASSIGNMENT OF ANTITRUST CLAIMS:

The Contractor offers and agrees to assign to the City of Norwalk all of it's right, title and interest in and to any and all causes of action it may have under Section 4 of the Clayton Act, 15 U.S.C. Section 15, or under Chapter 624 of the Connecticut General Statutes, arising out of the purchase of services, goods, property or intangibles of any kind pursuant to a purchase order, contract agreement, subcontract or other form of public purchase by the City of Norwalk. This assignment shall be made and become effective upon award or acceptance by the City of Norwalk of the bid, purchase order or contract agreement with the Contractor without requiring any additional or further act or acknowledgement by the parties.

The Contractor shall include the terms of this assignment to the City of Norwalk in any contract, agreement or purchase document that it may enter into for services, goods, property or intangibles used for or incorporated into any work or materials, performed for or provided to the City of Norwalk.

3.20 SMOKING POLICY

No person shall smoke in any municipal or school system facility.

3.21 BUILDING PERMIT FEES

Refer to Section 4, 107-01

END OF SECTION

SECTION 4

CITY OF NORWALK GENERAL SPECIFICATIONS FOR CONSTRUCTION

NOTE: SECTION 4 contains the City's General Terms and Conditions for construction. Your Firm is responsible for obtaining a copy of this document prior to bidding. If you do not have a revision dated 04/20/2011or later on file you may download a copy of this document from the Terms and Conditions section of the City of Norwalk's website at www.norwalkct.org http://www.norwalkct.org/DocumentCenter/Home/View/866 Document number 1008.

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SECTION 5

PREVAILING WAGE ADDENDEUM

(Note: Page numbering in this section is not sequential with other sections within this document)

The Contractor shall weekly submit to the Director a certified payroll, which shall consist of a complete copy of its records relating to the wages and hours worked by each employee and a schedule of the occupation or work classification at which each mechanic, laborer or workman on the Project is employed during each work day and week. The submission shall be in such manner and form as the State Labor Commissioner requires and in compliance with the requirements of Public Act 93392. This weekly submission shall also include a statement signed by the employer (the Contractor) indicating the information set forth in Section l(f) of Public Act 93-392."

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SECTION 5.1 – LIVING WAGE ORDINACE

GENERAL INFORMATION

Rev. 030415, Express Request Doc. #1019

NOTE: SECTION 5 contains information concerning City's Living Wage Ordinance. You are responsible for obtaining a copy prior to bidding. If you do not have a revision dated 03/04/2015 or later on file you may download a copy of this Ordinance from the Terms and Conditions section of the City of Norwalk's website at http://www.norwalkct.org http://www.norwalkct.org/DocumentCenter/Home/View/862 Document number **1019**

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